

APPENDIX I

Biophysical Assessment



Biophysical Assessment

Portions of Sections 05, 08, 09 &
17-024-26 W4M
West Highway 1 Industrial
Near Strathmore, Alberta

November 10, 2020
Trace Project No. 100-1533

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EXECUTIVE SUMMARY

Trace Associates Inc. (Trace) prepared this Biophysical Assessment on behalf of 2151836 Alberta Inc. in support of the proposed West Highway 1 Industrial development on a property located within portions of Sections 05, 08, 09 and 17-024-26 W4M, near Strathmore, Alberta, hereinafter referred to as “the Site.” The objectives of conducting the BA were to assess the biophysical features of the Site (and associated Study Area), make recommendations to ensure adequate protection of environmentally significant features, and meet municipal regulatory requirements.

The Site is approximately 598 hectares of land, primarily used for agricultural purposes. The Site is divided into three portions, the north (Section 17), middle (Section 09), and south (Sections 05 and 08). The north portion of the Site is situated north of the TransCanada Highway (Highway 1), while the middle and south portions are south of Highway 1. The north and southwest portions are located West of Range Road 264 while the middle portion lies between Range Roads 264 and 263. Township Road 240 extends in an east-west direction along the south boundary of the Site. The Study Area includes the Site and a 200 metre buffer width; the buffer distance was selected as a reasonable distance within which the Site activities (construction, vehicle traffic, operation [i.e., light, noise, etc.]) might impact off-site biophysical features. On-ground field investigations were carried out on the Site and the buffer was assessed remotely in the field.

This BA evaluates key elements of the biophysical environment, including terrain and soils, water resources and plant communities, and wildlife to identify Environmentally Significant Areas (ESAs) on the Site.

Based on desktop and field assessments, upland soils on the Site consists primarily of Orthic Black Chernozems, while wetland soils are largely Orthic Humic Gleysols. No steep slopes or unusual landforms were observed on the Site.

Water resources within the Site include one intermittent watercourse, 172 ephemeral waterbodies, 35 temporary graminoid marshes (M[G]II), 34 seasonal graminoid marshes (M[G]III), and 11 semi-permanent graminoid marshes (M[G]IV). ABWRET-A results for wetlands on the Site ranged from a relative wetland value of ‘D’ (low) to ‘B’ (moderate). Water Act approval is required if proposed developments will impact any wetlands or waterbodies and the preparation/submission of a Wetland Assessment and Impact Report is required if wetlands class temporary or higher will be impacted. Determination of Crown ownership is required if proposed developments will impact wetlands classified as seasonal or higher; approval under the Public Lands Act may also be required if wetlands are claimed by the Crown.

The Site primarily consists of cultivated agricultural land with waterbodies and wetlands of varying classes (temporary to semi-permanent) distributed throughout. During the field assessment, Trace personnel identified one rare vegetation species, blunt-leaved watercress, and three provincially uncommon (S3) species on the Site. Blunt-leaved watercress was associated with temporary and seasonal wetlands within which drawdown exposes bare soil late in the summer. No rare ecological plant communities were observed on the Site, which largely consists of cropland. Plant communities within waterbodies and wetlands have been impacted by agricultural practices including cultivation and/or the addition of soil amendments and herbicides. Trace personnel observed two weed species on the Site that are provincially designated as ‘Noxious’, creeping thistle and perennial sow-thistle. According to the Alberta Weed Control Act Regulation, ‘Noxious’ weeds must be controlled from growing or spreading.

The Study Area lies within provincially mapped key wildlife ranges for sensitive raptor, including bald eagle, golden eagle, ferruginous hawk, prairie falcon, and sharp-tailed grouse range. During the field assessment, eight rare bird species were identified on the Site: barn swallow, black tern, black-crowned night heron, black-necked stilt, common yellowthroat, eastern kingbird, great blue heron, and sora. Wetlands and



waterbodies on the Site are not capable of supporting fish; no rare amphibian or mammal species were identified during the field assessment. Notable wildlife features observed during wildlife surveys included two great horned owl nests, one red-tailed hawk nest, and one Swainson hawk nest. Wildlife species in Alberta (including active nests, chicks, and eggs) are covered under the Alberta Wildlife Act. Migratory birds are additionally protected under the Migratory Birds Convention Act.

No ESAs were previously identified on the Site or in the Study Area based on the 2014 desktop assessment conducted by Fiera Biological Consulting Ltd. ESAs identified within this report are based on the results of field surveys conducted in 2019 and 2020 and criteria developed by Trace taking into consideration guidance within the Municipal Government Act and frameworks established by adjacent municipalities (the City of Calgary and the City of Airdrie). Polygons identified as ESAs are distributed throughout the Site and are directly correlated with the locations of wetlands. Although cultivated cropland provides some forage value for rare wildlife species, high and medium value ESAs occur almost exclusively within wetlands and waterbodies, in the absence of which rare plant and wildlife species would not occur on the Site. Under the Municipal Government Act, municipalities have the authority to designate parcels of land subject to a proposed subdivision as Municipal Reserve, Environmental Reserve, or Conservation Reserve.



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1.0 INTRODUCTION

Trace Associates Inc. (Trace) prepared this Biological Assessment (BA) on behalf of 2151836 Alberta Inc. (hereinafter referred to as “the Client”) in support of the proposed West Highway 1 Industrial development on a 598 hectare (ha) property located within portions of Sections 05, 08, 09 and 17-024-26 W4M, near Strathmore, Alberta, hereinafter referred to as “the Site” (Figure 1). The objectives of conducting the BA were to assess the biophysical features of the Site, make recommendations to ensure adequate protection of environmentally significant features, and meet the municipal regulatory requirements.

1.1 Authorization and General Conditions

The Client provided Trace with written authorization to proceed with the BA on August 8, 2019. This BA was prepared in accordance with generally accepted environmental consulting practices and Trace’s Environmental Report - General Conditions (Appendix A).

1.2 Study Area

The Site is in Wheatland County on private land owned by the Client. The Site is divided into three portions, the north (Section 17), middle (Section 09), and south (Sections 05 and 08) (Figure 1). The north portion of the Site is situated north of the TransCanada Highway (Highway 1), while the middle and south portions are south of Highway 1. The north and southwest portions are located West of Range Road 264, while the middle portion lies between Range Roads 264 and 263 (Figure 1). Township Road 240 extends in an east-west direction along the south boundary of the Site. Photographs of the Site from field assessments are provided in Appendix B. The Site is currently zoned as AG-Agricultural General (Wheatland County, n.d.) and utilized as cropland with several small country residential lots. The north portion borders Industrial General to the south and the middle portion has Industrial General on its north boundary (Wheatland County, n.d.).

The Study Area encompasses the Site and a 200 metre (m) buffer width, which Trace selected as a reasonable distance from which site activities (construction, vehicle traffic, operation [i.e., light, noise, etc.]) may disturb large mammals and raptors. Land located within the 200 m buffer is zoned similarly to the Site as AG-Agricultural General and used for agriculture (cultivation), with the exception of a small area of industrial land located adjacent to Highway 1, zoned as IG-Industrial Residential (Wheatland County, n.d.).

Although most of the Site was assessed during field surveys, a small portion within Section 09 (Polygons 48 to 53) was not visited due to the objections of an adjacent landowner claiming that portion was part of their property (adjacent to the north).

1.3 Qualifications of Assessors

Mr. Chris Fisher, M.Sc., P.Biol., conducted the wildlife assessment and provided habitat suitability ratings for rare species. Mr. Fisher is a Senior Wildlife Biologist with over 20 years of consulting experience working for industry and government in Alberta. He has worked on all aspects of wildlife biology but is best known as a bird biologist, with expertise in breeding bird surveys, remote waterfowl monitoring, and leading nest sweeps programs. He has written and contributed to many reports including environmental field reports, conservation and reclamation reports, environmental impact assessments, green zone wildlife reports, and environmental protection plans. Mr. Fisher is perhaps best known in Alberta as the author of a series of best-selling natural history books including “Birds of Alberta,” “Mammals of Alberta,” and “Reptiles and Amphibians of Canada.”



Ms. Jacqueline Redburn, B.Sc., M.E.Des., P.Biol., conducted the vegetation assessment and assisted with field activities. Ms. Redburn is a Vegetation Ecologist with Trace, and has over 12 years of experience in the environmental and natural science fields conducting vegetative assessments, wetland assessments, rangeland and riparian health assessments, data evaluation, technical reporting, and regulatory approvals related to land development and upstream oil and gas activities. Ms. Redburn is a Qualified Wetland Practitioner and Authenticating Professional for Wetland Assessments conducted under the Alberta Wetland Policy.

Ms. Marilyn Germaine, B.Sc., P.Ag., prepared the report. Ms. Germaine is a Terrestrial Ecologist with Trace, and has over nine years of experience in the environmental and natural science fields, including site assessment and reclamation activities in the upstream oil and gas sector. Her primary area of expertise lies in wetland and biophysical assessments throughout multiple industries. Ms. Germaine also has experience in native vegetative assessment, rangeland and riparian health, data evaluation, and technical reporting.

Mr. Ron Sparrow, B.Sc., RPF, CPESC, provided technical oversight in project scoping, data evaluation, and reporting, and conducted a senior review of the report. Mr. Sparrow is a Principal Forester, a Partner with Trace, and a registered professional forester with over 28 years of experience working for industry and government in Alberta, British Columbia, and Saskatchewan. Ron has worked in all facets of the forest industry, and continues to service the energy, mining, utility, solar, and development sectors. His primary areas of expertise include ecological land classification, vegetation inventory, reforestation, reclamation, erosion and sediment control, soil classification, and invasive plant management. Mr. Sparrow has conducted and supported numerous biophysical and environmental assessments as part of regulatory requirements for project approvals.

1.4 Relevant Environmental Legislation

Trace personnel reviewed and considered legislation and policies (below) applicable to the Site.

1.4.1 Federal

1.4.1.1 Species at Risk Act

The purpose of the Species at Risk Act (SARA) is to prevent vegetation and wildlife species from becoming extinct or lost from the wild, to help in the recovery of species that are at risk as a result of human activities, and to manage species of special concern to prevent them from becoming endangered or threatened (GOC, 2016). The SARA applies to federal lands under the authority of the Minister of the Environment or the Parks Canada Agency. It applies to lands held by the Province of Alberta, or private citizens if, “the laws of the province do not effectively protect the species or the residences of its individuals,” or “if a species faces imminent threats to its survival or recovery” (GOC, 2017b). Species listed on Schedule 1 as Extirpated, Endangered, and Threatened are protected under the SARA, and species listed as of Special Concern are afforded the benefits of management planning (GOC, 2017b). When activities that may affect a SARA listed species or its critical habitat are identified then measures must be taken to avoid or lessen and monitor those adverse effects (GOC, 2007).

1.4.1.2 Migratory Bird Convention Act and Regulations

The Migratory Bird Convention Act (MBCA) (GOC, 2017a) and its Regulations legislate the protection and conservation of migratory birds, as defined in Article I as populations and individual birds and their nests. The MBCA prohibits the, “killing, capturing, injuring, taking or disturbing of migratory birds or the damaging, destroying, removing or disturbing of nests” on all lands within Canada (GOC, 2017a). According to the



Migratory Bird Regulations (MBR) (GOC, 2018a), no person shall, “disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird.” The MBCA and MBR apply to migratory game birds, migratory insectivorous birds, and other migratory non-game birds (GOC, 2017a; 2018a). If construction activities necessitate the cutting, transplanting, or disturbance of trees or other migratory bird nesting areas, activities should be carried out outside of the nesting period for the project area (mid-April to end of August for the Site), as specified by Environment Canada (GOC, 2018b).

1.4.2 Provincial

1.4.2.1 Environmental Protection and Enhancement Act

The Environmental Protection and Enhancement Act (EPEA) (GOA, 2017b) is the regulatory tool under which air, land, water, and biodiversity are managed within the Province of Alberta. The EPEA designates proposed activities for which an approval or registration is required, through which it supports/promotes the protection, enhancement, and wise use of the environment. Under the EPEA, wastewater and storm drainage systems are the responsibility of Alberta Environment and Parks (AEP), including the establishment of standards for such facilities and their operation. If stormwater ponds, outfalls, and/or related stormwater piping is part of a proposed development, approval under the EPEA is required. In addition, the release of deleterious substances that have caused or may cause an adverse effect on the environment is regulated under the EPEA (GOA, 2017b). If a deleterious substance is released into the environment, AEP must be notified.

1.4.2.2 Alberta Water Act

All wetlands and waterbodies in Alberta are protected under the Alberta Water Act (GOA, 2017c). Water Act approval, attainment of a licence, and/or a notification is required before undertaking any activity that may impact a surface waterbody or aquatic environment, including construction, water diversion, alteration of flow, and/or infilling.

1.4.2.3 Public Lands Act

The purpose of the Public Lands Act (GOA, 2020) is to ensure that activities on provincially regulated Crown-owned land are conducted in a safe and orderly manner that protects the land for future generations. The Public Lands Act (GOA, 2020) regulates various land uses (e.g., forestry, grazing, lands dispositions, etc.) on Crown-owned land in Alberta, including the beds of permanent surface waterbodies such as lakes, creeks, rivers, wetlands, and drainage areas, and/or the permanent surface waterbodies themselves. Determination of Crown ownership and approval under the Public Lands Act are required if an activity will impact a permanent waterbody, including wetlands classed as seasonal or higher.

1.4.2.4 Alberta Weed Control Act and Regulation

Provincially, the Alberta Weed Control Act (GOA, 2011a) enables the Minister to declare species that present significant economic, social, or ecological risks as “Noxious” or “Prohibited Noxious” weeds. Species declared “Noxious” or “Prohibited Noxious” are listed in the Weed Control Act Regulation (GOA, 2016b). The Act lays out the duties of individuals, local authorities, municipalities, and the Crown related to the prevention, control, and destruction of weed species described in the Act. According to the Alberta Weed Control Act (GOA, 2011a), a landowner or occupant must destroy “Prohibited Noxious” weeds and control “Noxious” weeds from growing or spreading.



1.4.2.5 Wildlife Act and Regulations

The Wildlife Act (GOA, 2018c) is the piece of legislation under which wild animals in Alberta are protected and conserved. Section 36(1) the Alberta Wildlife Act (GOA, 2018c) stipulates that no person shall, “willfully molest, disturb or destroy a house, nest or den of prescribed wildlife or a beaver dam in prescribed areas at prescribed times.” Wildlife, as defined under the Act, includes “big game, birds of prey, fur-bearing animals, migratory game birds, non-game animals, non-licensed animals and upland game birds” (GOA, 2018c). A list of wildlife species for each category (big game, birds of prey, etc.) are provided in the Wildlife Act Regulation (GOA, 2017d).

1.4.2.6 Municipal Government Act

Under the Municipal Government Act (GOA, 2010), municipalities are granted the authority to designate a parcel of land as municipal reserve (MR), environmental reserve (ER), or conservation reserve (CR) for the purpose of preserving natural features, preventing pollution, ensuring public access, and/or in situation where natural features present a risk to personal injury occurring during development or use. Areas that can be designated as ER include, “part of that parcel of land... consisting of: a swamp, gully, ravine, coulee or natural drainage course; land that is subject to flooding or is, in the opinion of the subdivision authority, unstable or; a strip of land, not less than 6 [metres] m in width, abutting the bed and shore of any body of water” (GOA, 2010). In addition, a subdivision authority may require the owner of a parcel of land to provide part of that parcel to the municipality as CR if, “in the opinion of the subdivision authority, the land has environmentally significant features; the land is not land that could be required to be provided as an ER; the purpose of taking the CR is to enable the municipality to protect and conserve the land; and the taking of the land as CR is consistent with the municipalities’ municipality development plan and [area structure plan] ASP” (GOA, 2010).

2.0 BIOPHYSICAL SETTING

3.0 TERRAIN AND SOILS

3.1 Methods

Trace personnel collected soils information presented in this BA through a review of:

- Natural Regions and Subregions of Alberta (GOA, 2006)
- Quaternary Geology, Southern Alberta (Shetsen, 1987)
- Soil Survey of Blackfoot and Calgary Sheets (Wyatt and Newton, 1942)
- Pedocan Land Evaluation Ltd. (Pedocan, 1993)
- Alberta Soil Information Centre (ASIC, 2001)
- Data collected during field assessments conducted between August 2019 and September 2020

Qualified professionals conducted field assessments during which soil profiles were observed to delineate wetland boundaries. In each profile, soils were characterized by digging to 30 centimetres (cm) below the ground surface using a hand shovel, and evaluating soil horizon, texture, coarse fragment type and content, color, mottles, gleying, and seepage.



3.2 Results

The Site is located in the Foothills Fescue Natural Subregion of the Grassland Natural Region; typical topography includes rolling to hummocky uplands in the southern and western portions and undulating plains occur in the north and east (GOA, 2006). According to the Soil Survey of the Blackfoot and Calgary Sheets (Wyatt and Newton, 1942), the Site has level to gently rolling topography. The Site has relatively level topography; the south and east portions slope very gradually to the east, while the north portion slopes gradually to the north and east (AltaLIS, n.d.). The provincial Base 20 data Base20 (AltaLIS, n.d.) did not map any waterbodies or watercourses on the Site.

Surficial geology underlying the Site consists of till of even thickness, with minor amounts of water-sorted material and local bedrock exposures and flat to undulating surface topography (Shetsen, 1987). The Site lies in the shallow black soil zone with transported surface material that has been subject to post-glacial sorting (Wyatt and Newton, 1942). The profile variation is zonally normal, non-saline, with fairly good to good drainage; soil textures are heavy loam and loam (Wyatt and Newton, 1942).

Orthic Black Chernozems are the dominant soils in the Foothills Fescue Natural Subregion while Dark Brown Chernozems occur in trace amounts on exposed southern slopes (GOA, 2006). Humic Gleysols are typically associated with wetlands in this subregion (GOA, 2006). The Site is in Soil Correlation Area 6 (Pedocan, 1993). The Agricultural Region of the Alberta Soil Inventory Database (AGRASID) is a spatial database of soils for Alberta's Agricultural area that provides soil data suitable for regional, and field scale, land use assessment and decision-making (ASIC, 2001). The spatial data is shown on Figures 2.1-2.4 and is summarized in Table A below:

ASIC Polygon	Series	Soil Subgroup	Parent Material	Drainage	Topsoil Horizon	Topsoil Thickness (cm)	Comments
DEL2/U1h, DERK1/U1hr, BEKY1/U1hn	Rockyview	Orthic Black Chernozem	Medium Glaciolacustrine/Till	Well	Native (Ah)/ Agricultural (Ap)	10-20	Moderate risk of wind erosion and low risk of water erosion on slopes up to 9%
DEL2/U1h, DERK1/U1hr	Delacour	Orthic Black Chernozem	Moderately Fine Till	Well	Native (Ah)/ Agricultural (Ap)	15-25	Moderate risk of wind erosion and low risk of water erosion on slopes up to 9%
BEKY1/U1hn	Kathryn	Gleyed Black Chernozem	Moderately Fine Glaciolacustrine/Fluviolacustrine	Imperfectly	Native (Ah)/ Agricultural (Ap)	-	-
BEKY1/U1hn	Beddington	Black Solodized Solonetz	Moderately Fine Till	Moderately Well	Native (Ah)/ Agricultural (Ap)	10-25	Moderate risk of wind erosion and low risk of water erosion on slopes up to 5%
DEL2/U1h	Miscellaneous Gleysol	Orthic Humic Gleysol	Undifferentiated	Poorly	-	-	-
BEKY1/U1hn	Keoma	Gleyed Black Solodized Solonetz	Medium Glaciolacustrine/Till	Imperfectly	Native (Ah)	15-25	Moderate risk of wind erosion and low risk of water erosion on slopes up to 9%

¹ASIC, 2001; ²Pedocan, 1993

During the 2019 and 2020 field assessment, soils within the wetland polygons generally had low chroma matrix (two or less) immediately below the soil surface or gleying or mottling within 30 cm of the soil surface. Soil survey locations are shown on Figures 2.1-2.4.



4.0 WATER RESOURCES AND PLANT COMMUNITIES

4.1 Methods

Trace personnel collected vegetation information presented in this BA through a review of:

- Natural Regions and Subregions of Alberta (GOA, 2006)
- Base20 (AltaLIS, n.d.) waterbody, watercourse, and 10 m contour data
- Historical aerial photographs (Appendix C)
- GeoDiscover Alberta Database (GOA, n.d.) (Appendix D)
- Alberta Conservation Information Management System (ACIMS) data (AEP, 2019) (Appendix E).
- Wheatland County wetland layers (Wheatland County, n.d.).
- Data collected during field assessments conducted between August 2019 and June and September 2020.

Trace personnel mapped the Study Area into polygons using ESRI ArcMap based on the available aerial imagery. The polygons were differentiated based on land uses, soil moisture (as indicated by tonal differences), and visible vegetation. The polygons were then overlain on aerial photographs from previous years to compare and evaluate changes to land use and site conditions between years, and to provide a retrospective review of whether the polygons were best classified as wetland or upland, based on an aggregate review of site conditions between 1950 and 2018. Instances of bare ground, standing water, patchy vegetation, tilling, etc., on aerial photograph imagery were used to infer community type. This approach accounts for short and long-term climatic fluctuations, which produce marked seasonal differences in surface moisture conditions from year to year. Polygons of less than 0.01 ha were not mapped due to their small size, and the difficulty of mapping and spatially referencing such areas accurately.

A qualified professional classified and delineated the wetlands and uplands (based on land use) within the Study Area based on historical aerial photographs from 1950 to 2019 and field observations. Although photographs ranging from 1950 to 2019 were reviewed, 10 of the highest-quality photographs were selected to include as Appendix C; the remainder can be provided upon request. Wetlands and waterbodies were classified according to the Alberta Wetland Classification System (GOA, 2015a); watercourses were classified according to the provincial watercourse descriptions provided in the Pre-Application Requirements for Formal Dispositions (GOA, 2018d). Wetland permanence was determined according to the Guide for Assessing Permanence of Wetland Basins (GOA, 2016a). Wetland boundaries were delineated using the appropriate ecological boundary, based on the full extent of the wetland in most years, based on the Alberta Wetland Identification and Delineation Directive (GOA, 2015b). Instances of bare ground, standing water, patchy vegetation, tilling, etc. on aerial photograph imagery were used to infer wetland permanency and class. Wetland health was further assessed according to the Alberta Wetland Rapid Evaluation Tool – Actual forms (GOA, 2015c) and ABWRET-A Guide (GOA, 2015d). On July 17, 2019, Trace submitted to AEP the populated ABWRET-A spreadsheet and an associated shapefile containing the ABWRET-A assessment results for each non-ephemeral wetland visited on the Site.



A qualified professional biologist conducted a field assessment of the Site for rare plant species, rare ecological communities, vegetation community types, and invasive species. Rare plant surveys were conducted in accordance with the Alberta Native Plant Council (ANPC) (2012) Guidelines for Rare Vascular Plant Surveys in Alberta. Trace personnel conducted rare plant surveys in areas where remnant patches of native vegetation were most likely (primarily in waterbodies and wetlands) on lands they had permission to enter (details of which are provided in Section 1.2). Classification of the upland plant communities was based on land use.

As scientific and common names vary depending on information source, naming conventions used within this document follow those used by the ACIMS (GOA, 2018a). For this report, rare plant species are defined as those ranked S3 or lower and listed as Tracked or Watched by ACIMS (GOA, 2018a); or, those listed as "Extirpated", "Endangered", "Threatened", or "of Special Concern" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (GOC, 2019). Rare ecological communities are defined as those listed on the ACIMS Ecological Community Tracking List (Allen, 2014). See Appendix F for a description of provincial and federal species conservation rankings.

4.2 Results

4.2.1 Water Resources

Only approximately 1% of the Foothills Fescue Natural Subregion is occupied by open water. Wetlands are also uncommon, occurring in only 3%, confined to depressions and undulating to hummocky terrain (GOA, 2006). During the aerial photograph review, Trace personnel identified ephemeral waterbodies on the Site and wetlands ranging in class from temporary to semi-permanent. The Alberta Merged Wetland Inventory (AMWI) shows numerous wetlands located throughout the Site (GOA, n.d.) (Appendix D). According to the AMWI, Section 05 contains approximately 9 ha of wetlands with estimated values ranging from C-D, Section 08 contains approximately 10 ha of wetlands with estimated values ranging from C-D, Section 09 contains approximately 9 ha of wetlands with estimated values ranging from A-D, and Section 17 contains approximately 7 ha of wetlands with an estimated value of D (GOA, n.d.). Based on the aerial photograph review, the majority of on-site wetlands have been impacted by agricultural activities (cultivation). One of the wettest years appears to have been 2018, at which time standing water is visible in most of the on-site ephemeral wetlands.

Based on the 2019 and 2020 desktop and field assessment, waterbodies account for 28.06 ha (5%) of the Site area and wetlands account for 62.74 ha (10%) of the Site area (refer to Table C, Section 4.2.2). Both waterbodies and wetlands are subject to the Alberta Water Act (GOA, 2017c) and require water act approval prior to disturbance. Wetlands of all classes are additionally subject to the Alberta Wetland Policy and a Wetland Assessment and Impact Report is required as part of a water act application prior to disturbance. Wetlands classified as seasonal or higher or potentially claimable by the Crown and subject to the Public Lands Act (GOA, 2020).

Field wetland delineation on the Site followed Pathway 5 of the Alberta Wetland Identification and Delineation Directive (GOA, 2015b). Trace personnel confirmed one intermittent watercourse, 172 ephemeral waterbodies, and 80 wetlands, a summary of which are provided in Table B below. ABWRET-A results for wetlands on the Site ranged from a relative wetland value of 'D' (low) to 'B' (moderate) (Appendix G). A complete list of waterbody and wetland polygons are provided in Table 1, including the ABWRET-A scores and estimated replacement ratio. Figures 3.1-3.4 show water resources identified on the Site.



Table B: Water Resources Identified on the Site

Alberta Wetland Classification ¹	AWCS Code ¹	Number of Polygons	Total Area	Water Act Applies	Alberta Wetland Policy Applies	Claimable by the Crown
Waterbodies						
Not Applicable (N/A) – Intermittent Watercourse ²	N/A	1	0.43	Yes	No	No
Non-wetland (Ephemeral Waterbody)	N/A	172	27.63	Yes	No	No
Wetlands						
Temporary Moderately Brackish Graminoid Marsh	M(G)IImb	1	3.05	Yes	Yes	No
Temporary Slightly Brackish Graminoid Marsh	M(G)IIIsb	34	12.2	Yes	Yes	No
Seasonal Moderately Brackish Graminoid Marsh	M(G)IIImb	5	6.85	Yes	Yes	Yes
Seasonal Slightly Brackish Graminoid Marsh	M(G)IIIsb	29	16.49	Yes	Yes	Yes
Semi-permanent Moderately Brackish Graminoid Marsh	M(G)IVmb	2	4.08	Yes	Yes	Yes
Semi-permanent Slightly Brackish Graminoid Marsh	M(G)IVsb	9	20.07	Yes	Yes	Yes

¹(GOA, 2015a), ²(GOA, 2019)

At the time of the 2019 and 2020 wetland assessments, ephemeral waterbodies and temporary wetlands were largely dry while several of the seasonal and semi-permanent wetlands contained standing water. Photographs of on-site wetlands are presented in Appendix B.

4.2.2 Plant Communities

Vegetation in Foothills Fescue subregion is characterized by mixtures of the mountain rough fescue (*Festuca campestris*), blue bunch fescue (*Festuca idahoensis*), Parry oat grass (*Danthonia parryi*), and June grass (*Koeleria macrantha*) on well-drained Black Chernozemic soils (GOA, 2006). Common herbs throughout the subregion include silvery perennial lupine (*Lupinus argenteus*), sticky purple geranium (*Geranium viscosissimum*), three flowered avens (*Geum triflorum* var. *triflorum*), pasture sagewort (*Artemisia frigida*), and golden bean (*Thermopsis rhombifolia*) (GOA, 2006). Moist, moderately well-drained sites support shrub communities including buckbrush (*Symphoricarpos occidentalis*), silver berry (*Elaeagnus commutata*), prickly rose (*Rosa acicularis*), and Saskatoon (*Amelanchier alnifolia*) on well to imperfectly drained Black Chernozems (GOA, 2006). Willow (*Salix* sp.), sedge (*Carex* sp.), and tufted hair grass (*Deschampsia cespitosa*) communities occur in poorly drained areas and along rivers on loamy Humic Gleysols (GOA, 2006)

No sensitive element occurrences within Sections 05, 08, 09 and 17-024-26 W4M (Appendix E) were previously reported to the ACIMS (GOA, 2018a). The absence of element occurrences (rare plants and rare ecological communities) in the available ACIMS data for the searched area does not necessarily mean that sensitive plant species ecological communities are not present within the search area. An absence of records could indicate that very few inventories/surveys have been conducted in the search area or that survey results have been under-reported.

The Site is a mix of land uses summarized in Table C below:



Table C: Land Uses Identified on the Site		
Land Uses	Total Area (ha)	Percentage of Site
Cropland	493.09	82
Industrial	1.02	<1
Pasture	1.91	<1
Waterbody	28.06	5
Wetland	62.74	10
Yard Site	11.71	2
Total Site Area	598.54	100

The Site is currently utilized as agricultural land, with the majority of the Site maintained as cropland (82 %). The remainder largely consists of waterbodies and wetlands of varying class (Figures 3.1-3.4). None of the plant communities observed on the Site are listed on the ACIMS Ecological Community Tracking List (Allen, 2014). A complete list of habitat types identified on the Site are shown on Figures 3.1-3.4 and presented in Table D below:

Table D: Habitat Types Identified on the Site			
Land Use	Habitat Type	Total Area (ha)	Percentage of Site
Cropland	Cultivated	493.09	82
Industrial	Wellsite	1.02	<1
Pasture	Modified	1.12	<1
	Modified-Saline	0.79	<1
Waterbody	Ephemeral	27.63	5
	Watercourse	0.43	<1
Wetland	Temporary	15.25	3
	Seasonal	23.34	4
	Semi-permanent	24.15	4
Yard Site	Debris	0.18	<1
	Treed	0.40	<1
	Buildings/Yard	11.13	2
Total Site Area		598.54	

Plant communities associated with waterbodies and wetlands have been heavily impacted by agricultural practices including cultivation and/or the addition of soil amendments and herbicides either in or adjacent to the wetland/waterbody. During the field assessment, ephemeral wetlands were largely seeded to the annual crop. Within the Site, the most frequently recorded species within wetland plant communities were foxtail barley (*Hordeum jubatum*), slough grass (*Beckmannia syzigachne*), water smartweed (*Persicaria amphibia*), perennial sow-thistle (*Sonchus arvensis*) and marsh cudweed (*Gnaphalium palustre*) (Table 2). Photographs of representative species/communities are provided in Appendix B. Characteristic vegetation types by wetland classes are as follows;

- Temporary graminoid marsh – foxtail barley/water smartweed or marsh cudweed/water smartweed
- Seasonal graminoid marsh – slough grass/marsh cudweed
- Semi-permanent graminoid marsh – common cattail (*Typha latifolia*) or common cattail/slough grass



Trace personnel observed one provincially rare species during the 2019 rare plant survey, blunt-leaved watercress (*Rorippa curvipes*), the locations of which are indicated on Figures 3.1-3.4. According to the Rare Vascular Plants of Alberta (Kershaw et al., 2001), blunt-leaved watercress habitat consists of moist ground, including mud flats, shores, roadsides, stream beds and wet meadows. Populations observed on the Site occurred within temporary to seasonal wetlands where drawdown occurs leaving exposed soil for a portion of the year. In addition, three species provincially ranked as S3 were observed on the Site. Species ranked as S3 are uncommon within Alberta with 100 or fewer reported occurrences, and are somewhat vulnerable due to restricted range, small population sizes, or other factors (GOA, 2018b), but are not provincially tracked or watched. S3 species observations were located throughout the Site and associated with wetlands and/or waterbodies; Trace personnel generally observed marsh cudweed in temporary and seasonal wetlands, and Scouler's allocarya (*Plagiobothrys scouleri*) in waterbodies/wetlands of all classes (ephemeral to semi-permanent); water-milfoil (*Myriophyllum verticillatum*) was found in a semi-permanent wetland.

A complete list of provincially uncommon species observed on the Site is presented in Table E below:

Table E: Rare and Uncommon Species Observed on the Site				
Scientific Name	Common Name	S Rank (GOA, 2018a)	Track Status (GOA, 2018a)	Location (Polygon[s])
<i>Rorippa curvipes</i>	blunt-leaved watercress	S3	Track all extant and selected historical element occurrences	59, 64, 70, 99, 131, 187, 216, 217, 220, and 252
<i>Gnaphalium palustre</i>	marsh cudweed	S3	Do not track	5, 10, 11, 17, 27, 59, 64, 70, 97, 103, 105, 110, 111, 131, 132, 133, 141, 157, 165, 178, 179, 183, 184, 186, 187, 188, 191, 194, 202, 203, 205, 207, 208, 209, 216, 217, 219, 220, 234, 237, 240, 244, 245, 252, and 300
<i>Plagiobothrys scouleri</i>	Scouler's allocarya	S3	Do not track	32, 36, 54, 157, 162, 207, 212, 223, 2101, and 2102
<i>Myriophyllum verticillatum</i>	water-milfoil	S3	Do not track	253

A complete list of plant species identified on the Site is provided as Table 2. The ACIMS Standard Subnational Conservation Status Ranks are presented in Appendix G.

Trace personnel observed two provincially designated weed species on the Site, which are presented in Table F (below), including their provincial designation, and location. According to the Alberta Weed Control Act Regulation (GOA, 2016b). 'Noxious' weeds must be controlled from growing or spreading.

Table F: Weed Species Observed on the Site			
Scientific Name	Common Name	Weed Status (GOA, 2016b)	Location (Polygon[s])
<i>Cirsium arvense</i>	creeping thistle	Noxious	21, 30, 36, 62, 97, 105, 132, 141, 157, 165, 184, 194, 203, 217, 237, 253, 2101, and 2102,
<i>Sonchus arvensis</i>	perennial sow-thistle	Noxious	5, 13, 14, 15, 16, 18, 47, 57, 59, 60, 61, 62, 64, 94, 97, 99, 103, 105, 109, 110, 111, 132, 133, 141, 157, 165, 179, 183, 184, 186, 187, 188, 191, 194, 202, 208, 209, 216, 223, 240, 242, 244, 245, 249, 252, 253, and 300



5.0 WILDLIFE

5.1 Methods

Trace personnel collected wildlife information presented in this BA through a review of:

- A National Ecological Framework for Canada (ESWG, 1995)
- Fisheries and Wildlife Management Information System (FWMIS) (AEP, 2020) results (Appendix H) within a 3 kilometre (km) radius of the Site
- Landscape Analysis Tool (LAT) (AEP, n.d.) results (Appendix I)
- IBA Canada data (IBA Canada, 2010)
- Data collected during field assessments conducted between April and July 2020

A qualified professional biologist conducted a number of field assessments and surveys, between April and July 2020, to determine the presence of wildlife, permanent wildlife habitat features (i.e., stick nests, burrows, dens, etc.), and wildlife habitat. Wildlife surveys were conducted in accordance with the Sensitive Species Inventory Guidelines (GOA, 2013a). Wildlife surveys included: auditory and visual surveys for breeding birds and amphibians, raptor nest searches, sharp tailed grouse surveys, as well as incidental observations for mammals, reptiles, and wildlife sign (scat, tracks, foraging, trails, etc.) on the Site and in the Study Area (where applicable). Specific field survey dates are presented below in Table H; field survey locations and notable wildlife features are presented on Figures 4.1-4.4.

Table H: 2020 Wildlife Field Assessments					
Date	Survey Type				
	Amphibian (Auditory/ Visual)	Breeding Birds (Auditory/ Visual)	Wildlife Sign	Raptor Nest Search	Sharp-tailed Grouse
April 29, 30	✓	-	✓	-	✓
May 19, 20	✓	-	✓	-	-
May 27, 28	-	✓	✓	✓	-
June 19, 20, 25	-	✓	✓	-	-
July 9	✓	-	✓	-	-

As scientific and common names vary depending on information source, naming conventions used within this document follow those used by the Government of Alberta (2017a). For this report, rare wildlife species are defined as those listed as “Sensitive”, “May Be at Risk”, or “At Risk” according to the Government of Alberta (2017a) and those listed as “Extirpated”, “Endangered”, “Threatened”, or “Of Special Concern” by the Committee on the Status of Endangered Wildlife in Canada (GOC, 2019).



5.2 Results

Within the Foothills Fescue Natural Subregion, white tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), coyote (*Canis latrans*), white-tailed jack rabbit (*Lepus townsendii*), Richardson's ground squirrel (*Spermophilus richardsonii*) are common in uplands, while intermittent wetlands provide habitat for waterfowl and a variety of duck species (ESWG, 1995).

Data layers within the FWMIS (AEP, 2020) (Appendix H) and LAT (AEP, n.d.) (Appendix I) show the Study Area lies within of the following Wildlife Ranges:

- Sensitive raptor (bald eagle [*Haliaeetus leucocephalus*], golden eagle [*Aquila chrysaetos*], ferruginous hawk [*Buteo regalis*], and prairie falcon [*Falco mexicanus*])
- Sharp-tailed grouse [*Tympanuchus phasianellus*]
- Other sensitive and endangered species

The prairie falcon, bald eagle, golden eagle, and sharp-tailed grouse are classified provincially as "Sensitive" (GOA, 2017a); the ferruginous hawk is classified as "At Risk" (GOA, 2017a). Federally, the three raptors are listed as "Not at Risk", while the sharp-tailed grouse is not listed (GOC, 2019).

Rare wildlife species previously reported in the FWMIS within 3 km of the proposed development (AEP, 2020) are presented in Appendix H. As per the Alberta FWMIS database, the fish and wildlife inventory data accessible for the Site does not represent a complete record of all fish and wildlife collections and observations available. It only represents the data currently residing in the FWMIS. Many areas in Alberta have not been subjected to a comprehensive species inventory.

A complete list of wildlife species observed on the Site is provided in Table 3; detailed information outlining the suitability of habitat types for supporting rare wildlife species is presented in Table 4. Photographs of the Site and wildlife features that were documented at the Site are provided in Appendix B.

5.2.1 Fish

No fish species were previously reported within 3 km of the Site (AEP, 2020) and neither wetlands nor waterbodies observed on site are not capable of sustaining fish populations.

5.2.2 Amphibians

Numerous wetlands and ephemeral waterbodies throughout the Site (as outlined in Section 4.2.1) provide seasonal amphibian habitat; however, no rare amphibian species were previously recorded within 3 km of the Site (AEP, 2020). Trace personnel identified two amphibian species on the Site during auditory surveys. Boreal chorus frogs (*Pseudacris maculata*) were observed in wetlands throughout the Site and wood frogs (*Lithobates sylvatica*) were observed at AMPH22 and AMPH31. In addition, boreal chorus frog tadpoles were observed during the July 2020 visual amphibian survey. Both the boreal chorus frog and wood frog are provincially listed as "Secure" (GOA, 2017a) and not federally listed (GOC, 2019).



5.2.3 Mammals

The Site primarily contains cultivated agricultural fields and wetlands suitable for supporting mammal species. One rare mammal species was reported to FWMIS within 3 km of the Site, the American badger (*Taxidea taxus*); however, only marginal badger habitat is located on the Site as this species prefers areas characterized by open prairie, aspen groves, and brushy bottomlands (Scobie, 2002). Trace personnel recorded visual observations of deer and one coyote on the Site. Both species are listed as ‘Secure’ provincially (GOA, 2017b) and not federally listed (GOC, 2019).

5.2.4 Birds

The Site primarily contains cultivated agricultural fields and wetlands suitable for the nesting of a variety of migratory bird species. The Calgary area general nesting period occurs from April 15 to August 31 (GOC, 2018b), with peak periods in May and June. The Site does not lie within an Important Bird Area as defined by IBA Canada (2010).

Five rare bird species were reported by FMWIS within 3 km of the Site and eight rare bird species were observed on the Site during the 2020 wildlife surveys, presented in Table I (below).

Table I: Rare Bird Species Observed on the Site or within a 3 km Radius					
Scientific Name	Common Name	Provincial Status (GOA, 2017a)	COSEWIC Status (GOC, 2019)	Reported by FWMIS (AEP, 2020)	Observation Location(s)
<i>Hirundo rustica</i>	Barn Swallow	Sensitive	Threatened	✓	BBS5, BBS27
<i>Chlidonias niger</i>	Black Tern	Sensitive	Not at Risk	-	BBS2, BBS8, BBS9, BBS17
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	Sensitive	-	-	BBS20
<i>Himantopus mexicanus</i>	Black-necked Stilt	Sensitive	-	✓	BBS6, BBS8, BBS11, BBS15, BBS17, BBS19, BBS20, BBS21, BBS23
<i>Athene cunicularia</i>	Burrowing Owl	At Risk	Endangered	✓	N/A
<i>Dendroica tigrina</i>	Cape May Warbler	Sensitive	-	✓	N/A
<i>Geothlypis trichas</i>	Common Yellowthroat	Sensitive	-	-	BBS2, BBS29
<i>Tyrannus tyrannus</i>	Eastern Kingbird	Sensitive	-	-	BBS5
<i>Ardea herodias</i>	Great Blue Heron	Sensitive	-	✓	STGR1
<i>Porzana carolina</i>	Sora	Sensitive	-	-	AMPH1, AMPH22, BBS2, BBS21, BBS26

Notable wildlife features observed during wildlife surveys are shown on Figures 4.1-4.4; they consisted of raptor nests of the following species:

- Great horned owl (*Bubo virginianus*) (2 nests)
- Red-tailed hawk (*Buteo jamaicensis*) (1 nest)



- Swainson's hawk (*Buteo swainsoni*) (1 nest)

These three species are listed as provincially “Secure” (GOA, 2017a) and not federally listed (GOC, 2019). Wildlife species in Alberta (including active nests, chicks, and eggs) are covered under the Alberta Wildlife Act (GOA, 2018c); migratory birds are additionally protected under the MBCA (GOC, 2017a).

Species richness (number of species) at breeding bird survey locations ranged from 2 to 17, with the greatest number of species observed at BBS17 (17 species), BBS23 (15 species), and BBS9 (13 species) in proximity to semi-permanent and seasonal wetlands. Rare species observations were primarily associated with wetlands on the Site ranging from temporary to semi-permanent. Although cultivated cropland occurs adjacent to wetlands and waterbodies where rare species were observed and provides some forage value, this habitat type is not necessary for their survival and similar forage could be found in other habitat types, such as mudflats and pastureland. High and medium value habitat exists almost exclusively within wetlands and waterbodies, in the absence of which, rare species would not occur on the Site (with the exception of the barn swallow which largely nests in artificial structures). Location information for survey points at which rare species were identified are provided in Table J below:

Table J: 2020 Survey Point/Habitat Type Correlation			
Survey Point	Associated Polygon(s) (with 100 m)	LSD	Associated Habitat Type(s)
BBS2	21, 1, 2102	SE-17-024-26 W4M	Semi-permanent Wetland
BBS5	41, 1	SW-17-024-26 W4M	Yard Site (Buildings/Yard)
BBS6	299, 252, 132	SE-08-024-26 W4M	Temporary Wetland, Seasonal Wetland
BBS8	299, 109	SW-08-024-26 W4M	Semi-Permanent Wetland
BBS9	299, 94, 100	SW-08-024-26 W4M	Semi-Permanent Wetland, Ephemeral Waterbody
BBS11	299, 242, 243, 141	NE-05-024-26 W4M	Semi-Permanent Wetland, Seasonal Wetland, Ephemeral Waterbody
BBS15	299, 253, 237, 249, 24901	NE-05-024-26 W4M	Semi-Permanent Wetland, Seasonal Wetland
BBS17	299, 257, 253	SE-05-024-26 W4M	Semi-Permanent Wetland, Temporary Wetland
BBS19	2221, 222, 261, 299, 223	SW-05-024-26 W4M	Seasonal Wetland, Ephemeral Waterbody
BBS20	299, 204, 203	SW-05-024-26 W4M	Temporary Wetland, Ephemeral Waterbody
BBS21	299, 207	SW-05-024-26 W4M	Semi-Permanent Wetland
BBS23	93, 58, 52, 53, 54	NE-09-024-26 W4M	Semi-Permanent Wetland, Temporary Wetland, Modified-Saline Pasture
BBS26	57, 93, 56	NE-09-024-26 W4M	Semi-Permanent Wetland, Ephemeral Waterbody
BBS27	93, 7001, 70, 68	NE-09-024-26 W4M	Seasonal Wetland, Ephemeral Waterbody
AMPH1	2102, 21	SE-17-024-26 W4M	Semi-Permanent Wetland
AMPH22	242, 247, 246, 249	NE-05-024-26 W4M	Semi-Permanent Wetland, Seasonal Wetland, Ephemeral Waterbody
STGR1	N/A	SE-17-024-26 W4M	Various (i.e. those within a 1 km radius of the survey location)



Detailed information outlining the suitability of habitat types for supporting rare wildlife species is presented in Table 4. It is important to note that the field assessments did not occur in every wetland, waterbody, and upland habitat type therefore, it is necessary to draw inferences by species based on preferred habitat type (nesting and foraging). Rare species previously reported or observed on the Site are discussed in detail below:

Barn Swallow (*Hirundo rustica*)

- On-site observation: Barn swallows were observed during both the May and June 2020 breeding bird survey locations (location details are provided in Tables I and J).
- Nesting: Barn swallows nest primarily in artificial structures, including barns and other outbuildings (COSEWIC, 2011).
- Foraging: They prefer various types of open habitat for foraging, including grassy fields, pastures, agricultural crops, lake and river shorelines, farmyard, wetlands, etc. (COSEWIC, 2011).
- Threats: The main causes of the recent decline of the species are thought to be loss of habitat, large scale declines of insect populations, and direct mortality due to an increase in climate perturbations on the breeding grounds (COSEWIC, 2011).

Black Tern (*Chlidonias niger*)

- On-site observation: Black terns were observed during both May and June 2020 breeding bird surveys. Breeding behaviour was additionally observed during the July visual amphibian survey and the presence of 1 to 2 breeding pairs is considered probable. Observation location details are provided in Tables I and J (above).
- Nesting: This species typically nests in large (50 acre or larger) freshwater wetlands, usually in dense marshes on the edges of shallow lakes of the open prairies or forests (CLO, 2019a).
- Foraging: They primarily eat small fish and insects and feed by flying slowly above marsh vegetation and open water, which they capture by sweeping to capture prey in their bill (CLO, 2019a). Occasionally, black terns feed over fields on insects such as grasshoppers, crickets, flies, ants, dragonflies, mayflies, etc.) stirred up by tractors (CLO, 2019a).
- Threats: Causes of population decline include drainage or conversion of wetlands and reduction of insect populations by agricultural pesticide use or poor water quality (CLO, 2019a).
- Considerations for development: According to the Best Management Guidelines for the Enhanced Approval Process (GOA, 2011b), black tern nesting sites have a 200 to 1,000 m setback depending on the level of disturbance (low-high) which must be considered when developing the Site.

Black-Crowned Night-Heron (*Nycticorax nycticorax*)

- On-site observation: A black-crowned night-heron was observed during May 2020 breeding bird surveys (location details are provided in Tables I and J).



- **Breeding:** They breed in wetlands across North America including salt marshes, freshwater marshes, swamps, ponds, and wet agricultural fields, requiring aquatic habitat for foraging and terrestrial vegetation for cover (CLO, 2019b).
- **Nesting:** Black crowned night-herons nest in colonies, choosing colony locations safe from predators such as on an island, in a swamp, or over water (CLO, 2019b).
- **Foraging:** Members of the species are generalists and opportunist feeders that forage on a variety of organisms such as fish, invertebrates, amphibians, and small mammals (GOC, 2015a). They also eat plant materials, carrion, and garbage, where available (CLO, 2019b).
- **Threats:** Populations of the species have decreased primarily due to drainage and development of their wetland habitat, and reduced water quality due to contaminated runoff (CLO, 2019b).

Black-necked Stilt (*Himantopus mexicanus*)

- **On-site observation:** One or more black-necked stilts were observed on the Site during both the May and June 2020 breeding bird surveys (location details are provided in Tables I and J).
- **Habitat:** Black-necked stilts typically inhabit shallow wetlands, salt ponds, flooded low lands, and shallow lagoons including human-maintained wetlands such as sewage ponds or flooded pastures (CLO, 2017f). According to the Alberta Biodiversity Monitoring Institute (ABMI), habitat association data for this species shows a strong affinity toward open areas containing pasture, cultivated lands, bare ground as well as white spruce (ABMI and BAMP, 2019).
- **Nesting:** They nest on the ground, building on surfaces above water, such as small islands, clumps of vegetation, or floating mats of algae (CLO, 2017f).
- **Threats:** Black-necked stilts are vulnerable to polluted runoff including pesticides (CLO, 2017f).

Burrowing Owl (*Athene cunicularia*)

- **On-site observation:** No burrowing owls were observed on the Site or in the Study Area during 2020 wildlife surveys. The Site has limited potential to support burrowing owls as the area is largely cultivated and lacks the variability required to adequately support this species.
- **Habitat:** This species typically requires a variety of habitat types to meet nesting and foraging requirements including an open area with adequate nest and burrow surrounded by short vegetation for nesting/roosting, as well as taller vegetation or alternate prey cover to support small mammals for foraging (ESRD, 2012).
- **Threats:** Conversion of pastureland to cropland is largely responsible for the decline in burrowing owl populations in Canada as well as fragmentation of remaining grasslands (COSEWIC, 2017). Current threats include reductions in prey populations, climate change, the expansion of renewable energy, and predation (COSEWIC, 2017).



Cape May Warbler (*Dendroica tigrina*)

- On-site observation: No cape may warblers were observed on the Site or in the Study Area during 2020 wildlife surveys. The Site contains no suitable breeding habitat for this species. It was likely historically observed during the spring or fall migration.
- Breeding: Breeding habitat for this species in Alberta includes mature to old coniferous tree stands dominated by white spruce, sometimes mixed with trembling Aspen, balsam poplar, or white birch (Norton, 2001).
- Nesting: Nests are placed in tall spruce (or sometimes fir) trees near the top, usually 40-50 feet above the ground (CLO, 2019c).
- Foraging: Breeding cape may warblers feed almost entirely on invertebrates, primarily spruce budworm, but also spiders, beetles, wasps, and many other sorts of insects (CLO, 2019c).
- Threats: Risks to this species include insecticides, which reduce the availability of spruce budworms, habitat fragmentation, and timber harvesting within mature forests (Norton, 2001; CLO, 2019c).

Common Yellowthroat (*Geothlypis trichas*)

- On-site observation: A common yellowthroat was observed during both the May and June 2020 breeding bird surveys (location details are provided in Tables I and J).
- Nesting: Common yellowthroats nest on or near the ground in marsh vegetation, primarily in areas covered with tall grasses and dense slow-growing shrubs (Piorecky et al., 1999).
- Habitat: They are generally associated with marshy areas with high shrub cover and little or no tree canopy and glean insects from shrubs and other vegetation within 1 m of the ground (Piorecky et al., 1999).
- Threats: Cumulative decline over the last 50 years is generally attributed to wetland habitat degradation and loss (ABMI and BAMP, 2018a).

Eastern Kingbird (*Tyrannus tyrannus*)

- On-site observation: Eastern kingbirds were observed during the June 2020 breeding bird survey (location details are provided in Tables I and J).
- Habitat: Eastern kingbirds are typically associated with open habitats with suitable perches overlooking open or sparsely treed habitat for foraging such as forest edges, woodlots, shelter belts, riparian areas, and fields/pastures with scattered shrubs and trees (ABMI and BAMP, 2018b).
- Nesting: They nest in trees, using twigs, hair, straw, and string (ABMI and BAMP, 2018b).
- Threats: The main causes of the decline of this species are loss of pasture and grassland habitat where they feed (ABMI and BAMP, 2018b).



Great Blue Heron (*Ardea herodias*)

- On-site observation: A great blue heron was incidentally observed on the Site, during the April 2020 sharp tailed grouse survey (observation location details are provided in Tables I and J).
- Habitat: Great blue herons live in freshwater and saltwater habitats, foraging in grasslands and agricultural fields. (CLO, 2017b).
- Nesting/foraging: In Alberta, they nest mainly in undisturbed tree rookeries and feed on fish, amphibians, small mammals, and insects in open water habitats (CLO, 2017b).
- Threats: Great blue herons are vulnerable to habitat loss and chemical pollutants or other causes of reduced water quality (CLO, 2017b).

Sora (*Porzana carolina*)

- On-site observation: A sora was heard during the May 2020 amphibian survey and observed during both the May and June 2020 breeding bird surveys (survey location details are provided in Tables I and J).
- Habitat: Sora habitat consists primarily of fresh water and brackish wetlands with cattail, sedges, and rushes (CLO, 2017a). During migration and winter, they also use wet pastures, ditches, impoundments, and flooded fields (CLO, 2017a).
- Nesting: They nest at the edge of shallow wetlands (less than 8 inches deep) in dense patches of cattails and sedges, building their nests on top of mounds of vegetation or attached to plant stems about the surface of the water (CLO, 2017a).

Sensitive Raptors (Bald Eagle, Golden Eagle, Ferruginous Hawk, and Prairie Falcon)

- On-site observation: Although the Site lies within the sensitive raptor range for bald eagles, golden eagles, ferruginous hawks, and prairie falcons, none were observed on the Site during 2020 wildlife surveys. Although no suitable habitat for these species is present on the Site, they may be found in the area during migration as they disperse after breeding.
- Habitat/Nesting:
 - Bald eagles typically nest in forested areas, in tall sturdy poplars and conifers, adjacent to large waterbodies or watercourses where they can feed on a primary diet of fish (CLO, 2017c).
 - Golden eagles are found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs and avoid developed areas (CLO, 2017d).
 - Ferruginous hawks generally occupy flat/rolling terrain in grassland or shrub-steppe regions, and nests where grazing is the dominant land use, or where the landscape is relatively wild (Schmutz, 1999).
 - Prairie falcons most often nest on canyonlands bluffs and cliffs and may rarely nest in trees, on powerline structures, and on buildings (CLO, 2017e).



Sharp Tailed Grouse

- On-site observation: No sharp tailed grouse or sharp tailed grouse leks were observed during the species-specific survey on April 29, 2020, nor during breeding bird surveys. The Site and surrounding Study area is highly fragmented with cultivated land and residential homes, thus, not suitable habitat for sharp-tailed grouse.
- Habitat: According to the Alberta Conservation Association (ACA) (2010), sharp-tailed grouse favour relatively dry, open grassland with a patchwork of tree and shrub cover that can be found throughout Alberta.
- Breeding: Leks occur in areas with dry open ground, while nesting sites are typically within 2 km of the lek, in well-concealed areas containing small shrubs (ACA, 2010).
- Nesting: Nesting success is higher in areas of good quality, continuous native habitat, and lower in fragmented areas (ACA, 2010).

6.0 ENVIRONMENTALLY SIGNIFICANT AREAS

Environmentally Significant Areas (ESAs) are areas that are important for the long-term maintenance of biological diversity, physical landscape features, and other natural processes at multiple-spatial scales (Fiera, 2014). An ESA contains rare or unique elements, or elements that may require special management consideration due to their conservation needs. The purpose of ESAs is to assist in identifying environmentally-important areas for land use planning processes. They can assist in identifying areas with higher environmental values for planning processes, but do not replace specific surveys of indicators (e.g., species occurrences, habitat mapping) (Fiera, 2014).

6.1 Methods

Trace personnel collected potential ESA data presented in this BA through a review of:

- ESAs in Alberta: 2014 Update (Fiera, 2014)
- Field assessment data presented in Sections 3.0 through 5.0

Under the Municipal Government Act (Policy No. Dev-05-C) (COA, 2019d), a subdivision authority may require the owner of a parcel of land subject to a proposed subdivision to provide part of that parcel of land to the municipality as ER or CR, the details of which are discussed in Section 1.4.2. For the purpose of this report, ER and CR are defined in accordance with the Municipal Government Act.

The areas identified by Fiera Biological Consulting Ltd. (Fiera) (2014) as ESAs were used in conjunction with the findings from field and desktop assessments when evaluating environmental features (significance) in each of the four categories: terrain and soils; water resources; plant communities; and wildlife.

To establish environmental significance, Trace personnel evaluated Polygons on the Site based on the specific criteria laid out in the Municipal Government Act to determine whether they may qualify as ER. With respect to CR qualification, the Municipal Government Act is not specific; therefore the Polygons were evaluated additionally for their potential to qualify as environmentally significant based on criteria established by neighbouring municipalities (i.e. The City of Calgary and the City of Airdrie), including:



concentrations of biodiversity; ecological function; distinctive and/or unusual landforms; ecological rarity; ecological connectivity; and those with high community value due to limited representation within the municipality.

Areas identified as environmentally significant based on characteristics within each of the four biophysical categories evaluated in this report (terrain and soils, water resources, plant communities, and wildlife) were collectively mapped, then Polygons evaluated for gaps in ecological connectivity that may have appeared on the Site. Polygons were then rated as having high, medium, or low environmental significance based on the number of categories within which they were identified as being potential ESAs (Table K). The environmental significance for Polygons not recommended in any category is considered negligible.

Table K: Environmental Significance Rating Criteria	
Environmental Significance Rating	Criteria for Environmental Significance
Low	One significant feature or characteristic in terrain and soils, water resources, plant communities, and wildlife.
Medium	Two significant features or characteristics in terrain and soils, water resources, plant communities, and wildlife.
High	Three or more significant feature or characteristic in terrain and soils, water resources, plant communities, and wildlife.

6.2 Results

6.2.1 Previously Identified Environmentally Significant Areas

The identification, ranking, and mapping of ESAs by Fiera (2014) was conducted remotely at the scale of a quarter section and was based on 4 main criteria, 10 sub-criteria, and 25 indicators. The four main criteria used were: areas that contain focal species, species groups, or their habitats (CR1); areas that contain rare, unique, or focal habitat (CR2); areas with ecological integrity (CR3); and areas that contribute to water quality and quantity (CR4).

The ESA scores for the Site range from 0.025 to 0.055, less than the 0.189 cutoff for ESAs. None of the neighbouring quarter sections have scores that qualify them as ESAs.

6.2.2 Terrain and Soils

Polygons on the Site that fit the criteria for an ER (according to the Municipal Government Act [GOA, 2010] and detailed in Section 1.4.2) include those that could be considered “unstable” (i.e., Polygons containing naturally steep slopes equal to or greater than 30% or naturally steep slopes equal to or greater than 15% that are adjacent to or include the banks of any watercourse). Other criteria that may qualify Polygons on the Site as environmentally significant include those containing unusual landforms. Polygons on the Site were only considered an ESA based on soils and landforms if steep slopes or unusual landforms were prevalent within the map unit. Polygons qualifying as an ESA based on soils and landforms are presented in Table 5.



6.2.3 Water Resources

Polygons on the Site that fit the criteria for an ER (according to the Municipal Government Act [GOA, 2010] and detailed in Section 1.4.2) include those containing a watercourse, ephemeral waterbody, or wetland. Other criteria that may qualify Polygons on the Site as environmentally significant include seasonal wetlands (Class III) or higher and those with a relative wetland value (as determined by AEP) of 'B' or greater. Polygons qualifying as an ESA based on surface hydrology and water resources are presented in Table 5.

6.2.4 Plant Communities

The definition of an ER (according to the Municipal Government Act [GOA, 2010] and detailed in Section 1.4.2) is not applicable to plant communities. Other criteria that may qualify Polygons within the Site as environmentally significant include remnant patches of native grassland, those containing rare plants or rare plant communities. Polygons qualifying as an ESA based on plant communities are presented in Table 5.

6.2.5 Wildlife

The definition of an ER (according to the Municipal Government Act [GOA, 2010] and detailed in Section 1.4.2) is not applicable to wildlife. Other criteria that may qualify Polygons within the Site as environmentally significant include or with the medium or greater potential to support rare and provincially protected species, as determined by a professional biologist. Details regarding habitat potential are presented in Table 4 and by species in Section 5.2; Polygons qualifying as an ESA based on wildlife are presented in Table 5. Residential Polygons were included due to the potential for sensitive raptors and bank swallows, for which potential nesting sites occur within mature trees and on buildings (respectively).

6.2.6 Environmentally Significant Area Evaluation

Based on the environmental significance evaluation, 10 Polygons are considered high value ESAs, 40 are considered medium value ESAs, and 212 are considered low value ESAs. Within the Site, Polygons rated as High value ESAs provide high or medium value habitat for rare wildlife species and are directly correlated with those wetlands in which the rare species, blunt-leaved watercress was observed. Those rated Medium are generally seasonal and semi-permanent wetlands or temporary wetlands with a relative value of 'B' (moderate) and provide high or medium value habitat for rare wildlife species. Polygons rated as low value ESAs are generally ephemeral waterbodies, temporary wetlands (with the relative value of 'C' [moderately low]), pasture lands, and yard sites. Although cultivated cropland provides some forage value for rare wildlife species, high and medium value ESAs occur almost exclusively within wetlands and waterbodies, in the absence of which rare plant and wildlife species would not occur on the Site. ESAs with each of the three value ratings are distributed throughout the Site, with no specific concentrations within one area. The ESA values are presented in Table 5 and on Figures 5.1-5.4.

7.0 SUMMARY

Based on desktop and field assessments, upland soils on the Site consists primarily of Orthic Black Chernozems while wetland soils are largely Orthic Humic Gleysols. No steep slopes or unusual landforms were observed on the Site.



Water resources within the Site include one intermittent watercourse, 172 ephemeral waterbodies, 35 temporary graminoid marshes (M[G]II), 34 seasonal graminoid marshes (M[G]III), and 11 semi-permanent graminoid marshes (M[G]IV). ABWRET-A results for wetlands on the Site ranged from a relative wetland value of 'D' (low) to 'B' (moderate). Water Act (GOA, 2017c) approval is required if proposed developments will impact any wetlands or waterbodies and the preparation/submission of a Wetland Assessment and Impact Report is required if wetlands class temporary or higher will be impacted. Determination of Crown ownership is required if proposed developments will impact wetlands classified as seasonal or higher; approval under the Public Lands Act (GOA, 2014) may also be required if wetlands are claimed by the Crown.

The Site primarily consists of cultivated agricultural land with waterbodies (ephemeral and intermittent) and wetlands of varying classes (temporary to semi-permanent) distributed throughout. During the field assessment, Trace personnel identified one rare vegetation species, blunt-leaved watercress, and three provincially uncommon (S3) species on the Site within wetlands. Blunt-leaved watercress was associated with temporary and seasonal wetlands within which drawdown exposes bare soil late in the summer. No rare ecological plant communities were observed on the Site which is largely under cultivation. Plant communities within waterbodies and wetlands have been heavily impacted by agricultural practices including cultivation and/or the addition of soil amendments and herbicides. Trace personnel observed two weed species on the Site that are provincially designated as 'Noxious', creeping thistle and perennial sow-thistle. According to the Alberta Weed Control Act Regulation (GOA, 2016c), 'Noxious' weeds must be controlled from growing or spreading.

The Study Area lies within provincially mapped key wildlife ranges for sensitive raptor, including bald eagle, golden eagle, ferruginous Hawk, and prairie falcon, and sharp-tailed grouse range. During the field assessment, eight rare bird species were identified on the Site, barn swallow, black tern, black-crowned night heron, black-necked stilt, common yellowthroat, eastern kingbird, great blue heron, and sora. No rare fish, amphibian, or mammal species were identified. Notable wildlife features observed during wildlife surveys included two great horned owl nests, one red-tailed hawk nest, and one Swainson hawk nest. Wildlife species in Alberta (including active nests, chicks, and eggs) are covered under the Alberta Wildlife Act (GOA, 2018c); migratory birds are additionally protected under the MBCA (GOC, 2017a).

No ESAs were previously identified on the Site or in the Study Area based on the 2014 desktop assessment conducted by Fiera (Fiera, 2014). ESAs identified within this report are based on the results of field surveys conducted in 2019 and 2020 and criteria developed by Trace taking into consideration guidance within the Municipal Government Act (GOA, 2010) and frameworks established by adjacent municipalities (the City of Calgary and the City of Airdrie). Within the Site, Polygons identified as ESAs are distributed throughout and directly correlated with the locations of wetlands. Although cultivated cropland provides some forage value for rare wildlife species, high and medium value ESAs occur almost exclusively within wetlands and waterbodies, in the absence of which rare plant and wildlife species would not occur on the Site. Under the Municipal Government Act (GOA, 2010), municipalities have the authority to designate parcels of land subject to a proposed subdivision as ER or CR.



8.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of the assessment. The client, and any other parties using this report with the express written consent of the client and Trace, acknowledges that conditions affecting the environmental assessment of the Site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and Trace, also acknowledges that the conclusions and recommendations set out in this report are based on limited observations and testing on the Site and that conditions may vary across the Site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that Trace is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment, or development of the Site, the decisions on which are the sole responsibility of the client.



9.0 CLOSURE AND QUALITY MANAGEMENT

We trust this meets your requirements. Should you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Trace Associates Inc.


<original signed by>

<original signed by>

12-Nov-2020

12-Nov-2020

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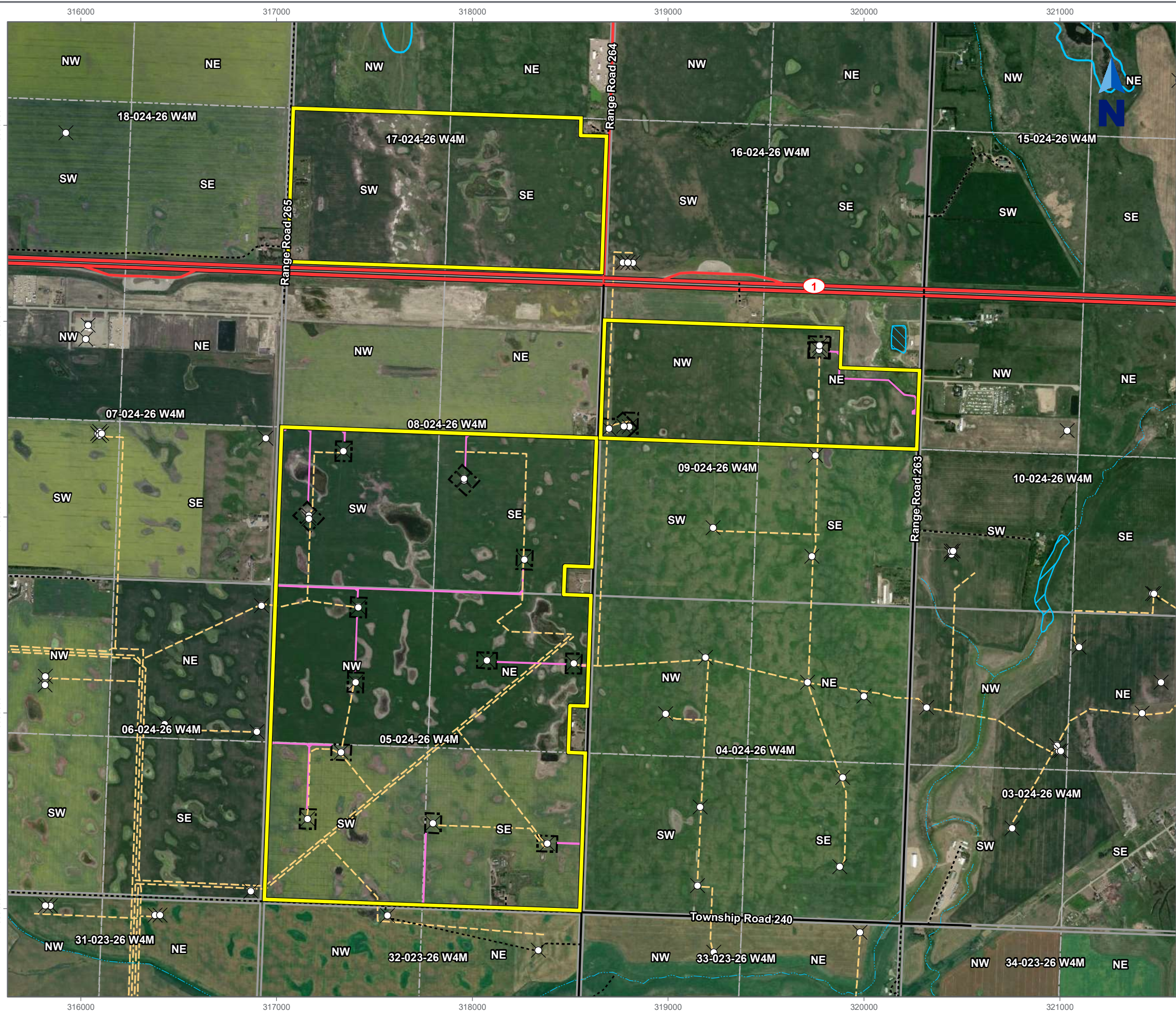
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Figures



Site Location Map and Site Plan

2151836 Alberta Inc. Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

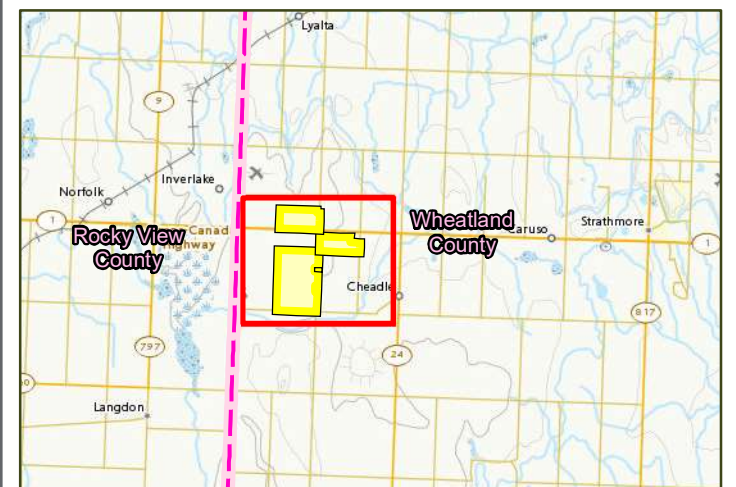
Legend

- Site
- Wellhead Location (Approximate Location) (AER)
- Natural Gas Pipeline (Approximate Location) (AER)
- Primary Highway
- Secondary Highway
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Stream Indefinite (AltaLis Base20)
- Recurring Waterbody (AltaLis Base20)
- Dugout (AltaLis Base20)
- Reservoir (AltaLis Base20)
- Lease Boundary (Surveyed Well Plat)
- Access Road (Surveyed Well Plat)

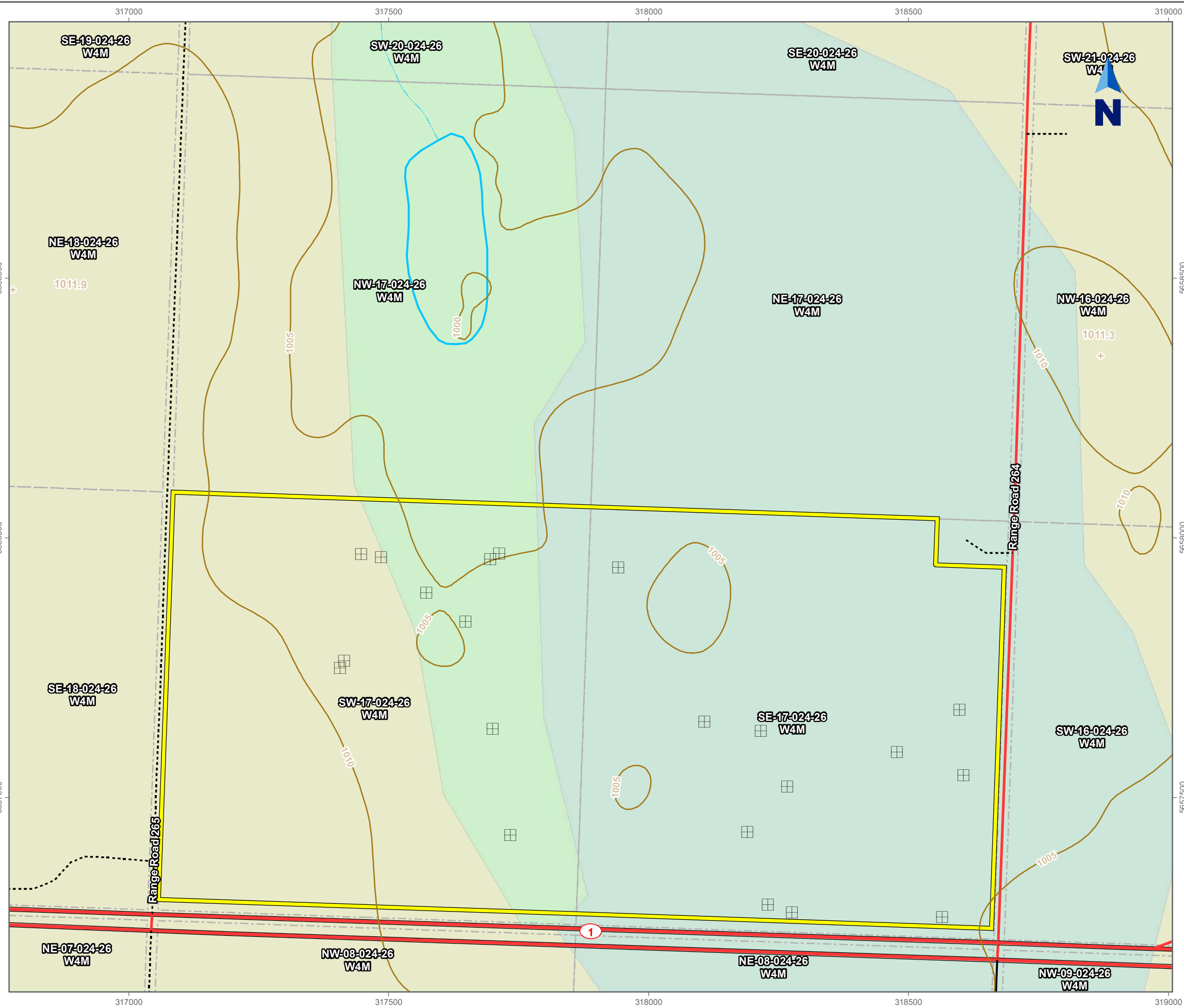


Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020



100-1533 F02 R00 V01 - Topography and Soils Date and Time Saved: Nov 08, 2020 9:06:08 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



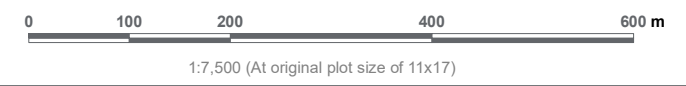
Topography and Soils

2151836 Alberta Inc. Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- Site
 - Soil Pit
 - + Spot Elevation
 - Contour (5m Interval)
*Derived from 20k Provincial DEM
 - Primary Highway
 - Secondary Highway
 - Secondary Highway - Gravel
 - Unimproved Road/Trail
 - Stream Indefinite (AltaLis Base20)
 - Recurring Waterbody (AltaLis Base20)
 - Quarter Section (ATS v4.1)
- Alberta Soil Information Centre (ASIC) (AGRASID V4.1)
- BEKY1/U1hn
 - DEL2/U1h
 - DERK1/U1hr



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: N/A
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

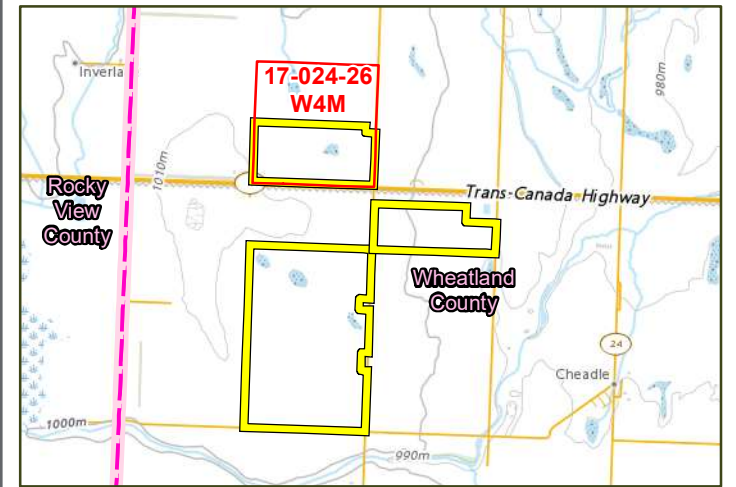
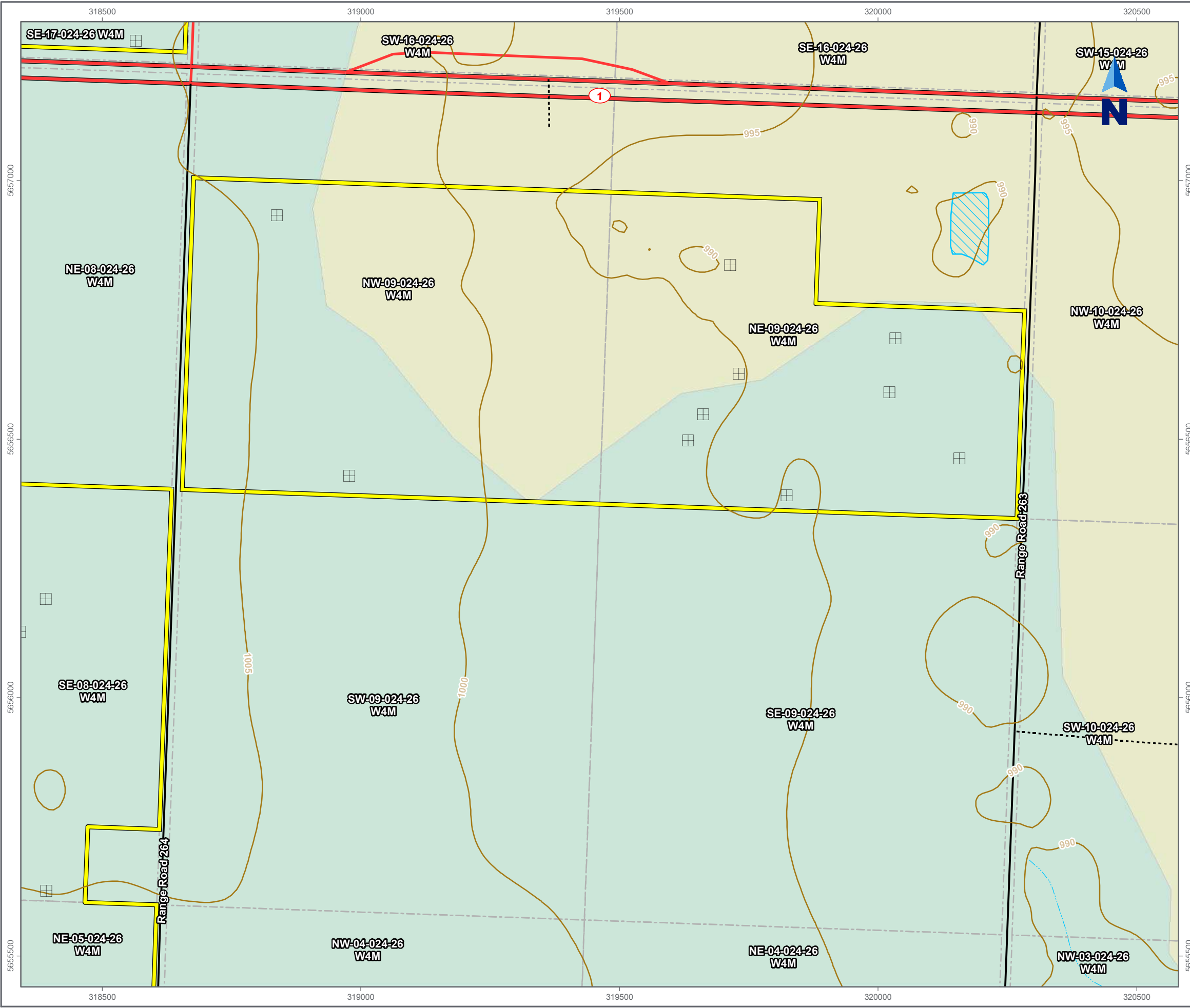


Figure No.
2.1

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100-1533 F02 R00 V01 - Topography and Soils Date and Time Saved: Nov 08, 2020 9:06:08 PM Drawn By: cvandenberg Reviewed By: RS Version: 1



Topography and Soils

2151836 Alberta Inc.
Biophysical Assessment
 West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- Site
- Soil Pit
- Spot Elevation
- Contour (5m Interval)
*Derived from 20k Provincial DEM
- Primary Highway
- Secondary Highway
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Stream Indefinite (AltaLis Base20)
- Dugout (AltaLis Base20)
- Quarter Section (ATS v4.1)

Alberta Soil Information Centre (ASIC) (AGRASID V4.1)

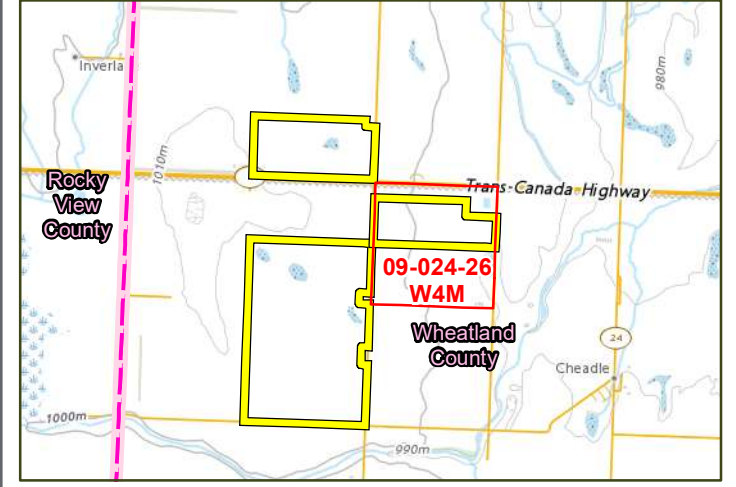
- DEL2/U1h
- DERK1/U1hr

0 100 200 400 600 m

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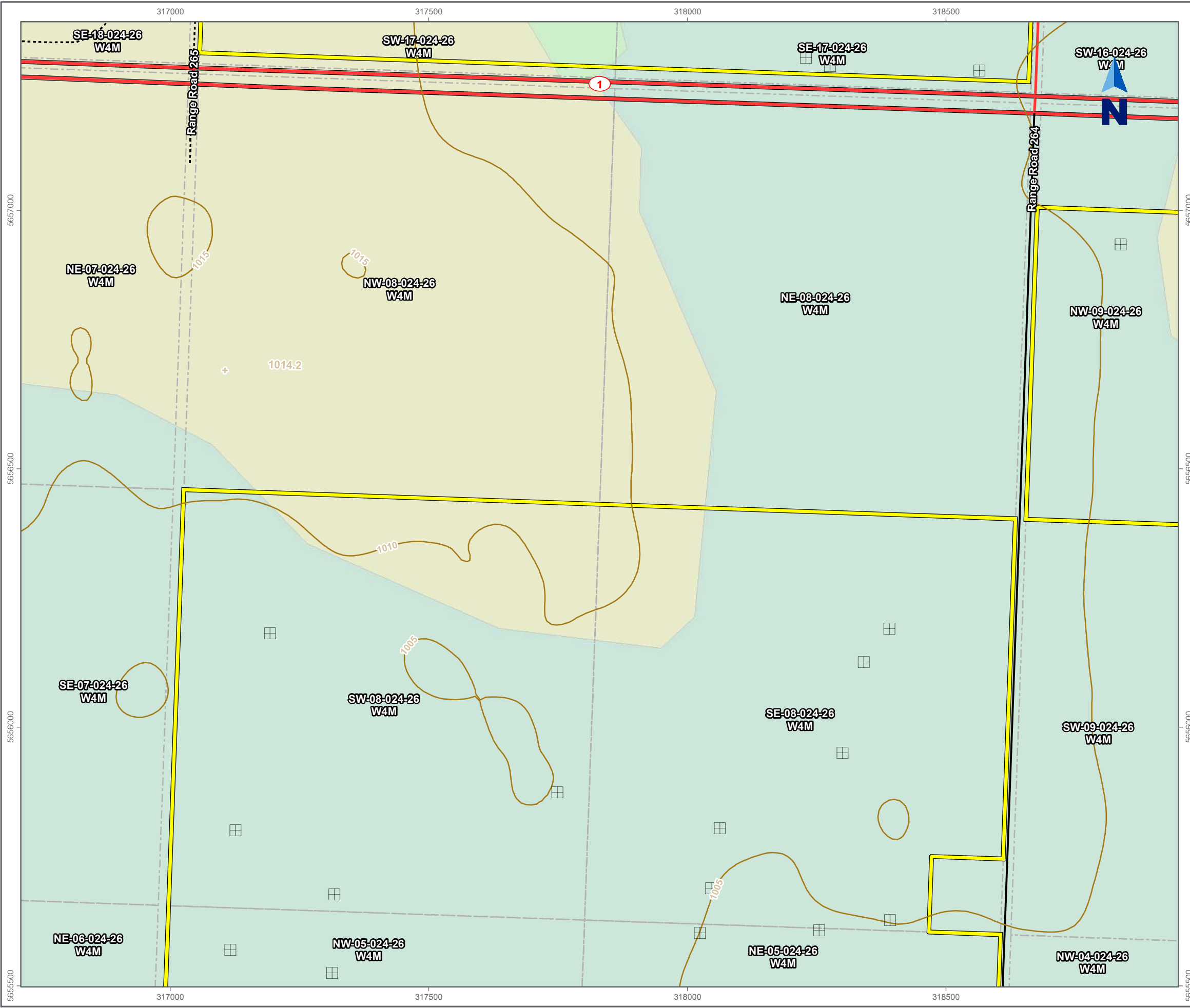
Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: N/A
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020



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100-1533.F02.R00.V01 - Topography and Soils Date and Time Saved: Nov 08, 2020 9:06:08 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



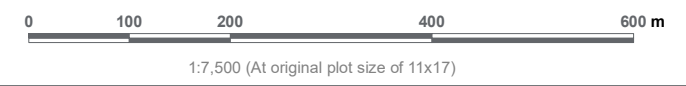
Topography and Soils

2151836 Alberta Inc. Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- Site
 - + Spot Elevation
 - Contour (5m Interval)
*Derived from 20k Provincial DEM
 - Primary Highway
 - Secondary Highway
 - Secondary Highway - Gravel
 - Unimproved Road/Trail
 - Quarter Section (ATS v4.1)
- Alberta Soil Information Centre (ASIC) (AGRASID V4.1)
- BEKY1/U1hn
 - DEL2/U1h
 - DERK1/U1hr



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: N/A
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

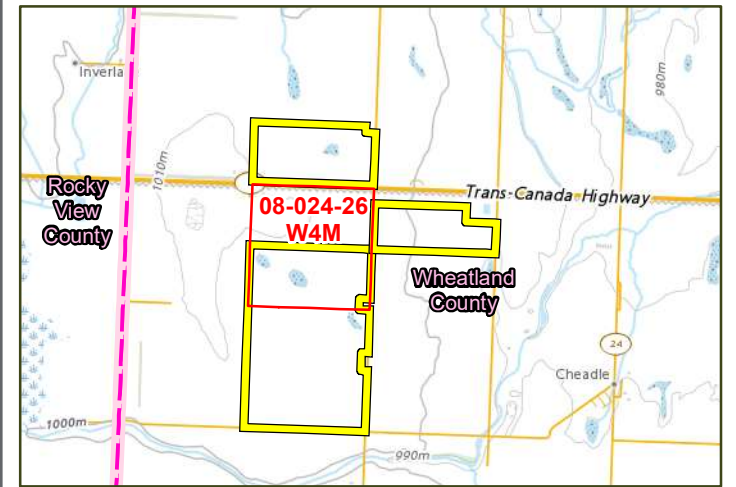
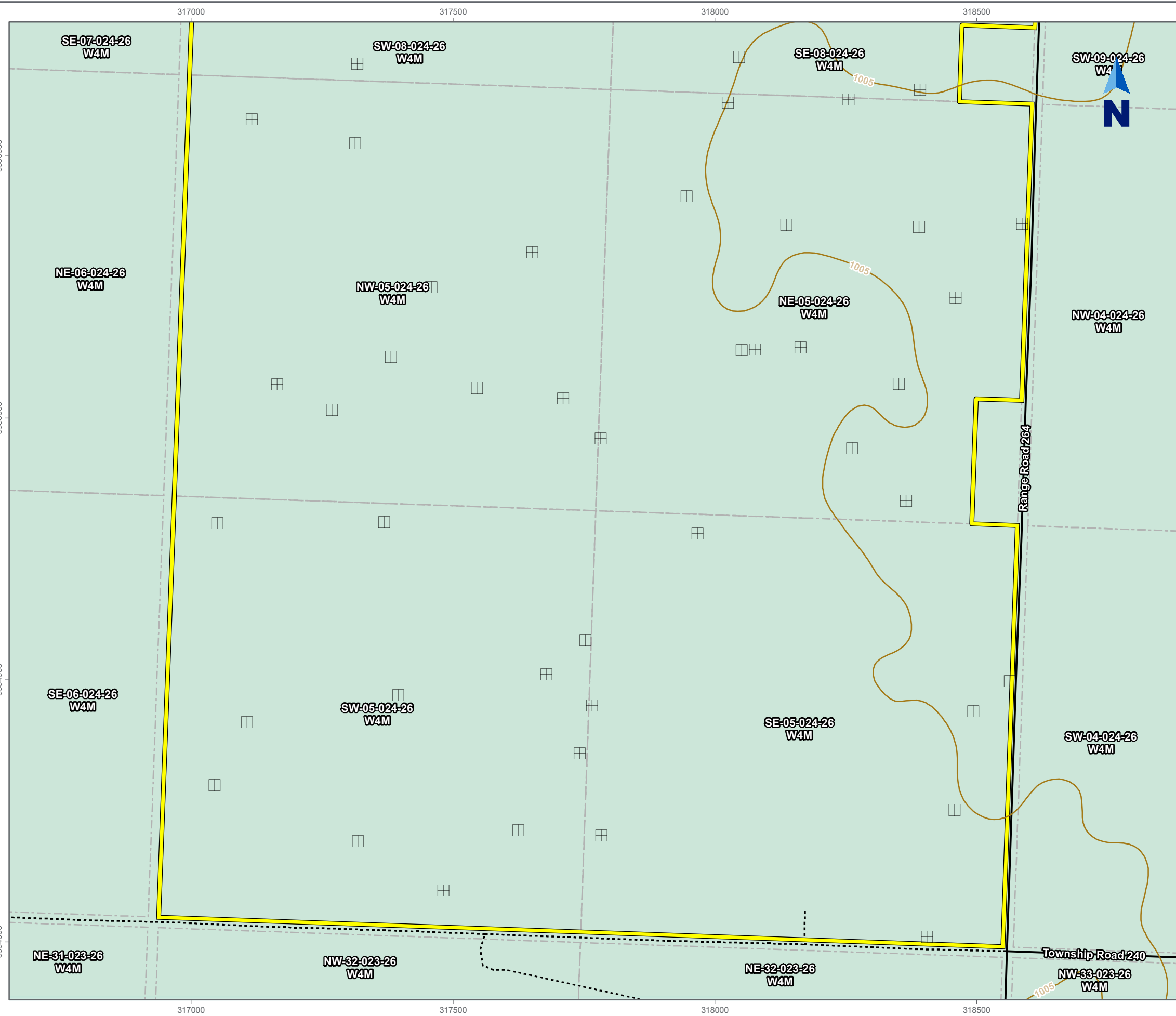


Figure No.
2.3

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100-1533 F02 R00 V01 - Topography and Soils Date and Time Saved: Nov 08, 2020 9:06:08 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



Topography and Soils

2151836 Alberta Inc. Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- Site
- Soil Pit
- + Spot Elevation
- Contour (5m Interval)
*Derived from 20k Provincial DEM
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Quarter Section (ATS v4.1)
- Alberta Soil Information Centre (ASIC) (AGRASID V4.1)
DEL2/U1h



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: N/A
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

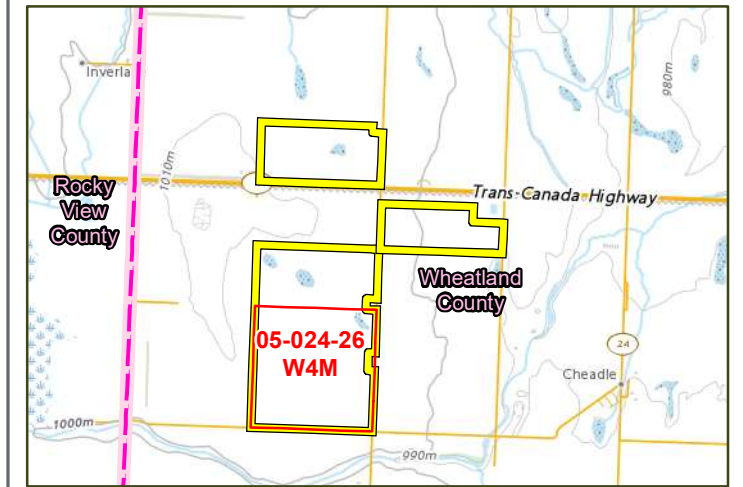
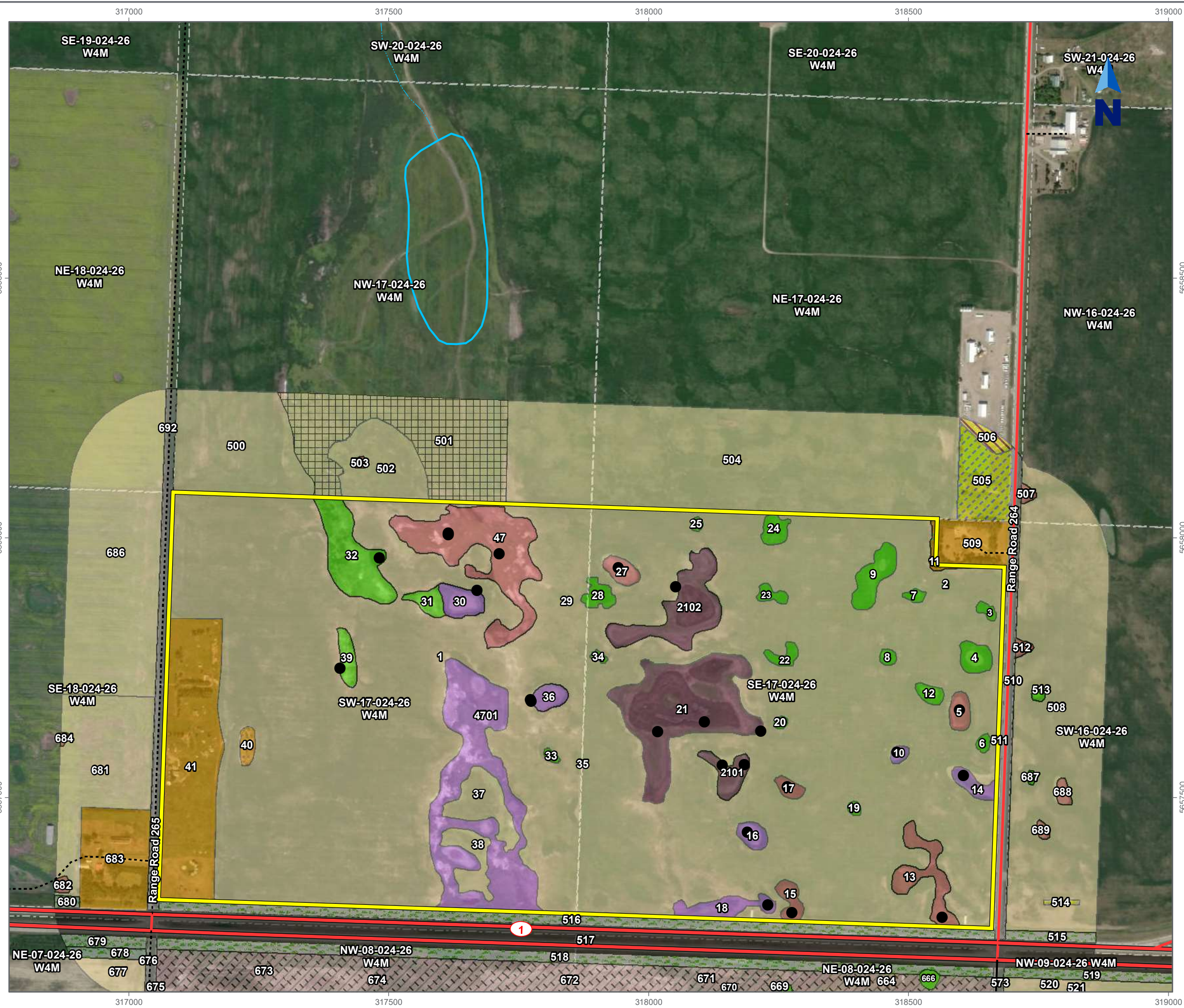


Figure No.
2.4

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100-1533 F03 R00 V01 - Water Resources and Plant Communities Date and Time Saved: Nov 10, 2020 2:26:38 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1



Water Resources and Plant Communities

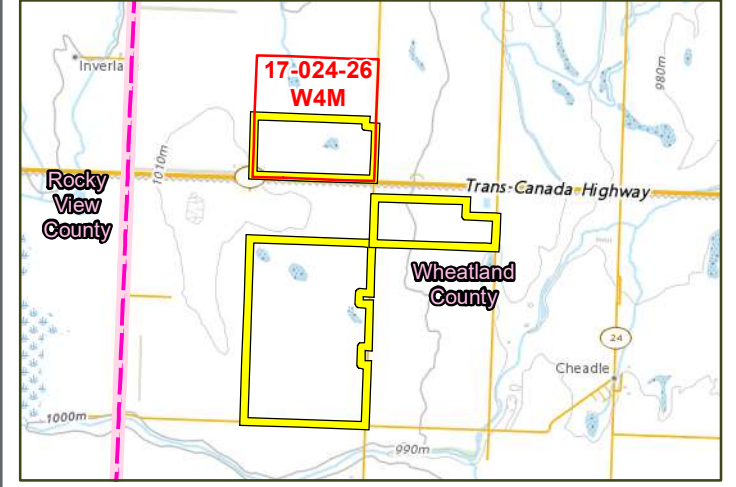
Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Site	Stream Indefinite
Primary Highway	Recurring Waterbody (AltaLis Base20)
Secondary Highway	Dugout (AltaLis Base20)
Secondary Highway - Gravel	Quarter Section (ATS v4.1)
Unimproved Road/Trail	Vegetation Assessment Plot
Rare Plants Blunt leaved watercress	
Industrial	Agricultural
Wellsite	Cultivated Cropland
Facility	Cultivated Cropland (Saline)
Stormwater pond	Modified Pasture
Road	Modified Pasture (Saline)
Grass Ditch	Wetland
Country Road	Temporary
Highway	Seasonal
Yard Site	Semi-permanent
Buildings / Yard	Waterbody
Treed	Ephemeral
Debris	Permanent
Disturbed	Dugout
Exposed soil	Intermittent Watercourse

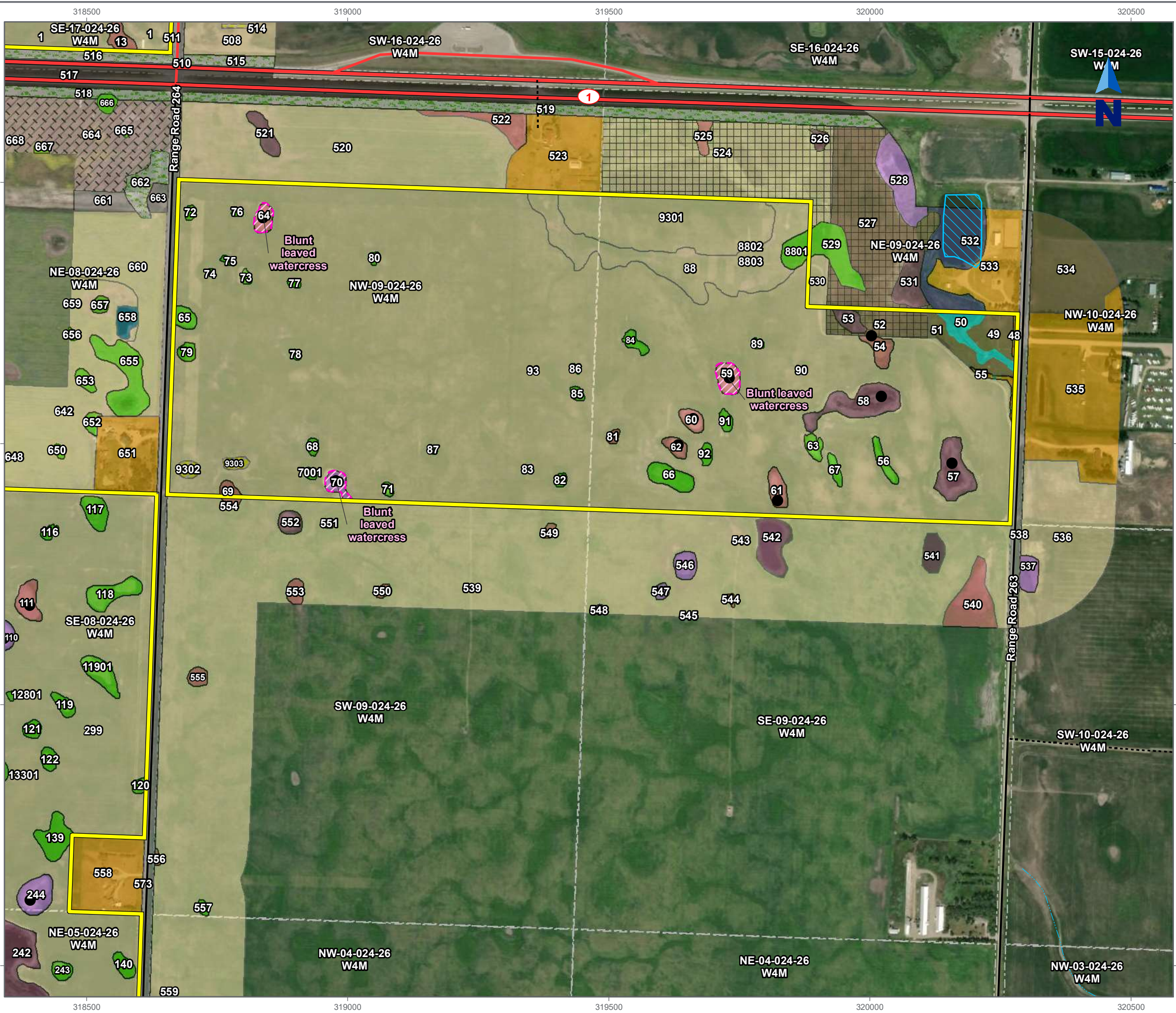
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1:7,500 (At original plot size of 11x17)

Notes
 1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 3. Land Use Polygons (Desktop Assessment): Trace Associates, 2020
 4. Base Image: ESRI World Imagery, 2018
 5. Inset Image: Canada Base Map - Transportation
 6. Last Field Update: September 17, 2020



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100-1533 F03 R00 V01 - Water Resources and Plant Communities Date and Time Saved: Nov 10, 2020 2:26:38 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



Water Resources and Plant Communities

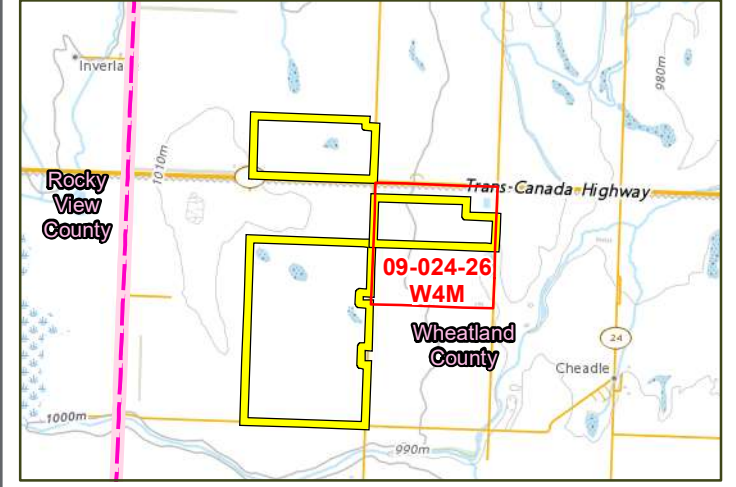
Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Site	Stream Indefinite	
Primary Highway	Recurring Waterbody (AltaLis Base20)	
Secondary Highway	Dugout (AltaLis Base20)	
Secondary Highway - Gravel	Quarter Section (ATS v4.1)	
Unimproved Road/Trail	Vegetation Assessment Plot	
Rare Plants		
Blunt leaved watercress		
Industrial		
Wellsite	Cultivated Cropland	
Facility	Cultivated Cropland (Saline)	
Stormwater pond	Modified Pasture	
Road		
Grass Ditch	Modified Pasture (Saline)	
Country Road	Wetland	
Highway	Temporary	
Yard Site		Seasonal
Buildings / Yard	Semi-permanent	
Treed	Waterbody	
Debris	Ephemeral	
Exposed soil	Permanent	
	Dugout	
	Intermittent Watercourse	



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 3. Land Use Polygons (Desktop Assessment): Trace Associates, 2020
 4. Base Image: ESRI World Imagery, 2018
 5. Inset Image: Canada Base Map - Transportation
 6. Last Field Update: September 17, 2020

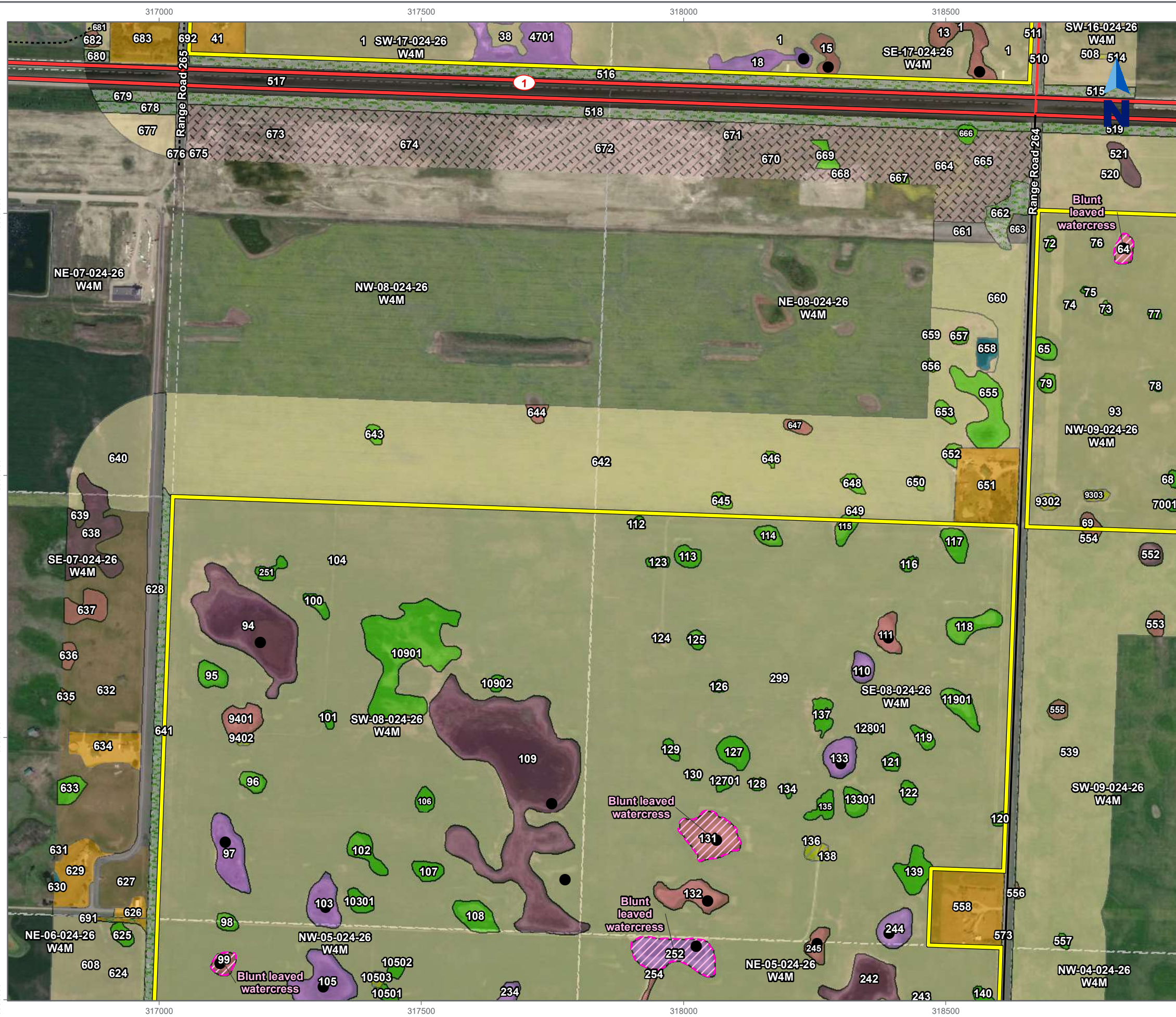


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Figure No.
3.2

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100-1533 F03 R00 V01 - Water Resources and Plant Communities Date and Time Saved: Nov 10, 2020 2:26:38 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1
 5667000
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Water Resources and Plant Communities

Site Location Map and Site Plan Biophysical Assessment

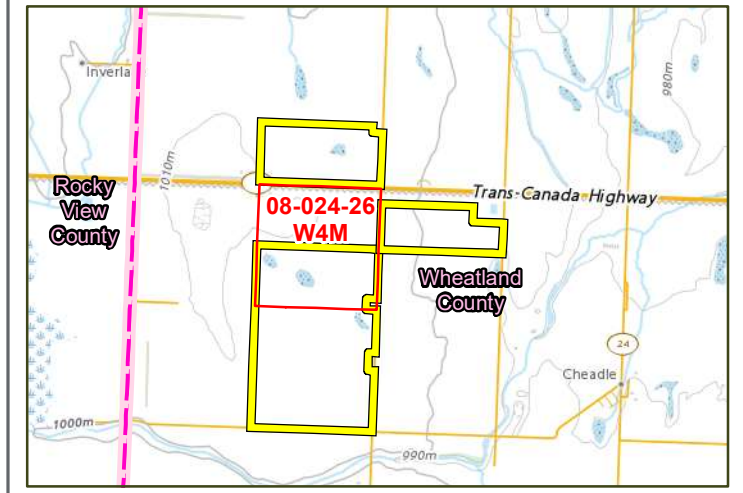
West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Site	Stream Indefinite	
Primary Highway	Recurring Waterbody (AltaLis Base20)	
Secondary Highway	Dugout (AltaLis Base20)	
Secondary Highway - Gravel	Quarter Section (ATS v4.1)	
Unimproved Road/Trail	Vegetation Assessment Plot	
Rare Plants		
Blunt leaved watercress		
Industrial		
Wellsite	Cultivated Cropland	
Facility	Cultivated Cropland (Saline)	
Stormwater pond	Modified Pasture	
Road		
Grass Ditch	Modified Pasture (Saline)	
Country Road	Wetland	
Highway	Temporary	
Yard Site		Seasonal
Buildings / Yard	Semi-permanent	
Treed	Waterbody	
Debris	Ephemeral	
Exposed soil	Permanent	
	Dugout	
	Intermittent Watercourse	

1:7,500 (At original plot size of 11x17)

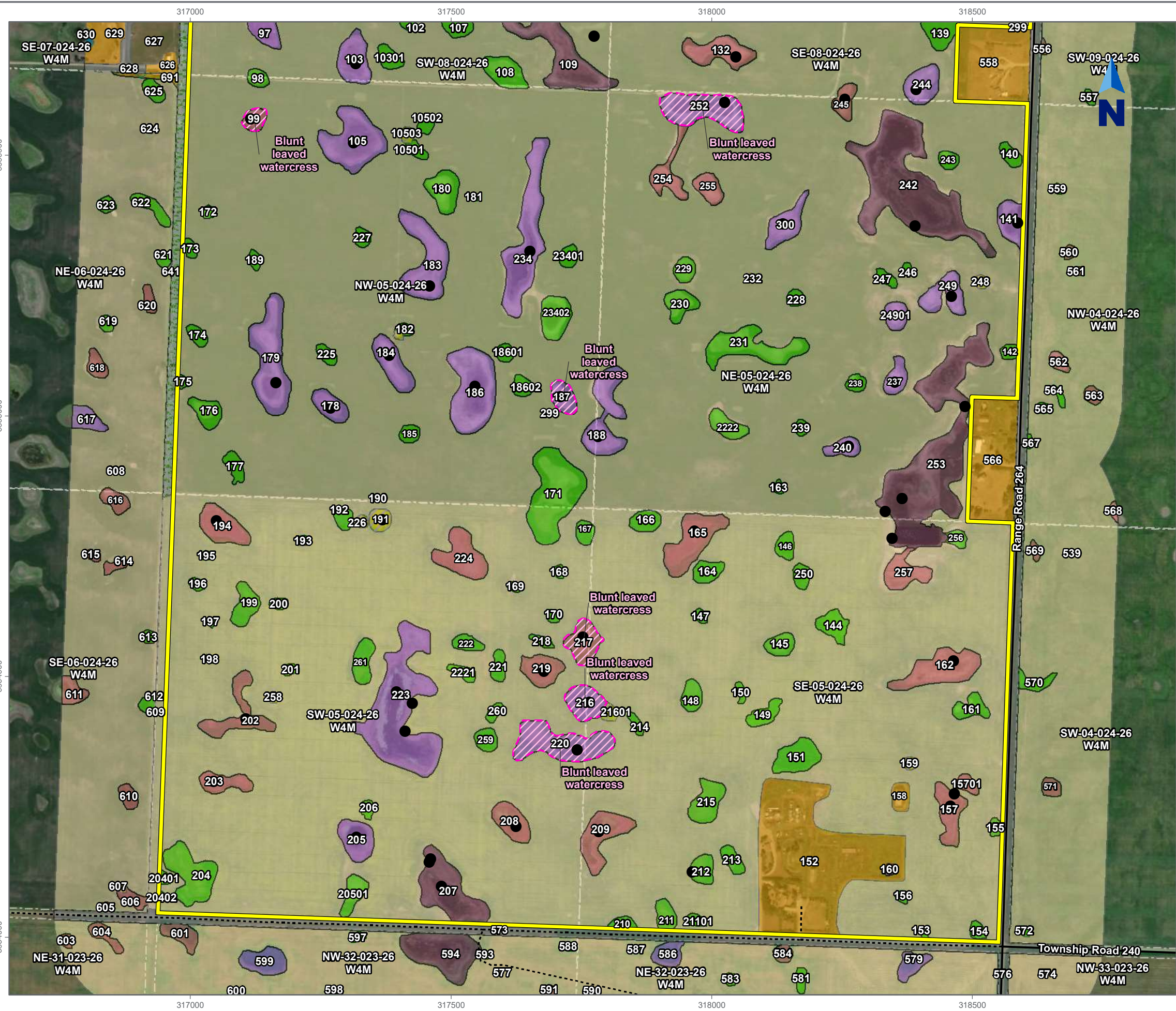
Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Land Use Polygons (Desktop Assessment): Trace Associates, 2020
- Base Image: ESRI World Imagery, 2018
- Inset Image: Canada Base Map - Transportation
- Last Field Update: September 17, 2020



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100-1533 F03 R00 V01 - Water Resources and Plant Communities Date and Time Saved: Nov 10, 2020 2:26:38 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1



Water Resources and Plant Communities

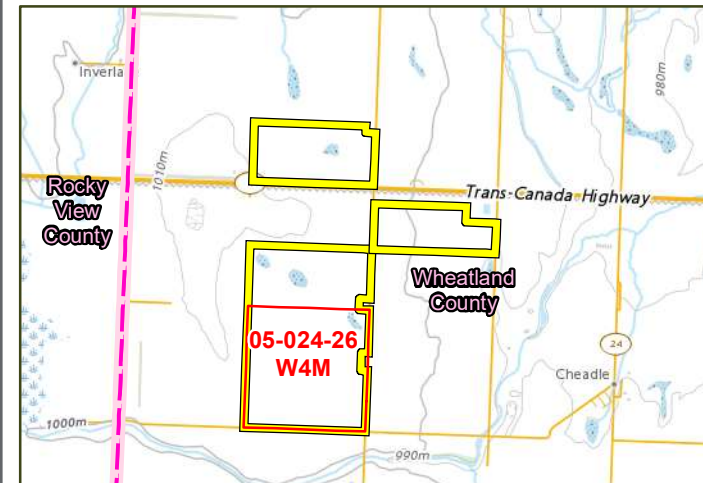
Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Site	Stream Indefinite	
Primary Highway	Recurring Waterbody (AltaLis Base20)	
Secondary Highway	Dugout (AltaLis Base20)	
Secondary Highway - Gravel	Quarter Section (ATS v4.1)	
Unimproved Road/Trail	Vegetation Assessment Plot	
Rare Plants		
Blunt leaved watercress		
Industrial		
Wellsite	Cultivated Cropland	
Facility	Cultivated Cropland (Saline)	
Stormwater pond	Modified Pasture	
Road		
Grass Ditch	Modified Pasture (Saline)	
Country Road	Wetland	
Highway	Temporary	
Yard Site		Seasonal
Buildings / Yard	Semi-permanent	
Treed	Waterbody	
Debris	Ephemeral	
Exposed soil	Permanent	
	Dugout	
	Intermittent Watercourse	

0 100 200 400 600 m
1:7,500 (At original plot size of 11x17)

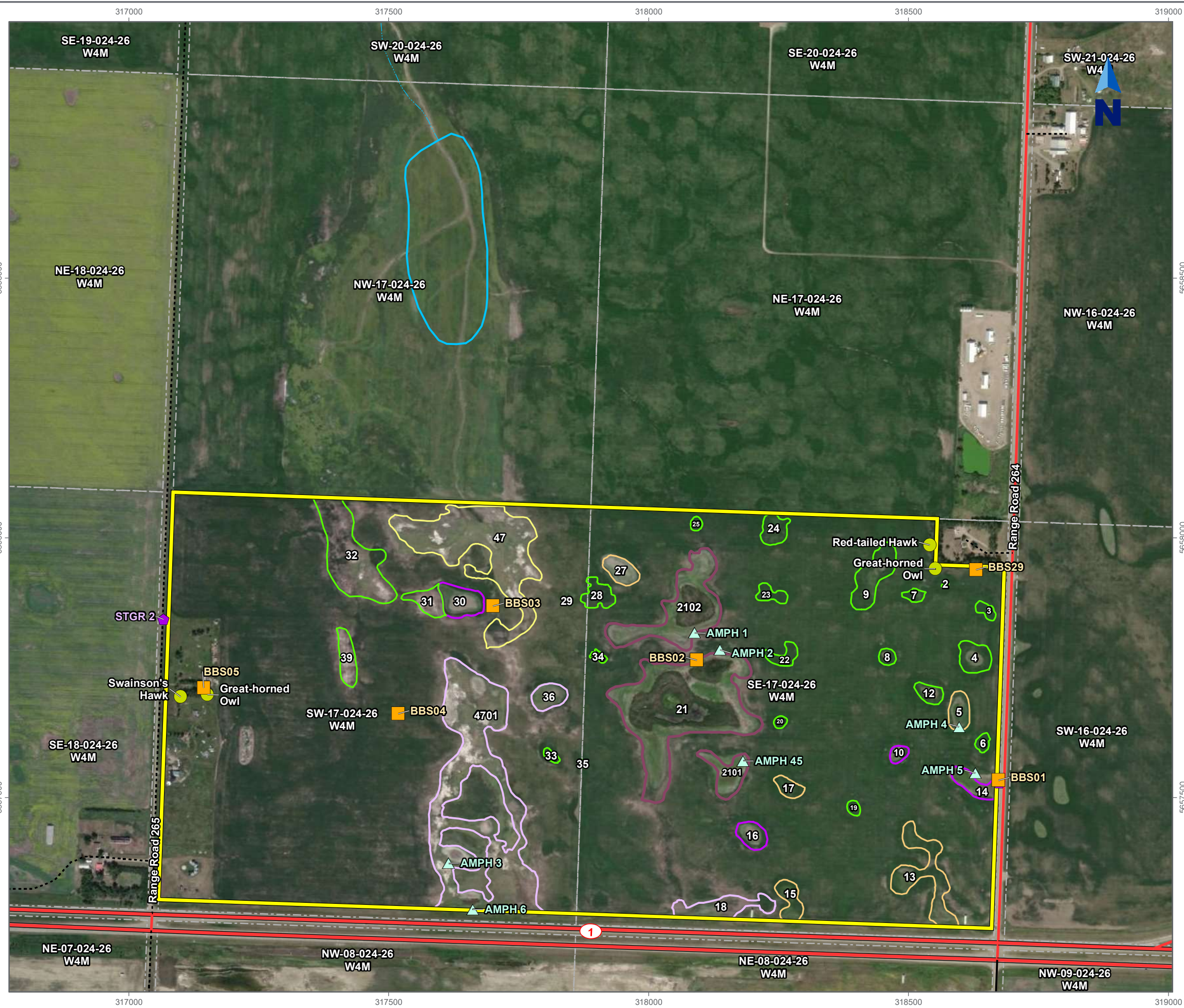
Notes
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 2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 3. Land Use Polygons (Desktop Assessment): Trace Associates, 2020
 4. Base Image: ESRI World Imagery, 2018
 5. Inset Image: Canada Base Map - Transportation
 6. Last Field Update: September 17, 2020



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Figure No.
3.4

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Wildlife

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

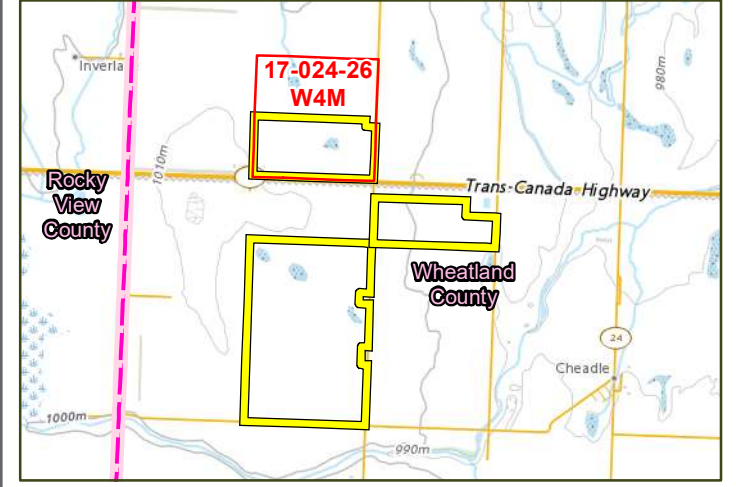
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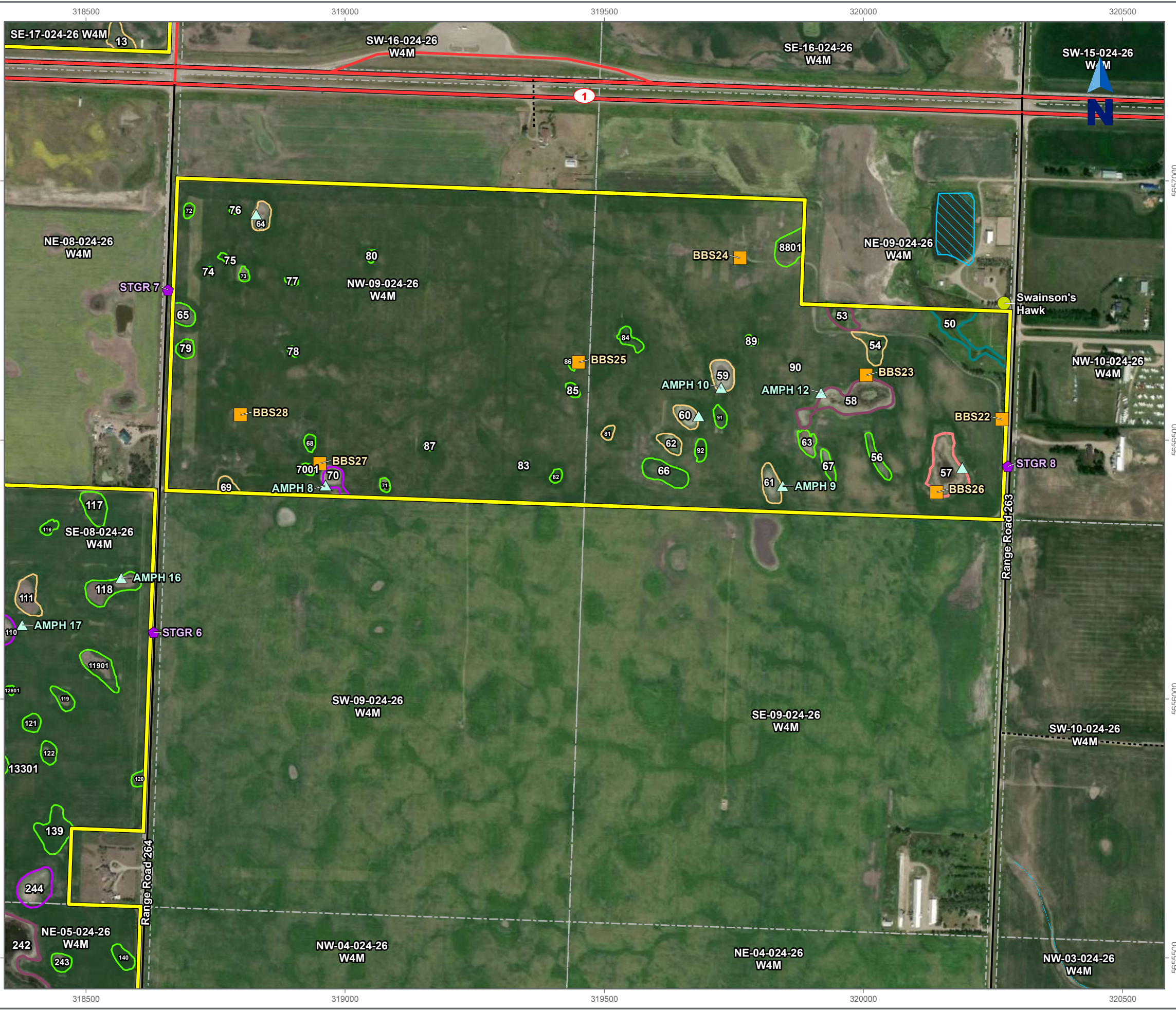
- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- | | |
|-------------------------------------|--|
| Amphibian Survey Site | Ephemeral |
| Breeding Bird Survey Site | Temporary Slightly Brackish Graminoid Marsh |
| Raptor Nest | Temporary Moderately Brackish Graminoid Marsh |
| Sharp-tailed Grouse Survey Location | Seasonal Moderately Brackish Graminoid Marsh |
| | Seasonal Slightly Brackish Graminoid Marsh |
| | Semi-permanent Slightly Brackish Graminoid Marsh |
| | Semi-permanent Moderately Brackish Graminoid Marsh |
| | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020





Wildlife

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- Site
- Primary Highway
- Secondary Highway
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Stream Indefinite
- Recurring Waterbody (AltaLis Base20)
- Dugout (AltaLis Base20)
- Quarter Section (ATS v4.1)

Wildlife

- ▲ Amphibian Survey Site
- Breeding Bird Survey Site
- Raptor Nest
- ◆ Sharp-tailed Grouse Survey Location

Alberta Wetland Classification System Wetland

- Ephemeral
- Temporary Slightly Brackish Graminoid Marsh
- Temporary Moderately Brackish Graminoid Marsh
- Seasonal Moderately Brackish Graminoid Marsh
- Seasonal Slightly Brackish Graminoid Marsh
- Semi-permanent Slightly Brackish Graminoid Marsh
- Semi-permanent Moderately Brackish Graminoid Marsh
- Watercourse/Riparian



Notes

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2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

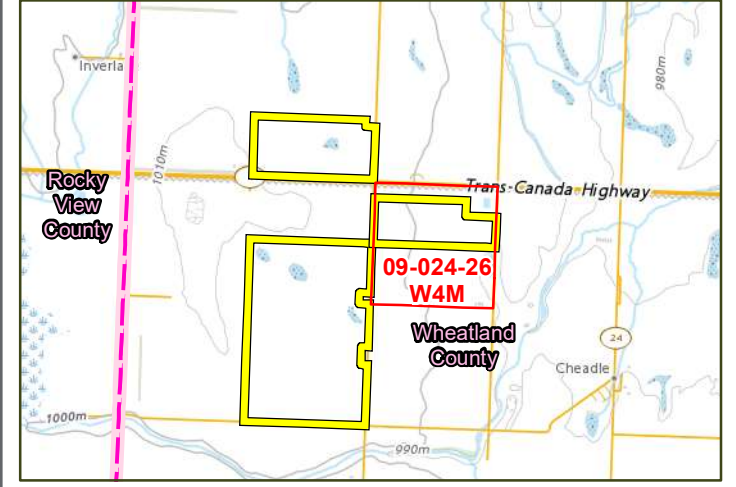
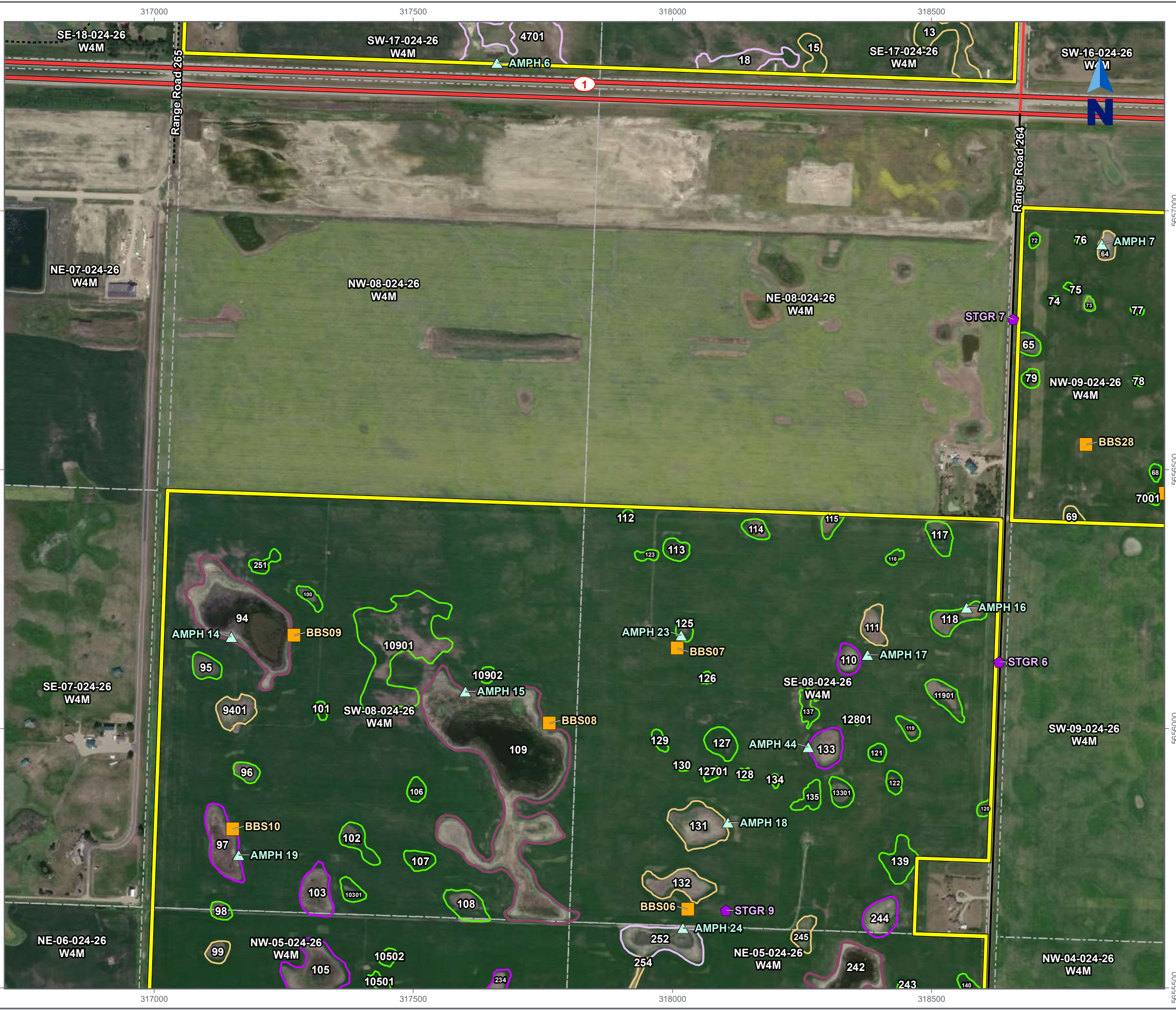


Figure No.
4.2

100-1533 F04 R00 V01 - Wildlife Date and Time Saved: Nov 10, 2020 2:15:08 PM Drawn By: cvandenberg Reviewed By: RS Version: 0
 5656500
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Wildlife

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

Site	Stream Indefinite
Primary Highway	Recurring Waterbody (AltaLis Base20)
Secondary Highway	Dugout (AltaLis Base20)
Secondary Highway - Gravel	Quarter Section (ATS v4.1)
Unimproved Road/Trail	

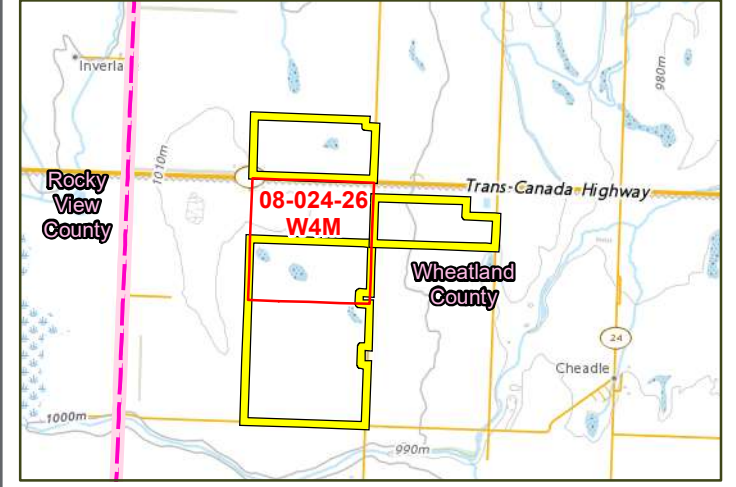
Wildlife

Amphibian Survey Site	Ephemeral
Breeding Bird Survey Site	Temporary Slightly Brackish Graminoid Marsh
Raptor Nest	Temporary Moderately Brackish Graminoid Marsh
Sharp-tailed Grouse Survey Location	Seasonal Moderately Brackish Graminoid Marsh
	Seasonal Slightly Brackish Graminoid Marsh
	Semi-permanent Slightly Brackish Graminoid Marsh
	Semi-permanent Moderately Brackish Graminoid Marsh
	Watercourse/Riparian

0 100 200 400 600 m
 1:7,500 (At original plot size of 11x17)

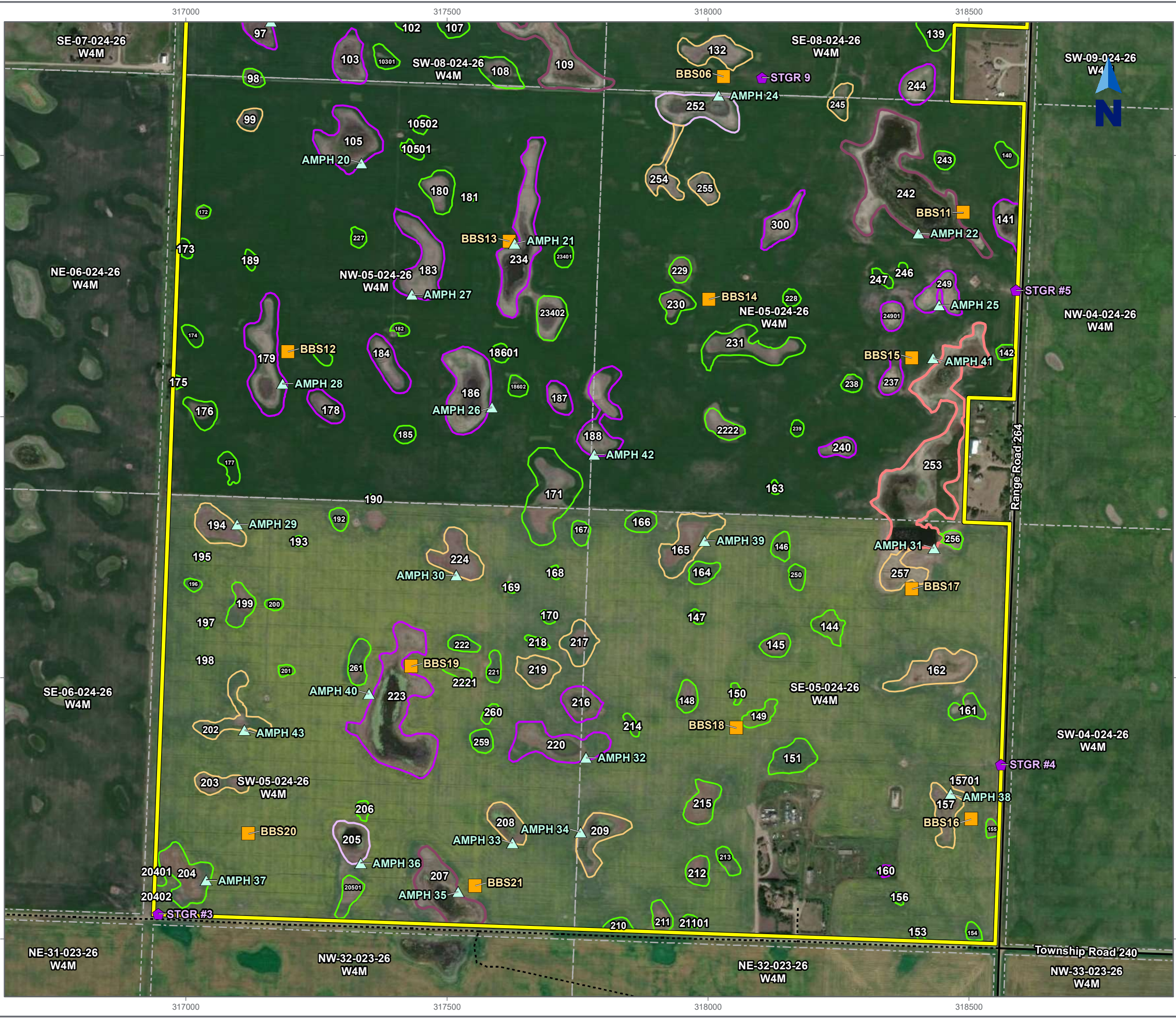
Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
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100-1533 F04 R00 V01 - Wildlife Date and Time Saved: Nov 10, 2020 2:15:08 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
 56555000
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 56540000



Wildlife

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

Site	Stream Indefinite
Primary Highway	Recurring Waterbody (AltaLis Base20)
Secondary Highway	Dugout (AltaLis Base20)
Secondary Highway - Gravel	Quarter Section (ATS v4.1)
Unimproved Road/Trail	

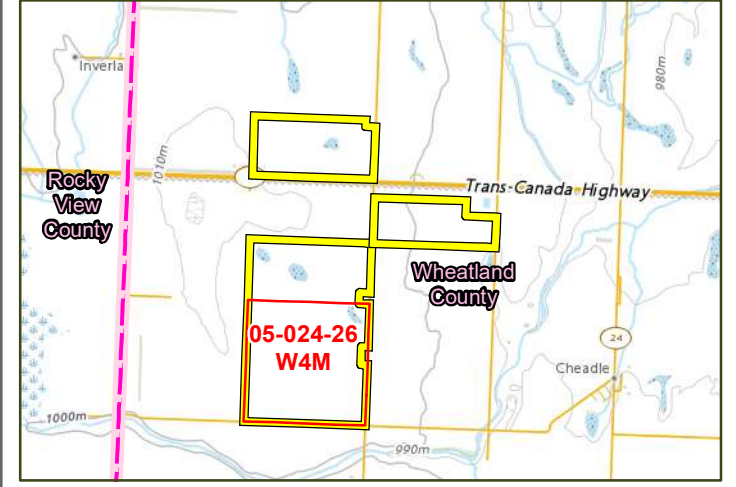
Wildlife

Amphibian Survey Site	Ephemeral
Breeding Bird Survey Site	Temporary Slightly Brackish Graminoid Marsh
Raptor Nest	Temporary Moderately Brackish Graminoid Marsh
Sharp-tailed Grouse Survey Location	Seasonal Moderately Brackish Graminoid Marsh
	Seasonal Slightly Brackish Graminoid Marsh
	Semi-permanent Slightly Brackish Graminoid Marsh
	Semi-permanent Moderately Brackish Graminoid Marsh
	Watercourse/Riparian

0 100 200 400 600 m
1:7,500 (At original plot size of 11x17)

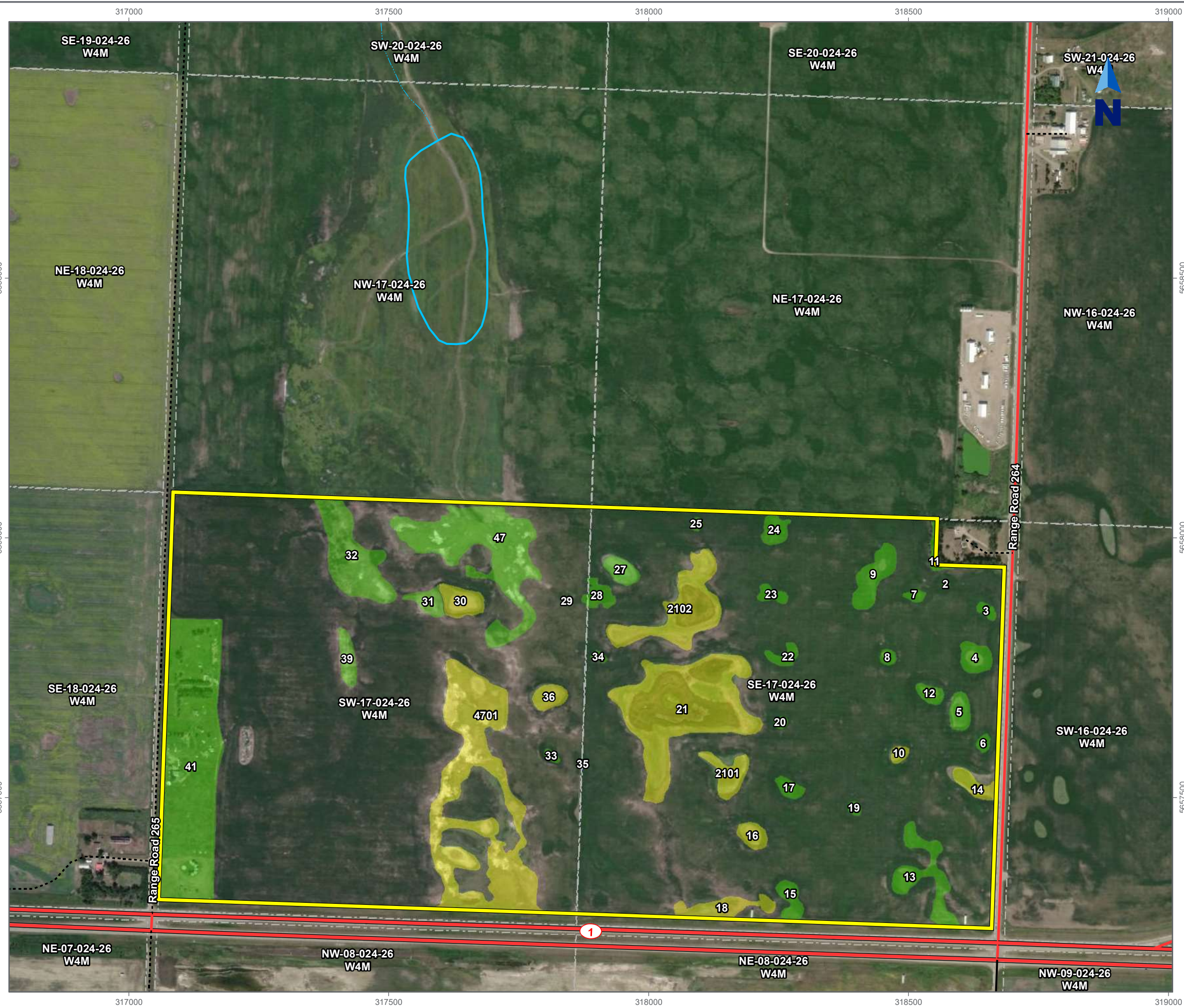
Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: ESRI World Imagery, 2018
- Inset Image: Canada Base Map - Transportation
- Last Field Update: September 17, 2020



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100-1533 F05 R00 V01 - Environmentally Significant Areas Date and Time Saved: Nov 10, 2020 12:33:55 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



Environmentally Significant Areas

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- Site
- Primary Highway
- Secondary Highway
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Stream Indefinite
- Recurring Waterbody (AltaLis Base20)
- Dugout (AltaLis Base20)
- Quarter Section (ATS v4.1)

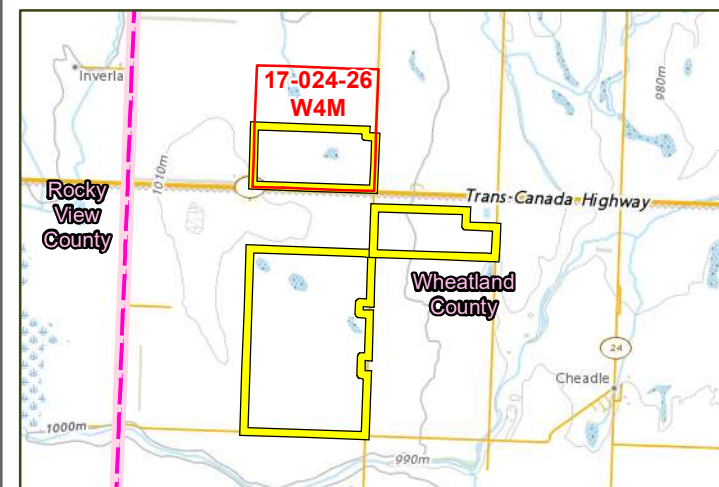
Environmentally Significant Areas

- Low
- Medium
- High



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

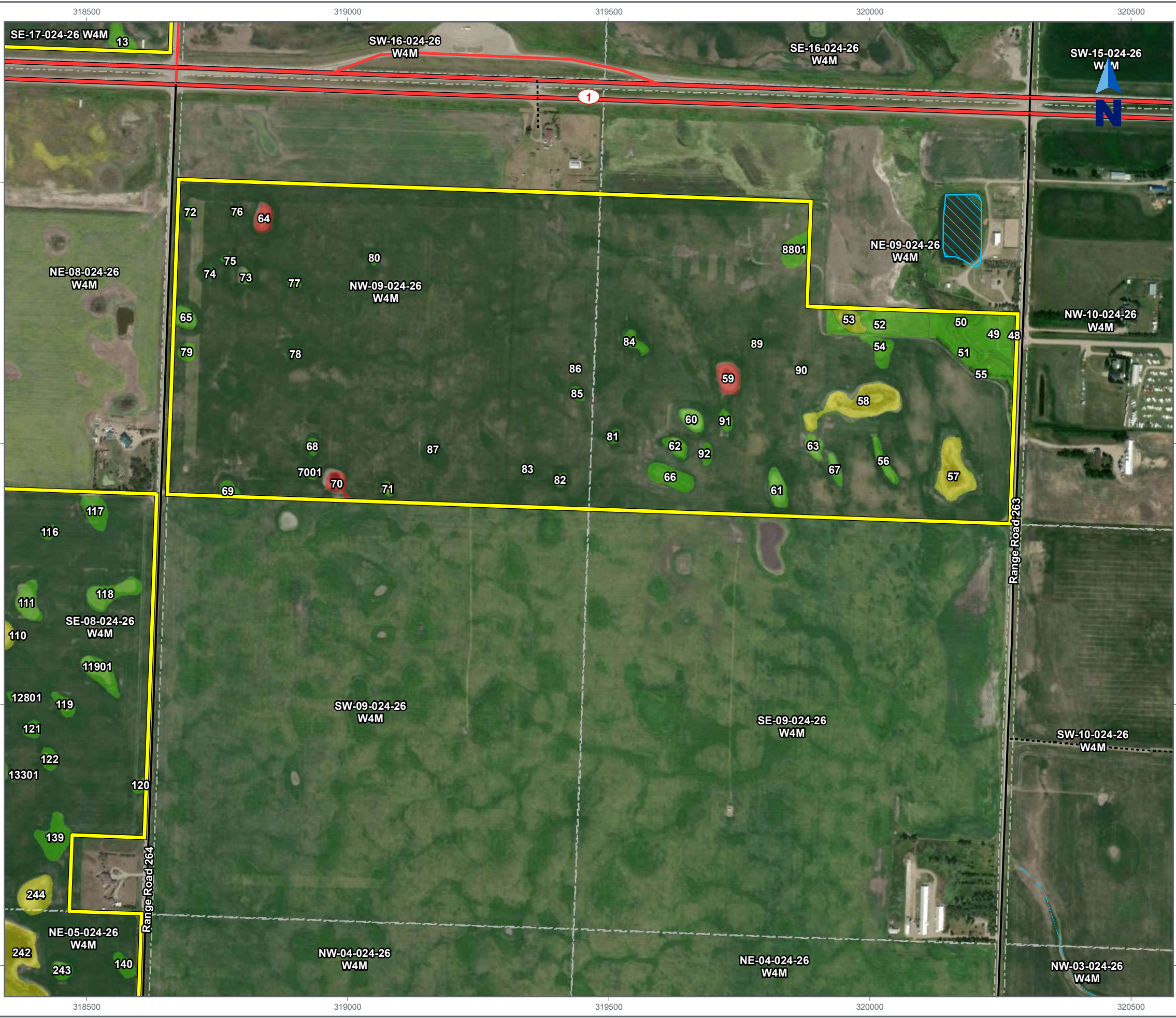


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Figure No.
5.1

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100-1533 F05 R00 V01 - Environmentally Significant Areas Date and Time Saved: Nov 10, 2020 12:33:55 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
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 5656500
 5656000
 5655500



Environmentally Significant Areas

Site Location Map and Site Plan Biophysical Assessment

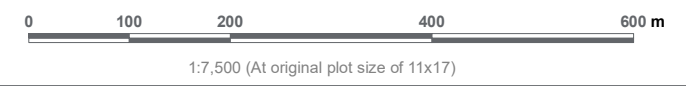
West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |

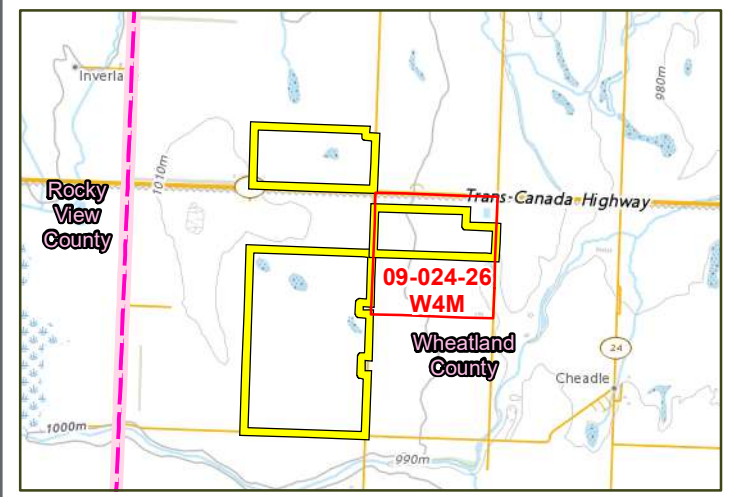
Environmentally Significant Areas

- Low
- Medium
- High



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020



TRACETM
ASSOCIATES

Figure No.
5.2

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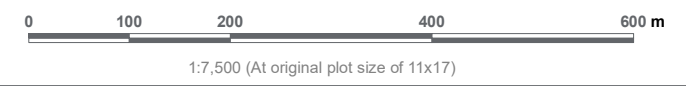
Environmentally Significant Areas

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

- Legend**
- Site
 - Primary Highway
 - Secondary Highway
 - Secondary Highway - Gravel
 - Unimproved Road/Trail
 - Stream Indefinite
 - Recurring Waterbody (AltaLis Base20)
 - Dugout (AltaLis Base20)
 - Quarter Section (ATS v4.1)

- Environmentally Significant Areas**
- Low
 - Medium
 - High



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 3. Base Image: ESRI World Imagery, 2018
 4. Inset Image: Canada Base Map - Transportation
 5. Last Field Update: September 17, 2020

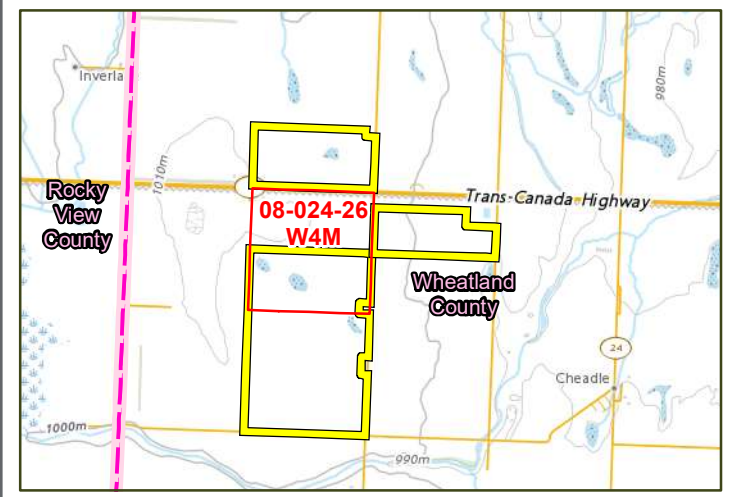


Figure No.
5.3

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100-1533 F05 R00 V01 - Environmentally Significant Areas Date and Time Saved: Nov 10, 2020 12:33:55 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1
 5655000
 5654000
 5654000
 5654000



Environmentally Significant Areas

Site Location Map and Site Plan Biophysical Assessment

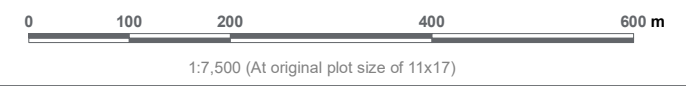
West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- Site
- Primary Highway
- Secondary Highway
- Secondary Highway - Gravel
- Unimproved Road/Trail
- Stream Indefinite
- Recurring Waterbody (AltaLis Base20)
- Dugout (AltaLis Base20)
- Quarter Section (ATS v4.1)

Environmentally Significant Areas

- Low
- Medium
- High



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: ESRI World Imagery, 2018
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: September 17, 2020

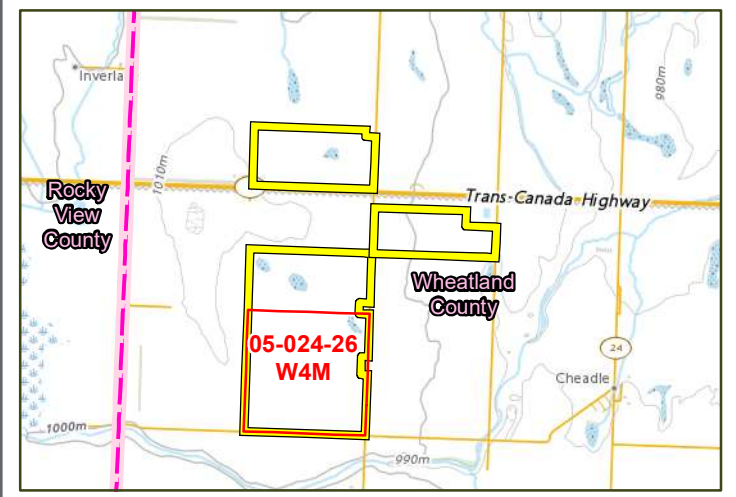


Figure No.
5.4

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Tables

Table 1 - Wetlands and Waterbodies Observed on the Site

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Alberta Wetland Classification System (GOA, 2015a)	Area (ha)	ABWRET-A Score
Waterbodies			
50	N/A – Intermittent Watercourse ¹	0.427	N/A
2	Non-wetland (Ephemeral Waterbody)	0.011	N/A
3	Non-wetland (Ephemeral Waterbody)	0.086	N/A
4	Non-wetland (Ephemeral Waterbody)	0.310	N/A
6	Non-wetland (Ephemeral Waterbody)	0.075	N/A
7	Non-wetland (Ephemeral Waterbody)	0.079	N/A
8	Non-wetland (Ephemeral Waterbody)	0.084	N/A
9	Non-wetland (Ephemeral Waterbody)	0.572	N/A
12	Non-wetland (Ephemeral Waterbody)	0.159	N/A
19	Non-wetland (Ephemeral Waterbody)	0.057	N/A
20	Non-wetland (Ephemeral Waterbody)	0.046	N/A
22	Non-wetland (Ephemeral Waterbody)	0.161	N/A
23	Non-wetland (Ephemeral Waterbody)	0.139	N/A
24	Non-wetland (Ephemeral Waterbody)	0.248	N/A
25	Non-wetland (Ephemeral Waterbody)	0.048	N/A
28	Non-wetland (Ephemeral Waterbody)	0.252	N/A
29	Non-wetland (Ephemeral Waterbody)	0.014	N/A
31	Non-wetland (Ephemeral Waterbody)	0.273	N/A
32	Non-wetland (Ephemeral Waterbody)	1.563	N/A
33	Non-wetland (Ephemeral Waterbody)	0.051	N/A
34	Non-wetland (Ephemeral Waterbody)	0.045	N/A
35	Non-wetland (Ephemeral Waterbody)	0.015	N/A
39	Non-wetland (Ephemeral Waterbody)	0.295	N/A
56	Non-wetland (Ephemeral Waterbody)	0.150	N/A
63	Non-wetland (Ephemeral Waterbody)	0.131	N/A
65	Non-wetland (Ephemeral Waterbody)	0.158	N/A
66	Non-wetland (Ephemeral Waterbody)	0.316	N/A
67	Non-wetland (Ephemeral Waterbody)	0.100	N/A
68	Non-wetland (Ephemeral Waterbody)	0.059	N/A
71	Non-wetland (Ephemeral Waterbody)	0.044	N/A
72	Non-wetland (Ephemeral Waterbody)	0.049	N/A
73	Non-wetland (Ephemeral Waterbody)	0.045	N/A
74	Non-wetland (Ephemeral Waterbody)	0.017	N/A
75	Non-wetland (Ephemeral Waterbody)	0.030	N/A
76	Non-wetland (Ephemeral Waterbody)	0.029	N/A
77	Non-wetland (Ephemeral Waterbody)	0.036	N/A
78	Non-wetland (Ephemeral Waterbody)	0.033	N/A
79	Non-wetland (Ephemeral Waterbody)	0.104	N/A
80	Non-wetland (Ephemeral Waterbody)	0.036	N/A
82	Non-wetland (Ephemeral Waterbody)	0.047	N/A
83	Non-wetland (Ephemeral Waterbody)	0.023	N/A
84	Non-wetland (Ephemeral Waterbody)	0.120	N/A
85	Non-wetland (Ephemeral Waterbody)	0.055	N/A
86	Non-wetland (Ephemeral Waterbody)	0.014	N/A
87	Non-wetland (Ephemeral Waterbody)	0.021	N/A
89	Non-wetland (Ephemeral Waterbody)	0.034	N/A
90	Non-wetland (Ephemeral Waterbody)	0.015	N/A
91	Non-wetland (Ephemeral Waterbody)	0.083	N/A
92	Non-wetland (Ephemeral Waterbody)	0.079	N/A
95	Non-wetland (Ephemeral Waterbody)	0.224	N/A
96	Non-wetland (Ephemeral Waterbody)	0.150	N/A
98	Non-wetland (Ephemeral Waterbody)	0.115	N/A
100	Non-wetland (Ephemeral Waterbody)	0.122	N/A
101	Non-wetland (Ephemeral Waterbody)	0.057	N/A
102	Non-wetland (Ephemeral Waterbody)	0.287	N/A
106	Non-wetland (Ephemeral Waterbody)	0.133	N/A
107	Non-wetland (Ephemeral Waterbody)	0.181	N/A
108	Non-wetland (Ephemeral Waterbody)	0.372	N/A
112	Non-wetland (Ephemeral Waterbody)	0.032	N/A
113	Non-wetland (Ephemeral Waterbody)	0.172	N/A
114	Non-wetland (Ephemeral Waterbody)	0.155	N/A
115	Non-wetland (Ephemeral Waterbody)	0.138	N/A
116	Non-wetland (Ephemeral Waterbody)	0.068	N/A
117	Non-wetland (Ephemeral Waterbody)	0.247	N/A
118	Non-wetland (Ephemeral Waterbody)	0.377	N/A
119	Non-wetland (Ephemeral Waterbody)	0.123	N/A
120	Non-wetland (Ephemeral Waterbody)	0.068	N/A
121	Non-wetland (Ephemeral Waterbody)	0.098	N/A
122	Non-wetland (Ephemeral Waterbody)	0.110	N/A
123	Non-wetland (Ephemeral Waterbody)	0.074	N/A
125	Non-wetland (Ephemeral Waterbody)	0.093	N/A
126	Non-wetland (Ephemeral Waterbody)	0.045	N/A
127	Non-wetland (Ephemeral Waterbody)	0.292	N/A
128	Non-wetland (Ephemeral Waterbody)	0.047	N/A
129	Non-wetland (Ephemeral Waterbody)	0.085	N/A
130	Non-wetland (Ephemeral Waterbody)	0.030	N/A
134	Non-wetland (Ephemeral Waterbody)	0.041	N/A
135	Non-wetland (Ephemeral Waterbody)	0.192	N/A

Table 1 - Wetlands and Waterbodies Observed on the Site

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Alberta Wetland Classification System (GOA, 2015a)	Area (ha)	ABWRET-A Score
Waterbodies			
137	Non-wetland (Ephemeral Waterbody)	0.189	N/A
139	Non-wetland (Ephemeral Waterbody)	0.389	N/A
140	Non-wetland (Ephemeral Waterbody)	0.135	N/A
142	Non-wetland (Ephemeral Waterbody)	0.095	N/A
144	Non-wetland (Ephemeral Waterbody)	0.257	N/A
145	Non-wetland (Ephemeral Waterbody)	0.195	N/A
146	Non-wetland (Ephemeral Waterbody)	0.154	N/A
147	Non-wetland (Ephemeral Waterbody)	0.051	N/A
148	Non-wetland (Ephemeral Waterbody)	0.193	N/A
149	Non-wetland (Ephemeral Waterbody)	0.197	N/A
150	Non-wetland (Ephemeral Waterbody)	0.054	N/A
151	Non-wetland (Ephemeral Waterbody)	0.432	N/A
153	Non-wetland (Ephemeral Waterbody)	0.024	N/A
154	Non-wetland (Ephemeral Waterbody)	0.085	N/A
155	Non-wetland (Ephemeral Waterbody)	0.071	N/A
156	Non-wetland (Ephemeral Waterbody)	0.043	N/A
161	Non-wetland (Ephemeral Waterbody)	0.222	N/A
163	Non-wetland (Ephemeral Waterbody)	0.040	N/A
164	Non-wetland (Ephemeral Waterbody)	0.198	N/A
166	Non-wetland (Ephemeral Waterbody)	0.199	N/A
167	Non-wetland (Ephemeral Waterbody)	0.136	N/A
168	Non-wetland (Ephemeral Waterbody)	0.039	N/A
169	Non-wetland (Ephemeral Waterbody)	0.040	N/A
170	Non-wetland (Ephemeral Waterbody)	0.054	N/A
171	Non-wetland (Ephemeral Waterbody)	1.298	N/A
172	Non-wetland (Ephemeral Waterbody)	0.053	N/A
173	Non-wetland (Ephemeral Waterbody)	0.074	N/A
174	Non-wetland (Ephemeral Waterbody)	0.111	N/A
175	Non-wetland (Ephemeral Waterbody)	0.044	N/A
176	Non-wetland (Ephemeral Waterbody)	0.253	N/A
177	Non-wetland (Ephemeral Waterbody)	0.150	N/A
180	Non-wetland (Ephemeral Waterbody)	0.380	N/A
181	Non-wetland (Ephemeral Waterbody)	0.012	N/A
182	Non-wetland (Ephemeral Waterbody)	0.061	N/A
185	Non-wetland (Ephemeral Waterbody)	0.112	N/A
189	Non-wetland (Ephemeral Waterbody)	0.070	N/A
190	Non-wetland (Ephemeral Waterbody)	0.019	N/A
192	Non-wetland (Ephemeral Waterbody)	0.124	N/A
193	Non-wetland (Ephemeral Waterbody)	0.037	N/A
195	Non-wetland (Ephemeral Waterbody)	0.028	N/A
196	Non-wetland (Ephemeral Waterbody)	0.061	N/A
197	Non-wetland (Ephemeral Waterbody)	0.015	N/A
198	Non-wetland (Ephemeral Waterbody)	0.019	N/A
199	Non-wetland (Ephemeral Waterbody)	0.293	N/A
200	Non-wetland (Ephemeral Waterbody)	0.064	N/A
201	Non-wetland (Ephemeral Waterbody)	0.056	N/A
204	Non-wetland (Ephemeral Waterbody)	0.726	N/A
206	Non-wetland (Ephemeral Waterbody)	0.076	N/A
210	Non-wetland (Ephemeral Waterbody)	0.112	N/A
211	Non-wetland (Ephemeral Waterbody)	0.192	N/A
212	Non-wetland (Ephemeral Waterbody)	0.214	N/A
213	Non-wetland (Ephemeral Waterbody)	0.152	N/A
214	Non-wetland (Ephemeral Waterbody)	0.072	N/A
215	Non-wetland (Ephemeral Waterbody)	0.393	N/A
218	Non-wetland (Ephemeral Waterbody)	0.070	N/A
221	Non-wetland (Ephemeral Waterbody)	0.137	N/A
222	Non-wetland (Ephemeral Waterbody)	0.142	N/A
225	Non-wetland (Ephemeral Waterbody)	0.103	N/A
227	Non-wetland (Ephemeral Waterbody)	0.092	N/A
228	Non-wetland (Ephemeral Waterbody)	0.088	N/A
229	Non-wetland (Ephemeral Waterbody)	0.160	N/A
230	Non-wetland (Ephemeral Waterbody)	0.270	N/A
231	Non-wetland (Ephemeral Waterbody)	0.813	N/A
238	Non-wetland (Ephemeral Waterbody)	0.105	N/A
239	Non-wetland (Ephemeral Waterbody)	0.062	N/A
243	Non-wetland (Ephemeral Waterbody)	0.112	N/A
246	Non-wetland (Ephemeral Waterbody)	0.035	N/A
247	Non-wetland (Ephemeral Waterbody)	0.088	N/A
250	Non-wetland (Ephemeral Waterbody)	0.126	N/A
251	Non-wetland (Ephemeral Waterbody)	0.131	N/A
256	Non-wetland (Ephemeral Waterbody)	0.105	N/A
259	Non-wetland (Ephemeral Waterbody)	0.161	N/A
260	Non-wetland (Ephemeral Waterbody)	0.076	N/A
261	Non-wetland (Ephemeral Waterbody)	0.271	N/A
2221	Non-wetland (Ephemeral Waterbody)	0.109	N/A
2222	Non-wetland (Ephemeral Waterbody)	0.257	N/A
7001	Non-wetland (Ephemeral Waterbody)	0.043	N/A
8801	Non-wetland (Ephemeral Waterbody)	0.300	N/A

Table 1 - Wetlands and Waterbodies Observed on the Site

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Alberta Wetland Classification System (GOA, 2015a)	Area (ha)	ABWRET-A Score
Waterbodies			
10301	Non-wetland (Ephemeral Waterbody)	0.155	N/A
10501	Non-wetland (Ephemeral Waterbody)	0.098	N/A
10502	Non-wetland (Ephemeral Waterbody)	0.086	N/A
10901	Non-wetland (Ephemeral Waterbody)	2.361	N/A
10902	Non-wetland (Ephemeral Waterbody)	0.070	N/A
11901	Non-wetland (Ephemeral Waterbody)	0.305	N/A
12701	Non-wetland (Ephemeral Waterbody)	0.059	N/A
12801	Non-wetland (Ephemeral Waterbody)	0.022	N/A
13301	Non-wetland (Ephemeral Waterbody)	0.205	N/A
18601	Non-wetland (Ephemeral Waterbody)	0.097	N/A
18602	Non-wetland (Ephemeral Waterbody)	0.121	N/A
20401	Non-wetland (Ephemeral Waterbody)	0.049	N/A
20402	Non-wetland (Ephemeral Waterbody)	0.014	N/A
20501	Non-wetland (Ephemeral Waterbody)	0.237	N/A
21101	Non-wetland (Ephemeral Waterbody)	0.070	N/A
23401	Non-wetland (Ephemeral Waterbody)	0.123	N/A
23402	Non-wetland (Ephemeral Waterbody)	0.399	N/A
Wetlands			
18	Seasonal Moderately Brackish Graminoid Marsh	0.558	D
36	Seasonal Moderately Brackish Graminoid Marsh	0.268	D
205	Seasonal Moderately Brackish Graminoid Marsh	0.421	D
252	Seasonal Moderately Brackish Graminoid Marsh	0.828	D
4701	Seasonal Moderately Brackish Graminoid Marsh	4.776	D
10	Seasonal Slightly Brackish Graminoid Marsh	0.093	D
14	Seasonal Slightly Brackish Graminoid Marsh	0.287	D
16	Seasonal Slightly Brackish Graminoid Marsh	0.240	D
30	Seasonal Slightly Brackish Graminoid Marsh	0.432	B
70	Seasonal Slightly Brackish Graminoid Marsh	0.163	D
97	Seasonal Slightly Brackish Graminoid Marsh	0.699	D
103	Seasonal Slightly Brackish Graminoid Marsh	0.489	D
105	Seasonal Slightly Brackish Graminoid Marsh	1.017	D
110	Seasonal Slightly Brackish Graminoid Marsh	0.209	D
133	Seasonal Slightly Brackish Graminoid Marsh	0.391	D
141	Seasonal Slightly Brackish Graminoid Marsh	0.373	D
160	Seasonal Slightly Brackish Graminoid Marsh	0.045	D
178	Seasonal Slightly Brackish Graminoid Marsh	0.293	D
179	Seasonal Slightly Brackish Graminoid Marsh	1.171	D
183	Seasonal Slightly Brackish Graminoid Marsh	0.960	D
184	Seasonal Slightly Brackish Graminoid Marsh	0.466	D
186	Seasonal Slightly Brackish Graminoid Marsh	1.180	D
187	Seasonal Slightly Brackish Graminoid Marsh	0.234	B
188	Seasonal Slightly Brackish Graminoid Marsh	0.794	D
216	Seasonal Slightly Brackish Graminoid Marsh	0.384	D
220	Seasonal Slightly Brackish Graminoid Marsh	0.949	B
223	Seasonal Slightly Brackish Graminoid Marsh	2.395	D
234	Seasonal Slightly Brackish Graminoid Marsh	1.362	D
237	Seasonal Slightly Brackish Graminoid Marsh	0.221	D
240	Seasonal Slightly Brackish Graminoid Marsh	0.195	D
244	Seasonal Slightly Brackish Graminoid Marsh	0.396	D
249	Seasonal Slightly Brackish Graminoid Marsh	0.443	D
300	Seasonal Slightly Brackish Graminoid Marsh	0.405	D
24901	Seasonal Slightly Brackish Graminoid Marsh	0.202	D
57	Semi-permanent Moderately Brackish Graminoid Marsh	0.602	D
253	Semi-permanent Moderately Brackish Graminoid Marsh	3.482	C
21	Semi-permanent Slightly Brackish Graminoid Marsh	3.930	B
53	Semi-permanent Slightly Brackish Graminoid Marsh	0.196	No access
58	Semi-permanent Slightly Brackish Graminoid Marsh	0.775	D
94	Semi-permanent Slightly Brackish Graminoid Marsh	2.521	D
109	Semi-permanent Slightly Brackish Graminoid Marsh	6.506	D
207	Semi-permanent Slightly Brackish Graminoid Marsh	1.041	D
242	Semi-permanent Slightly Brackish Graminoid Marsh	3.013	B
2101	Semi-permanent Slightly Brackish Graminoid Marsh	0.431	D
2102	Semi-permanent Slightly Brackish Graminoid Marsh	1.655	D
69	Temporary Slightly Brackish Graminoid Marsh	0.098	D
9401	Temporary Slightly Brackish Graminoid Marsh	0.374	D
47	Temporary Moderately Brackish Graminoid Marsh	3.050	D
5	Temporary Slightly Brackish Graminoid Marsh	0.257	D
13	Temporary Slightly Brackish Graminoid Marsh	0.858	D
15	Temporary Slightly Brackish Graminoid Marsh	0.271	D
17	Temporary Slightly Brackish Graminoid Marsh	0.154	D
27	Temporary Slightly Brackish Graminoid Marsh	0.268	D
54	Temporary Slightly Brackish Graminoid Marsh	0.222	D
59	Temporary Slightly Brackish Graminoid Marsh	0.226	B
60	Temporary Slightly Brackish Graminoid Marsh	0.161	D
61	Temporary Slightly Brackish Graminoid Marsh	0.213	D
62	Temporary Slightly Brackish Graminoid Marsh	0.132	D
64	Temporary Slightly Brackish Graminoid Marsh	0.160	B
81	Temporary Slightly Brackish Graminoid Marsh	0.052	D

Table 1 - Wetlands and Waterbodies Observed on the Site

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Alberta Wetland Classification System (GOA, 2015a)	Area (ha)	ABWRET-A Score
Wetlands			
99	Temporary Slightly Brackish Graminoid Marsh	0.156	B
111	Temporary Slightly Brackish Graminoid Marsh	0.273	D
131	Temporary Slightly Brackish Graminoid Marsh	0.735	B
132	Temporary Slightly Brackish Graminoid Marsh	0.553	D
157	Temporary Slightly Brackish Graminoid Marsh	0.444	D
162	Temporary Slightly Brackish Graminoid Marsh	0.792	D
165	Temporary Slightly Brackish Graminoid Marsh	0.762	D
194	Temporary Slightly Brackish Graminoid Marsh	0.502	D
202	Temporary Slightly Brackish Graminoid Marsh	0.550	D
203	Temporary Slightly Brackish Graminoid Marsh	0.293	D
208	Temporary Slightly Brackish Graminoid Marsh	0.384	D
209	Temporary Slightly Brackish Graminoid Marsh	0.608	D
217	Temporary Slightly Brackish Graminoid Marsh	0.396	B
219	Temporary Slightly Brackish Graminoid Marsh	0.377	D
224	Temporary Slightly Brackish Graminoid Marsh	0.603	D
245	Temporary Slightly Brackish Graminoid Marsh	0.215	D
254	Temporary Slightly Brackish Graminoid Marsh	0.359	D
255	Temporary Slightly Brackish Graminoid Marsh	0.239	D
257	Temporary Slightly Brackish Graminoid Marsh	0.402	D
15701	Temporary Slightly Brackish Graminoid Marsh	0.110	D

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References: GOA (Government of Alberta). (2015, June 1). *Alberta Wetland Classification System*. ISBN: 978-1-4601-2258-7. Edmonton, AB: Water Policy Branch, Policy and Planning Division, Alberta Environment and Sustainable Resource Development.

Legend: ha = hectares ABWRET-A = Wetland Rapid Evaluation Tool - Actual
 N/A = Not Applicable

Notes: ¹GOA (Government of Alberta). (2018, November 22). Pre-application Requirements for Formal Dispositions. Alberta Environment and Parks Retrieved from: <https://open.alberta.ca/dataset/8461ee7f-0c6c-45a5-a066-b4da502a51f4/resource/ce54804a-121f-45b0-a343-0ad448ccee2/download/preappreqsformaldispositions-nov23-2018.pdf>.

Table 2 - Vegetation Species Observed

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Scientific Name (GOA, 2018)	Common Name (GOA, 2018)	S Rank (GOA, 2018) ¹	G Rank (GOA, 2018) ¹	Origin (GOA, 2018)	Track Status (GOA, 2018)	Weed Status (GOA, 2016)	Present On-site (# of Polygons)
<i>Alisma triviale</i>	broad-leaved water-plantain	S5?	G5	Native	Do not track	-	2
<i>Alopecurus aequalis</i>	short-awned foxtail	S5	G5	Native	Do not track	-	24
<i>Alopecurus geniculatus</i>	water foxtail	SNA	GU	Exotic	Do not track	-	2
<i>Amaranthus retroflexus</i>	red-root pigweed	SNA	G5	Exotic	Do not track	-	1
<i>Artemisia biennis</i>	biennial sagewort	S5	G5	Native	Do not track	-	12
<i>Avena sativa</i>	cultivated oat	SNA	GNR	Exotic	Do not track	-	1
<i>Beckmannia syzigachne</i>	slough grass	S5	G5	Native	Do not track	-	57
<i>Brassica rapa</i>	bird's rape	SNA	GNR	Exotic	Do not track	-	3
<i>Callitriche palustris</i>	spring water-starwort	S5	G5	Native	Do not track	-	1
<i>Capsella bursa-pastoris</i>	shepherd's-purse	SNA	GNR	Exotic	Do not track	-	9
<i>Carex atherodes</i>	awned sedge	S5	G5	Native	Do not track	-	4
<i>Chenopodium album</i>	lamb's-quarters	SNA	G5	Exotic	Do not track	-	11
<i>Chenopodium rubrum</i>	red goosefoot	S4	G5	Native	Do not track	-	2
<i>Chenopodium salinum</i>	oak-leaved goosefoot	S5	G5	Native	Do not track	-	17
<i>Cirsium arvense</i>	creeping thistle	SNA	G5	Exotic	Do not track	Noxious	18
<i>Crepis tectorum</i>	annual hawk's-beard	SNA	GNR	Exotic	Do not track	-	8
<i>Descurainia sophia</i>	flkweed	SNA	GNR	Exotic	Do not track	-	1
<i>Eleocharis acicularis</i>	needle spike-rush	S5	G5	Native	Do not track	-	8
<i>Eleocharis palustris</i>	creeping spike-rush	S5	G5	Native	Do not track	-	4
<i>Elymus repens</i>	quackgrass	SNA	GNR	Exotic	Do not track	-	3
<i>Epilobium ciliatum</i>	northern willowherb	S5	G5	Native	Do not track	-	11
<i>Equisetum arvense</i>	common horsetail	S5	G5	Native	Do not track	-	6
<i>Erysimum inconspicuum</i>	small-flowered rocket	S5	G5	Native	Do not track	-	1
<i>Fallopia convolvulus</i>	wild buckwheat	SNA	GNR	Exotic	Do not track	-	6
<i>Galeopsis tetrahit</i>	hemp-nettle	SNA	GNR	Exotic	Do not track	-	10
<i>Galium aparine</i>	cleavers	SNA	G5	Exotic	Do not track	-	7
<i>Glyceria grandis</i>	common tall manna grass	S5	G5	Native	Do not track	-	8
<i>Gnaphalium palustre</i>	marsh cudweed	S3	G5	Native	Do not track	-	45
<i>Hippuris vulgaris</i>	common mare's-tail	S5	G5	Native	Do not track	-	1
<i>Hordeum jubatum</i>	foxtail barley	S5	G5	Native	Do not track	-	60
<i>Juncus bufonius</i>	load rush	S5	G5	Native	Do not track	-	3
<i>Juncus longistylis</i>	long-styled rush	S4	G5	Native	Do not track	-	1
<i>Kochia scoparia</i>	summer-cypress	SNA	GNR	Exotic	Do not track	-	15
<i>Lactuca serriola</i>	prickly lettuce	SNA	GNR	Exotic	Do not track	-	1
<i>Lemna</i> sp.	duckweed species	-	-	-	-	-	3
<i>Limosella aquatica</i>	mudwort	S4	G5	Native	Do not track	-	3
<i>Malva rotundifolia</i>	round-leaved mallow	SNA	GNR	Exotic	Do not track	-	6
<i>Matricaria discoidea</i>	pineapple weed	SNA	G5	Exotic	Do not track	-	1
<i>Melilotus alba</i>	white sweet-clover	SNA	G5	Exotic	Do not track	-	1
<i>Mentha arvensis</i>	wild mint	S5	G5	Native	Do not track	-	12
	moss species	-	-	-	-	-	8
<i>Myriophyllum sp.</i>	water-milfoil species	-	-	-	-	-	1
<i>Myriophyllum verticillatum</i>	water-milfoil	S3	G5	Native	Do not track	-	1
<i>Onobrychis vicifolia</i>	sainfoin	SNA	GNR	Exotic	Do not track	-	1
<i>Packera paupercula</i>	balsam groundsel	S5	G5	Native	Do not track	-	1
<i>Persicaria amphibia</i>	water smartweed	S5	G5	Native	Do not track	-	49
<i>Persicaria lapathifolia</i>	pale persicaria	S5	G5	Native	Do not track	-	4
<i>Phalaris arundinacea</i>	reed canary grass	S5	G5	Native	Do not track	-	1
<i>Plagiobothrys scouleri</i>	Scouler's allocarya	S3	G5	Native	Do not track	-	10
<i>Plantago major</i>	common plantain	SNA	G5	Exotic	Do not track	-	21
<i>Poa bulbosa</i>	bulbous bluegrass	SNA	GNR	Exotic	Do not track	-	1
<i>Poa palustris</i>	fowl bluegrass	S5	G5	Native	Do not track	-	2
<i>Polygonum aviculare</i>	prostrate knotweed	SNA	G5	Unknown/Undetermined	Do not track	-	10
<i>Potamogeton</i> sp.	pondweed species	-	-	-	-	-	2
<i>Potentilla anserina</i>	silverweed	S5	G5	Native	Do not track	-	1
<i>Potentilla norvegica</i>	rough cinquefoil	S5	G5	Native	Do not track	-	2
<i>Puccinellia nuttalliana</i>	Nuttall's salt-meadow grass	S5	G5	Native	Do not track	-	8
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	S5	G5	Native	Do not track	-	9
					Track all extant and selected historical element occurrences		
<i>Rorippa curvipes</i>	blunt-leaved watercress	S3	G5	Native	Do not track	-	10
<i>Rorippa</i> sp.	yellow cress species	-	-	-	-	-	1
<i>Rumex crispus</i>	curled dock	SNA	GNR	Exotic	Do not track	-	10
<i>Rumex fueginus</i>	American golden dock	S5	G5	Native	Do not track	-	38
<i>Schoenoplectus acutus</i>	great bulrush	S5?	G5	Native	Do not track	-	4
<i>Schoenoplectus tabernaemontani</i>	common great bulrush	S5	G5	Native	Do not track	-	9
<i>Scirpus microcarpus</i>	small-fruited bulrush	S5	G5	Native	Do not track	-	1
<i>Silene noctiflora</i>	night-flowering catchfly	SNA	GNR	Exotic	Do not track	-	1
<i>Sinapis arvensis</i>	wild mustard	SNA	GNR	Exotic	Do not track	-	2
<i>Sium suave</i>	water parsnip	S5	G5	Native	Do not track	-	3
<i>Sonchus arvensis</i>	perennial sow-thistle	SNA	GNR	Exotic	Do not track	Noxious	47
<i>Sonchus oleraceus</i>	annual sow-thistle	SNA	GNR	Exotic	Do not track	-	4
<i>Sparganium angustifolium</i>	narrow-leaved bur-reed	S4	G5	Native	Do not track	-	1
<i>Stellaria media</i>	common chickweed	SNA	GNR	Exotic	Do not track	-	1
<i>Suaeda calceoliformis</i>	western sea-bite	S5	G5	Native	Do not track	-	1
<i>Symphoricarum falcatum</i>	creeping white prairie aster	S5	G5	Native	Do not track	-	7
<i>Taraxacum officinale</i>	common dandelion	SNA	G5	Exotic	Do not track	-	33
<i>Thlaspi arvense</i>	stinkweed	SNA	GNR	Exotic	Do not track	-	21
<i>Tragopogon dubius</i>	common goat's-beard	SNA	GNR	Exotic	Do not track	-	1
<i>Trifolium hybridum</i>	alsike clover	SNA	GNR	Exotic	Do not track	-	1
<i>Trifolium repens</i>	white clover	SNA	GNR	Exotic	Do not track	-	2
<i>Triticum aestivum</i>	common wheat	SNA	GNR	Exotic	Do not track	-	9
<i>Typha latifolia</i>	common cattail	S5	G5	Native	Do not track	-	36
<i>Veronica peregrina</i>	hairy speedwell	S5	G5	Native	Do not track	-	15

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References: GOA (Government of Alberta), (2018, March), Alberta Conservation Information Management System (ACIMS): List of All the Vascular Plant Taxa Confirmed for Alberta As Recorded in the ACIMS Database. Retrieved from: <http://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-acims/download-data/#trackedWatch>
 GOA (Government of Alberta), (2016), Weed Control Act, Weed Control Regulation, Alberta Regulation 19/2010, with amendments up to and including Alberta Regulation 125/2016. Edmonton, AB: Alberta Queen's Printer

Legend: - = No Status/Not Applicable
 sp. = Species

Notes: _____ Underline indicates the rare plant species observed
¹ - Ranking explanations are detailed in Appendix F

Table 4 - Habitat Suitability for Rare Wildlife Species

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Land Use	Habitat Type	Habitat Suitability (high, medium, low, nil)														
		Barn Swallow	Black Tern	Black-crowned Night-heron	Black-necked Stilt	Burrowing Owl	Cape May Warbler	Common Yellowthroat	Eastern Kingbird	Great Blue Heron	Sora	Sharp Tailed Grouse	Bald Eagle	Golden Eagle	Prairie Falcon	Ferruginous Hawk
Cropland	Cultivated	low	nil	nil	low	nil	nil	nil	low	low	nil	nil	nil	nil	nil	nil
Industrial	Wellsite	low	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Pasture	Modified	med (foraging)	nil	nil	nil	nil	nil	low	med	low	low	low-nil	nil	nil	nil	low (foraging)
	Modified-Saline	med (foraging)	med (foraging)	med (foraging)	med (forage/nesting)	nil	nil	low	low	med	med	nil	nil	nil	nil	nil
Waterbody	Ephemeral	med (foraging)	med (foraging)	med (foraging)	low	nil	nil	low	med	med	med	nil	nil	nil	nil	nil
	Intermittent Watercourse	high (foraging)	high (foraging)	high (foraging)	nil	nil	nil	med	high	high (foraging)	med	low	nil	nil	nil	nil
Wetland	Temporary	med (foraging)	med (foraging)	med (foraging)	low	nil	nil	med	med	med (foraging)	med (foraging)	nil	nil	nil	nil	nil
	Seasonal	med (foraging)	med (foraging)	med (foraging)	low	nil	nil	med	high	high (foraging)	high (foraging)	nil	nil	nil	nil	nil
	Semi-permanent	high (foraging)	high (forage/nesting)	high (forage/nesting)	med (forage/nesting)	nil	nil	med (forage/nesting)	med	high (foraging)	high (forage/nesting)	nil	low	nil	nil	nil
Yard Site	Debris	low	nil	nil	nil	nil	nil	nil	low	nil	nil	nil	nil	nil	nil	nil
	Treed	med (foraging)	nil	nil	nil	nil	nil	low	med	nil	nil	nil	nil	nil	nil	nil
	Building/Yard	high (nesting)	nil	nil	nil	nil	nil	nil	low	nil	nil	nil	nil	nil	nil	nil

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Legend: med = Medium

Table 5 - Environmentally Significant Areas

Biophysical Assessment - 2151836 Alberta Inc.

Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta

Trace Project No. 100-1533



Polygon	Land Use	Habitat Type	ESA Key Criteria				ESA Value
			Terrain and Soils	Water Resources	Plant Communities	Wildlife	
1	Cropland	Cultivated	No	No	No	No	-
2	Waterbody	Ephemeral	No	No	No	Yes	Low
3	Waterbody	Ephemeral	No	No	No	Yes	Low
4	Waterbody	Ephemeral	No	No	No	Yes	Low
5	Wetland	Temporary	No	No	No	Yes	Low
6	Waterbody	Ephemeral	No	No	No	Yes	Low
7	Waterbody	Ephemeral	No	No	No	Yes	Low
8	Waterbody	Ephemeral	No	No	No	Yes	Low
9	Waterbody	Ephemeral	No	No	No	Yes	Low
10	Wetland	Seasonal	No	Yes	No	Yes	Medium
11	Yard Site	Treed	No	No	No	Yes	Low
12	Waterbody	Ephemeral	No	No	No	Yes	Low
13	Wetland	Temporary	No	No	No	Yes	Low
14	Wetland	Seasonal	No	Yes	No	Yes	Medium
15	Wetland	Temporary	No	No	No	Yes	Low
16	Wetland	Seasonal	No	Yes	No	Yes	Medium
17	Wetland	Temporary	No	No	No	Yes	Low
18	Wetland	Seasonal	No	Yes	No	Yes	Medium
19	Waterbody	Ephemeral	No	No	No	Yes	Low
20	Waterbody	Ephemeral	No	No	No	Yes	Low
21	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
22	Waterbody	Ephemeral	No	No	No	Yes	Low
23	Waterbody	Ephemeral	No	No	No	Yes	Low
24	Waterbody	Ephemeral	No	No	No	Yes	Low
25	Waterbody	Ephemeral	No	No	No	Yes	Low
27	Wetland	Temporary	No	No	No	Yes	Low
28	Waterbody	Ephemeral	No	No	No	Yes	Low
29	Waterbody	Ephemeral	No	No	No	Yes	Low
30	Wetland	Seasonal	No	Yes	No	Yes	Medium
31	Waterbody	Ephemeral	No	No	No	Yes	Low
32	Waterbody	Ephemeral	No	No	No	Yes	Low
33	Waterbody	Ephemeral	No	No	No	Yes	Low
34	Waterbody	Ephemeral	No	No	No	Yes	Low
35	Waterbody	Ephemeral	No	No	No	Yes	Low
36	Wetland	Seasonal	No	Yes	No	Yes	Medium
37	Cropland	Cultivated	No	No	No	No	-
38	Cropland	Cultivated	No	No	No	No	-
39	Waterbody	Ephemeral	No	No	No	Yes	Low
40	Yard Site	Debris	No	No	No	No	-
41	Yard Site	Buildings/yard	No	No	No	Yes	Low
47	Wetland	Temporary	No	No	No	Yes	Low
48	Yard Site	Treed	No	No	No	Yes	Low
49	Pasture	Modified	No	No	No	Yes	Low
50	Waterbody	Intermittent watercourse	No	No	No	Yes	Low
51	Pasture	Modified	No	No	No	Yes	Low
52	Pasture	Modified-Saline	No	No	No	Yes	Low
53	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
54	Wetland	Temporary	No	No	No	Yes	Low
55	Yard Site	Treed	No	No	No	Yes	Low
56	Waterbody	Ephemeral	No	No	No	Yes	Low
57	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
58	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
59	Wetland	Temporary	No	Yes	Yes	Yes	High
60	Wetland	Temporary	No	No	No	Yes	Low
61	Wetland	Temporary	No	No	No	Yes	Low
62	Wetland	Temporary	No	No	No	Yes	Low
63	Waterbody	Ephemeral	No	No	No	Yes	Low
64	Wetland	Temporary	No	Yes	Yes	Yes	High
65	Waterbody	Ephemeral	No	No	No	Yes	Low
66	Waterbody	Ephemeral	No	No	No	Yes	Low
67	Waterbody	Ephemeral	No	No	No	Yes	Low
68	Waterbody	Ephemeral	No	No	No	Yes	Low
69	Wetland	Temporary	No	No	No	Yes	Low
70	Wetland	Seasonal	No	Yes	Yes	Yes	High
71	Waterbody	Ephemeral	No	No	No	Yes	Low
72	Waterbody	Ephemeral	No	No	No	Yes	Low
73	Waterbody	Ephemeral	No	No	No	Yes	Low
74	Waterbody	Ephemeral	No	No	No	Yes	Low
75	Waterbody	Ephemeral	No	No	No	Yes	Low
76	Waterbody	Ephemeral	No	No	No	Yes	Low
77	Waterbody	Ephemeral	No	No	No	Yes	Low
78	Waterbody	Ephemeral	No	No	No	Yes	Low
79	Waterbody	Ephemeral	No	No	No	Yes	Low
80	Waterbody	Ephemeral	No	No	No	Yes	Low
81	Wetland	Temporary	No	No	No	Yes	Low
82	Waterbody	Ephemeral	No	No	No	Yes	Low
83	Waterbody	Ephemeral	No	No	No	Yes	Low
84	Waterbody	Ephemeral	No	No	No	Yes	Low
85	Waterbody	Ephemeral	No	No	No	Yes	Low
86	Waterbody	Ephemeral	No	No	No	Yes	Low
87	Waterbody	Ephemeral	No	No	No	Yes	Low
88	Cropland	Cultivated	No	No	No	No	-
89	Waterbody	Ephemeral	No	No	No	Yes	Low
90	Waterbody	Ephemeral	No	No	No	Yes	Low
91	Waterbody	Ephemeral	No	No	No	Yes	Low
92	Waterbody	Ephemeral	No	No	No	Yes	Low
93	Cropland	Cultivated	No	No	No	No	-
94	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
95	Waterbody	Ephemeral	No	No	No	Yes	Low
96	Waterbody	Ephemeral	No	No	No	Yes	Low
97	Wetland	Seasonal	No	Yes	No	Yes	Medium
98	Waterbody	Ephemeral	No	No	No	Yes	Low
99	Wetland	Temporary	No	Yes	Yes	Yes	High
100	Waterbody	Ephemeral	No	No	No	Yes	Low
101	Waterbody	Ephemeral	No	No	No	Yes	Low
102	Waterbody	Ephemeral	No	No	No	Yes	Low
103	Wetland	Seasonal	No	Yes	No	Yes	Medium
104	Industrial	Wellsite	No	No	No	No	-
105	Wetland	Seasonal	No	Yes	No	Yes	Medium
106	Waterbody	Ephemeral	No	No	No	Yes	Low
107	Waterbody	Ephemeral	No	No	No	Yes	Low

Table 5 - Environmentally Significant Areas

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Land Use	Habitat Type	ESA Key Criteria				ESA Value
			Terrain and Soils	Water Resources	Plant Communities	Wildlife	
108	Waterbody	Ephemeral	No	No	No	Yes	Low
109	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
110	Wetland	Seasonal	No	Yes	No	Yes	Medium
111	Wetland	Temporary	No	No	No	Yes	Low
112	Waterbody	Ephemeral	No	No	No	Yes	Low
113	Waterbody	Ephemeral	No	No	No	Yes	Low
114	Waterbody	Ephemeral	No	No	No	Yes	Low
115	Waterbody	Ephemeral	No	No	No	Yes	Low
116	Waterbody	Ephemeral	No	No	No	Yes	Low
117	Waterbody	Ephemeral	No	No	No	Yes	Low
118	Waterbody	Ephemeral	No	No	No	Yes	Low
119	Waterbody	Ephemeral	No	No	No	Yes	Low
120	Waterbody	Ephemeral	No	No	No	Yes	Low
121	Waterbody	Ephemeral	No	No	No	Yes	Low
122	Waterbody	Ephemeral	No	No	No	Yes	Low
123	Waterbody	Ephemeral	No	No	No	Yes	Low
124	Industrial	Wellsite	No	No	No	No	-
125	Waterbody	Ephemeral	No	No	No	Yes	Low
126	Waterbody	Ephemeral	No	No	No	Yes	Low
127	Waterbody	Ephemeral	No	No	No	Yes	Low
128	Waterbody	Ephemeral	No	No	No	Yes	Low
129	Waterbody	Ephemeral	No	No	No	Yes	Low
130	Waterbody	Ephemeral	No	No	No	Yes	Low
131	Wetland	Temporary	No	Yes	Yes	Yes	High
132	Wetland	Temporary	No	No	No	Yes	Low
133	Wetland	Seasonal	No	Yes	No	Yes	Medium
134	Waterbody	Ephemeral	No	No	No	Yes	Low
135	Waterbody	Ephemeral	No	No	No	Yes	Low
136	Industrial	Wellsite	No	No	No	No	-
137	Waterbody	Ephemeral	No	No	No	Yes	Low
138	Industrial	Wellsite	No	No	No	No	-
139	Waterbody	Ephemeral	No	No	No	Yes	Low
140	Waterbody	Ephemeral	No	No	No	Yes	Low
141	Wetland	Seasonal	No	Yes	No	Yes	Medium
142	Waterbody	Ephemeral	No	No	No	Yes	Low
144	Waterbody	Ephemeral	No	No	No	Yes	Low
145	Waterbody	Ephemeral	No	No	No	Yes	Low
146	Waterbody	Ephemeral	No	No	No	Yes	Low
147	Waterbody	Ephemeral	No	No	No	Yes	Low
148	Waterbody	Ephemeral	No	No	No	Yes	Low
149	Waterbody	Ephemeral	No	No	No	Yes	Low
150	Waterbody	Ephemeral	No	No	No	Yes	Low
151	Waterbody	Ephemeral	No	No	No	Yes	Low
152	Yard Site	Buildings/yard	No	No	No	Yes	Low
153	Waterbody	Ephemeral	No	No	No	Yes	Low
154	Waterbody	Ephemeral	No	No	No	Yes	Low
155	Waterbody	Ephemeral	No	No	No	Yes	Low
156	Waterbody	Ephemeral	No	No	No	Yes	Low
157	Wetland	Temporary	No	No	No	Yes	Low
158	Yard Site	Buildings/yard	No	No	No	Yes	Low
159	Industrial	Wellsite	No	No	No	No	-
160	Wetland	Seasonal	No	Yes	No	Yes	Medium
161	Waterbody	Ephemeral	No	No	No	Yes	Low
162	Wetland	Temporary	No	No	No	Yes	Low
163	Waterbody	Ephemeral	No	No	No	Yes	Low
164	Waterbody	Ephemeral	No	No	No	Yes	Low
165	Wetland	Temporary	No	No	No	Yes	Low
166	Waterbody	Ephemeral	No	No	No	Yes	Low
167	Waterbody	Ephemeral	No	No	No	Yes	Low
168	Waterbody	Ephemeral	No	No	No	Yes	Low
169	Waterbody	Ephemeral	No	No	No	Yes	Low
170	Waterbody	Ephemeral	No	No	No	Yes	Low
171	Waterbody	Ephemeral	No	No	No	Yes	Low
172	Waterbody	Ephemeral	No	No	No	Yes	Low
173	Waterbody	Ephemeral	No	No	No	Yes	Low
174	Waterbody	Ephemeral	No	No	No	Yes	Low
175	Waterbody	Ephemeral	No	No	No	Yes	Low
176	Waterbody	Ephemeral	No	No	No	Yes	Low
177	Waterbody	Ephemeral	No	No	No	Yes	Low
178	Wetland	Seasonal	No	Yes	No	Yes	Medium
179	Wetland	Seasonal	No	Yes	No	Yes	Medium
180	Waterbody	Ephemeral	No	No	No	Yes	Low
181	Waterbody	Ephemeral	No	No	No	Yes	Low
182	Waterbody	Ephemeral	No	No	No	Yes	Low
183	Wetland	Seasonal	No	Yes	No	Yes	Medium
184	Wetland	Seasonal	No	Yes	No	Yes	Medium
185	Waterbody	Ephemeral	No	No	No	Yes	Low
186	Wetland	Seasonal	No	Yes	No	Yes	Medium
187	Wetland	Seasonal	No	Yes	Yes	Yes	High
188	Wetland	Seasonal	No	Yes	No	Yes	Medium
189	Waterbody	Ephemeral	No	No	No	Yes	Low
190	Waterbody	Ephemeral	No	No	No	Yes	Low
191	Industrial	Wellsite	No	No	No	No	-
192	Waterbody	Ephemeral	No	No	No	Yes	Low
193	Waterbody	Ephemeral	No	No	No	Yes	Low
194	Wetland	Temporary	No	No	No	Yes	Low
195	Waterbody	Ephemeral	No	No	No	Yes	Low
196	Waterbody	Ephemeral	No	No	No	Yes	Low
197	Waterbody	Ephemeral	No	No	No	Yes	Low
198	Waterbody	Ephemeral	No	No	No	Yes	Low
199	Waterbody	Ephemeral	No	No	No	Yes	Low
200	Waterbody	Ephemeral	No	No	No	Yes	Low
201	Waterbody	Ephemeral	No	No	No	Yes	Low
202	Wetland	Temporary	No	No	No	Yes	Low
203	Wetland	Temporary	No	No	No	Yes	Low
204	Waterbody	Ephemeral	No	No	No	Yes	Low
205	Wetland	Seasonal	No	Yes	No	Yes	Medium
206	Waterbody	Ephemeral	No	No	No	Yes	Low
207	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
208	Wetland	Temporary	No	No	No	Yes	Low
209	Wetland	Temporary	No	No	No	Yes	Low

Table 5 - Environmentally Significant Areas

Biophysical Assessment - 2151836 Alberta Inc.
 Portions of Sections 05, 08, 09 and 17-024-26 W4M, West Highway 1 Industrial, near Strathmore, Alberta
 Trace Project No. 100-1533



Polygon	Land Use	Habitat Type	ESA Key Criteria				ESA Value
			Terrain and Soils	Water Resources	Plant Communities	Wildlife	
210	Waterbody	Ephemeral	No	No	No	Yes	Low
211	Waterbody	Ephemeral	No	No	No	Yes	Low
212	Waterbody	Ephemeral	No	No	No	Yes	Low
213	Waterbody	Ephemeral	No	No	No	Yes	Low
214	Waterbody	Ephemeral	No	No	No	Yes	Low
215	Waterbody	Ephemeral	No	No	No	Yes	Low
216	Wetland	Seasonal	No	Yes	Yes	Yes	High
217	Wetland	Temporary	No	Yes	Yes	Yes	High
218	Waterbody	Ephemeral	No	No	No	Yes	Low
219	Wetland	Temporary	No	No	No	Yes	Low
220	Wetland	Seasonal	No	Yes	Yes	Yes	High
221	Waterbody	Ephemeral	No	No	No	Yes	Low
222	Waterbody	Ephemeral	No	No	No	Yes	Low
223	Wetland	Seasonal	No	Yes	No	Yes	Medium
224	Wetland	Temporary	No	No	No	Yes	Low
225	Waterbody	Ephemeral	No	No	No	Yes	Low
226	Industrial	Wellsite	No	No	No	No	-
227	Waterbody	Ephemeral	No	No	No	Yes	Low
228	Waterbody	Ephemeral	No	No	No	Yes	Low
229	Waterbody	Ephemeral	No	No	No	Yes	Low
230	Waterbody	Ephemeral	No	No	No	Yes	Low
231	Waterbody	Ephemeral	No	No	No	Yes	Low
232	Industrial	Wellsite	No	No	No	No	-
234	Wetland	Seasonal	No	Yes	No	Yes	Medium
237	Wetland	Seasonal	No	Yes	No	Yes	Medium
238	Waterbody	Ephemeral	No	No	No	Yes	Low
239	Waterbody	Ephemeral	No	No	No	Yes	Low
240	Wetland	Seasonal	No	Yes	No	Yes	Medium
242	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
243	Waterbody	Ephemeral	No	No	No	Yes	Low
244	Wetland	Seasonal	No	Yes	No	Yes	Medium
245	Wetland	Temporary	No	No	No	Yes	Low
246	Waterbody	Ephemeral	No	No	No	Yes	Low
247	Waterbody	Ephemeral	No	No	No	Yes	Low
248	Industrial	Wellsite	No	No	No	No	-
249	Wetland	Seasonal	No	Yes	No	Yes	Medium
250	Waterbody	Ephemeral	No	No	No	Yes	Low
251	Waterbody	Ephemeral	No	No	No	Yes	Low
252	Wetland	Seasonal	No	Yes	Yes	Yes	High
253	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
254	Wetland	Temporary	No	No	No	Yes	Low
255	Wetland	Temporary	No	No	No	Yes	Low
256	Waterbody	Ephemeral	No	No	No	Yes	Low
257	Wetland	Temporary	No	No	No	Yes	Low
258	Industrial	Wellsite	No	No	No	No	-
259	Waterbody	Ephemeral	No	No	No	Yes	Low
260	Waterbody	Ephemeral	No	No	No	Yes	Low
261	Waterbody	Ephemeral	No	No	No	Yes	Low
299	Cropland	Cultivated	No	No	No	No	-
300	Wetland	Seasonal	No	Yes	No	Yes	Medium
2101	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
2102	Wetland	Semi-permanent	No	Yes	No	Yes	Medium
2221	Waterbody	Ephemeral	No	No	No	Yes	Low
2222	Waterbody	Ephemeral	No	No	No	Yes	Low
4701	Wetland	Seasonal	No	Yes	No	Yes	Medium
7001	Waterbody	Ephemeral	No	No	No	Yes	Low
8801	Waterbody	Ephemeral	No	No	No	Yes	Low
8802	Industrial	Wellsite	No	No	No	No	-
8803	Industrial	Wellsite	No	No	No	No	-
9301	Cropland	Cultivated	No	No	No	No	-
9302	Industrial	Wellsite	No	No	No	No	-
9303	Industrial	Wellsite	No	No	No	No	-
9401	Wetland	Temporary	No	No	No	Yes	Low
9402	Industrial	Wellsite	No	No	No	No	-
10301	Waterbody	Ephemeral	No	No	No	Yes	Low
10501	Waterbody	Ephemeral	No	No	No	Yes	Low
10502	Waterbody	Ephemeral	No	No	No	Yes	Low
10503	Industrial	Wellsite	No	No	No	No	-
10901	Waterbody	Ephemeral	No	No	No	Yes	Low
10902	Waterbody	Ephemeral	No	No	No	Yes	Low
11901	Waterbody	Ephemeral	No	No	No	Yes	Low
12701	Waterbody	Ephemeral	No	No	No	Yes	Low
12801	Waterbody	Ephemeral	No	No	No	Yes	Low
13301	Waterbody	Ephemeral	No	No	No	Yes	Low
15701	Wetland	Temporary	No	No	No	Yes	Low
18401	Industrial	Wellsite	No	No	No	No	-
18601	Waterbody	Ephemeral	No	No	No	Yes	Low
18602	Waterbody	Ephemeral	No	No	No	Yes	Low
20401	Waterbody	Ephemeral	No	No	No	Yes	Low
20402	Waterbody	Ephemeral	No	No	No	Yes	Low
20501	Waterbody	Ephemeral	No	No	No	Yes	Low
21101	Waterbody	Ephemeral	No	No	No	Yes	Low
21601	Industrial	Wellsite	No	No	No	No	-
23401	Waterbody	Ephemeral	No	No	No	Yes	Low
23402	Waterbody	Ephemeral	No	No	No	Yes	Low
24901	Wetland	Seasonal	No	Yes	No	Yes	Medium

Document	Revision	Version	Entered by	Entered on	Checked by	Last checked	Last printed
	0	1.0	MG	05-Nov-2020	RJS	10-Nov-2020	12-Nov-2020

File Name: 100-1533 R01 T05.xlsx

Legend: ESA = Environmentally Significant Area
 - = No ESA Value



Appendix A

Trace Associates Inc.
Environmental Report -
General Conditions

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of Trace Associates Inc.'s (Trace's) client. Trace does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Trace's client (hereunder referred to as the "Client") or an approved agent of the Client. Any unauthorized use of or reliance on the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Trace. The Client agrees that it shall use the report for its own internal purposes and it shall not provide the report to another party other than an approved agent.

2.0 LIMITATION OF REPORT

This report is based solely on the conditions that existed on site at the time of Trace's investigation. The Client, and any other parties using this report with the express written consent of the Client and Trace, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The Client, and any other party using this report with the express written consent of the Client and Trace, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The Client acknowledges that Trace is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the site, the decisions on which are the sole responsibility of the Client.

3.0 INFORMATION PROVIDED TO TRACE BY OTHERS

During the performance of the work and the preparation of this report, Trace may have relied on information provided by persons other than the Client. While Trace endeavours to verify the accuracy of such information when instructed to do so by the Client, Trace accepts no responsibility for the accuracy or the reliability of such information that may affect the report.

4.0 LIMITATION OF LIABILITY

The Client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising from the presence of those materials. In consideration of these risks, and in consideration of Trace providing the services requested, the Client agrees that Trace's liability shall be limited as follows:

1. With respect to any claims brought against Trace by the Client for damages of any kind whatsoever, including without limitation, incidental, consequential, exemplary or punitive, for any reason whatsoever arising out of the provision or failure to provide services hereunder the amount of such claim and the extent of Trace's liability shall be limited to the amount of fees paid by the Client to Trace under this Agreement.
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the Client agrees to indemnify, defend, and hold harmless Trace from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by Trace.

5.0 JOB SITE SAFETY

Trace is only responsible for the activities of its employees on the job site and is not responsible for the safety or supervision of any other persons whatsoever. The presence of Trace personnel on the job site shall not be construed in any way to relieve the Client or any other persons on site from their responsibility for job site safety.



6.0 DISCLOSURE OF INFORMATION BY CLIENT

The Client agrees to fully cooperate with Trace with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client acknowledges that in order for Trace to properly provide the service, Trace requires and shall rely upon the full disclosure and accuracy of any and all such information.

7.0 STANDARD OF CARE

Services performed by Trace for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering and scientific judgment have been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

8.0 EMERGENCY PROCEDURES

The Client undertakes to inform Trace of all hazardous conditions, or possible hazardous conditions that are known to it. The Client recognizes that the activities of Trace may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect Trace employees, other persons, and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The Client agrees to pay Trace for any expenses incurred as a result of such discoveries and to compensate Trace through payment of additional fees and expenses for time spent by Trace to deal with the consequences of such discoveries.

9.0 NOTIFICATION OF AUTHORITIES

The Client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the Client agrees that notification to such bodies or persons, as required, may be done by Trace in its reasonably exercised discretion.

10.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The Client acknowledges that all reports, plans, and data generated by Trace during the performance of the work and other documents prepared by Trace are considered its professional work product and shall remain the copyright property of Trace.

11.0 ALTERNATE REPORT FORMAT

Where Trace submits both electronic file and hard copy versions of reports, drawings and other documents and deliverables (collectively termed "Trace's instruments of professional service"), the Client agrees that only the signed and stamped versions shall be considered final and legally binding. Trace shall keep the original electronic documents for record and working purposes, and, in the event of a dispute or discrepancies, Trace's electronic copy shall govern.

The Client agrees that both electronic file and hard copy versions of Trace's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Trace. The Client warrants that Trace's instruments of professional service will be used only and exactly as submitted by Trace and for the purpose for which such instruments of professional service were intended.

The Client recognizes and agrees that electronic files submitted by Trace have been prepared and submitted using specific software and hardware systems. Trace makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

12.0 GOVERNING LAW

The validity, construction and performance of this Agreement shall be governed by the laws in effect in the Province of Alberta.



Appendix B

Site Photographs



Photo 1: View south of Polygon 5, a temporary slightly brackish graminoid marsh (August 26, 2019).



Photo 2: View south of Polygon 10, a seasonal slightly brackish graminoid marsh (August 26, 2019).



Photo 3: View north of Polygon 14, a seasonal slightly brackish graminoid marsh (August 26, 2019).



Photo 4: View north of Polygon 27, a temporary slightly brackish graminoid marsh (August 26, 2019).



Photo 5: View north of Polygon 47, a temporary moderately brackish graminoid marsh (August 30, 2019).



Photo 6: View south of Polygon 57, a semi-permanent moderately brackish graminoid marsh (August 30, 2019).



Photo 7: View south of Polygon 58, a semi-permanent slightly brackish graminoid marsh (August 30, 2019).



Photo 8: View north of Polygon 59, a temporary slightly brackish graminoid marsh (August 30, 2019).



Photo 9: View north of Polygon 60, a temporary slightly brackish graminoid marsh (August 30, 2019).



Photo 10: View south of Polygon 61, a temporary slightly brackish graminoid marsh (August 30, 2019).



Photo 11: View north of Polygon 62, a temporary slightly brackish graminoid marsh (August 30, 2019).



Photo 12: View south of Polygon 64, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 13: View south of Polygon 70, a seasonal slightly brackish graminoid marsh (August 29, 2019).



Photo 14: View north of Polygon 94, a semi-permanent slightly brackish graminoid marsh (August 27, 2019).



Photo 15: View north of Polygon 97, a seasonal slightly brackish graminoid marsh (August 27, 2019).



Photo 16: View north of Polygon 99, a temporary slightly brackish graminoid marsh (August 27, 2019).



Photo 17: View north of Polygon 103, a seasonal slightly brackish graminoid marsh (August 27, 2019).



Photo 18: View north of Polygon 105, a seasonal slightly brackish graminoid marsh (August 27, 2019).



Photo 19: View north of Polygon 109, a semi-permanent slightly brackish graminoid marsh (August 27, 2019).



Photo 20: View north of Polygon 110, a seasonal slightly brackish graminoid marsh (August 27, 2019).



Photo 21: View north of Polygon 111, a temporary slightly brackish graminoid marsh (August 27, 2019).



Photo 22: View north of Polygon 131, a temporary slightly brackish graminoid marsh (August 27, 2019).



Photo 23: View south of Polygon 132, a temporary slightly brackish graminoid marsh (August 27, 2019).



Photo 24: View north of Polygon 133, a seasonal slightly brackish graminoid marsh (August 27, 2019).



Photo 25: View south of Polygon 141, a seasonal slightly brackish graminoid marsh (August 29, 2019).



Photo 26: View south of Polygon 157, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 27: View south of Polygon 165, a temporary slightly brackish graminoid marsh (August 28, 2019).



Photo 28: View south of Polygon 178, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 29: View north of Polygon 179, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 30: View north of Polygon 183, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 31: View south of Polygon 184, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 32: View south of Polygon 186, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 33: View south of Polygon 187, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 34: View south of Polygon 188, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 35: View south of Polygon 194, a temporary slightly brackish graminoid marsh (August 28, 2019).



Photo 36: View north of Polygon 202, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 37: View south of Polygon 203, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 38: View north of Polygon 205, a seasonal moderately brackish graminoid marsh (August 29, 2019).



Photo 39: View north of Polygon 207, a semi-permanent slightly brackish graminoid marsh (August 29, 2019).



Photo 40: View south of Polygon 208, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 41: View south of Polygon 209, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 42: View north of Polygon 216, a seasonal slightly brackish graminoid marsh (August 29, 2019).



Photo 43: View north of Polygon 217, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 44: View north of Polygon 219, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 45: View north of Polygon 220, a temporary slightly brackish graminoid marsh (August 29, 2019).



Photo 46: View south of Polygon 223, a seasonal slightly brackish graminoid marsh (August 29, 2019).



Photo 47: View north of Polygon 234, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 48: View north of Polygon 240, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 49: View east of Polygon 242, a semi-permanent slightly brackish graminoid marsh (August 28, 2019).



Photo 50: View north of Polygon 244, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 51: View south of Polygon 245, a temporary slightly brackish graminoid marsh (August 28, 2019).



Photo 52: View east of Polygon 249, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Photo 53: View east of Polygon 252, a seasonal moderately brackish graminoid marsh (August 27, 2019).



Photo 54: View east of Polygon 253, a semi-permanent moderately brackish graminoid marsh (August 28, 2019).



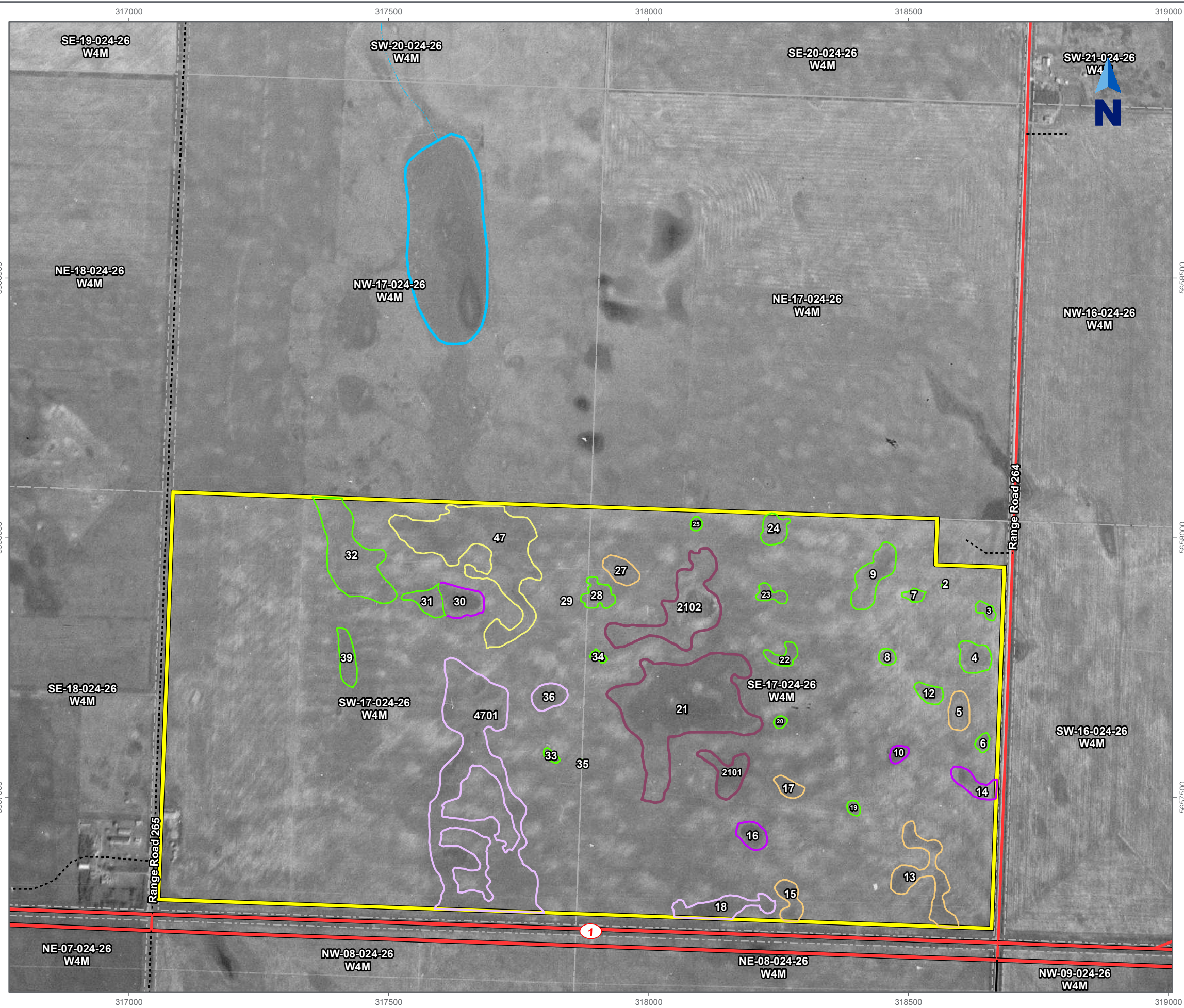
Photo 55: View south of Polygon 300, a seasonal slightly brackish graminoid marsh (August 28, 2019).



Appendix C

Historical Aerial
Photographs

Version: 1
Revision: 0
Reviewed By: RS
Drawn By: cvandenberg
Date and Time Saved: Nov 05, 2020 9:23:16 PM
100-1533-C1-R00-V01 - Wetlands - 1950 Imagery



Water Resources and 1950 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

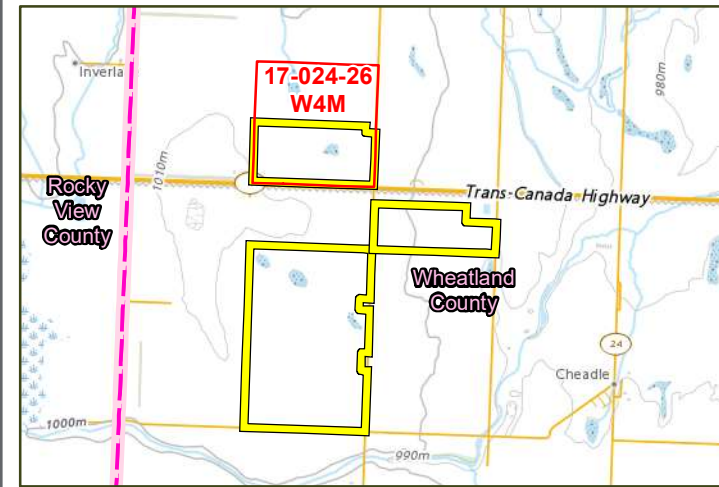
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1950 Air Photos (Roll AS-0168, Photo 044 + 175)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

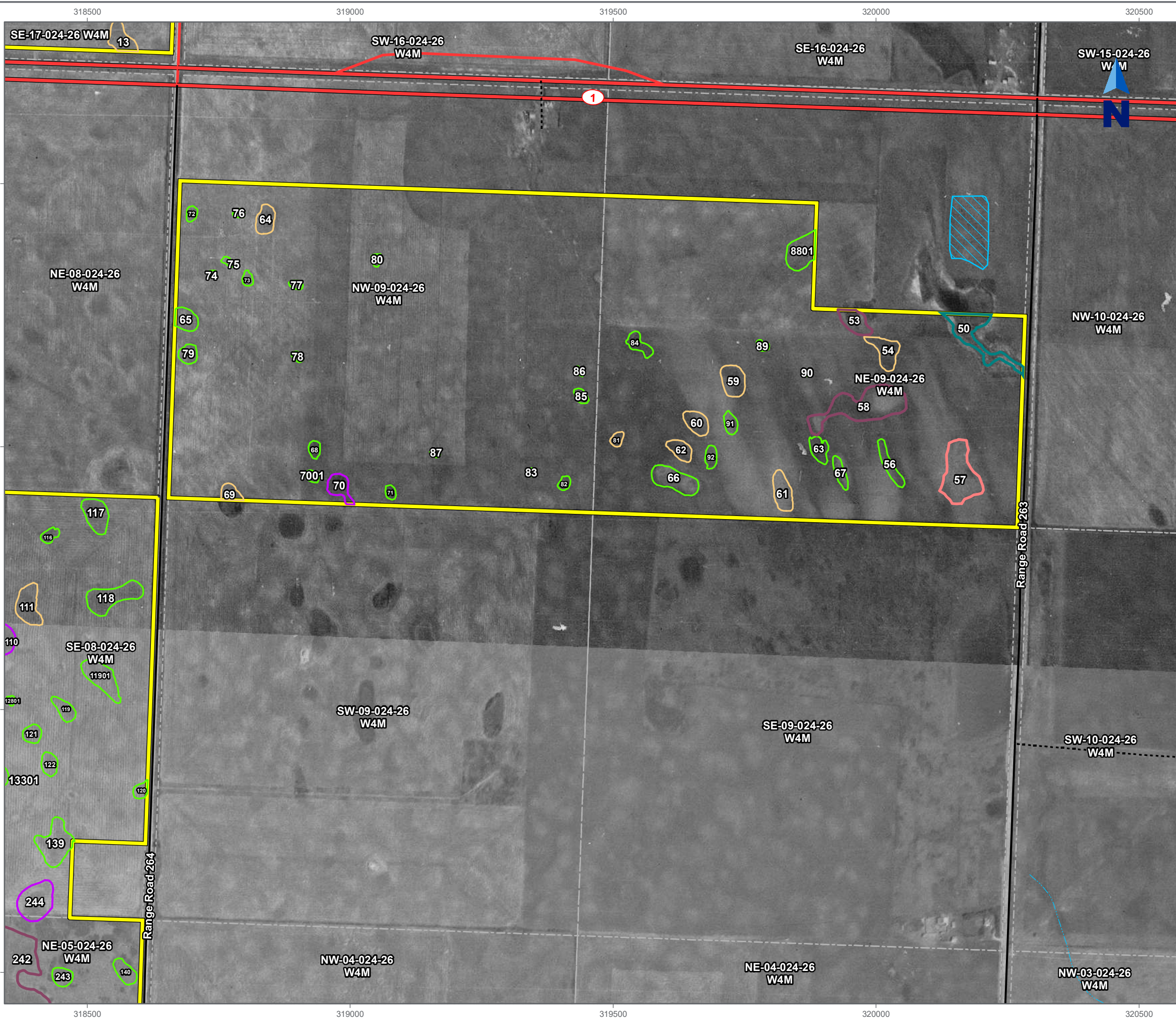


TRACETM
ASSOCIATES

Figure No.
C1.1

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100-1533-C1-R00-V01 - Wetlands - 1950 Imagery Date and Time Saved: Nov 05, 2020 9:23:16 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



Water Resources and 1950 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 1950 Air Photos (Roll AS-0168, Photo 044 + 175)
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

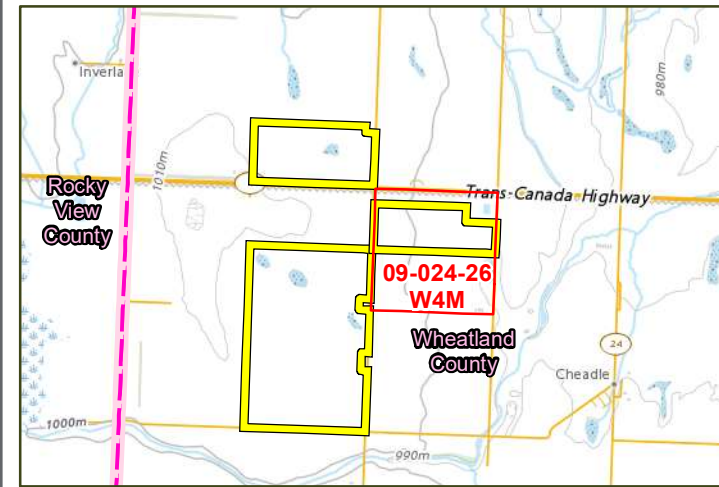
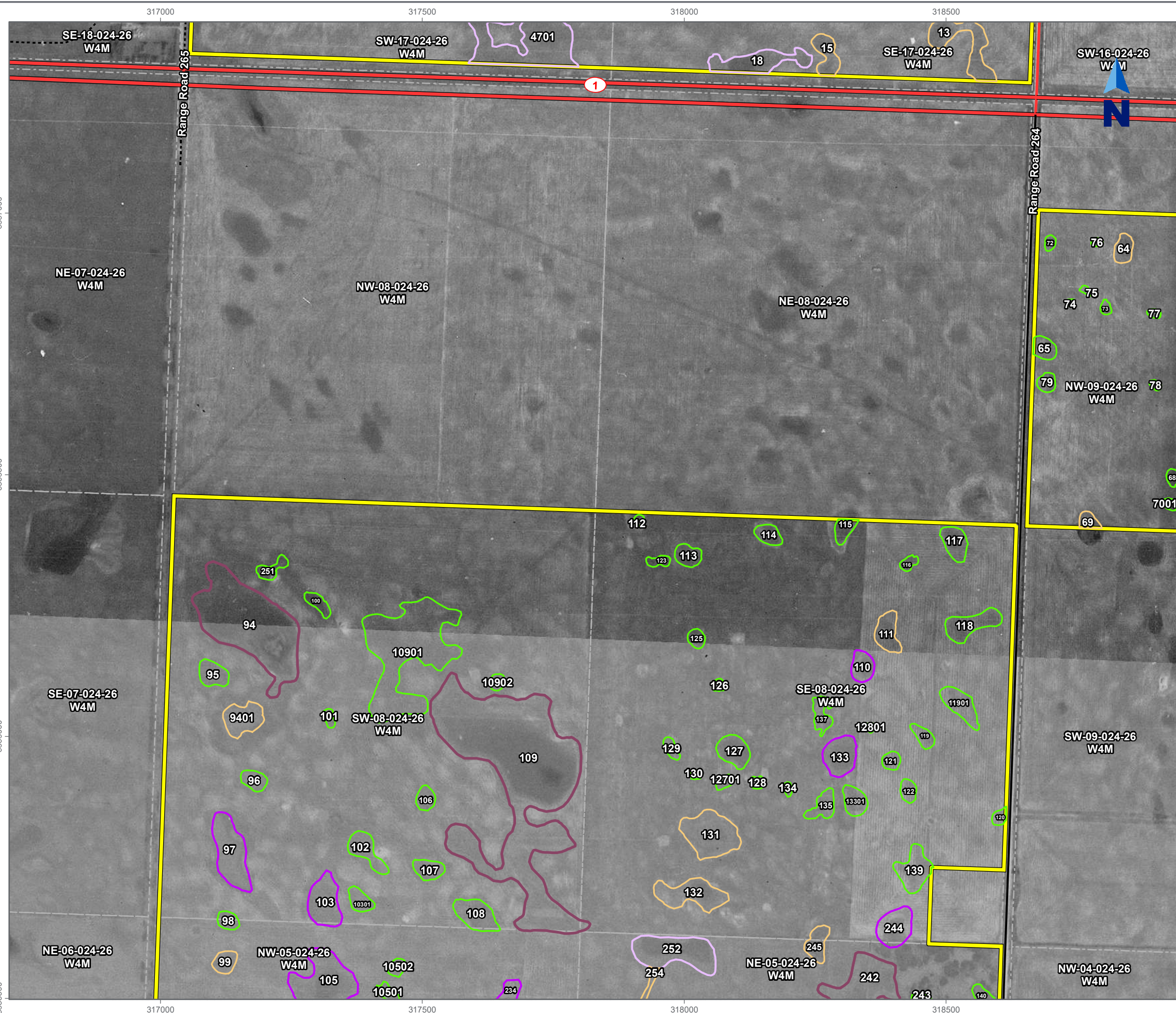


Figure No. C1.2

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Water Resources and 1950 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |

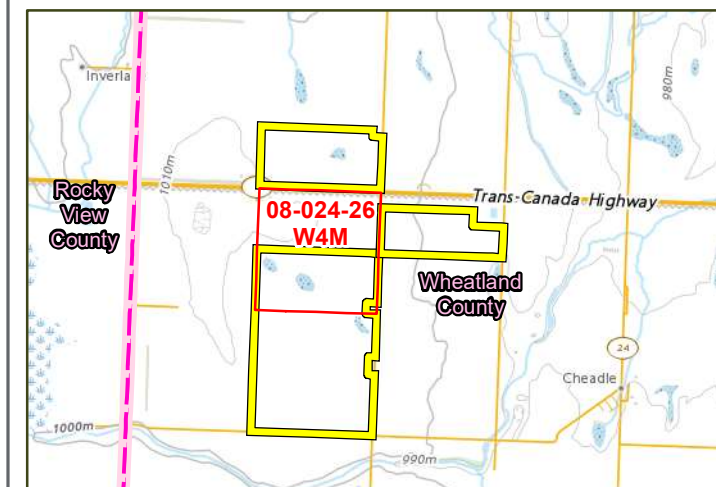
Alberta Wetland Classification System Wetland

- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

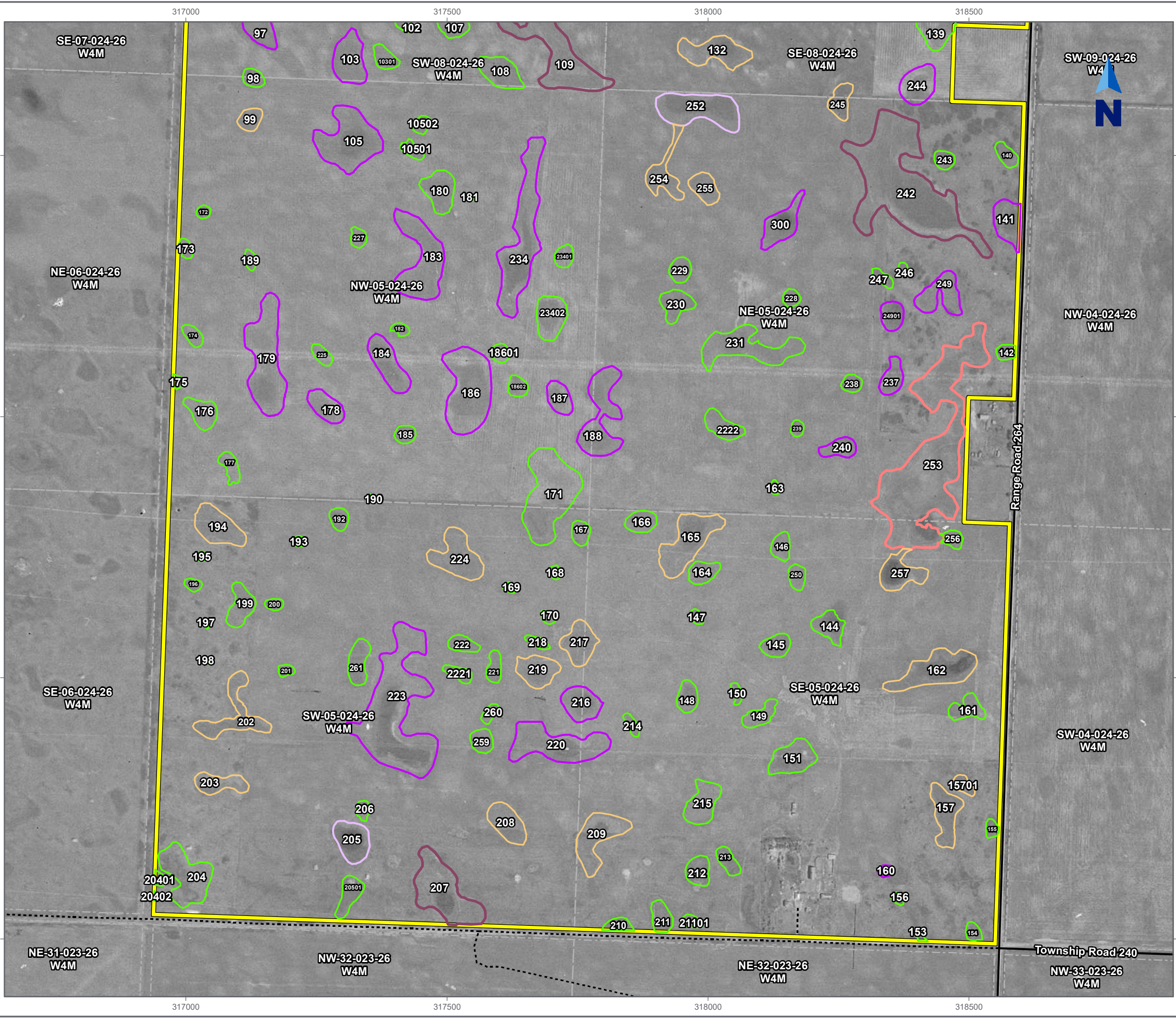
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2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1950 Air Photos (Roll AS-0168, Photo 044 + 175)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020



TRACETM
ASSOCIATES

Figure No.
C1.3

100-1533-C1-R00-V01 - Wetlands - 1950 Imagery Date and Time Saved: Nov 05, 2020 9:23:16 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1
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 5654000
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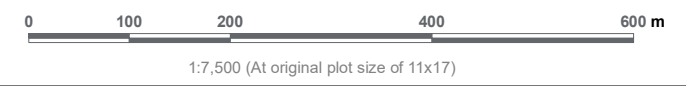
Water Resources and 1950 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1950 Air Photos (Roll AS-0168, Photo 044 + 175)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

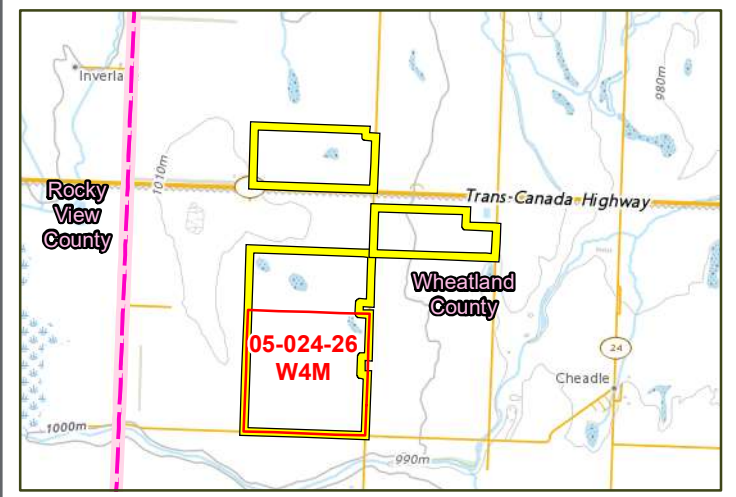
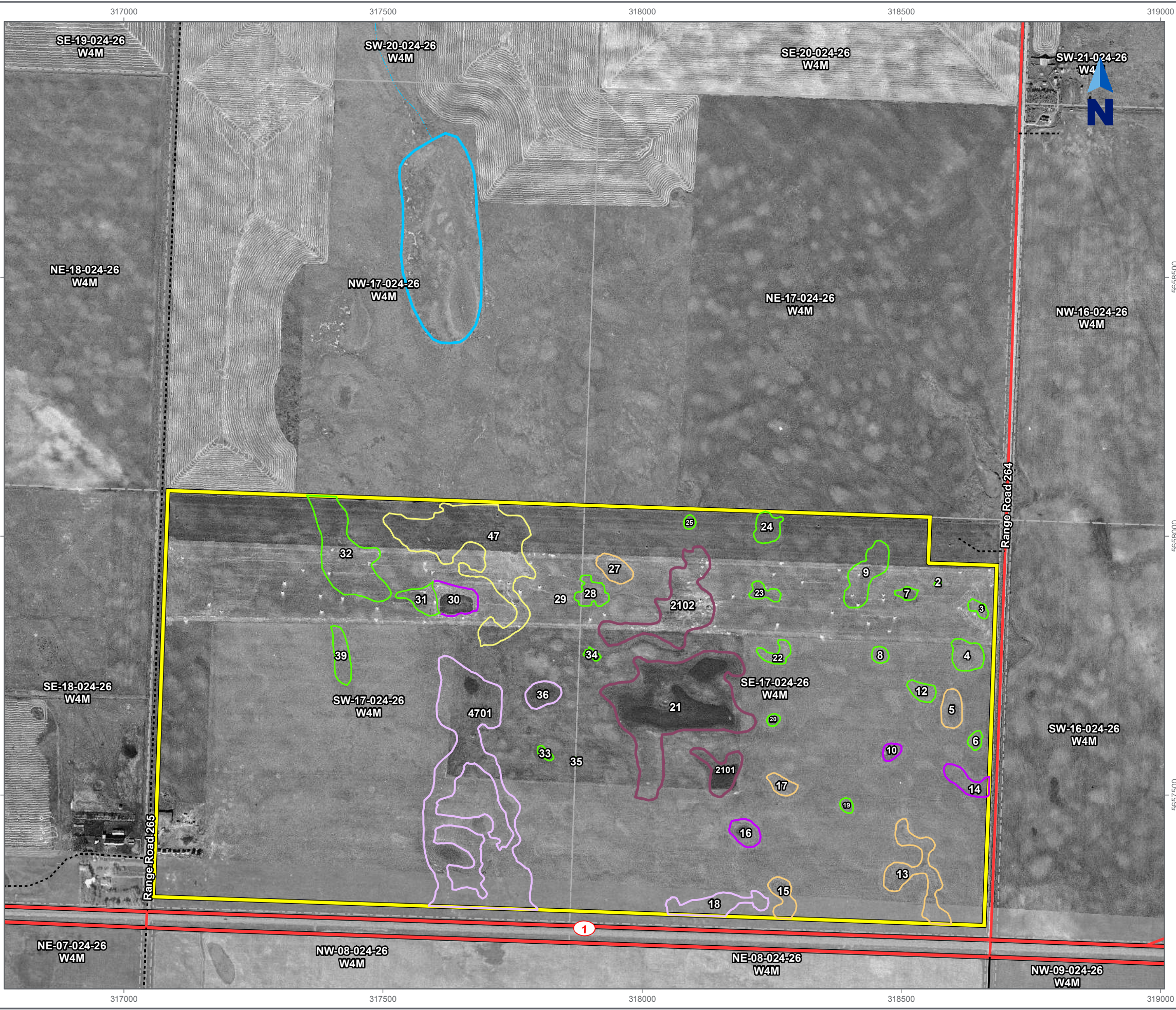


Figure No.
C1.4

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100-1533-C2-R00-V01 - Wetlands - 1962 Imagery Date and Time Saved: Nov 05, 2020 9:25:21 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1



Water Resources and 1962 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1962 Air Photos (Roll AS-0830 Photo 104, Roll AS-0831 Photo 193)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

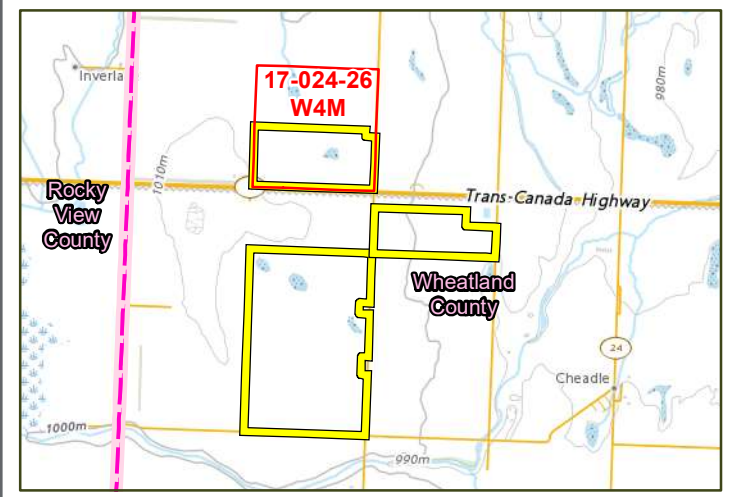


Figure No.
C2.1

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100-1533-C2-R00-V01 - Wetlands - 1962 Imagery Date and Time Saved: Nov 05, 2020 9:23:21 PM Drawn By: cvandenberg Reviewed By: RS Version: 1



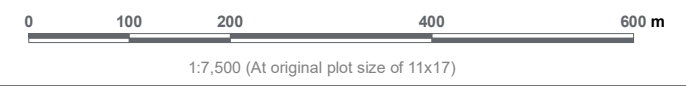
Water Resources and 1962 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 1962 Air Photos (Roll AS-0830 Photo 104, Roll AS-0831 Photo 193)
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

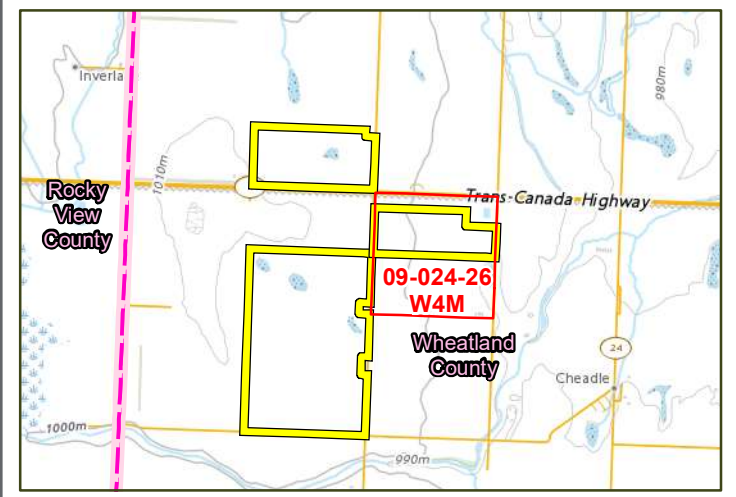
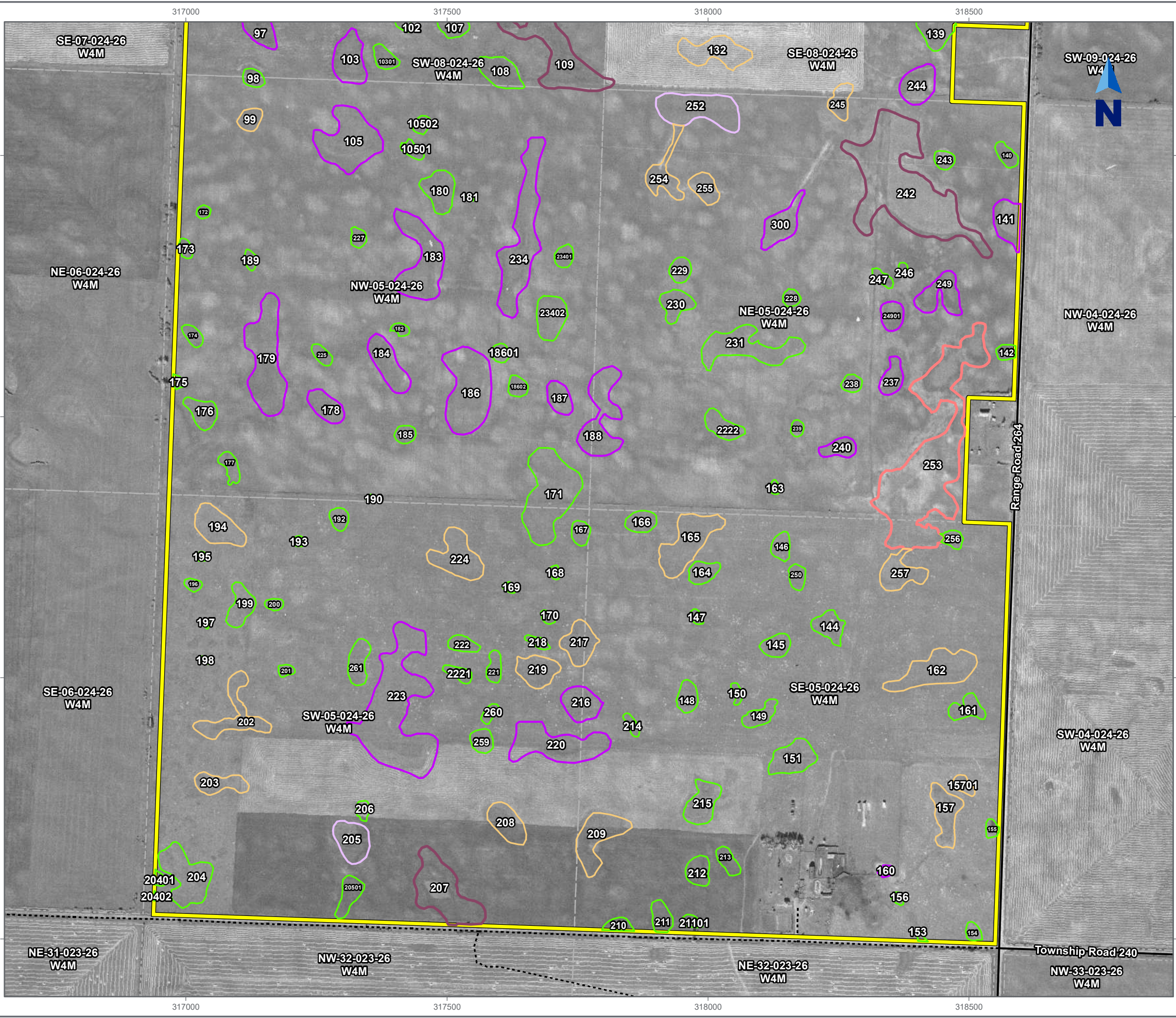


Figure No.
C2.2

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100-1533-C2-R00-V01 - Wetlands - 1962 Imagery - Date and Time Saved: Nov 05, 2020 9:25:21 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
 56555000
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Water Resources and 1962 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

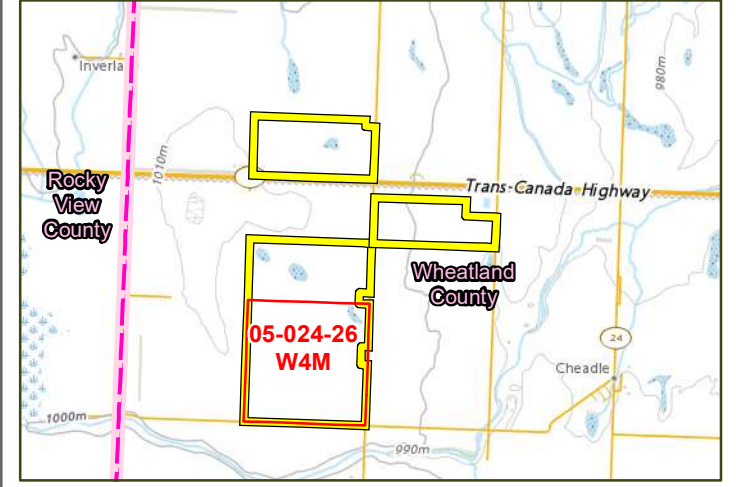
Legend

- | | |
|--|--|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
| Alberta Wetland Classification System Wetland | |
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1962 Air Photos (Roll AS-0830 Photo 104, Roll AS-0831 Photo 193)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

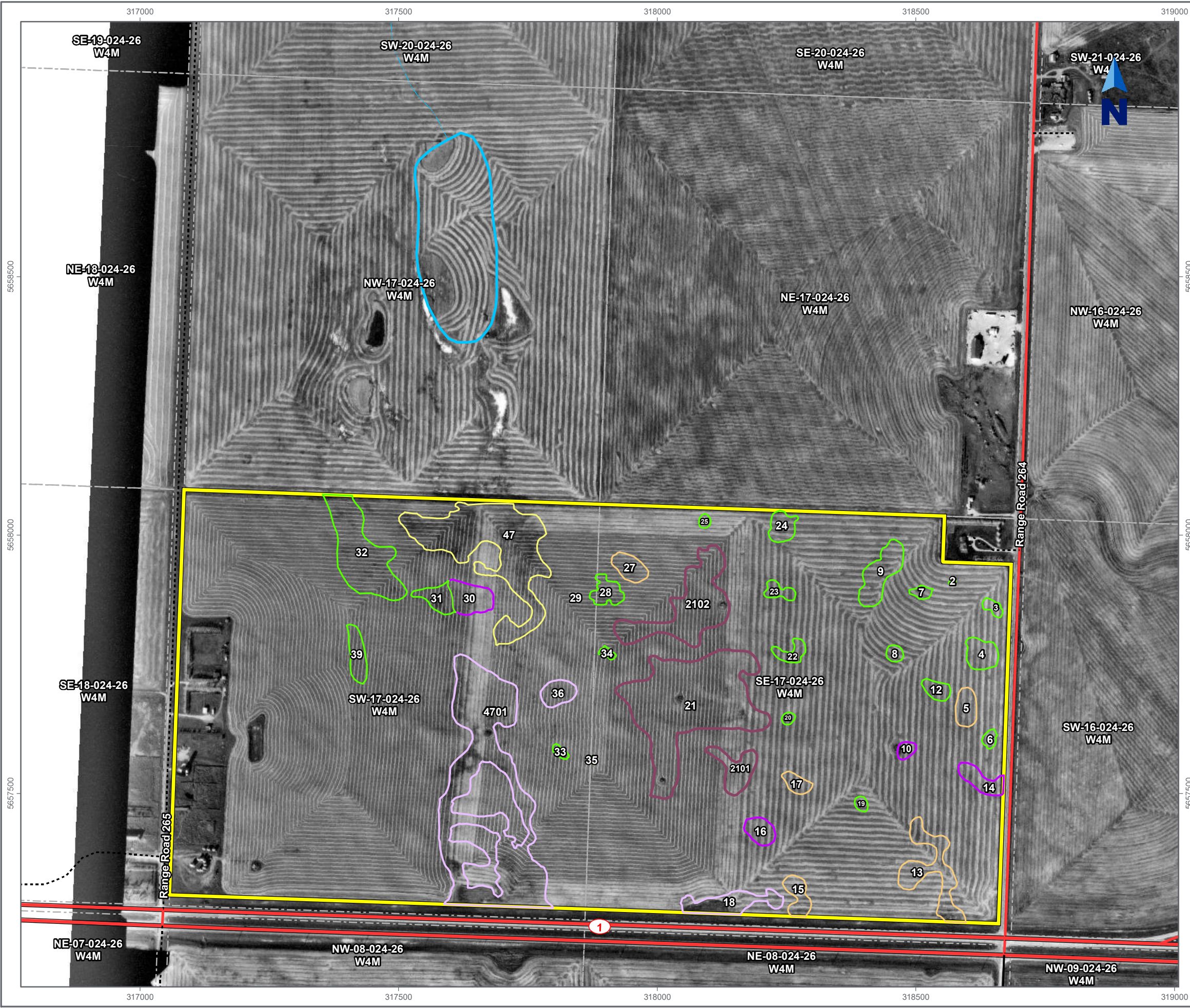


TRACETM
ASSOCIATES

Figure No.
C2.4

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100-1533-C3-R00-V01 - Wetlands - 1988 Imagery Date and Time Saved: Nov 05, 2020 9:23:26 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1



Water Resources and 1988 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

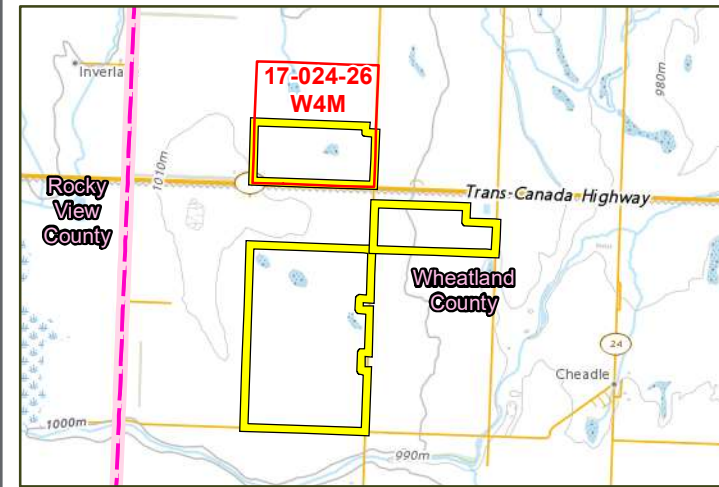
Legend

- | | |
|--|--|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
| Alberta Wetland Classification System Wetland | |
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1988 Air Photos (Roll AS-3805 Photo 115)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020



TRACETM
ASSOCIATES

Figure No.
C3.1

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100-1533 C3 R00 V01 - Wetlands - 1988 Imagery Date and Time Saved: Nov 05, 2020 9:23:26 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



Water Resources and 1988 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|--|--|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
| Alberta Wetland Classification System Wetland | |
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 1988 Air Photos (Roll AS-3805 Photo 115)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

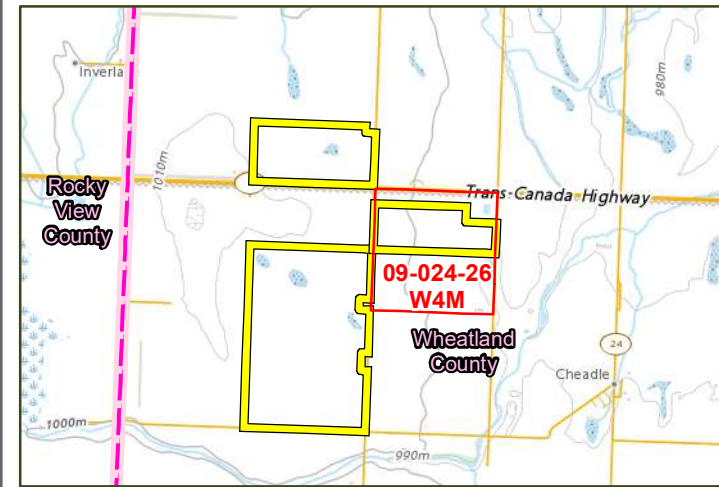
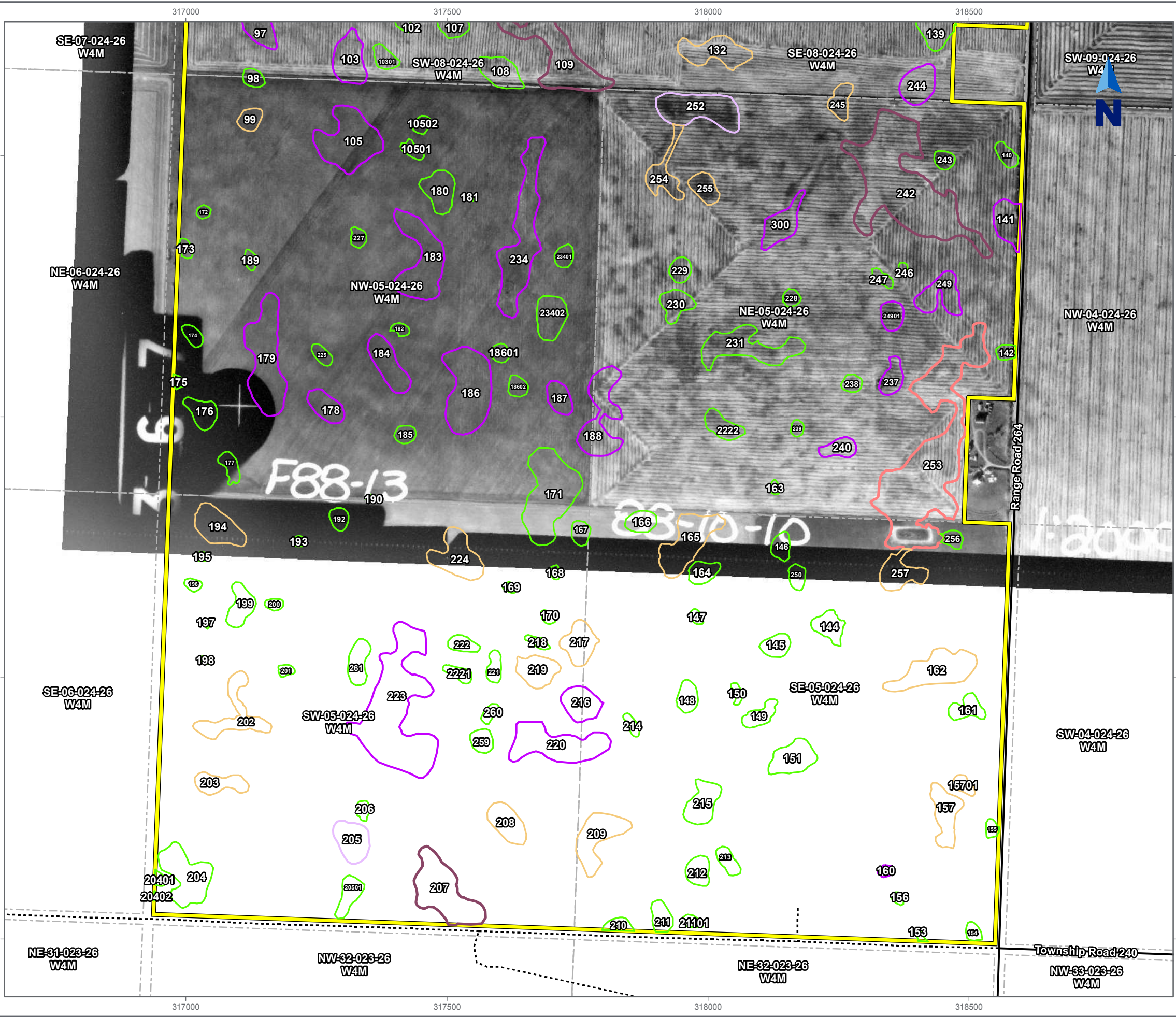


Figure No.
C3.2

This map is for reference purposes only and is not to be used for surveying, engineering or legal purposes. No warranties, either expressed or implied, are made by Trace for the accuracy, completeness, reliability, usability or suitability of the information presented, as generated by Trace or other third party sources. Users should refer to the original source datasets to ascertain the usability of the information displayed.

100-1533-C3-R00-V01 - Wetlands - 1988 Imagery - Date and Time Saved: Nov 05, 2020 9:25:26 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
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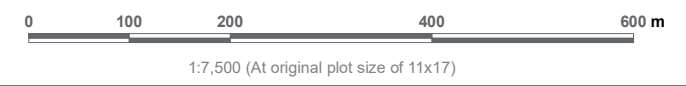


Water Resources and 1988 Air Photo

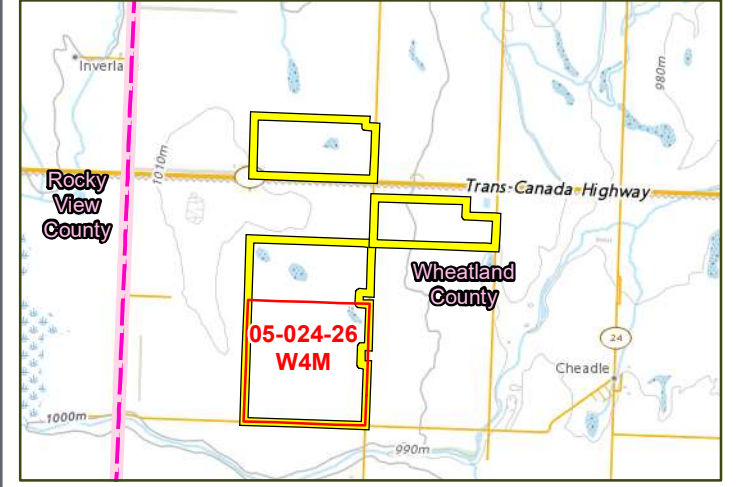
Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

- Legend**
- | | |
|--|--|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
| Alberta Wetland Classification System Wetland | Seasonal Slightly Brackish Graminoid Marsh |
| Ephemeral | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Watercourse/Riparian |
| Seasonal Moderately Brackish Graminoid Marsh | |



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 3. Base Image: 1988 Air Photos (Roll AS-3805 Photo 115)
 4. Inset Image: Canada Base Map - Transportation
 5. Last Field Update: July, 2020



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Figure No.
C3.4

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100-1533-C4-R00-V01 - Wetlands - 2000 Imagery Date and Time Saved: Nov 05, 2020 @ 2:31:11 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1



Water Resources and 2000 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Polygons_April2020_reclass... Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Moderately Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| | Semi-permanent Moderately Brackish Graminoid Marsh |
| | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2000 Air Photos (Roll AS-5128 Photo 258, Roll AS-5129 Photo 021)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

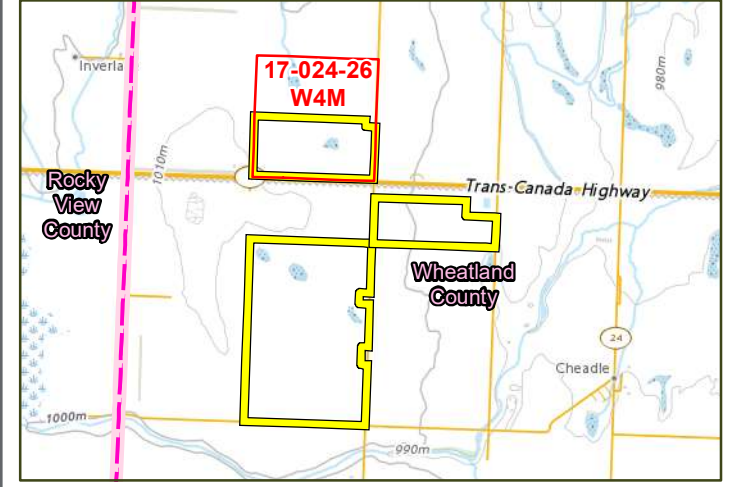
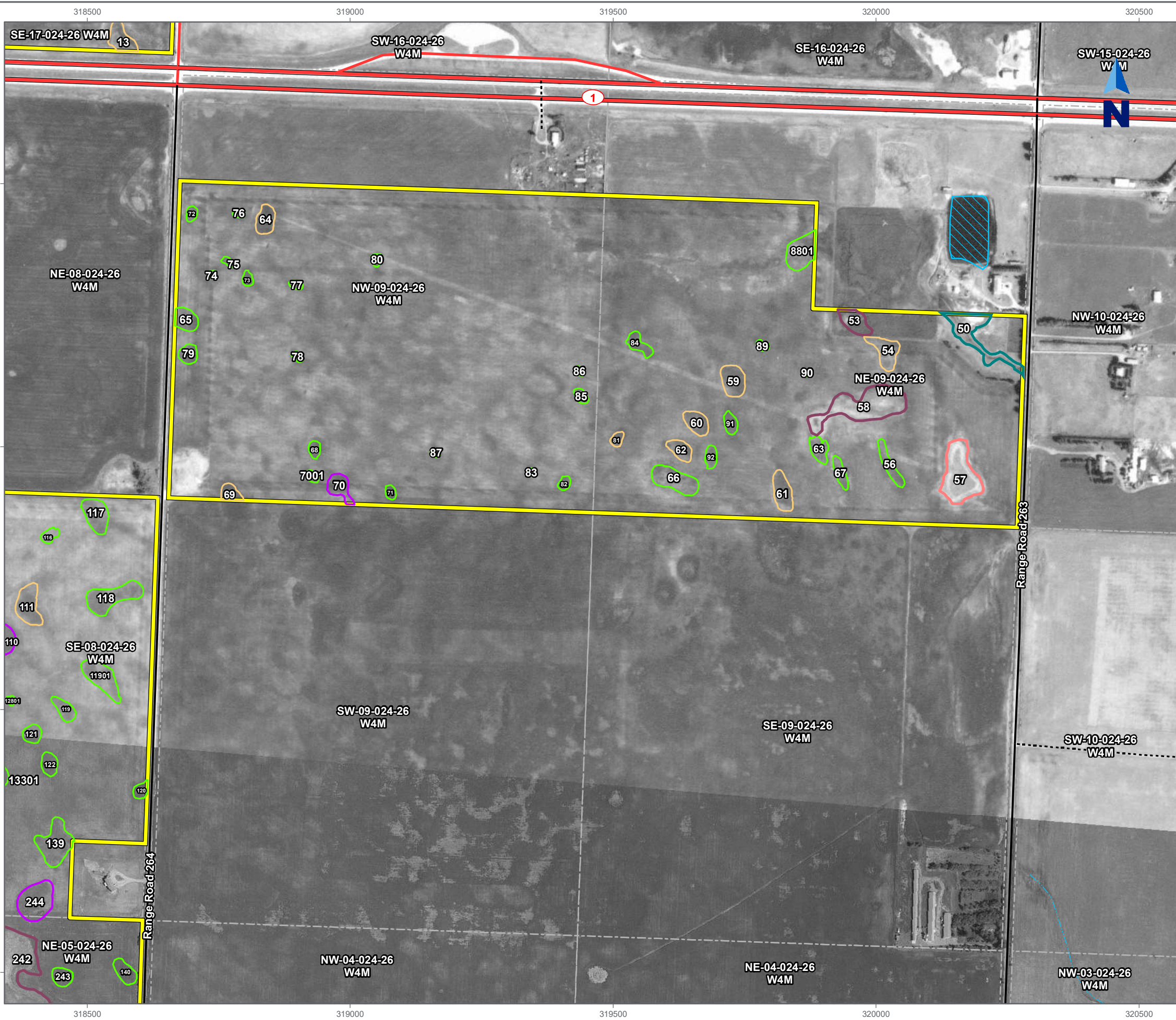


Figure No.
C4.1

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100-1533 C4 R00 V01 - Wetlands - 2000 Imagery Date and Time Saved: Nov 05, 2020 @ 2:31:11 PM Drawn By: c.vanderberg Reviewed By: RS Version: 0
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Water Resources and 2000 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

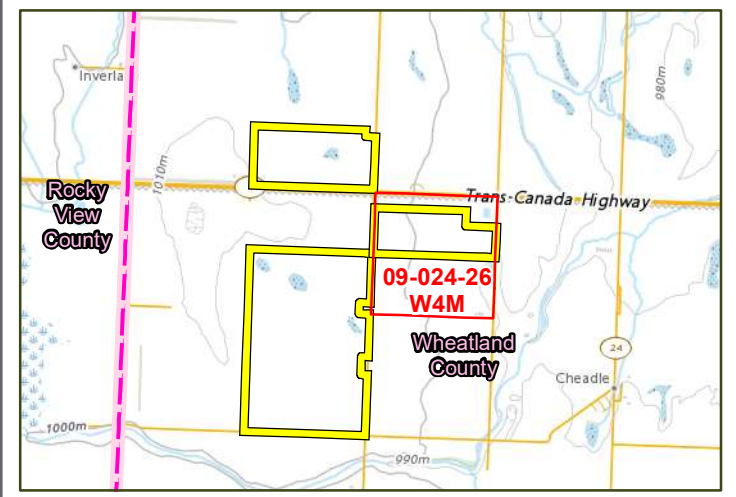
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- Polygons_April2020_reclass...
Alberta Wetland Classification System Wetland**
- | | |
|---|--|
| Ephemeral | Seasonal Moderately Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| | Semi-permanent Moderately Brackish Graminoid Marsh |
| | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2000 Air Photos (Roll AS-5128 Photo 258, Roll AS-5129 Photo 021)
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

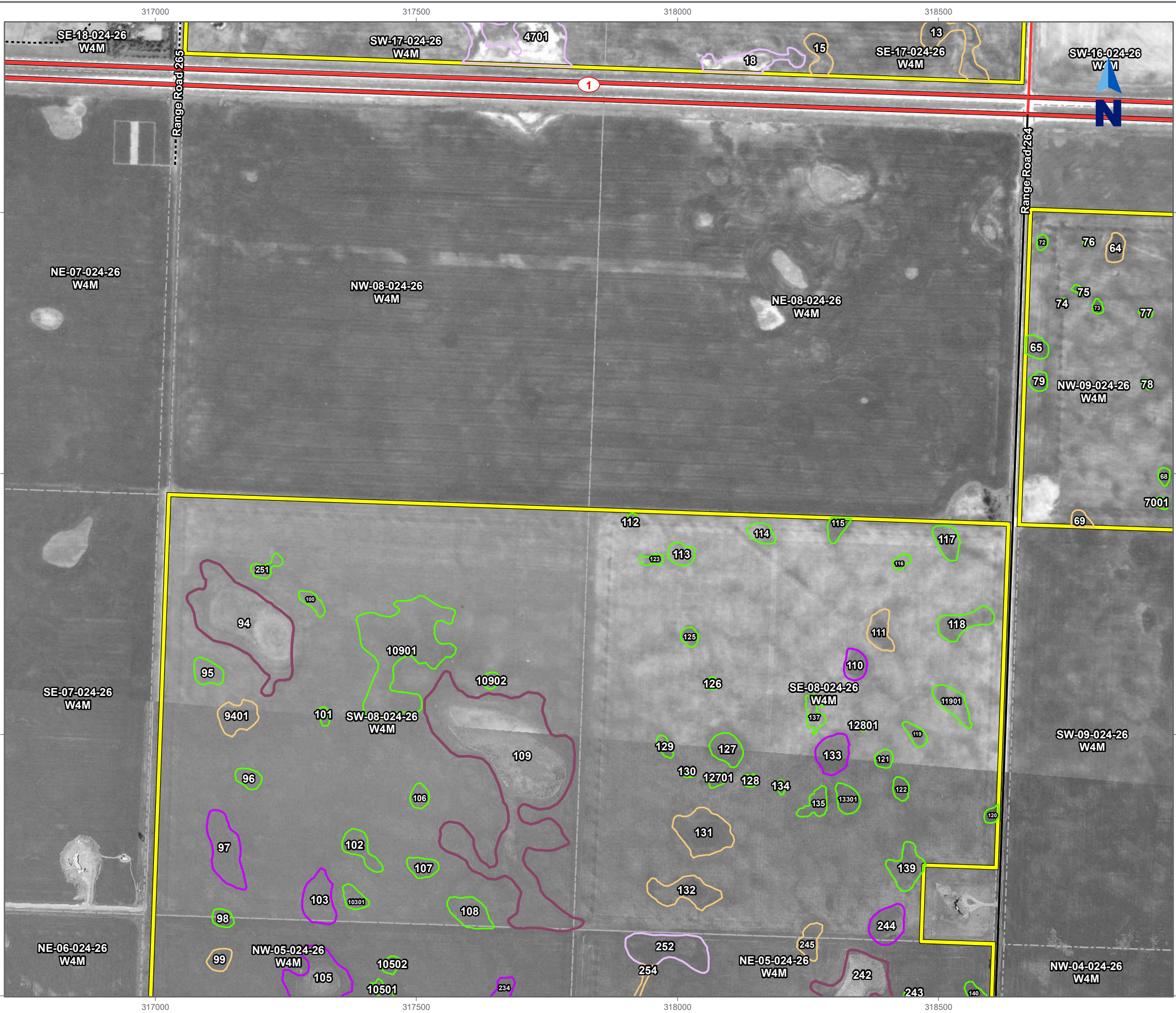


TRACETM
ASSOCIATES

Figure No.
C4.2

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100-1533 C4 R00 V01 - Wetlands - 2000 Imagery Date and Time Saved: Nov 05, 2020 9:23:11 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1
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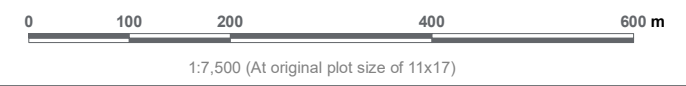


Water Resources and 2000 Air Photo

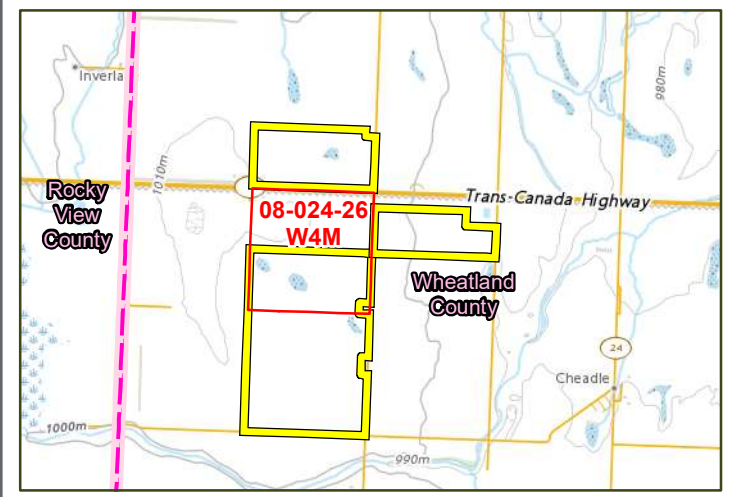
Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

- Legend**
- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
- Polygons_April2020_reclass...
Alberta Wetland Classification System Wetland**
- | | |
|---|--|
| Ephemeral | Seasonal Moderately Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| | Semi-permanent Moderately Brackish Graminoid Marsh |
| | Watercourse/Riparian |



- Notes**
- Coordinate System: NAD 1983 UTM Zone 12N
 - Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 - Base Image: 2000 Air Photos (Roll AS-5128 Photo 258, Roll AS-5129 Photo 021)
 - Inset Image: Canada Base Map - Transportation
 - Last Field Update: July, 2020

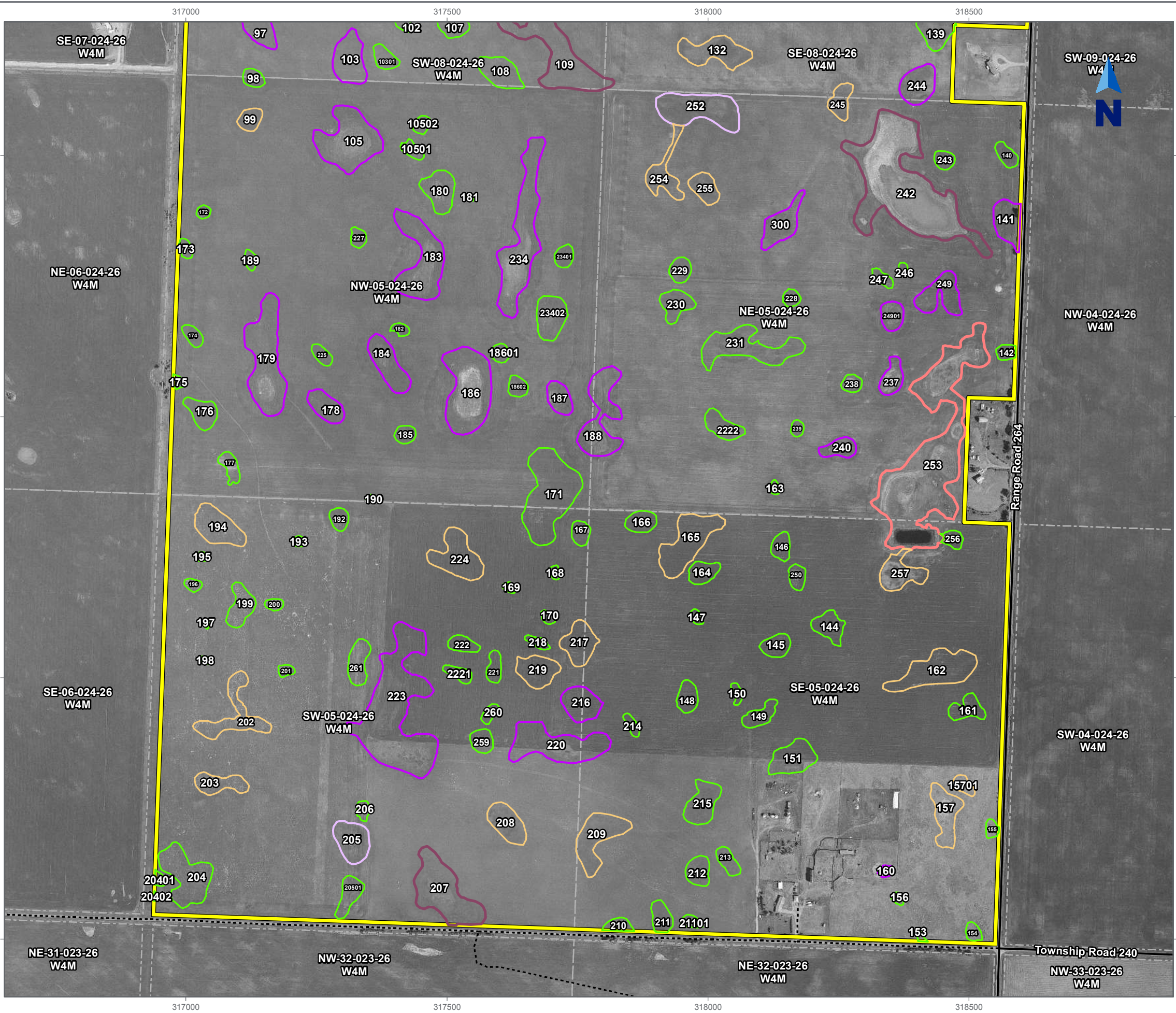


TRACETM
ASSOCIATES

Figure No.
C4.3

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100-1533 C4 R00 V01 - Wetlands - 2000 Imagery Date and Time Saved: Nov 05, 2020 @ 2:31:11 PM Drawn By: cvanderberg Reviewed By: RS Revision: 0 Version: 1
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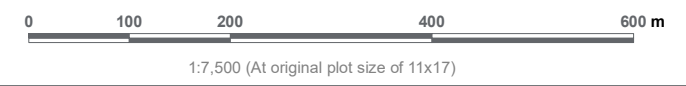
Water Resources and 2000 Air Photo

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- Polygons_April2020_reclass...
Alberta Wetland Classification System Wetland**
- | | |
|---|--|
| Ephemeral | Seasonal Moderately Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| | Semi-permanent Moderately Brackish Graminoid Marsh |
| | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2000 Air Photos (Roll AS-5128 Photo 258, Roll AS-5129 Photo 021)
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

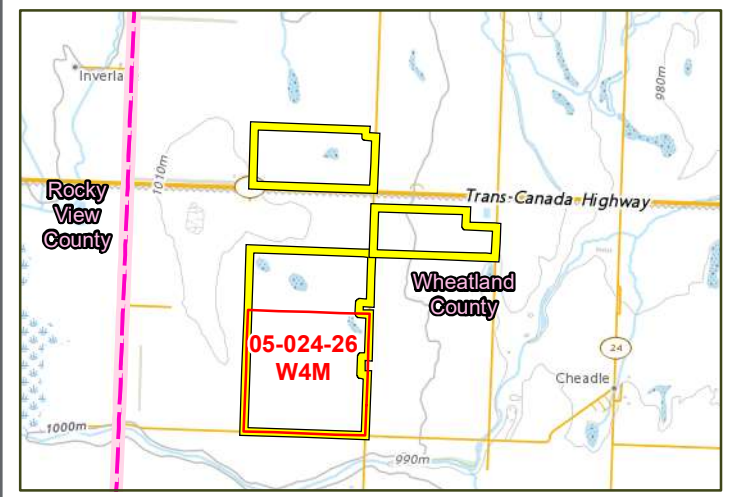
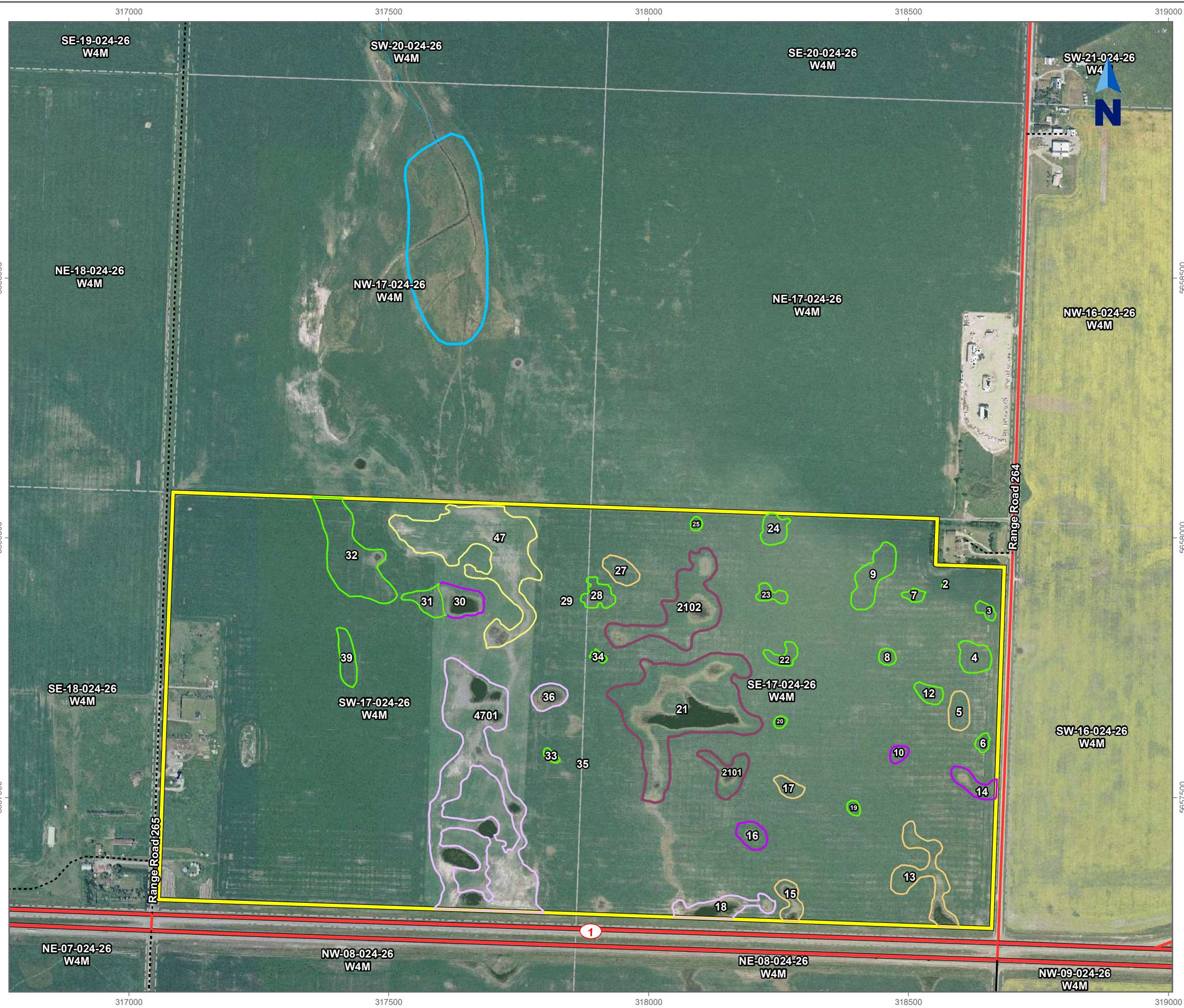


Figure No.
C4.4

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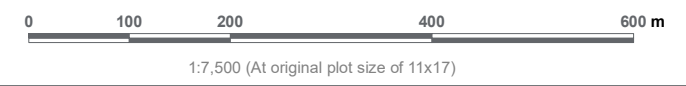
Water Resources and 2005 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

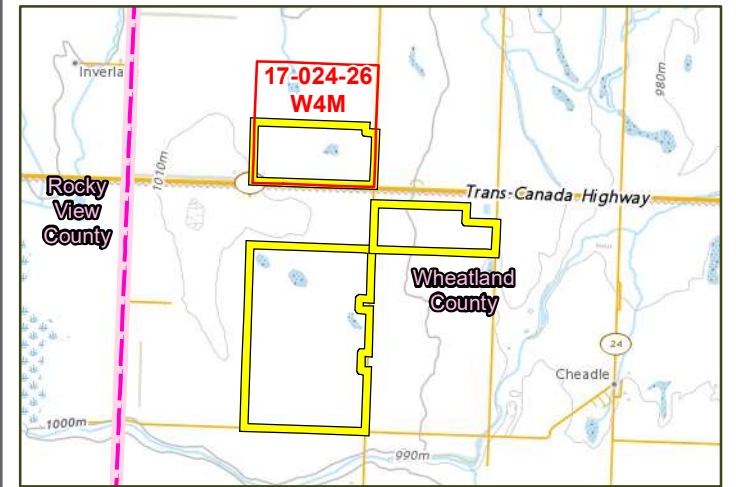
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |

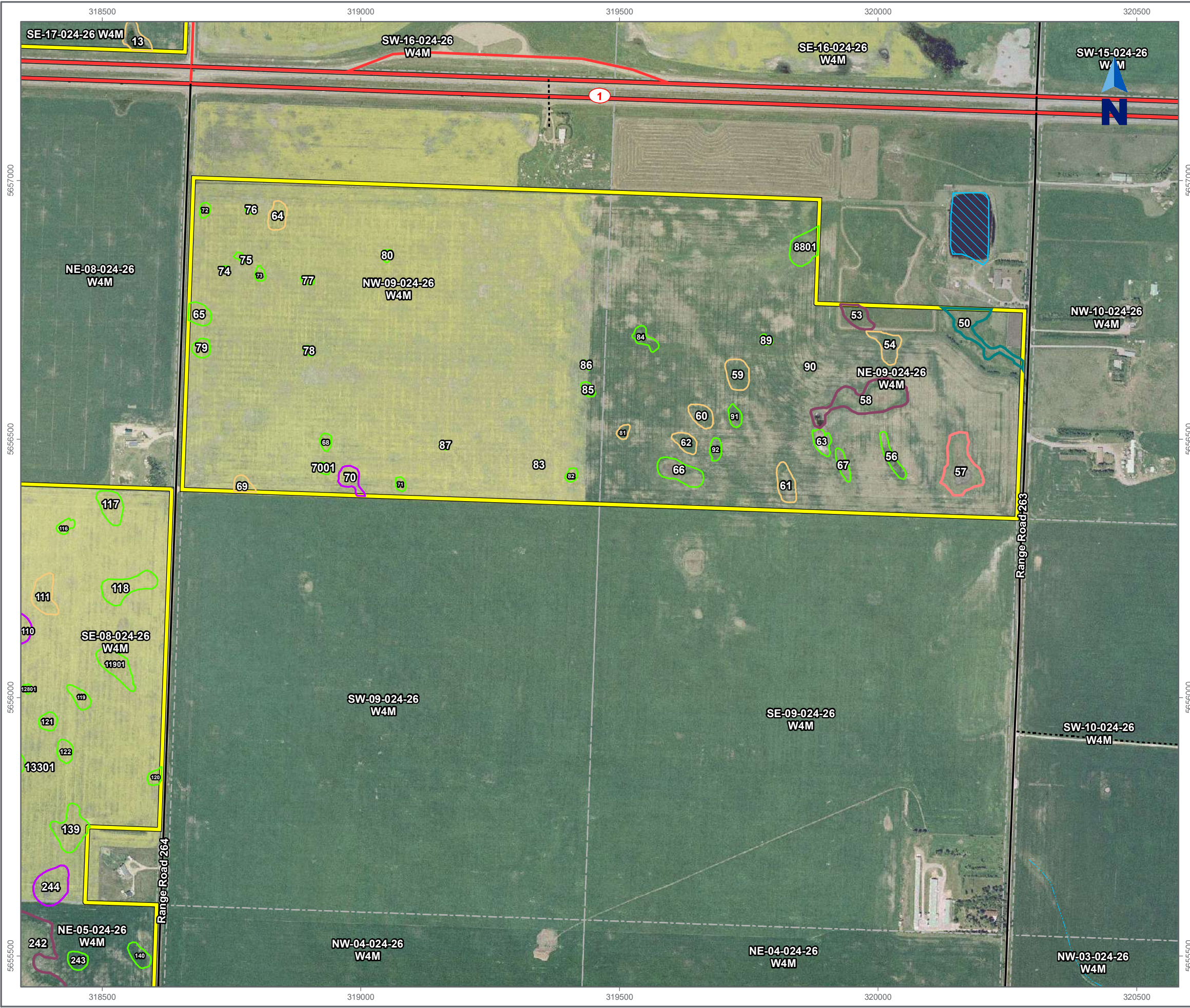


Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2005 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020



100-1533-C5-R00-V01 - Wetlands - 2005 Imagery Date and Time Saved: Nov 05, 2020 9:23:32 PM Drawn By: cvandenberg Reviewed By: RS Version: 1



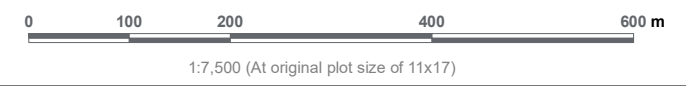
Water Resources and 2005 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

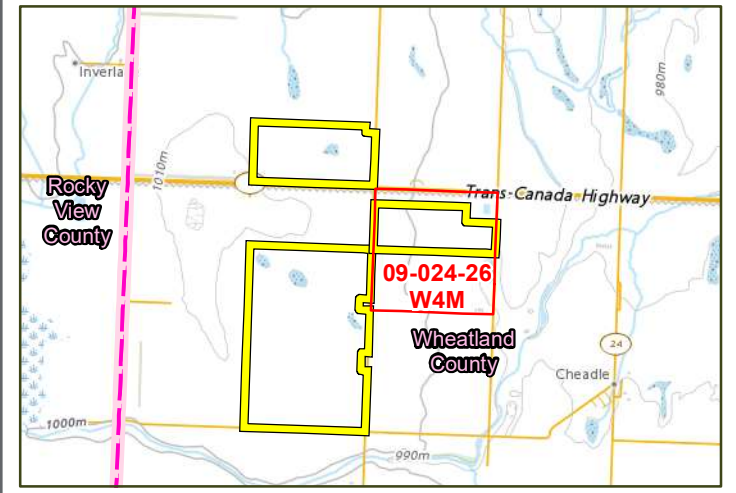
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2005 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

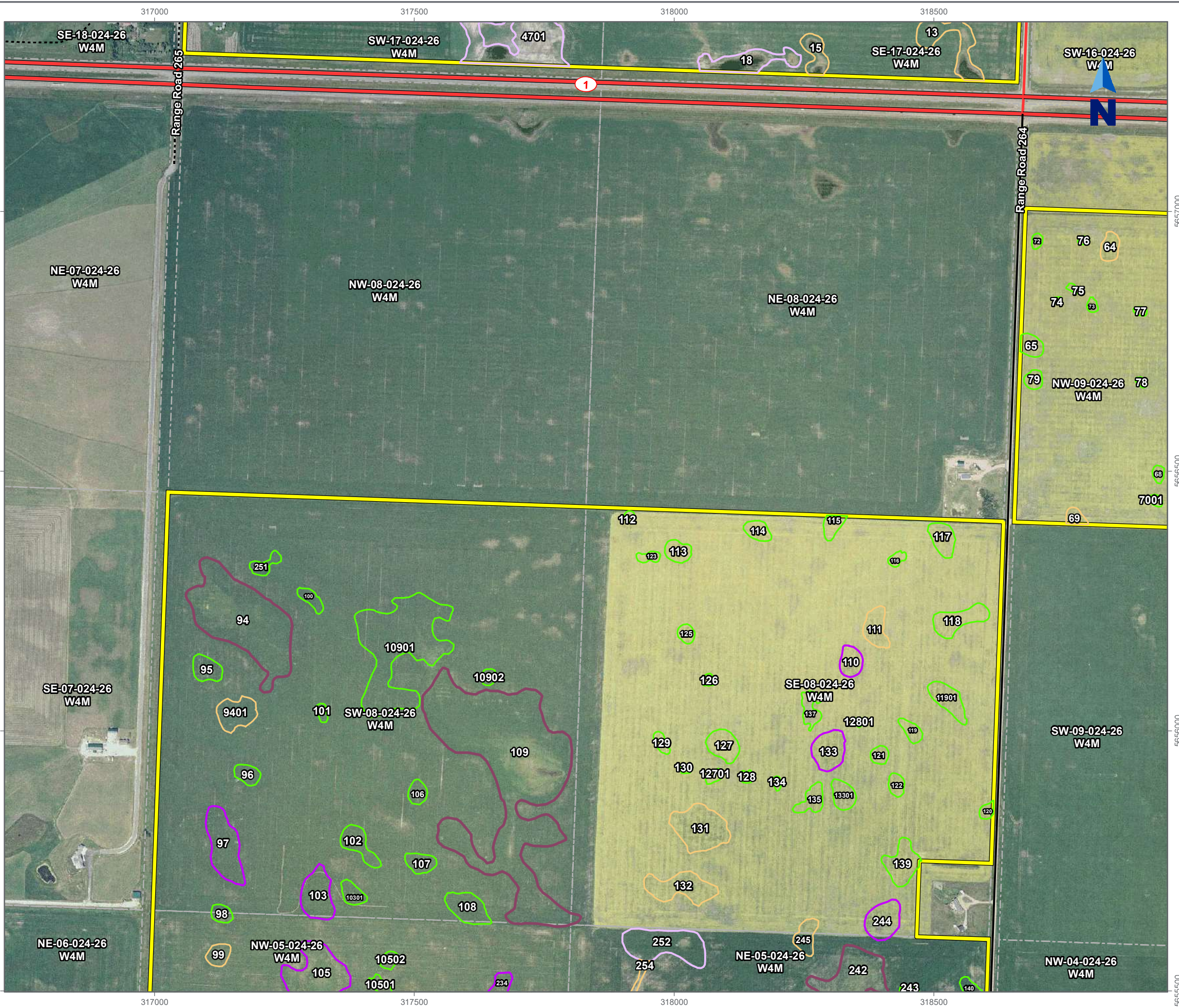


TRACETM
ASSOCIATES

Figure No.
C5.2

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100-1533-C5-R00-V01 - Wetlands - 2005 Imagery Date and Time Saved: Nov 05, 2020 9:23:32 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
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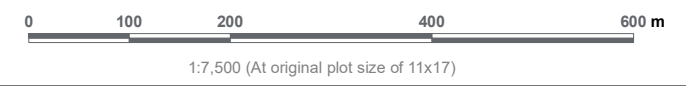
Water Resources and 2005 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

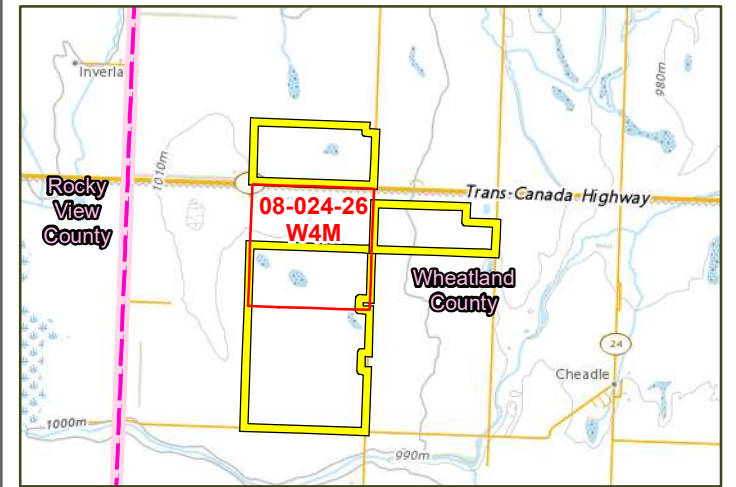
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2005 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

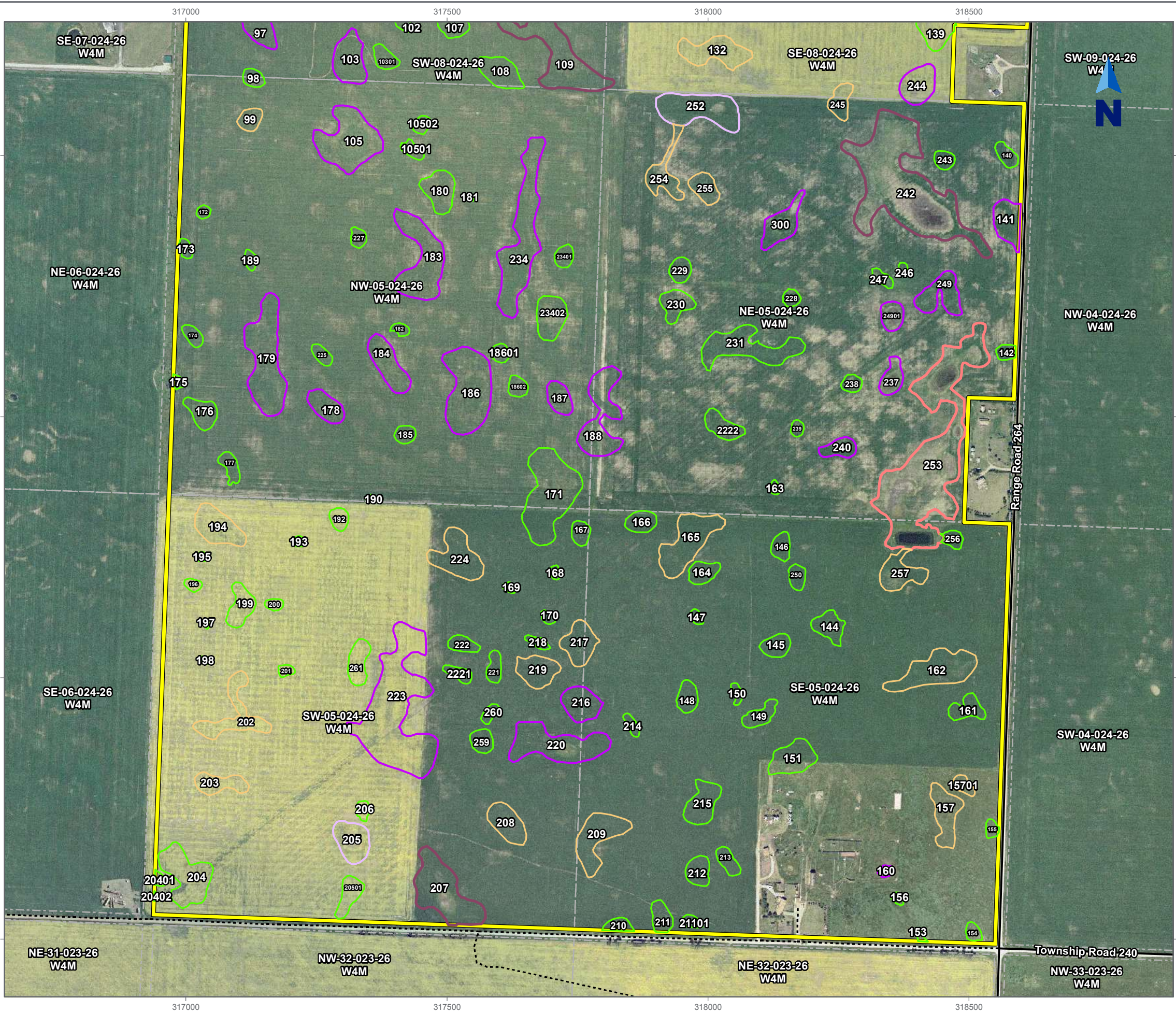


TRACETM
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Figure No.
C5.3

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100-1533-C5-R00-V01 - Wetlands - 2005 Imagery Date and Time Saved: Nov 05, 2020 9:23:32 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
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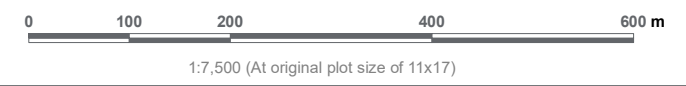
Water Resources and 2005 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

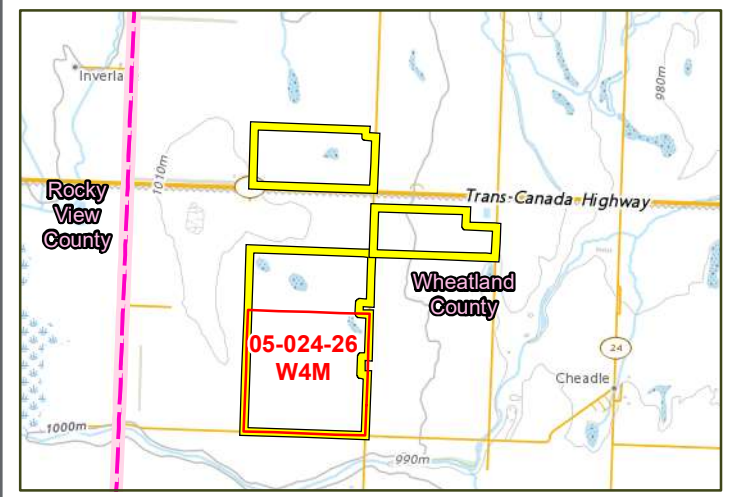
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2005 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

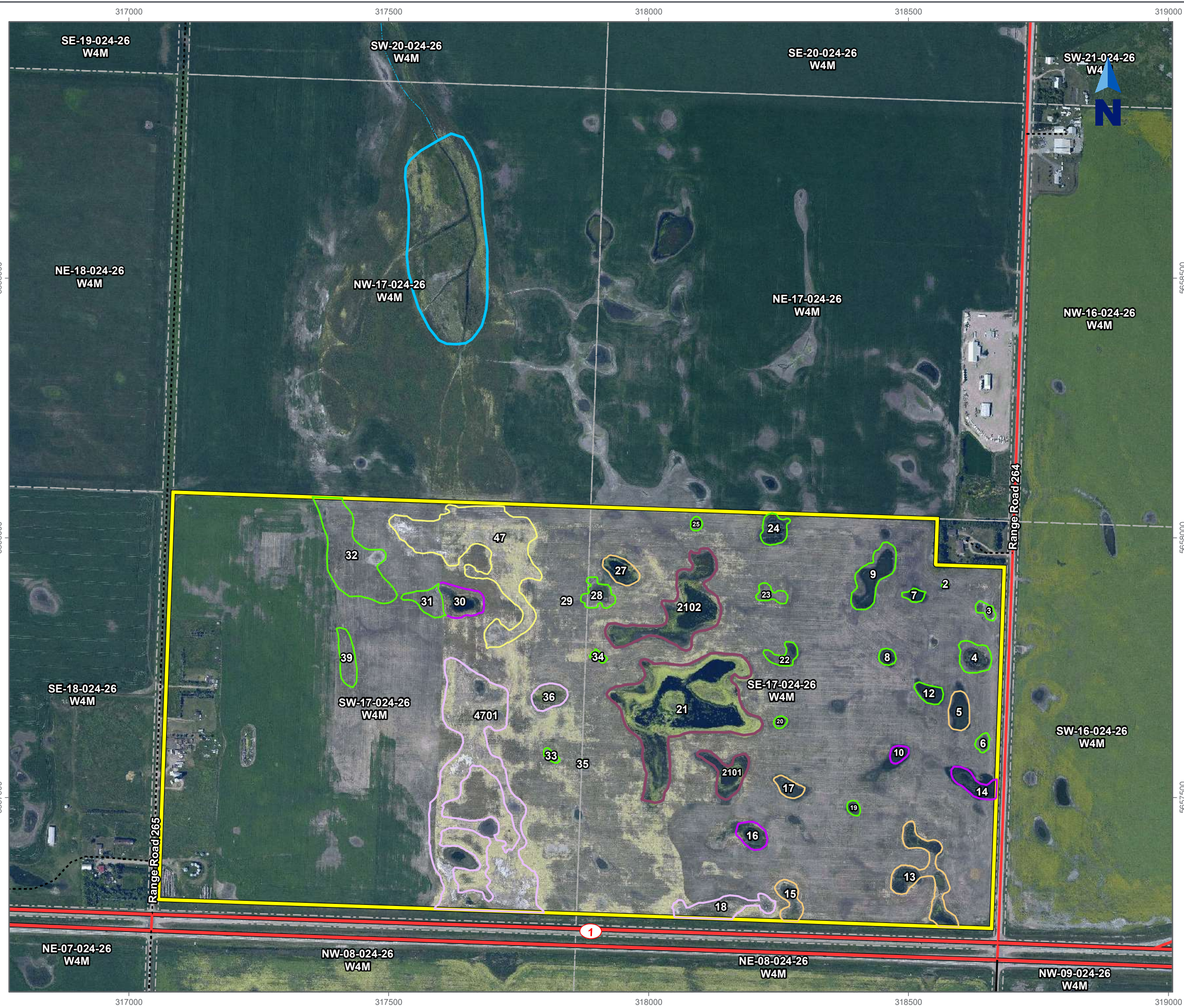


TRACETM
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Figure No.
C5.4

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100-1533-C6-R00-V01 - Wetlands - 2007 Imagery Date and Time Saved: Nov 05, 2020 9:22:54 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



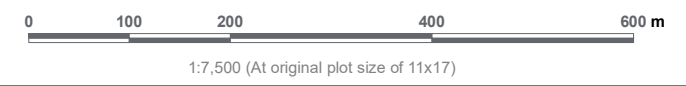
Water Resources and 2007 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

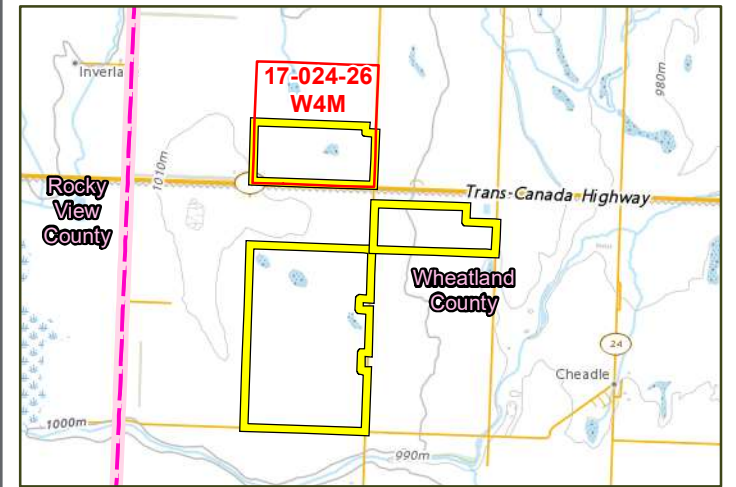
Legend

- | | |
|---|--|
| Site | Recurring Waterbody (AltaLis Base20) |
| Primary Highway | Dugout (AltaLis Base20) |
| Secondary Highway | Quarter Section (ATS v4.1) |
| Secondary Highway - Gravel | Seasonal Slightly Brackish Graminoid Marsh |
| Unimproved Road/Trail | Semi-permanent Slightly Brackish Graminoid Marsh |
| Ephemeral | Semi-permanent Moderately Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Watercourse/Riparian |
| Temporary Moderately Brackish Graminoid Marsh | |
| Seasonal Moderately Brackish Graminoid Marsh | |
| Stream Indefinite | |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2007 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

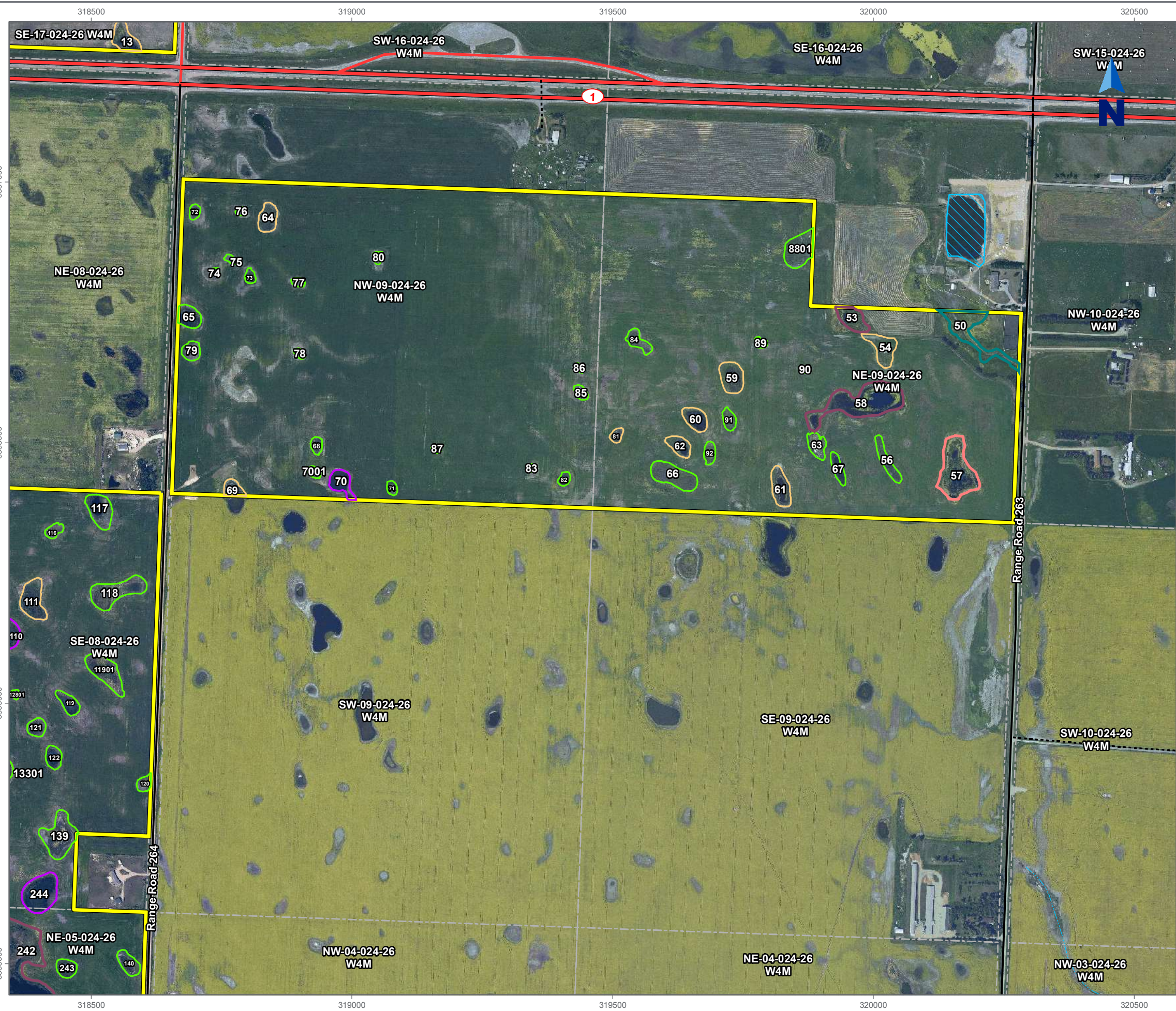


TRACETM
ASSOCIATES

Figure No.
C6.1

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Version: 1
Revision: 0
Reviewed By: RS
Drawn By: crandenberg
Date and Time Saved: Nov 05, 2020 9:22:54 PM
100-1533 C6 R00 V01 - Wetlands - 2007 Imagery



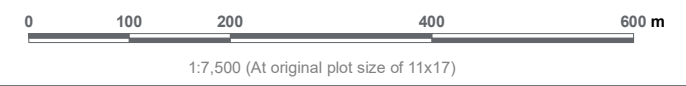
Water Resources and 2007 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

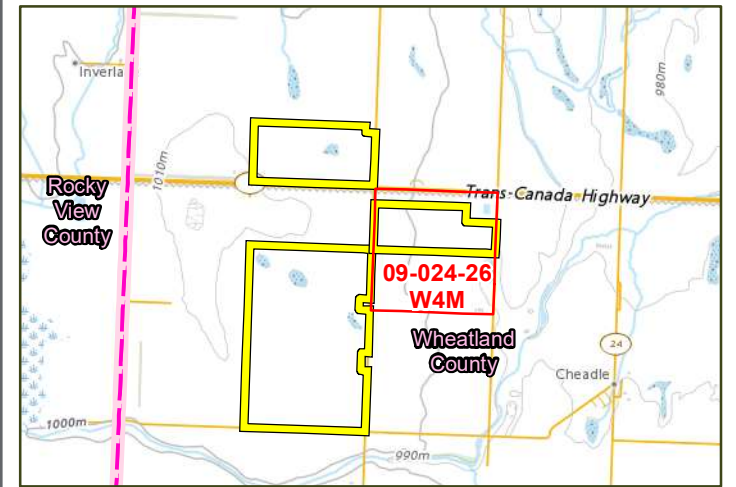
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2007 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

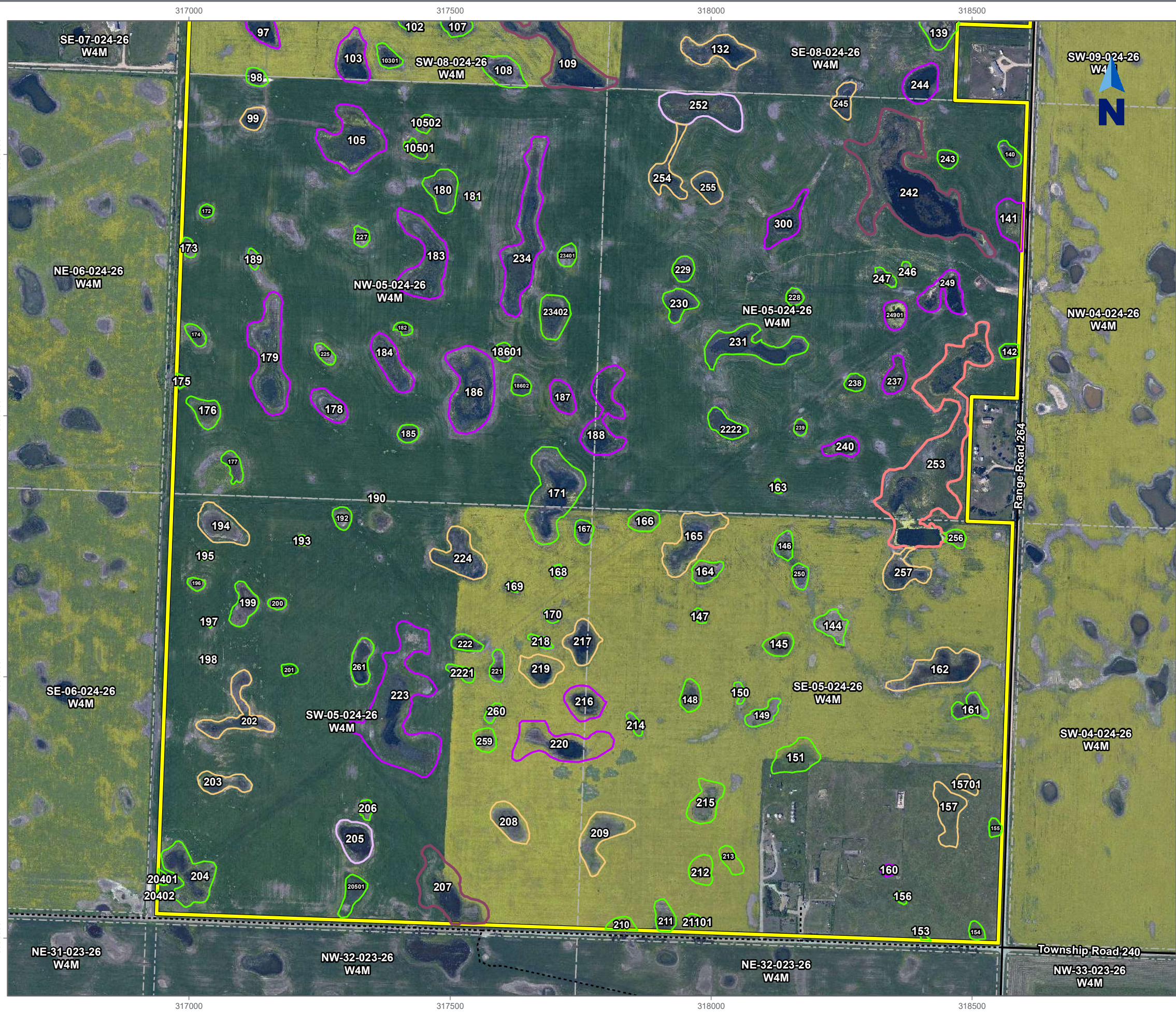


TRACETM
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Figure No.
C6.2

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100-1533-C6-R00-V01 - Wetlands - 2007 Imagery Date and Time Saved: Nov 05, 2020 9:22:54 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
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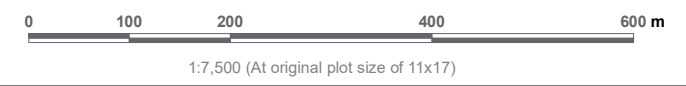
Water Resources and 2007 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

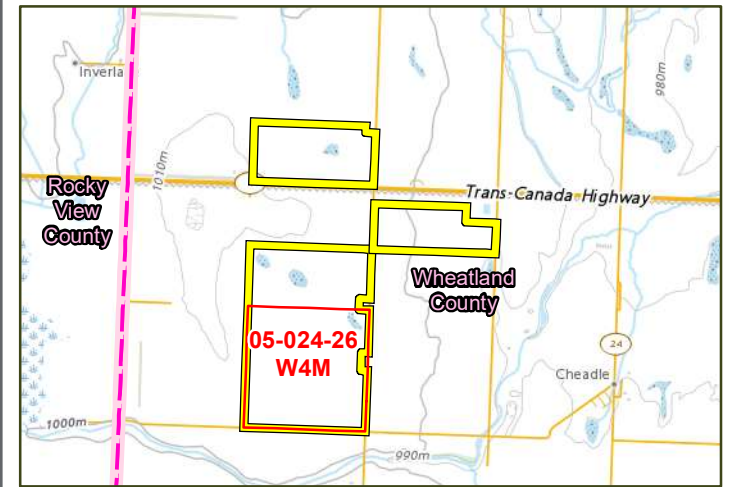
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

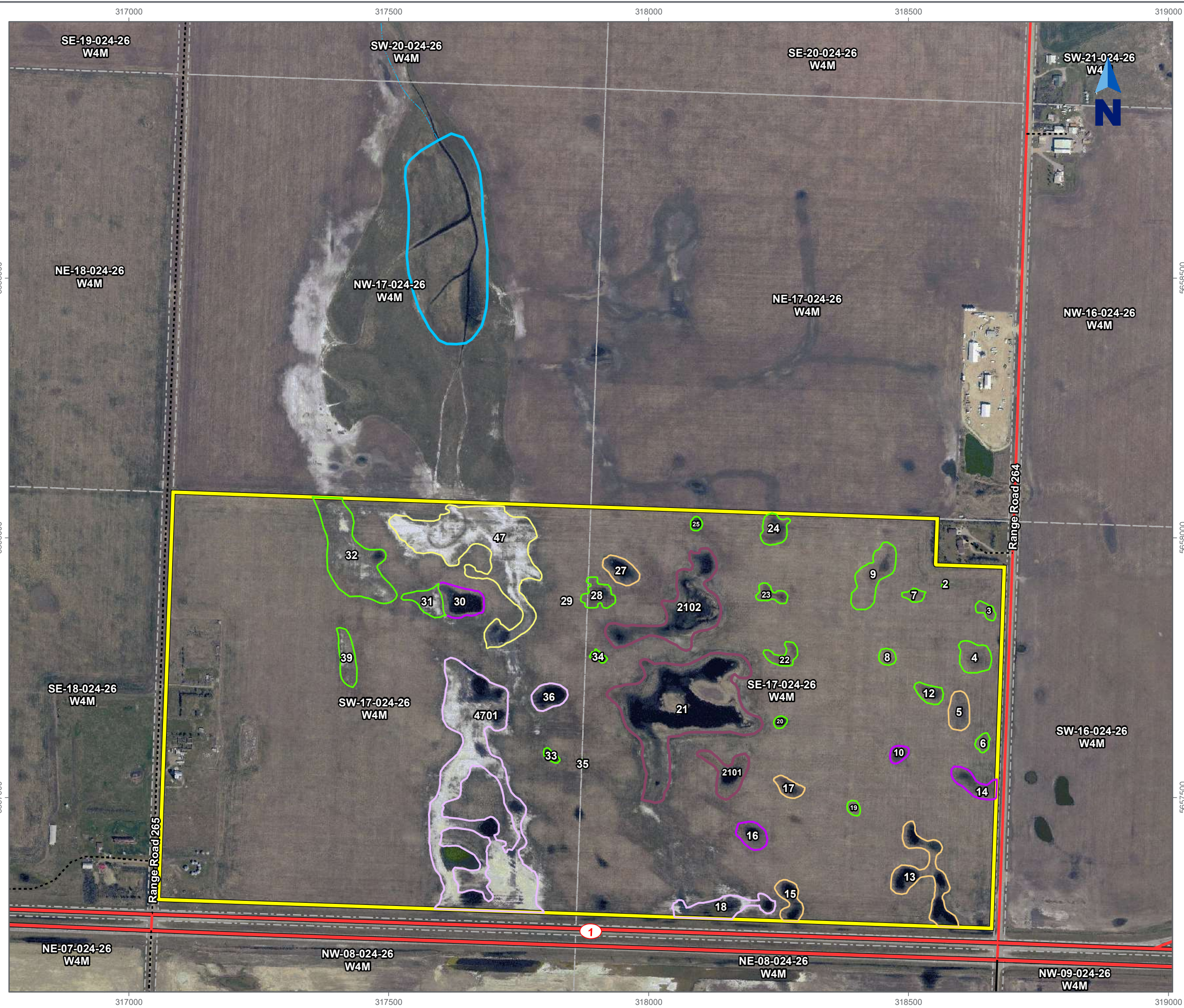
- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2007 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020



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Figure No.
C6.4

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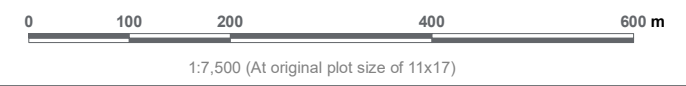
Water Resources and 2010 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

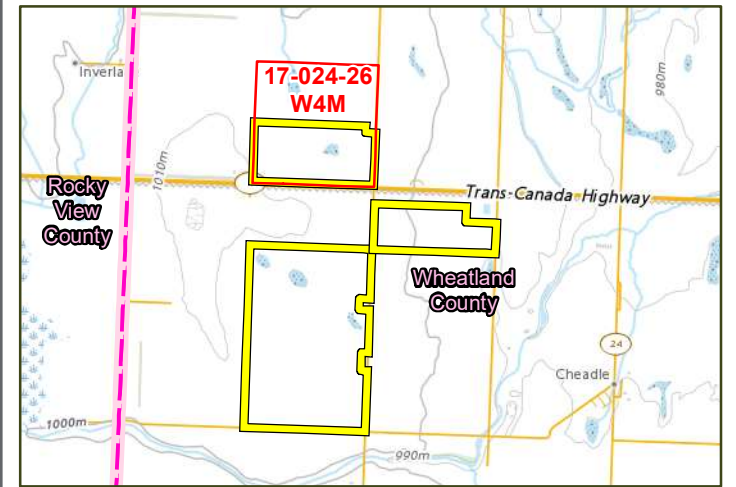
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

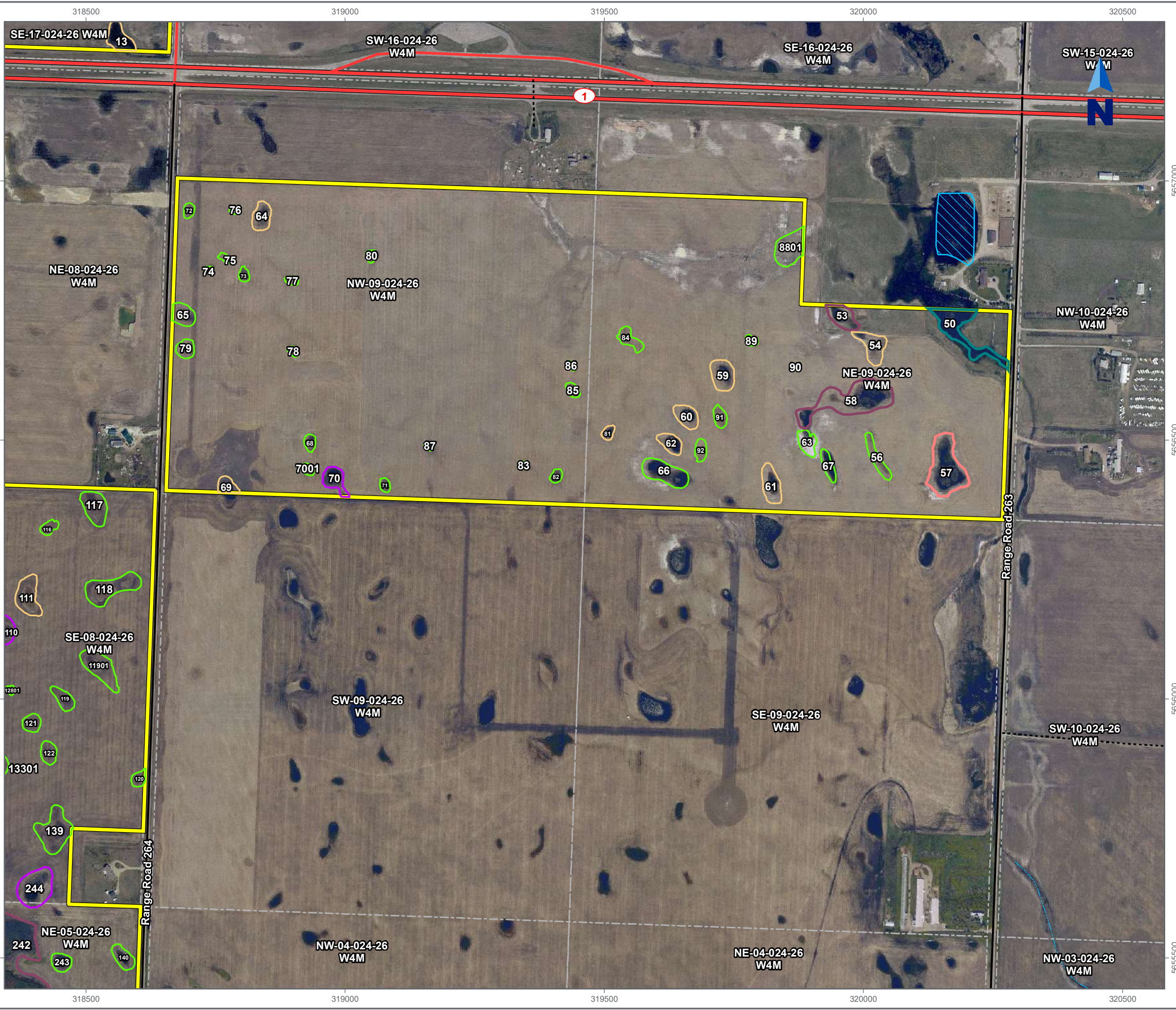
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2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2010 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020



TRACETM
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Figure No.
C7.1

100-1533-C7-R00-V01 - Wetlands - 2010 Imagery Date and Time Saved: Nov 05, 2020 9:25:05 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
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Water Resources and 2010 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

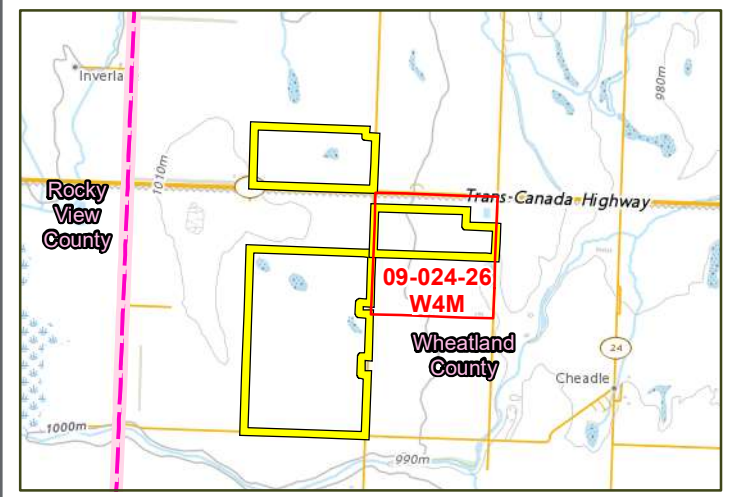
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway - Gravel | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2010 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

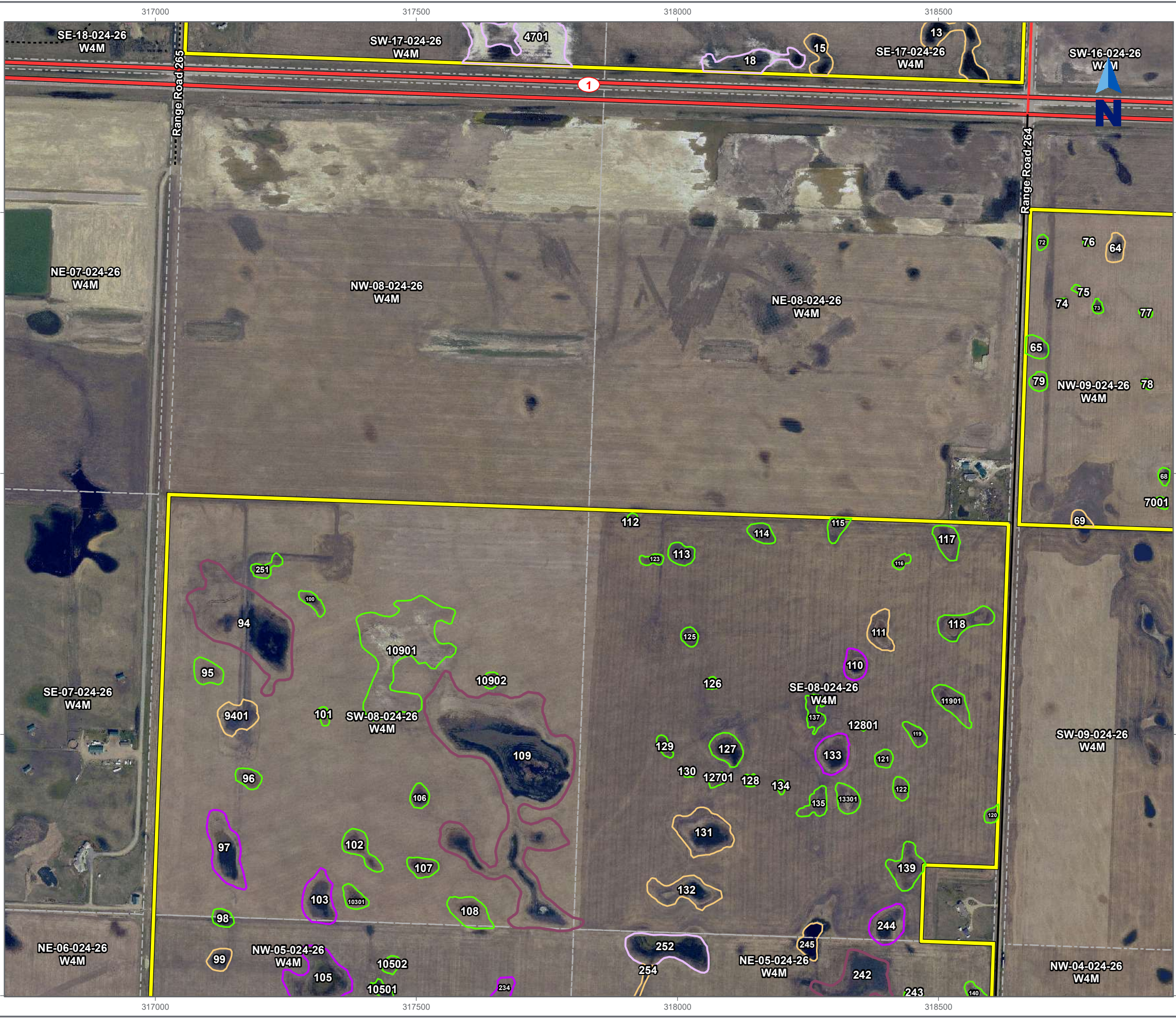


TRACETM
ASSOCIATES

Figure No.
C7.2

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100-1533-C7-R00-V01 - Wetlands - 2010 Imagery Date and Time Saved: Nov 05, 2020 9:25:05 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
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Water Resources and 2010 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

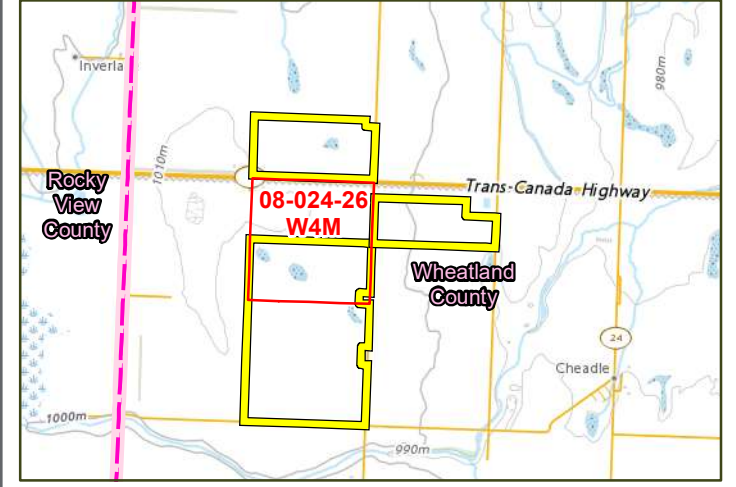
Site	Stream Indefinite
Primary Highway	Recurring Waterbody (AltaLis Base20)
Secondary Highway	Dugout (AltaLis Base20)
Secondary Highway - Gravel	Quarter Section (ATS v4.1)
Unimproved Road/Trail	

Alberta Wetland Classification System Wetland

Ephemeral	Seasonal Slightly Brackish Graminoid Marsh
Temporary Slightly Brackish Graminoid Marsh	Semi-permanent Slightly Brackish Graminoid Marsh
Temporary Moderately Brackish Graminoid Marsh	Semi-permanent Moderately Brackish Graminoid Marsh
Seasonal Moderately Brackish Graminoid Marsh	Watercourse/Riparian

0 100 200 400 600 m
 1:7,500 (At original plot size of 11x17)

- Notes**
- Coordinate System: NAD 1983 UTM Zone 12N
 - Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
 - Base Image: 2010 Imagery, Wheatland County
 - Inset Image: Canada Base Map - Transportation
 - Last Field Update: July, 2020



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Figure No.
C7.3

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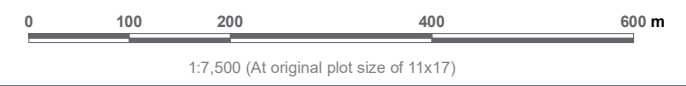
Water Resources and 2010 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2010 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

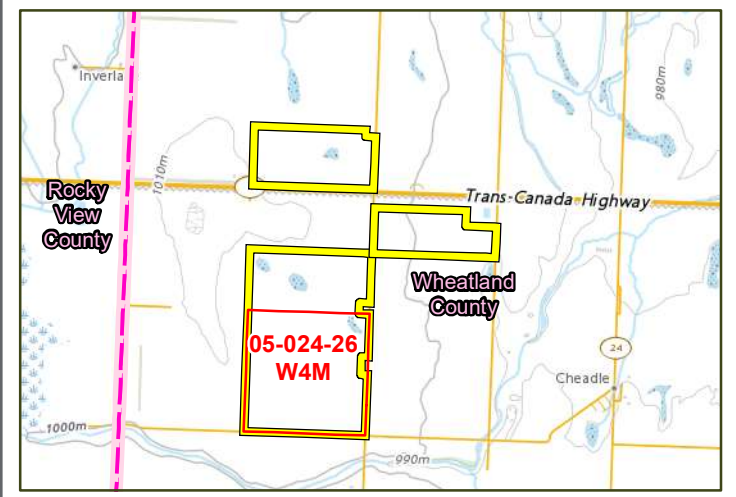
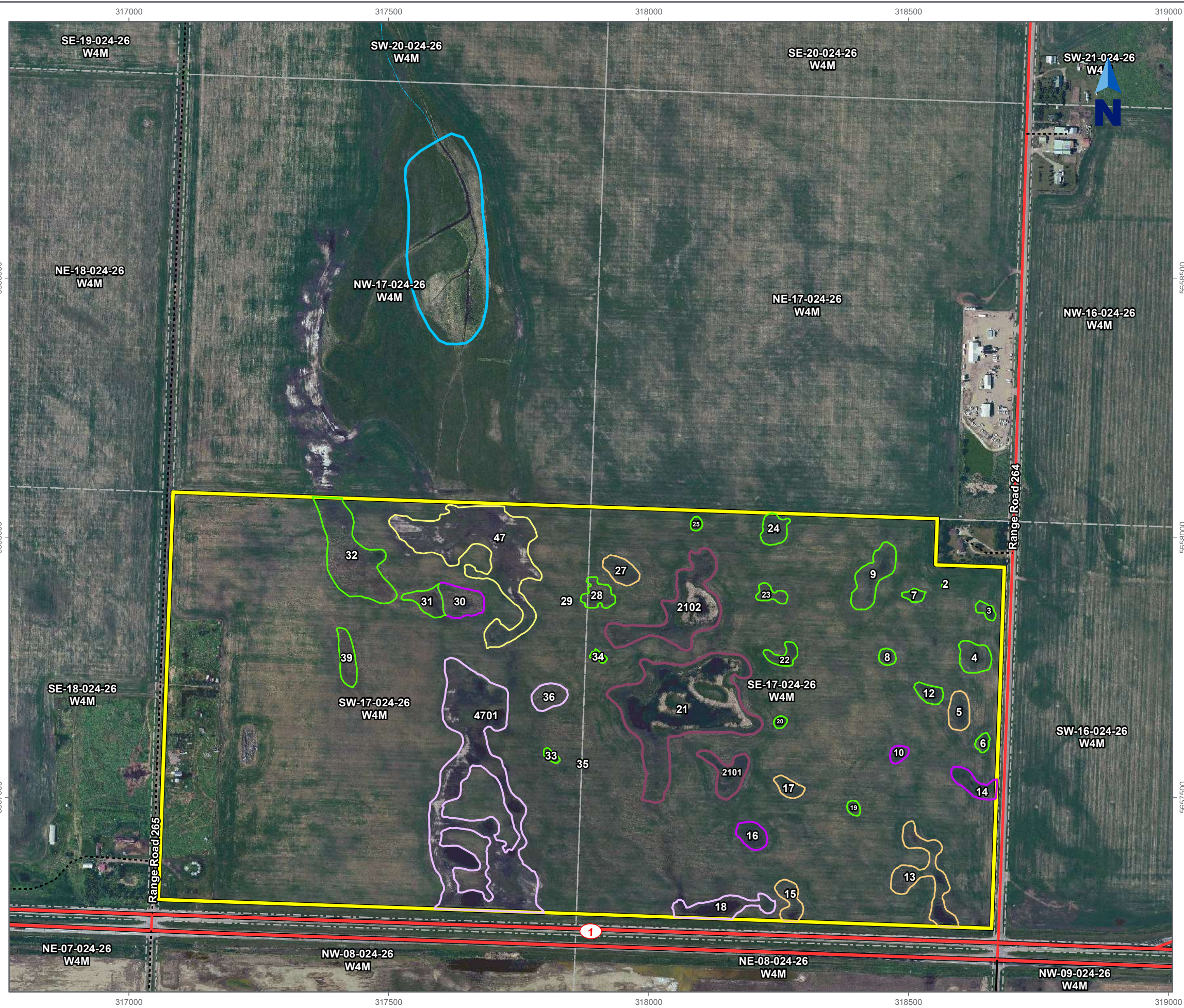


Figure No.
C7.4

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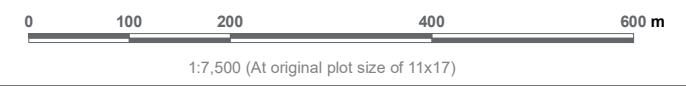
Water Resources and 2012 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

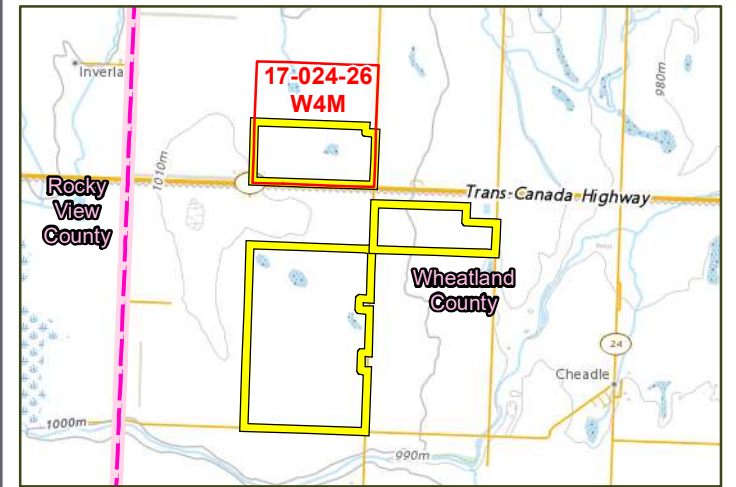
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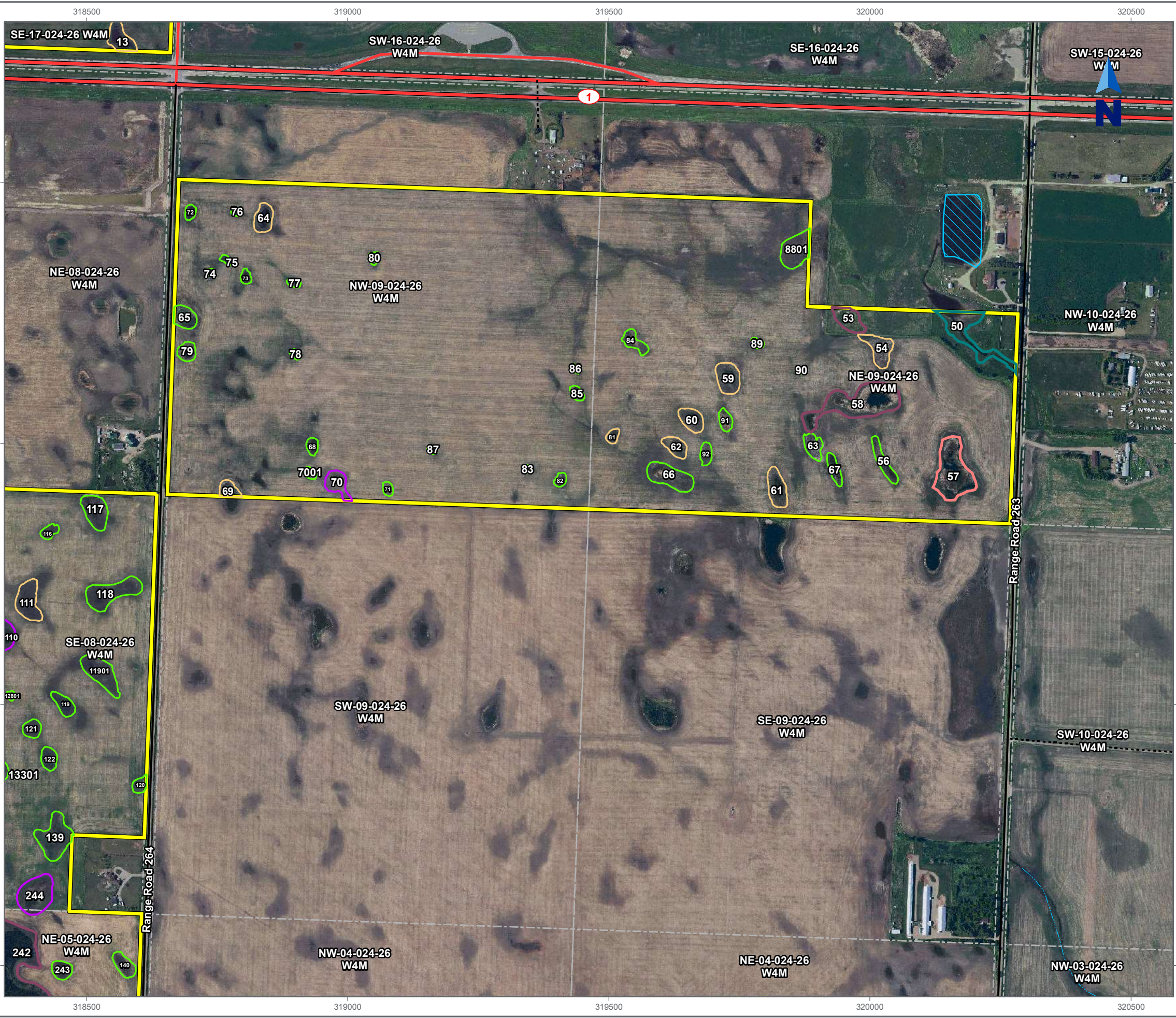
- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2012 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020





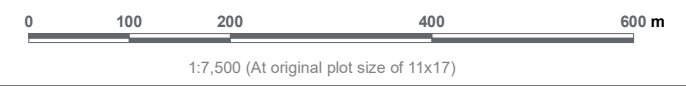
Water Resources and 2012 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway - Gravel | Dugout (AltaLis Base20) |
| Unimproved Road/Trail | Quarter Section (ATS v4.1) |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2012 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

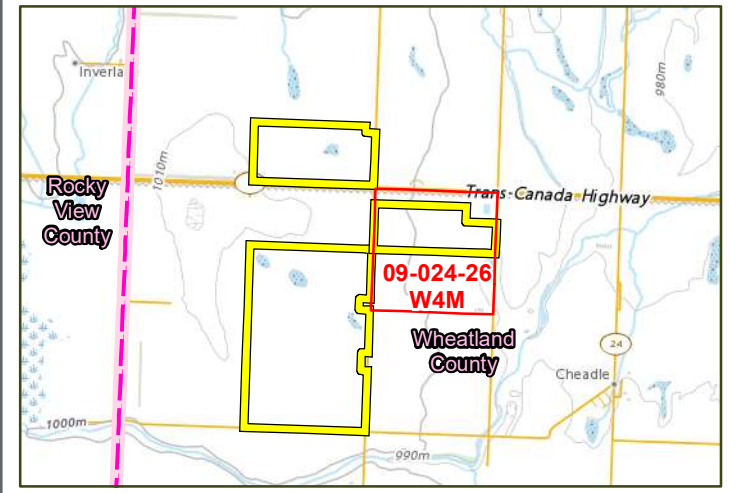
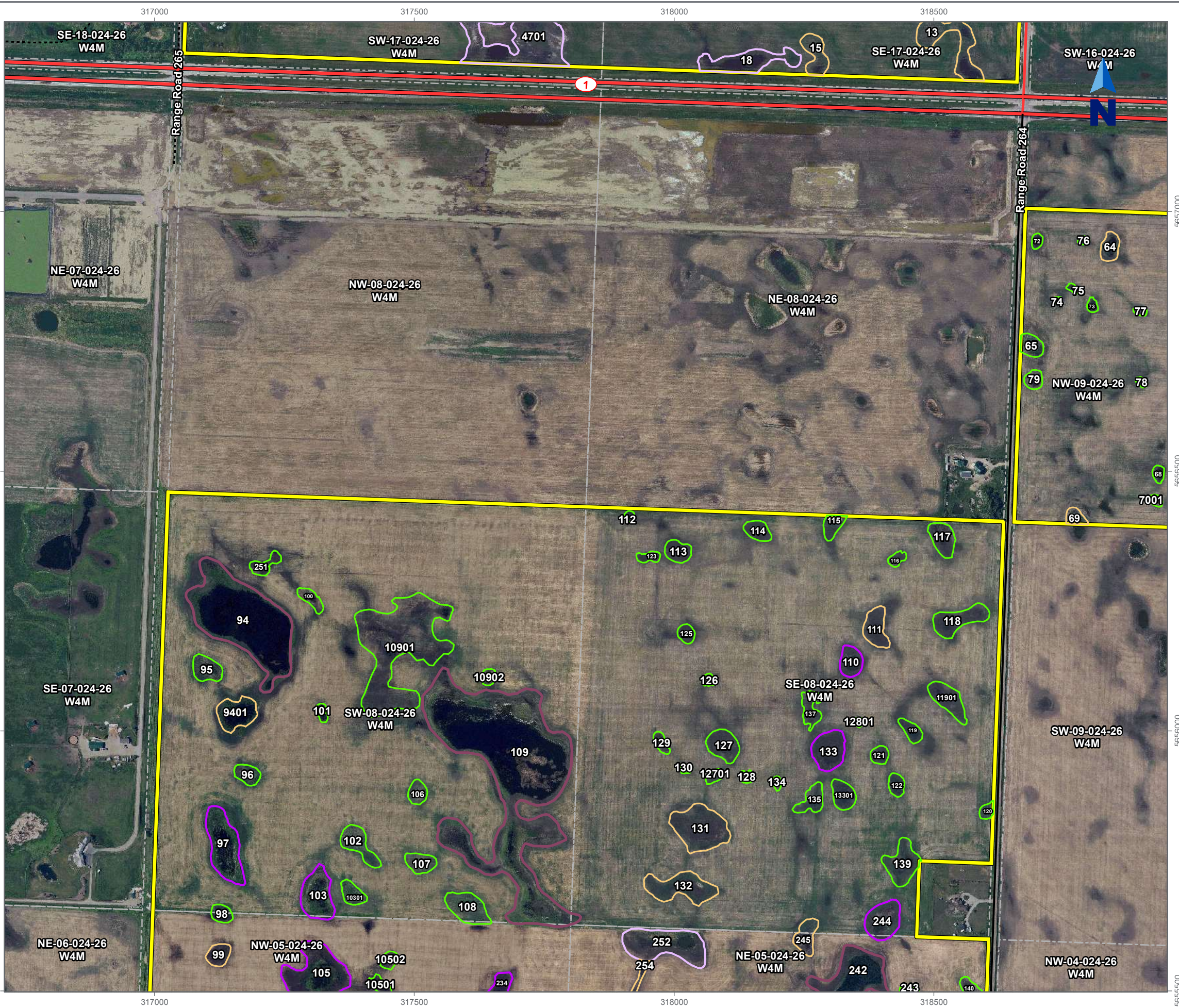


Figure No.
C8.2

100-1533-C8-R00-V01 - Wetlands - 2012 Imagery Date and Time Saved: Nov 05, 2020 9:22:26 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1
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 5666500
 5665000
 5665500



Water Resources and 2012 Imagery

Site Location Map and Site Plan Biophysical Assessment

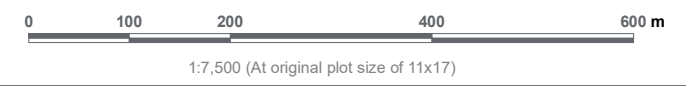
West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |

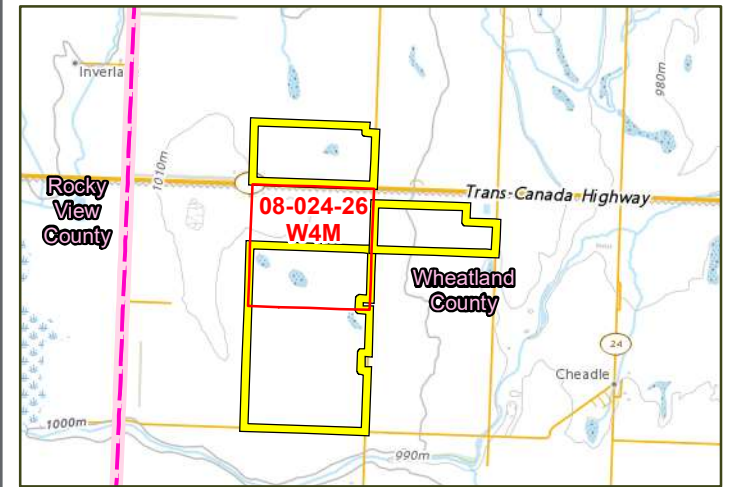
Alberta Wetland Classification System Wetland

- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2012 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

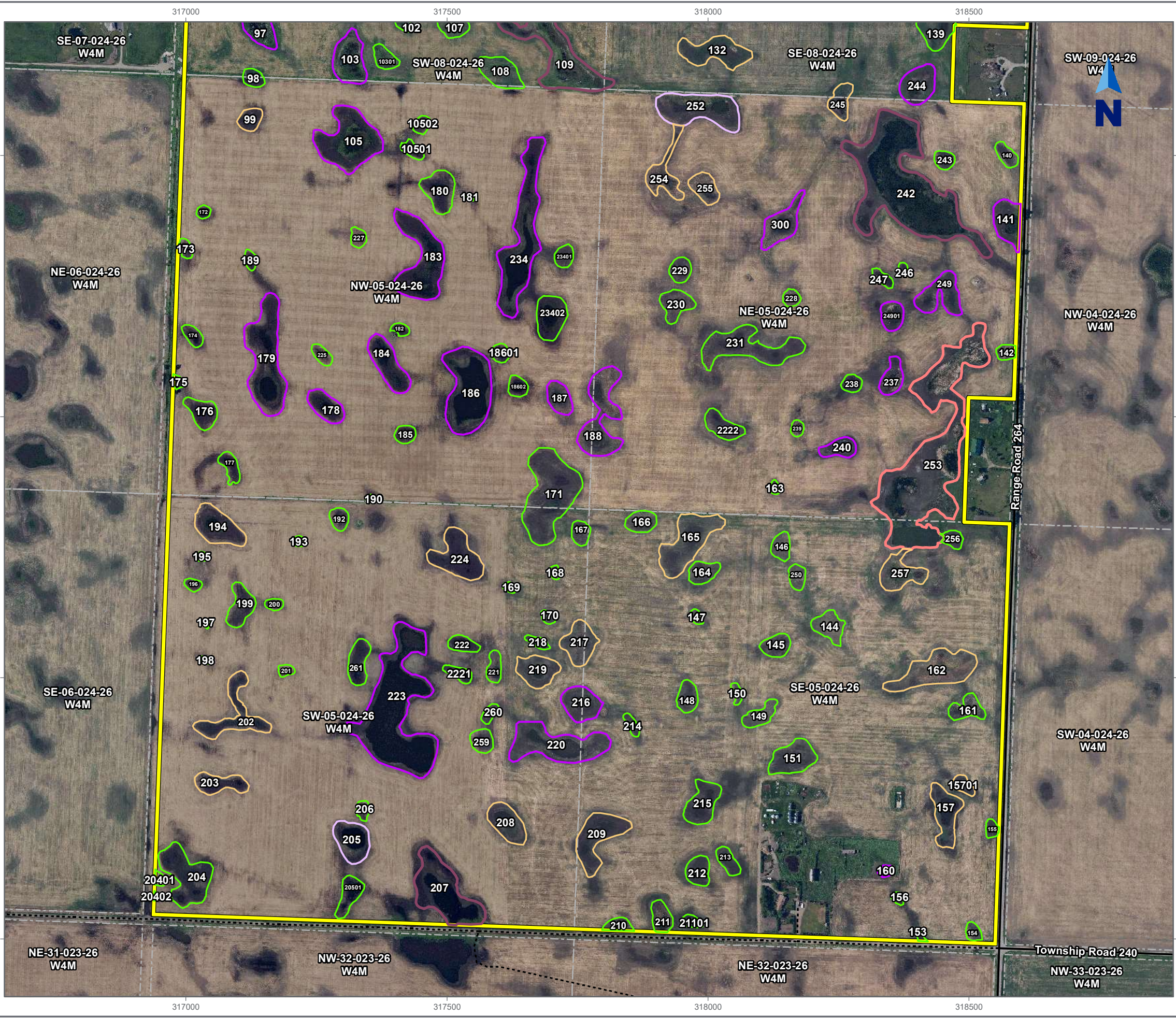


TRACETM
ASSOCIATES

Figure No.
C8.3

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100-1533-C8-R00-V01 - Wetlands - 2012 Imagery Date and Time Saved: Nov 05, 2020 @ 2:22:26 PM Drawn By: cvandenberg Reviewed By: RS Version: 1
 56555000
 56555000
 56545000
 5654000



Water Resources and 2012 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

- | | |
|--|--|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
| Alberta Wetland Classification System Wetland | |
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2012 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

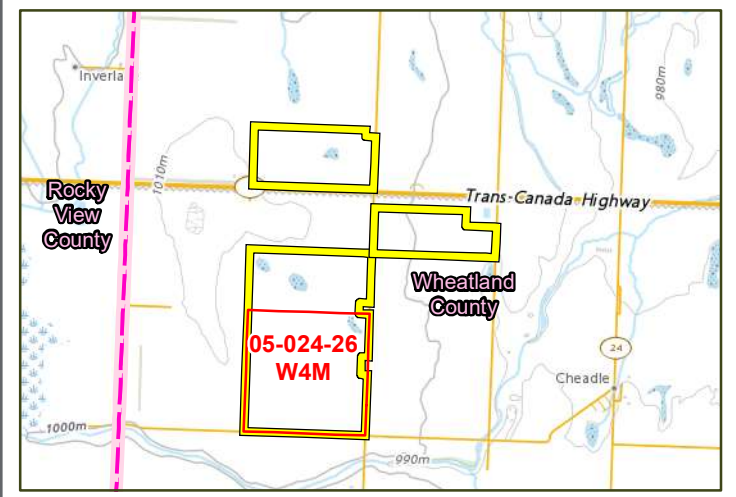
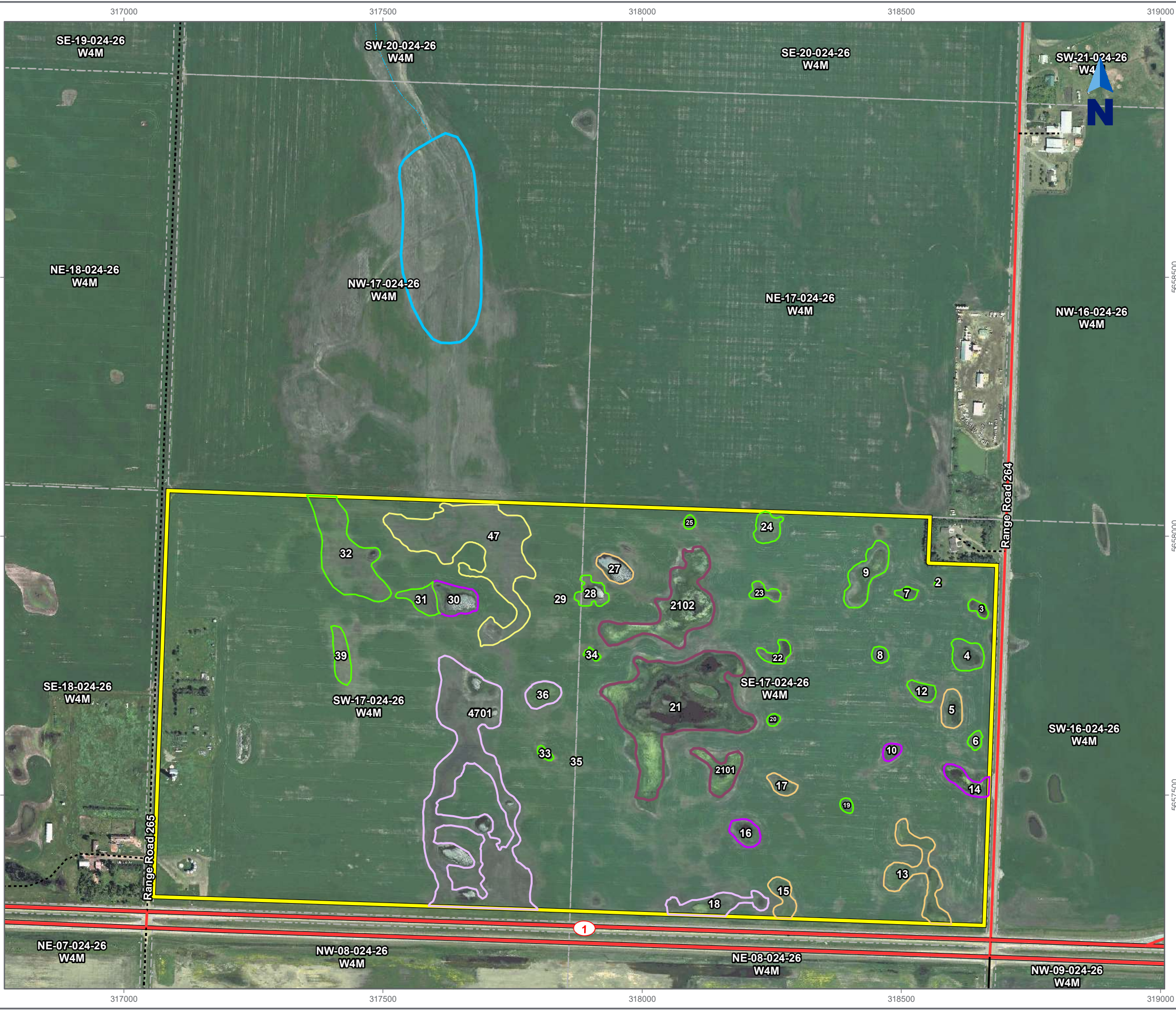


Figure No.
C8.4

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100-1533-C9-R00-V01 - Wetlands - 2014 Imagery Date and Time Saved: Nov 05, 2020 9:22:04 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
 5658500
 5658000
 5657500



Water Resources and 2014 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

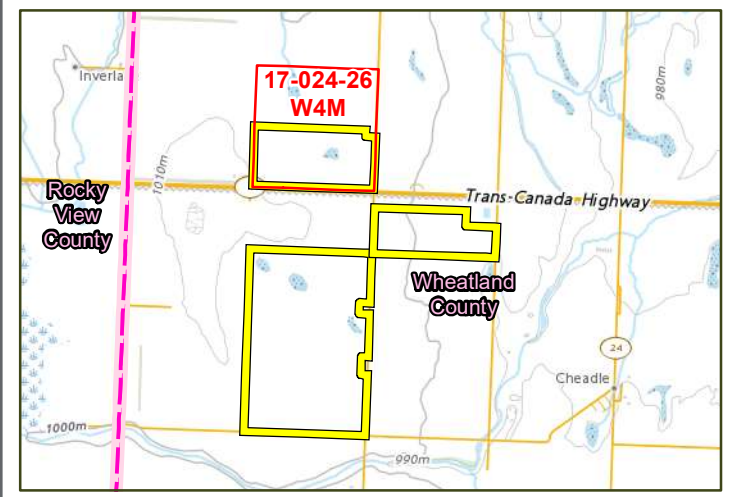
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2009 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

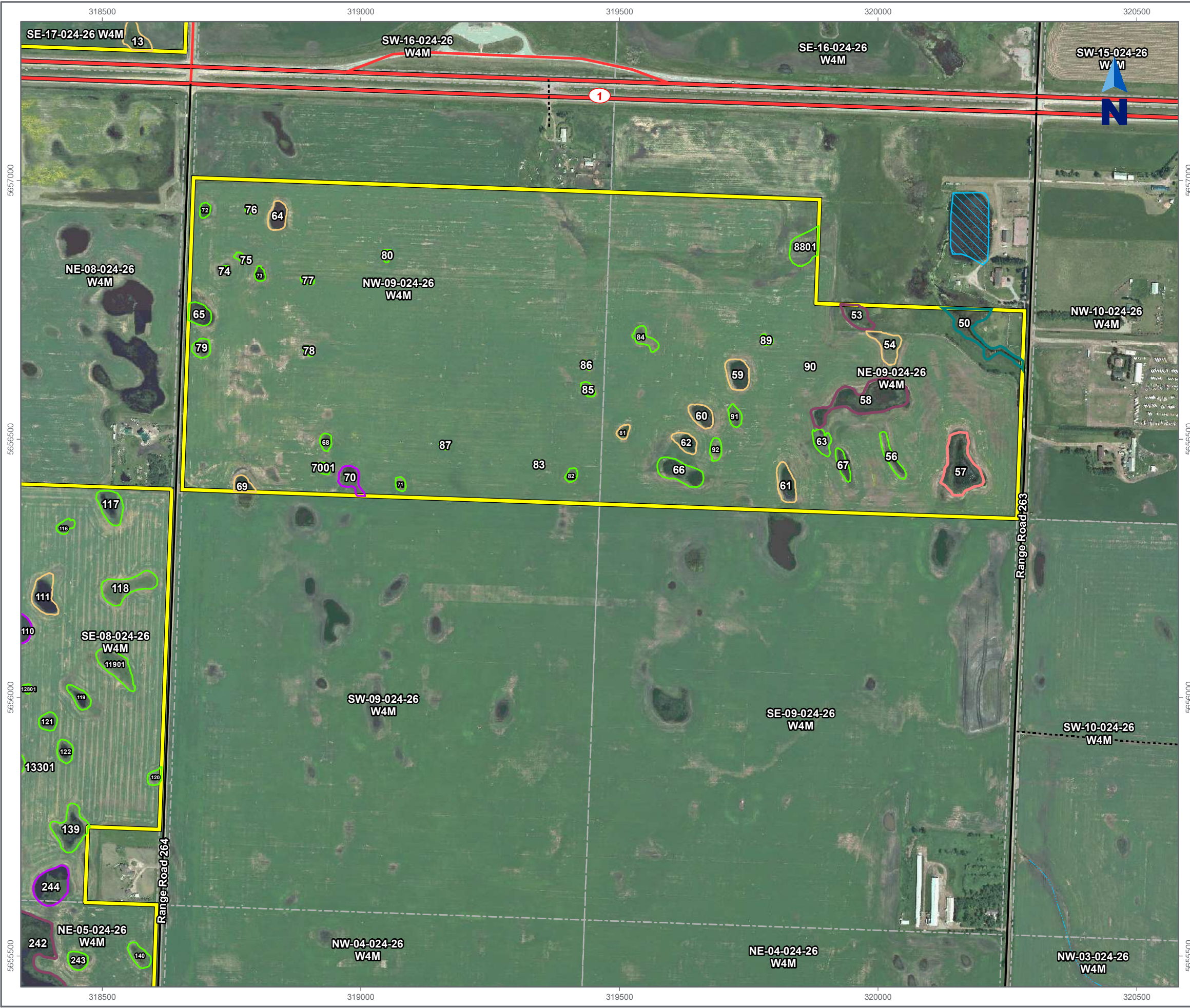


TRACETM
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Figure No.
C9.1

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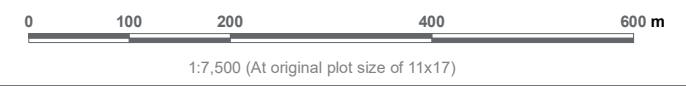
Water Resources and 2014 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

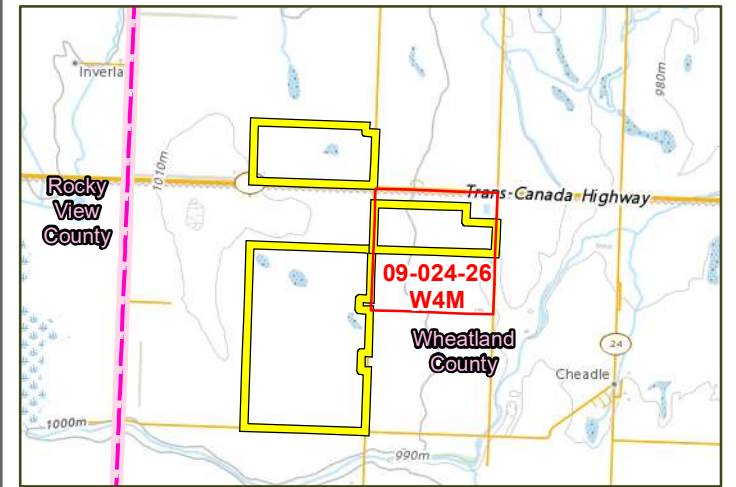
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2009 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020

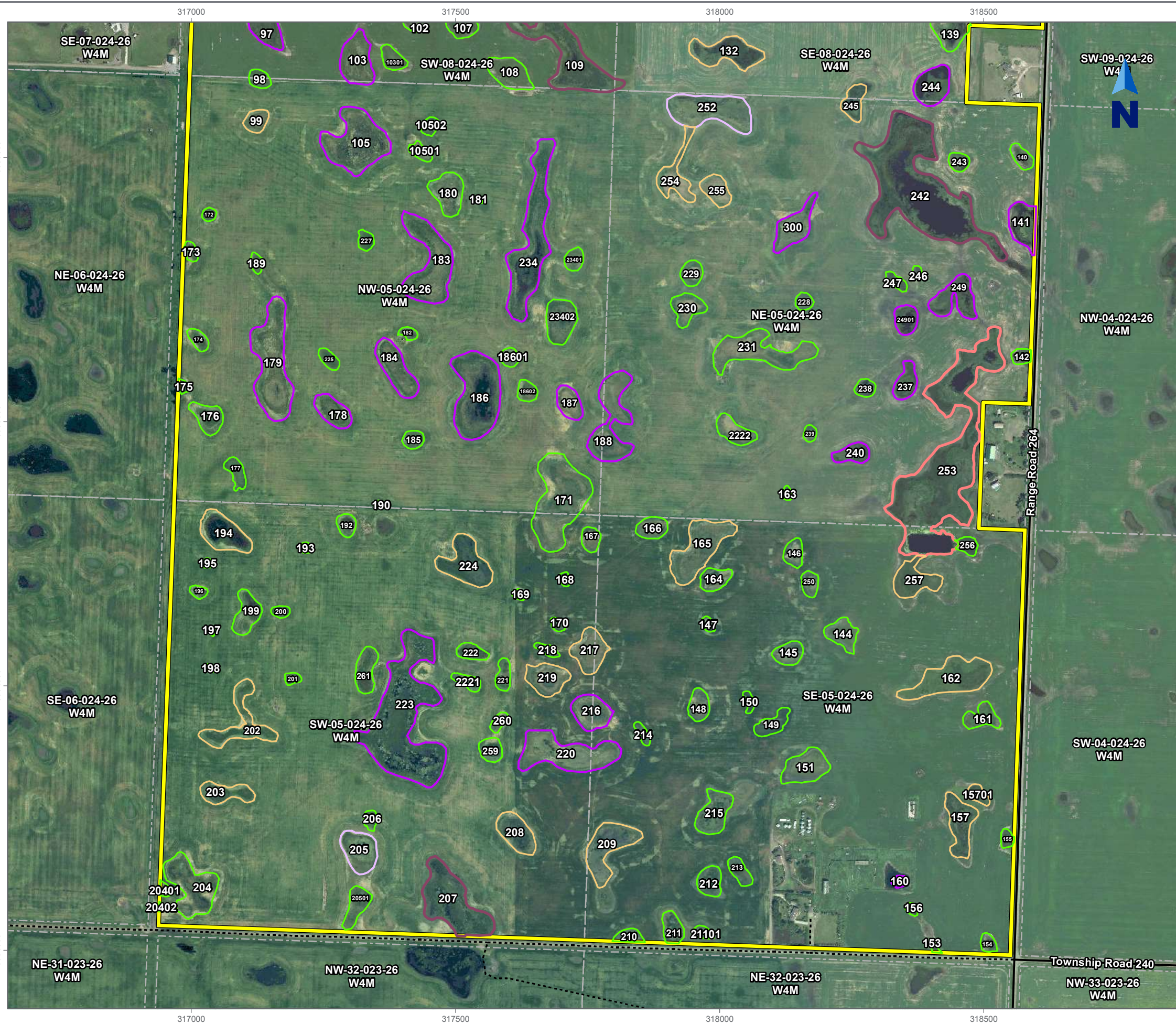


TRACETM
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Figure No.
C9.2

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100-1533-C9-R00-V01 - Wetlands - 2014 Imagery Date and Time Saved: Nov 05, 2020 @ 2:22:04 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
 56555000
 56555000
 56545000
 56540000



Water Resources and 2014 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

Legend

Site	Stream Indefinite
Primary Highway	Recurring Waterbody (AltaLis Base20)
Secondary Highway	Dugout (AltaLis Base20)
Secondary Highway - Gravel	Quarter Section (ATS v4.1)
Unimproved Road/Trail	

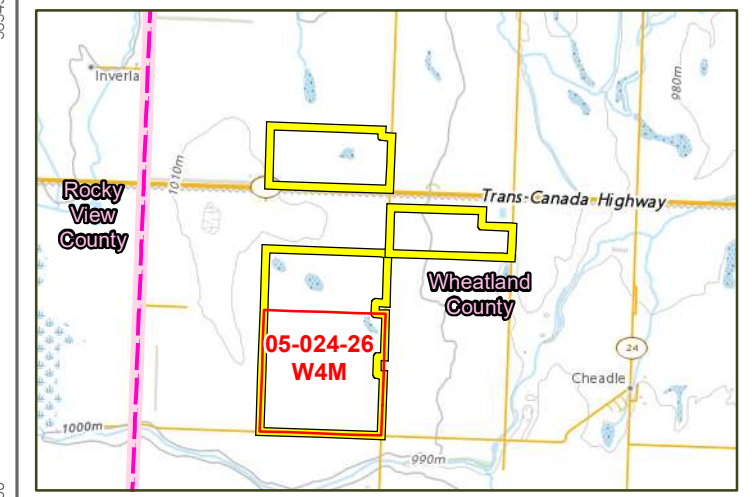
Alberta Wetland Classification System Wetland

Ephemeral	Seasonal Slightly Brackish Graminoid Marsh
Temporary Slightly Brackish Graminoid Marsh	Semi-permanent Slightly Brackish Graminoid Marsh
Temporary Moderately Brackish Graminoid Marsh	Semi-permanent Moderately Brackish Graminoid Marsh
Seasonal Moderately Brackish Graminoid Marsh	Watercourse/Riparian

0 100 200 400 600 m
 1:7,500 (At original plot size of 11x17)

Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2009 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020



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100-1533 C10 R00 V01 - Wetlands - 2018 Imagery Date and Time Saved: Nov 05, 2020 9:22:42 PM Drawn By: cvandenberg Reviewed By: RS Revision: 0 Version: 1



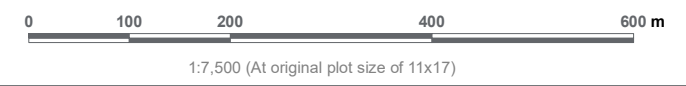
Water Resources and 2018 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

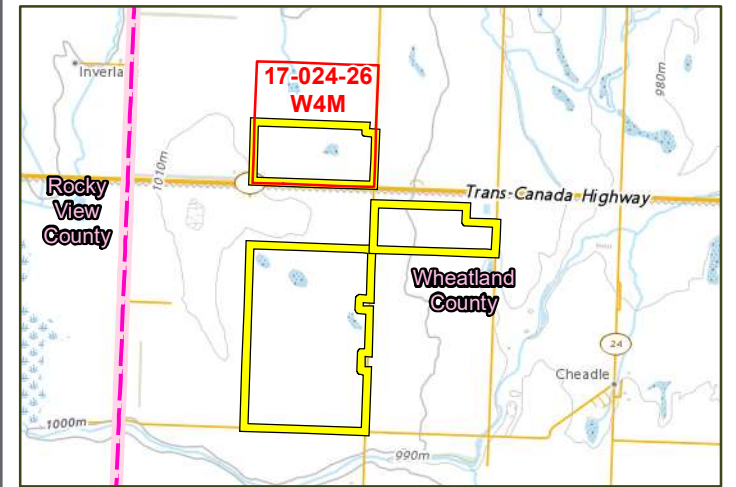
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

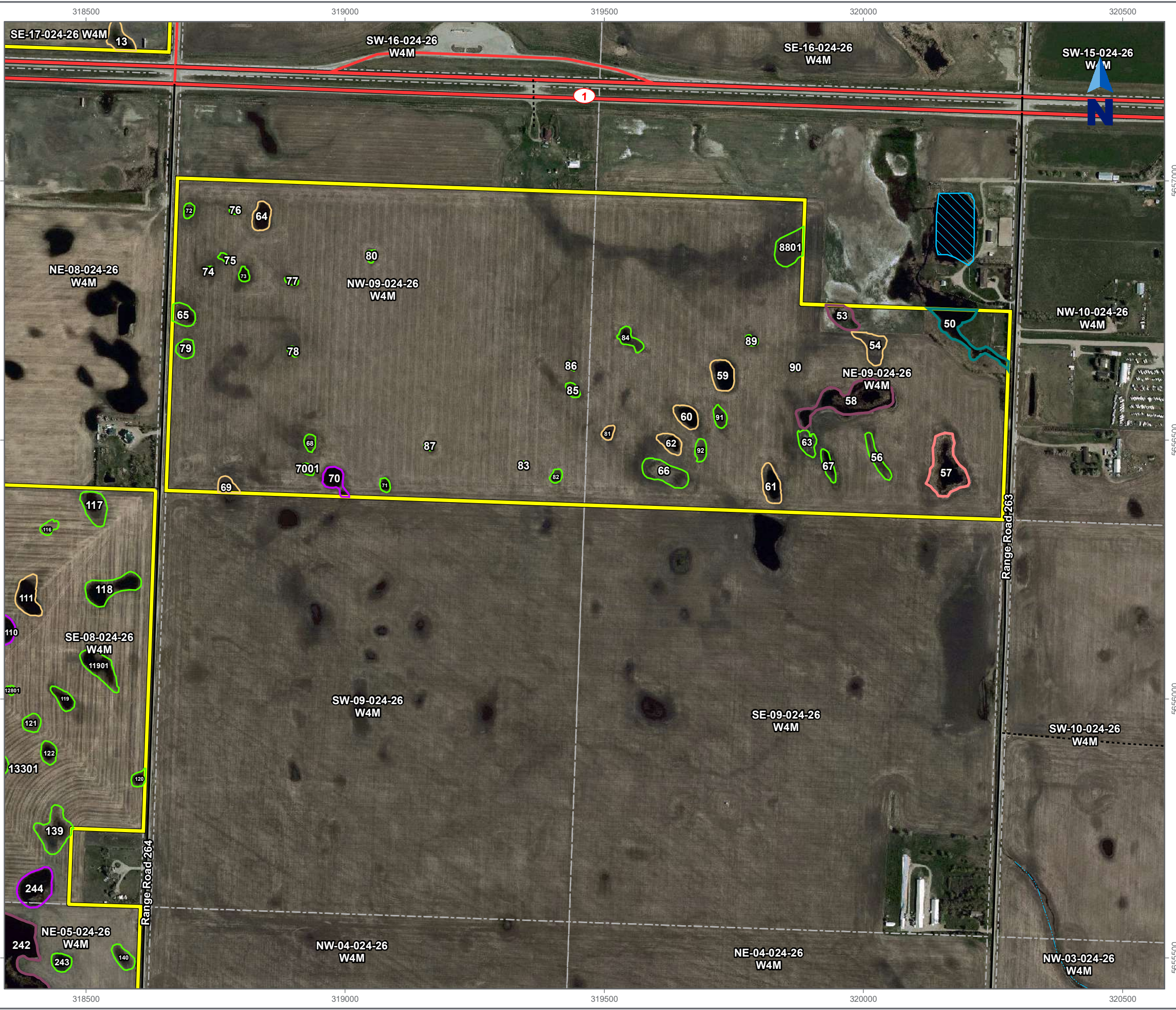
1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
3. Base Image: 2018 Imagery, Wheatland County
4. Inset Image: Canada Base Map - Transportation
5. Last Field Update: July, 2020



TRACETM
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Figure No.
C10.1

Version: 1
 Revision: 0
 Reviewed By: RS
 Drawn By: cvandenberg
 Date and Time Saved: Nov 05, 2020 9:22:42 PM
 100-1533 C10 R00 V01 - Wetlands - 2018 Imagery



Water Resources and 2018 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

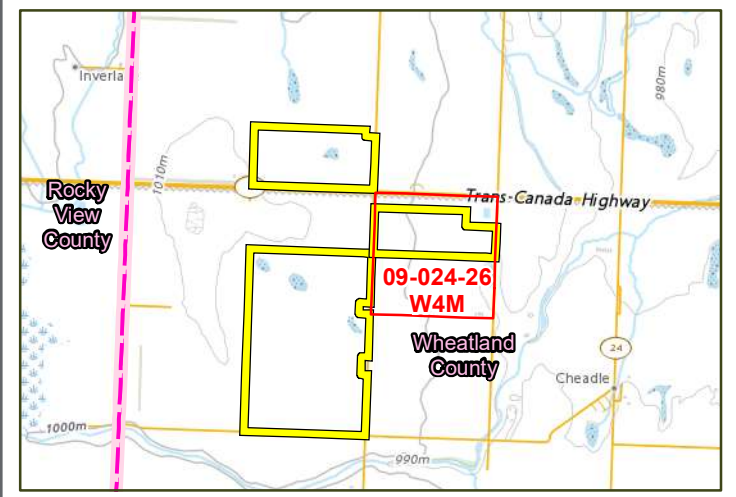
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2018 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

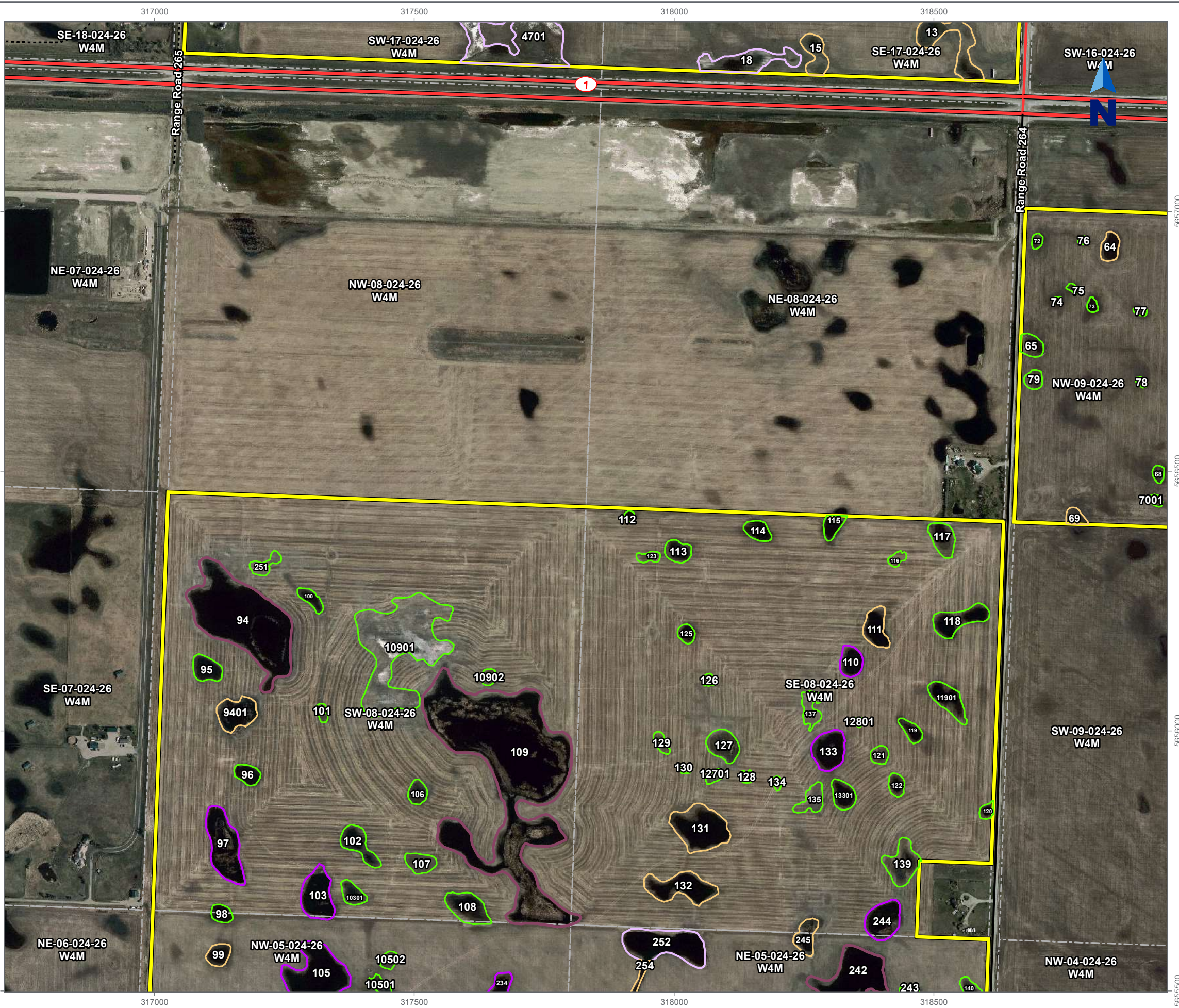


TRACETM
ASSOCIATES

Figure No.
C10.2

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100-1533 C10 R00 V01 - Wetlands - 2018 Imagery Date and Time Saved: Nov 05, 2020 9:22:42 PM Drawn By: cvandenbergh Reviewed By: RS Revision: 0 Version: 1
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 5665500
 5665500
 5665500



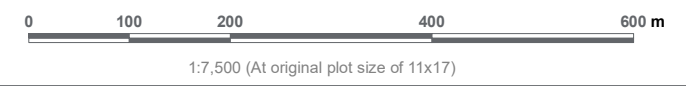
Water Resources and 2018 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
Portions of Sections 5, 8, 9 and 17 024-26 W4M
Near Strathmore, Alberta
Trace Project No. 100-1533

Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2018 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020

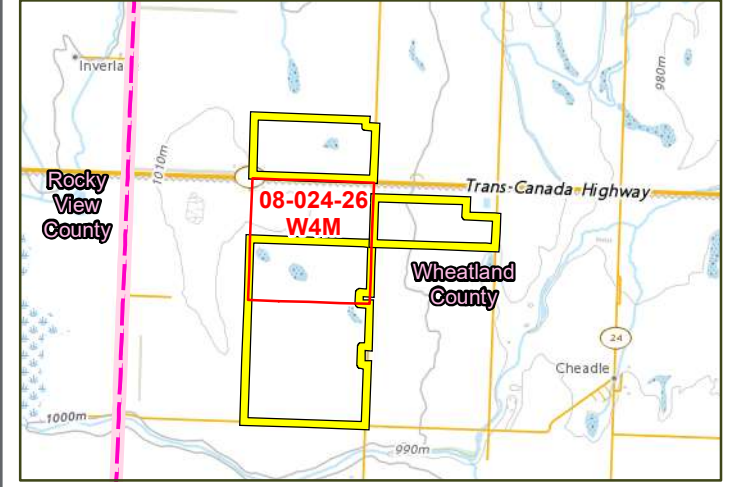
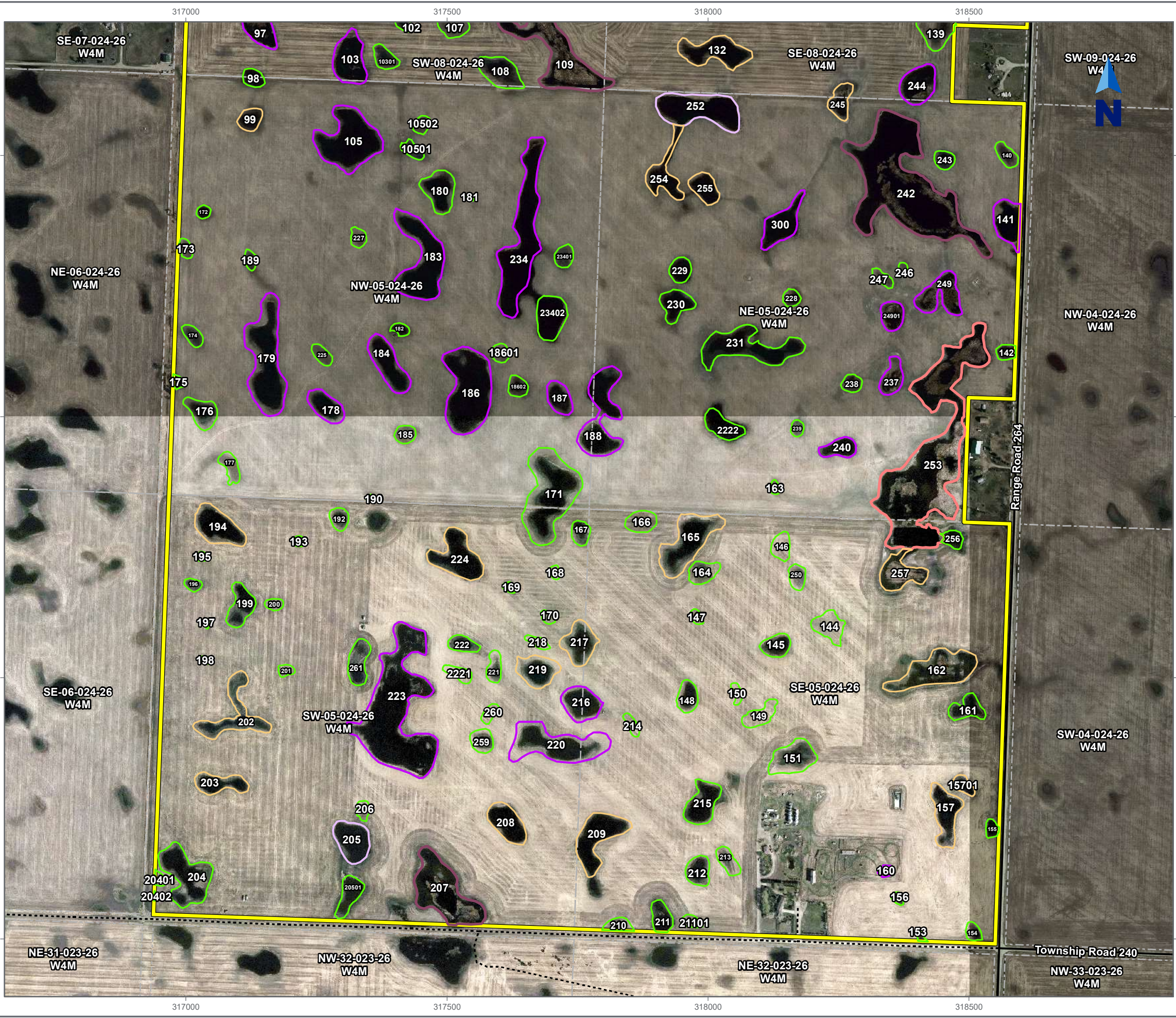


Figure No.
C10.3

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100-1533 C10 R00 V01 - Wetlands - 2018 Imagery - Date and Time Saved: Nov 05, 2020 9:22:42 PM Drawn By: cvanderberg Reviewed By: RS Revision: 0 Version: 1
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 5654500
 5654000



Water Resources and 2018 Imagery

Site Location Map and Site Plan Biophysical Assessment

West Highway 1 Industrial
 Portions of Sections 5, 8, 9 and 17 024-26 W4M
 Near Strathmore, Alberta
 Trace Project No. 100-1533

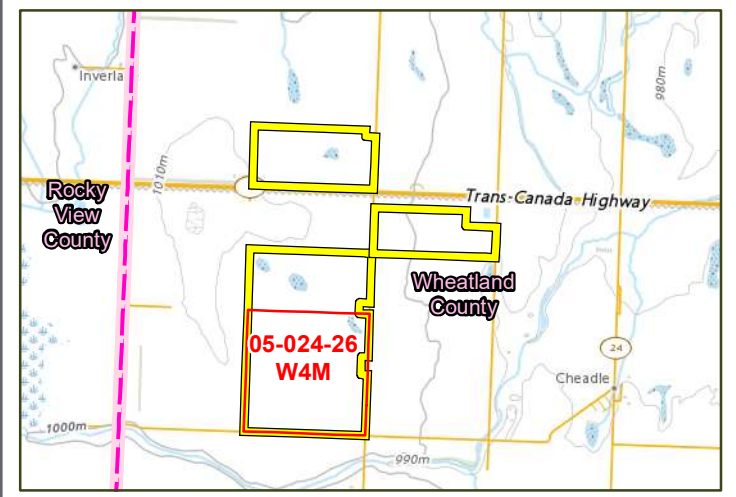
Legend

- | | |
|----------------------------|--------------------------------------|
| Site | Stream Indefinite |
| Primary Highway | Recurring Waterbody (AltaLis Base20) |
| Secondary Highway | Dugout (AltaLis Base20) |
| Secondary Highway - Gravel | Quarter Section (ATS v4.1) |
| Unimproved Road/Trail | |
-
- #### Alberta Wetland Classification System Wetland
- | | |
|---|--|
| Ephemeral | Seasonal Slightly Brackish Graminoid Marsh |
| Temporary Slightly Brackish Graminoid Marsh | Semi-permanent Slightly Brackish Graminoid Marsh |
| Temporary Moderately Brackish Graminoid Marsh | Semi-permanent Moderately Brackish Graminoid Marsh |
| Seasonal Moderately Brackish Graminoid Marsh | Watercourse/Riparian |



Notes

- Coordinate System: NAD 1983 UTM Zone 12N
- Base Features: ASIC, AltaLis, Government of Alberta, AbaData, CanVec
- Base Image: 2018 Imagery, Wheatland County
- Inset Image: Canada Base Map - Transportation
- Last Field Update: July, 2020



TRACETM
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Figure No.
C10.4

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Appendix D

Alberta Merged Wetland
Inventory Search Results

AMWI Results 05-024-26 W4M



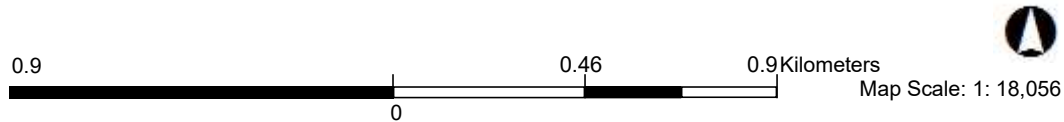
Legend

- ABWRET - Estimate of Relative W Value By Section Dataset Area Out
- ABWRET - Relative Wetland Value Assessment Units Outline
- ABWRET - Estimate of Relative W Value By Section Pie Chart - Visible Scale 27 084
- Estimated A-Value Hectares
- Estimated B-Value Hectares
- Estimated C-Value Hectares
- Estimated D-Value Hectares
- ABWRET - Estimate of Relative W Value By Section - Visible at Scale
- Bog
- Fen
- Marsh
- Open Water
- Swamp

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Monday, October 21, 2019 12:23:32 -06:00



AMWI Results 09-024-26 W4M



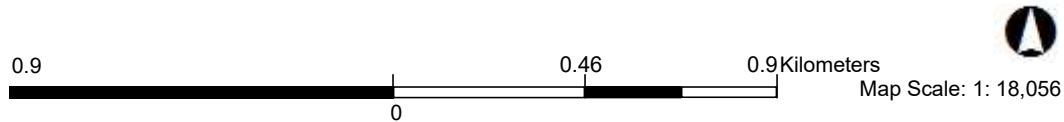
Legend

- ABWRET - Estimate of Relative W Value By Section Dataset Area Out
- ABWRET - Relative Wetland Value Assessment Units Outline
- ABWRET - Estimate of Relative W Value By Section Pie Chart - Visible Scale 27 084
- Estimated A-Value Hectares
- Estimated B-Value Hectares
- Estimated C-Value Hectares
- Estimated D-Value Hectares
- ABWRET - Estimate of Relative W Value By Section - Visible at Scale
- Bog
- Fen
- Marsh
- Open Water
- Swamp

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Monday, October 21, 2019 12:25:49 -06:00





Appendix E

Alberta Conservation
Information Management
System Search Results

Search ACIMS Data

Date: 15/8/2019

Requestor: Environment/Conservation

Reason for Request: Environmental Reporting

SEC: 05 **TWP:** 024 **RGE:** 26 **MER:** 4



Non-sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Non-sensitive EOs Found: Next Steps - See FAQ						

Sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Sensitive EOs Found: Next Steps - See FAQ						

Protected Areas: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	PROTECTED AREA NAME	TYPE	IUCN
No Protected Areas Found			

Crown Reservations/Notations: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	NAME	TYPE
No Crown Reservations/Notations Found		

Search ACIMS Data

Date: 15/8/2019

Requestor: Environment/Conservation

Reason for Request: Environmental Reporting

SEC: 08 **TWP:** 024 **RGE:** 26 **MER:** 4



Non-sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Non-sensitive EOs Found: Next Steps - See FAQ						

Sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Sensitive EOs Found: Next Steps - See FAQ						

Protected Areas: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	PROTECTED AREA NAME	TYPE	IUCN
No Protected Areas Found			

Crown Reservations/Notations: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	NAME	TYPE
No Crown Reservations/Notations Found		

Search ACIMS Data

Date: 15/8/2019

Requestor: Environment/Conservation

Reason for Request: Environmental Reporting

SEC: 09 **TWP:** 024 **RGE:** 26 **MER:** 4



Non-sensitive EOs: 0 (Data Updated: October 2017)

M-RR-TTT-SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Non-sensitive EOs Found: Next Steps - See FAQ						

Sensitive EOs: 0 (Data Updated: October 2017)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Sensitive EOs Found: Next Steps - See FAQ						

Protected Areas: 0 (Data Updated: October 2017)

M-RR-TTT-SS	PROTECTED AREA NAME	TYPE	IUCN
No Protected Areas Found			

Crown Reservations/Notations: 0 (Data Updated: October 2017)

M-RR-TTT-SS	NAME	TYPE
No Crown Reservations/Notations Found		

Search ACIMS Data

Date: 15/8/2019

Requestor: Environment/Conservation

Reason for Request: Environmental Reporting

SEC: 17 **TWP:** 024 **RGE:** 26 **MER:** 4



Non-sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Non-sensitive EOs Found: Next Steps - See FAQ						

Sensitive EOs: 0 (*Data Updated: October 2017*)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
No Sensitive EOs Found: Next Steps - See FAQ						

Protected Areas: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	PROTECTED AREA NAME	TYPE	IUCN
No Protected Areas Found			

Crown Reservations/Notations: 0 (*Data Updated: October 2017*)

M-RR-TTT-SS	NAME	TYPE
No Crown Reservations/Notations Found		



Appendix F

Provincial and Federal
Species Conservation
Rankings

PROVINCIAL AND FEDERAL SPECIES RANKING DEFINITIONS

Category	Definition
ACIMS¹	
SX	Taxon is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat. Virtually no likelihood that it will be rediscovered.
SH	Known from only historical records but still some hope of rediscovery. 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 20 or fewer occurrences or vulnerable to extirpation because of other factor(s).
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.
S#S#	A numeric range rank is used to indicate any range of uncertainty about the status of the taxon. Ranges cannot skip more than two ranks.
SU	Taxon is currently unrankable due to a lack of information or substantially conflicting information.
SNA	Not applicable. A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.
SNR	Not ranked. Conservation status not yet assessed.
S#?	Inexact numeric rank. Applied when a specific rank is most likely appropriate but for which some conflicting information or unresolved questions remain.
SARA²	
Extinct	A wildlife species that no longer exists.
Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
Endangered	A wildlife species that is facing imminent extirpation or extinction.
Threatened	A wildlife species that is likely to become an endangered species 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.
COSEWIC²	
Extinct	A wildlife species that no longer exists.
Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
Endangered	A wildlife species facing imminent extirpation or extinction.
Threatened	A wildlife species 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.

PROVINCIAL AND FEDERAL SPECIES RANKING DEFINITIONS

Data Deficient	A wildlife species for which there is insufficient information to resolve a species' suitability for assessment or to permit an assessment of the species' risk of extinction.
Not at Risk	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
SOURCES:	
¹	GOA (Government of Alberta). (2017b). Alberta Wild Species General Status Listing. Retrieved from: https://open.alberta.ca/dataset/ad0cb45c-a885-4b5e-9479-52969f220663/resource/763740c0-122e-467b-a0f5-a04724a9ecb9/download/sar-2015wildspeciesgeneralstatuslist-mar2017.pdf
²	GOC (Government of Canada). (n.d.). Species at Risk Public Registry. Retrieved from: https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm



Appendix G

Alberta Wetland Rapid
Evaluation Tool –
Actual Results

Function (ABWRET-A Raw Score)	162	224	111	110
Surface Water Storage (WS)	5.62	6.29	5.62	5.63
Stream Flow Support (SFS)	0.00	0.00	0.00	0.00
Streamwater Cooling (WC)	0.00	0.00	0.00	0.00
Sediment & Toxicant Retention & Stabilization (SR)	10.00	10.00	10.00	10.00
Phosphorus Retention (PR)	10.00	10.00	10.00	10.00
Nitrate Removal & Retention (NR)	10.00	10.00	10.00	10.00
Organic Nutrient Export (OE)	0.00	0.00	0.00	0.00
Fish Habitat (FH)	0.00	0.00	0.00	0.00
Aquatic Invertebrate Habitat (INV)	4.83	4.75	4.76	4.73
Amphibian Habitat (AM)	2.40	2.45	2.61	2.61
Waterbird Habitat (WB)	3.36	3.32	3.68	3.66
Songbird, Raptor, & Mammal Habitat (SBM)	2.49	2.46	2.92	3.08
Pollinator & Native Plant Habitat (PH)	2.95	2.34	2.76	2.88
Human Use & Recognition (HU)	1.24	1.27	1.29	1.20
Function (ABWRET-A Normalized Score)	162	224	111	110
Surface Water Storage (WS)	0.75	0.87	0.75	0.75
Stream Flow Support (SFS)	0.00	0.00	0.00	0.00
Streamwater Cooling (WC)	0.00	0.00	0.00	0.00
Sediment & Toxicant Retention & Stabilization (SR)	1.00	1.00	1.00	1.00
Phosphorus Retention (PR)	1.00	1.00	1.00	1.00
Nitrate Removal & Retention (NR)	1.00	1.00	1.00	1.00
Organic Nutrient Export (OE)	0.00	0.00	0.00	0.00
Fish Habitat (FH)	0.00	0.00	0.00	0.00
Aquatic Invertebrate Habitat (INV)	0.47	0.46	0.46	0.46
Amphibian Habitat (AM)	0.30	0.30	0.33	0.33
Waterbird Habitat (WB)	0.18	0.17	0.22	0.22
Songbird, Raptor, & Mammal Habitat (SBM)	0.17	0.17	0.25	0.28
Pollinator & Native Plant Habitat (PH)	0.21	0.11	0.18	0.20
Human Use & Recognition (HU)	0.04	0.05	0.05	0.03
Normalized Score (ABWRET_A) Based on Wetlands in RWVAU	162	224	111	110
Normalized Hydrological Health (HH)	0.75	0.87	0.75	0.75
Normalized Water Quality (WQ)	1.00	1.00	1.00	1.00
Normalized Ecological Health (EH)	0.47	0.46	0.46	0.46
Normalized Human Use (HU)	0.04	0.05	0.05	0.03
RWVAU #	16	16	16	16
Normalized Value Score (ABWRET_a)	0.67	0.70	0.67	0.67
Value Category (a, b, c, d)	d	d	d	d
Abundance Factor	0	0	0	0
Final Score(A, B, C, D)	D	D	D	D

133	131	109	132	103	97	94	99	105	183
5.62	5.62	5.69	5.59	5.62	5.62	6.07	5.29	5.62	5.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.79	4.88	5.15	4.73	4.58	4.66	4.84	4.54	4.75	4.76
2.66	2.68	2.92	2.62	2.61	2.64	2.62	2.54	2.69	2.71
3.71	3.77	4.17	3.69	3.68	3.72	3.74	3.63	3.75	3.74
3.02	2.92	3.98	2.99	2.85	2.83	3.20	2.73	2.89	3.00
2.80	10.00	3.54	2.56	2.66	2.85	3.63	10.00	2.98	3.10
1.20	1.20	1.20	1.20	1.19	1.28	1.29	1.27	1.19	1.18
133	131	109	132	103	97	94	99	105	183
0.75	0.75	0.77	0.75	0.75	0.75	0.83	0.70	0.75	0.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.47	0.48	0.52	0.46	0.44	0.45	0.47	0.44	0.46	0.46
0.34	0.34	0.38	0.33	0.33	0.33	0.33	0.32	0.34	0.35
0.22	0.23	0.28	0.22	0.22	0.22	0.23	0.21	0.23	0.23
0.27	0.25	0.45	0.26	0.24	0.23	0.30	0.21	0.24	0.27
0.19	1.00	0.32	0.15	0.16	0.20	0.33	1.00	0.22	0.24
0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.04	0.03	0.03
133	131	109	132	103	97	94	99	105	183
0.75	0.75	0.77	0.75	0.75	0.75	0.83	0.70	0.75	0.75
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.47	1.00	0.52	0.46	0.44	0.45	0.47	1.00	0.46	0.46
0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.04	0.03	0.03
16	16	16	16	16	16	16	16	16	16
0.67	0.83	0.69	0.67	0.66	0.67	0.70	0.81	0.67	0.67
d	b	d	d	d	d	d	b	d	d
0	0	0	0	0	0	0	0	0	0
D	B	D	D	D	D	D	B	D	D

234	179	178	184	186	187	165	240	237	249
5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.66	5.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.86	4.83	4.67	4.71	4.88	4.50	4.82	4.63	4.59	4.60
2.72	2.74	2.60	2.68	2.78	2.59	2.65	2.61	2.59	2.57
3.75	3.77	3.66	3.73	3.79	3.62	3.69	3.69	3.67	3.63
3.15	2.78	3.04	2.94	3.02	2.85	3.07	2.82	2.70	2.62
3.23	2.75	3.21	3.07	3.12	10.00	3.02	2.86	2.64	2.80
1.11	1.19	1.18	1.18	1.10	1.10	1.21	1.20	1.28	1.27
234	179	178	184	186	187	165	240	237	249
0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.76	0.70
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.48	0.47	0.45	0.46	0.48	0.43	0.47	0.45	0.44	0.44
0.35	0.35	0.33	0.34	0.36	0.33	0.34	0.33	0.33	0.32
0.23	0.23	0.22	0.22	0.23	0.21	0.22	0.22	0.22	0.21
0.29	0.22	0.27	0.25	0.27	0.24	0.28	0.23	0.21	0.19
0.26	0.18	0.26	0.24	0.24	1.00	0.23	0.20	0.16	0.19
0.01	0.03	0.03	0.03	0.01	0.01	0.03	0.03	0.05	0.05
234	179	178	184	186	187	165	240	237	249
0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.76	0.70
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.48	0.47	0.45	0.46	0.48	1.00	0.47	0.45	0.44	0.44
0.01	0.03	0.03	0.03	0.01	0.01	0.03	0.03	0.05	0.05
16	16	16	16	16	16	16	16	16	16
0.67	0.67	0.66	0.67	0.67	0.83	0.67	0.66	0.67	0.65
d	d	d	d	d	b	d	d	d	d
0	0	0	0	0	0	0	0	0	0
D	D	D	D	D	B	D	D	D	D

141	242	300	252	245	244	157	209	208	220
5.62	5.69	5.62	5.62	5.29	5.62	5.79	5.62	5.62	5.59
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.56	5.43	4.86	4.75	4.66	4.63	5.05	4.84	4.68	4.94
2.58	2.84	2.70	2.63	2.56	2.61	2.78	2.72	2.62	2.76
3.67	3.95	3.77	3.85	3.61	3.68	3.80	3.77	3.67	3.79
2.85	10.00	3.07	2.97	2.99	2.72	3.11	2.93	2.66	2.95
3.11	3.24	3.01	2.58	2.97	2.55	3.34	3.10	2.86	10.00
0.96	1.28	1.19	1.87	1.20	1.28	1.11	1.30	1.29	1.21
141	242	300	252	245	244	157	209	208	220
0.75	0.77	0.75	0.75	0.70	0.75	0.78	0.75	0.75	0.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.44	0.55	0.48	0.46	0.45	0.45	0.50	0.48	0.45	0.49
0.33	0.37	0.34	0.33	0.32	0.33	0.36	0.35	0.33	0.35
0.22	0.25	0.23	0.24	0.21	0.22	0.23	0.23	0.22	0.23
0.24	1.00	0.28	0.26	0.26	0.21	0.29	0.25	0.20	0.26
0.24	0.26	0.23	0.15	0.22	0.14	0.28	0.24	0.20	1.00
0.00	0.05	0.03	0.16	0.03	0.05	0.01	0.05	0.05	0.03
141	242	300	252	245	244	157	209	208	220
0.75	0.77	0.75	0.75	0.70	0.75	0.78	0.75	0.75	0.75
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.44	1.00	0.48	0.46	0.45	0.45	0.50	0.48	0.45	1.00
0.00	0.05	0.03	0.16	0.03	0.05	0.01	0.05	0.05	0.03
16	16	16	16	16	16	16	16	16	16
0.66	0.83	0.67	0.68	0.65	0.67	0.69	0.67	0.67	0.83
d	b	d	d	d	d	d	d	d	b
0	0	0	0	0	0	0	0	0	0
D	B	D	D	D	D	D	D	D	B

216	217	219	223	207	205	203	202	194	81
5.62	5.83	5.83	5.79	5.62	5.75	5.79	5.59	5.62	6.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.69	4.82	4.84	5.17	5.13	4.71	4.67	4.73	4.68	4.49
2.64	2.64	2.66	2.89	2.80	2.65	2.61	2.63	2.65	2.36
3.68	3.66	3.68	3.89	3.84	3.73	3.67	3.67	3.69	3.25
2.80	3.03	2.99	3.10	2.98	2.84	2.98	3.05	2.73	2.39
3.04	10.00	3.39	3.24	3.18	2.97	3.11	3.11	2.87	2.10
1.21	1.21	1.20	1.19	1.37	1.28	1.19	1.19	1.11	1.34
216	217	219	223	207	205	203	202	194	81
0.75	0.79	0.79	0.78	0.75	0.78	0.78	0.75	0.75	0.84
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.46	0.47	0.48	0.52	0.51	0.46	0.45	0.46	0.45	0.43
0.33	0.34	0.34	0.38	0.36	0.34	0.33	0.33	0.34	0.29
0.22	0.22	0.22	0.24	0.24	0.22	0.22	0.22	0.22	0.16
0.23	0.27	0.26	0.28	0.26	0.24	0.26	0.27	0.21	0.15
0.23	1.00	0.29	0.26	0.25	0.22	0.24	0.24	0.20	0.06
0.03	0.03	0.03	0.03	0.06	0.05	0.03	0.03	0.01	0.06
216	217	219	223	207	205	203	202	194	81
0.75	0.79	0.79	0.78	0.75	0.78	0.78	0.75	0.75	0.84
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.46	1.00	0.48	0.52	0.51	0.46	0.45	0.46	0.45	0.43
0.03	0.03	0.03	0.03	0.06	0.05	0.03	0.03	0.01	0.06
16	16	16	16	16	16	16	16	16	16
0.67	0.84	0.68	0.69	0.69	0.68	0.67	0.67	0.66	0.69
d	b	d	d	d	d	d	d	d	d
0	0	0	0	0	0	0	0	0	0
D	B	D	D	D	D	D	D	D	D

64	70	62	60	59	61	58	57	18	15
5.79	5.78	5.60	5.60	5.60	5.81	5.73	5.83	3.45	3.45
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	3.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	2.15
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	3.70	3.70
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	3.83	3.83
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	4.70	4.70
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	2.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.70	4.63	4.62	4.64	4.68	4.79	4.77	4.88	4.81	4.59
2.60	2.61	2.57	2.58	2.60	2.60	2.73	2.71	2.61	2.57
3.68	3.67	3.65	3.66	3.67	3.79	3.79	3.79	3.69	3.65
2.88	2.73	3.06	2.97	2.99	3.02	2.80	3.14	3.01	2.62
10.00	2.98	2.95	2.95	10.00	3.06	2.88	3.31	2.81	2.80
1.14	1.24	1.26	1.26	1.26	1.25	1.26	1.13	1.01	1.02
64	70	62	60	59	61	58	57	18	15
0.78	0.78	0.75	0.75	0.75	0.79	0.77	0.79	0.37	0.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.51
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.19	0.19
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.25
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.46	0.45	0.45	0.45	0.45	0.47	0.47	0.48	0.47	0.44
0.33	0.33	0.32	0.33	0.33	0.33	0.35	0.35	0.33	0.32
0.22	0.22	0.21	0.22	0.22	0.23	0.23	0.23	0.22	0.21
0.24	0.22	0.28	0.26	0.26	0.27	0.23	0.29	0.27	0.19
1.00	0.22	0.21	0.22	1.00	0.23	0.20	0.28	0.19	0.19
0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.00	0.00
64	70	62	60	59	61	58	57	18	15
0.78	0.78	0.75	0.75	0.75	0.79	0.77	0.79	0.51	0.51
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33
1.00	0.45	0.45	0.45	1.00	0.47	0.47	0.48	0.47	0.44
0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.00	0.00
16	16	16	16	16	16	16	16	16	16
0.84	0.67	0.66	0.66	0.83	0.68	0.68	0.68	0.39	0.38
b	d	d	d	b	d	d	d	d	d
0	0	0	0	0	0	0	0	0	0
B	D	D	D	B	D	D	D	D	D

16	21	17	27	5	10	14	9401	69	4701
5.29	5.95	5.28	5.62	5.62	5.62	5.62	6.29	6.42	3.96
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	3.76
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	3.41
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	5.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.58	5.68	4.64	4.69	4.57	4.62	4.55	4.57	4.66	5.97
2.43	3.17	2.55	2.61	2.56	2.55	2.58	2.37	2.54	3.17
3.42	10.00	3.60	3.64	3.66	3.64	3.67	3.28	3.63	4.06
2.67	3.41	3.09	3.02	2.54	2.90	2.76	2.39	2.86	3.48
2.80	3.29	3.06	3.21	2.81	3.14	2.99	2.34	2.62	3.71
1.24	1.03	1.24	1.22	1.41	1.33	1.01	1.37	1.32	1.20
16	21	17	27	5	10	14	9401	69	4701
0.70	0.81	0.69	0.75	0.75	0.75	0.75	0.87	0.89	0.46
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.20
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.20
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.44	0.59	0.45	0.45	0.44	0.45	0.44	0.44	0.45	0.62
0.30	0.42	0.32	0.33	0.32	0.32	0.32	0.29	0.32	0.42
0.19	1.00	0.21	0.21	0.22	0.21	0.22	0.17	0.21	0.26
0.20	0.34	0.28	0.27	0.18	0.25	0.22	0.15	0.24	0.36
0.19	0.27	0.23	0.26	0.19	0.25	0.22	0.11	0.16	0.35
0.04	0.00	0.04	0.03	0.07	0.06	0.00	0.06	0.05	0.03
16	21	17	27	5	10	14	9401	69	4701
0.70	0.81	0.69	0.75	0.75	0.75	0.75	0.87	0.89	0.54
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.57
0.44	1.00	0.45	0.45	0.44	0.45	0.44	0.44	0.45	0.62
0.04	0.00	0.04	0.03	0.07	0.06	0.00	0.06	0.05	0.03
16	16	16	16	16	16	16	16	16	16
0.64	0.84	0.65	0.67	0.67	0.67	0.66	0.70	0.71	0.52
d	b	d	d	d	d	d	d	d	d
0	0	0	0	0	0	0	0	0	0
D	B	D	D	D	D	D	D	D	D

36	47	2102	2101	13	188	24901	253	15701	54
6.12	5.75	5.62	5.78	3.45	5.62	6.29	6.11	6.29	5.76
0.00	0.00	0.00	0.00	3.11	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00
10.00	10.00	10.00	10.00	3.77	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	3.90	10.00	10.00	10.00	10.00	10.00
10.00	10.00	10.00	10.00	4.58	10.00	10.00	10.00	10.00	10.00
0.00	0.00	0.00	0.00	2.26	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.96	5.44	4.98	3.25	4.78	4.63	4.59	5.47	4.55	4.69
2.41	2.97	2.45	2.29	2.68	2.63	2.38	2.76	2.33	2.80
3.40	3.95	3.32	3.21	3.73	3.68	3.27	4.07	3.28	4.05
2.54	3.73	3.10	3.09	3.13	2.82	2.40	3.42	2.23	3.33
2.97	2.98	3.29	3.33	3.05	2.67	2.17	3.43	2.38	3.36
1.32	1.22	1.17	1.00	0.93	1.20	1.36	2.01	1.48	1.35
36	47	2102	2101	13	188	24901	253	15701	54
0.84	0.78	0.75	0.78	0.37	0.75	0.87	0.84	0.87	0.78
0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	0.20	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	0.26	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	0.16	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.49	0.55	0.49	0.27	0.47	0.45	0.44	0.56	0.44	0.46
0.30	0.39	0.30	0.28	0.34	0.33	0.29	0.35	0.28	0.36
0.18	0.25	0.17	0.16	0.22	0.22	0.17	0.27	0.17	0.26
0.18	0.40	0.28	0.28	0.29	0.23	0.15	0.34	0.12	0.33
0.22	0.22	0.27	0.28	0.23	0.16	0.08	0.30	0.12	0.29
0.05	0.03	0.02	0.00	0.00	0.03	0.06	0.19	0.09	0.06
36	47	2102	2101	13	188	24901	253	15701	54
0.84	0.78	0.75	0.78	0.51	0.75	0.87	0.84	0.87	0.78
1.00	1.00	1.00	1.00	0.35	1.00	1.00	1.00	1.00	1.00
0.49	0.55	0.49	0.28	0.47	0.45	0.44	0.56	0.44	0.46
0.05	0.03	0.02	0.00	0.00	0.03	0.06	0.19	0.09	0.06
16	16	16	16	16	16	16	16	16	16
0.71	0.70	0.68	0.62	0.40	0.66	0.70	0.74	0.70	0.68
d	d	d	d	d	d	d	c	d	d
0	0	0	0	0	0	0	0	0	0
D	D	D	D	D	D	D	C	D	D

30	254	255	257	160
6.12	4.12	6.28	6.29	5.58
0.00	3.14	0.00	0.00	0.00
0.00	1.65	0.00	0.00	0.00
10.00	3.96	10.00	10.00	10.00
10.00	3.73	10.00	10.00	10.00
10.00	5.17	10.00	10.00	10.00
0.00	3.27	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
10.00	4.63	4.60	4.70	4.87
10.00	2.41	2.40	2.40	2.39
10.00	3.38	3.31	3.30	3.20
3.76	2.34	2.34	2.34	2.38
8.99	2.04	2.04	2.73	2.56
1.21	1.28	1.28	1.24	1.08
30	254	255	257	160
0.84	0.49	0.87	0.87	0.75
0.00	0.51	0.00	0.00	0.00
0.00	0.24	0.00	0.00	0.00
1.00	0.22	1.00	1.00	1.00
1.00	0.24	1.00	1.00	1.00
1.00	0.25	1.00	1.00	1.00
0.00	0.50	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
1.00	0.45	0.44	0.46	0.48
1.00	0.30	0.30	0.30	0.29
1.00	0.18	0.17	0.17	0.16
0.41	0.14	0.14	0.14	0.15
1.00	0.06	0.05	0.18	0.15
0.03	0.05	0.05	0.04	0.01
30	254	255	257	160
0.84	0.51	0.87	0.87	0.75
1.00	0.50	1.00	1.00	1.00
1.00	0.45	0.44	0.46	0.48
0.03	0.05	0.05	0.04	0.01
16	16	16	16	16
0.86	0.44	0.70	0.70	0.67
b	d	d	d	d
0	0	0	0	0
B	D	D	D	D



Appendix H

Fish and Wildlife
Management Information
Search Results

Fish and Wildlife Internet Mapping Tool (FWIMT)

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

Species Summary Report

Report Created: 15-Aug-2019 17:39

Species present within the current extent :

Fish Inventory

Wildlife Inventory

Stocked Inventory

BADGER
BURROWING OWL
CAPE MAY WARBLER

No Species Found in Search Extent

Buffer Extent

Centroid (X,Y):

600694, 5652742

Projection

10-TM AEP Forest

Centroid: (Qtr Sec Twp Rng Mer)

NW 10 24 26 4

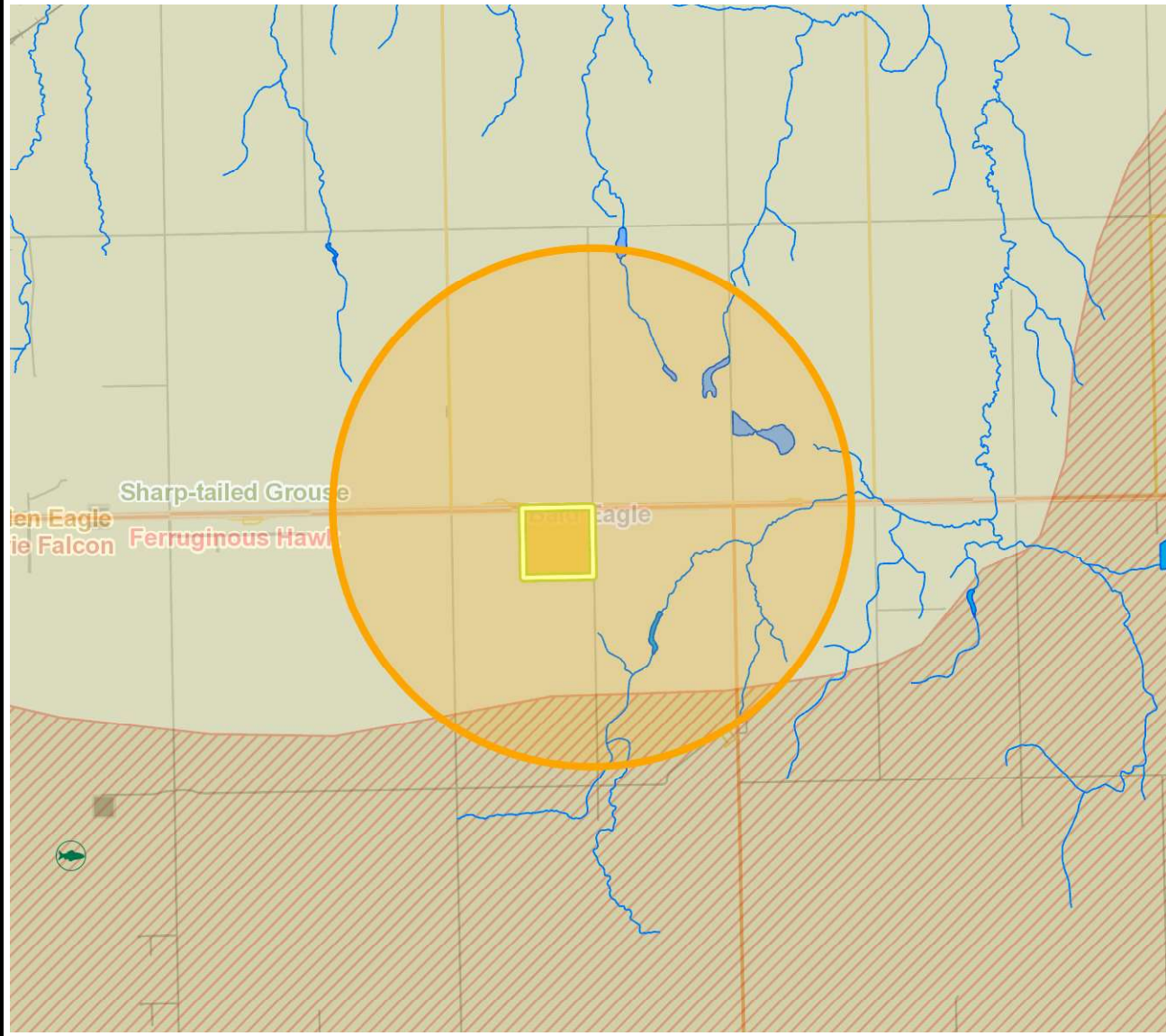
Radius or Dimensions

3 kilometers

Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>



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Fish and Wildlife Internet Mapping Tool (FWIMT)

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

Species Summary Report

Report Created: 15-Aug-2019 17:36

Species present within the current extent :

Fish Inventory

Wildlife Inventory

Stocked Inventory

No Species Found in Search Extent

No Species Found in Search Extent

Buffer Extent

Centroid (X,Y):

597413, 5653506

Projection

10-TM AEP Forest

**Centroid:
(Qtr Sec Twp Rng Mer)**

NE 18 24 26 4

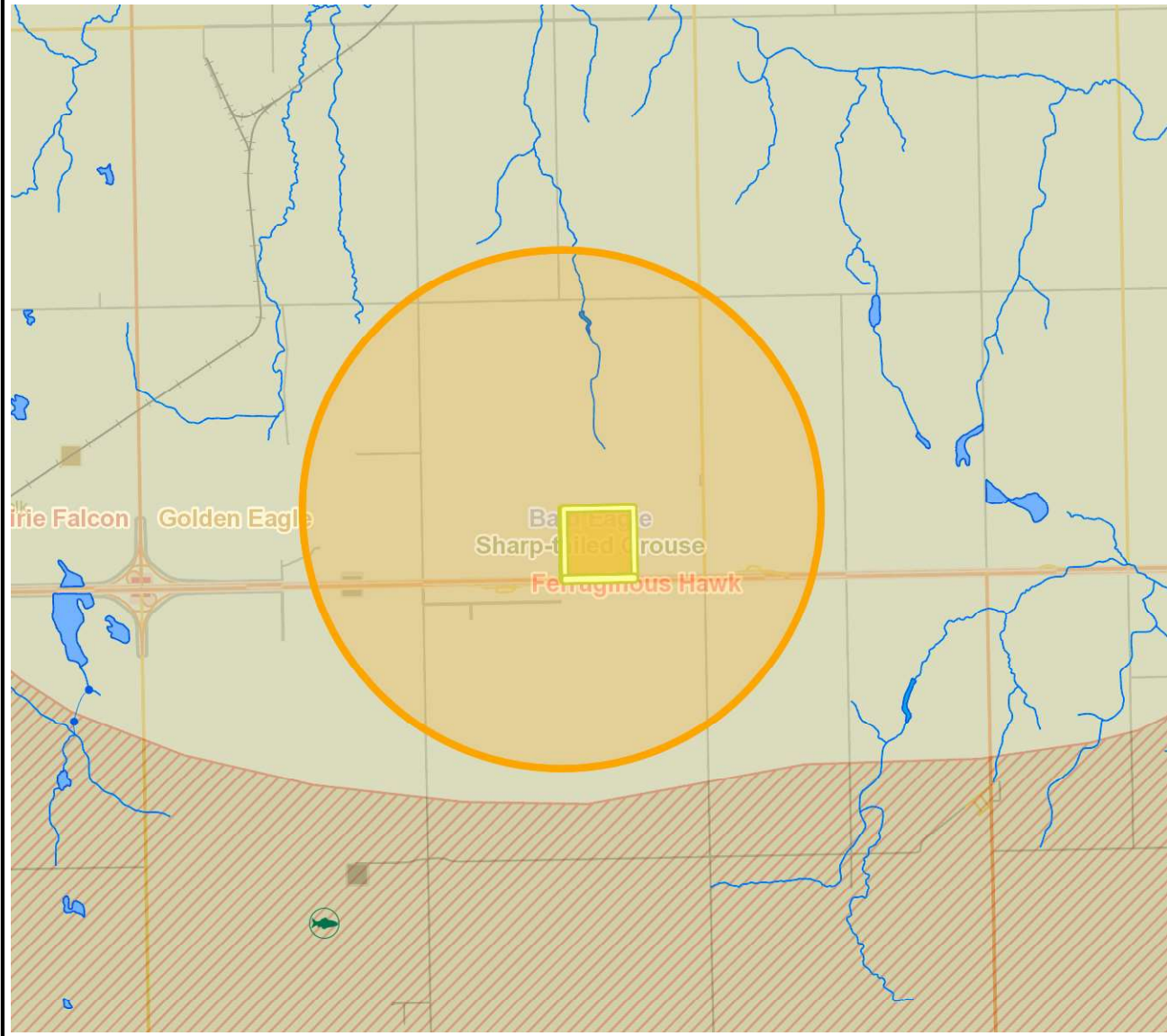
Radius or Dimensions

3 kilometers

Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>



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Fish and Wildlife Internet Mapping Tool (FWIMT)

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

Species Summary Report

Report Created: 15-Aug-2019 17:32

Species present within the current extent :

Fish Inventory

Wildlife Inventory

Stocked Inventory

No Species Found in Search Extent

No Species Found in Search Extent

Buffer Extent

Centroid (X,Y):

599121, 5649481

Projection

10-TM AEP Forest

**Centroid:
(Qtr Sec Twp Rng Mer)**

SW 4 24 26 4

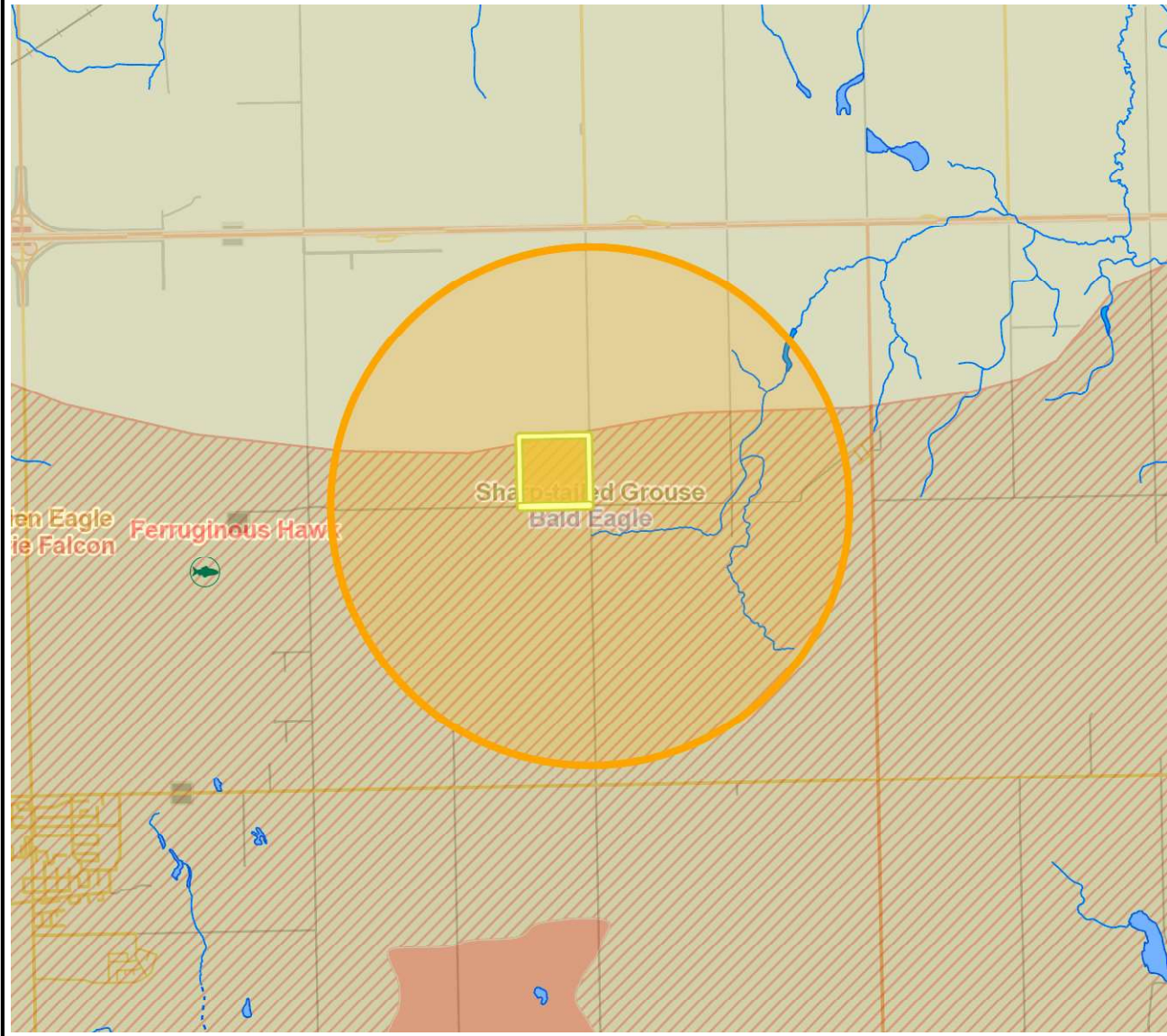
Radius or Dimensions

3 kilometers

Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>



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Fish and Wildlife Internet Mapping Tool (FWIMT)

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

Species Summary Report

Report Created: 15-Aug-2019 17:27

Species present within the current extent :

Fish Inventory

No Species Found in Search Extent

Wildlife Inventory

BARN SWALLOW
BLACK-NECKED STILT
GREAT BLUE HERON

Stocked Inventory

No Species Found in Search Extent

Buffer Extent

Centroid (X,Y):

597489, 5649452

Projection

10-TM AEP Forest

Centroid: (Qtr Sec Twp Rng Mer)

SE 6 24 26 4

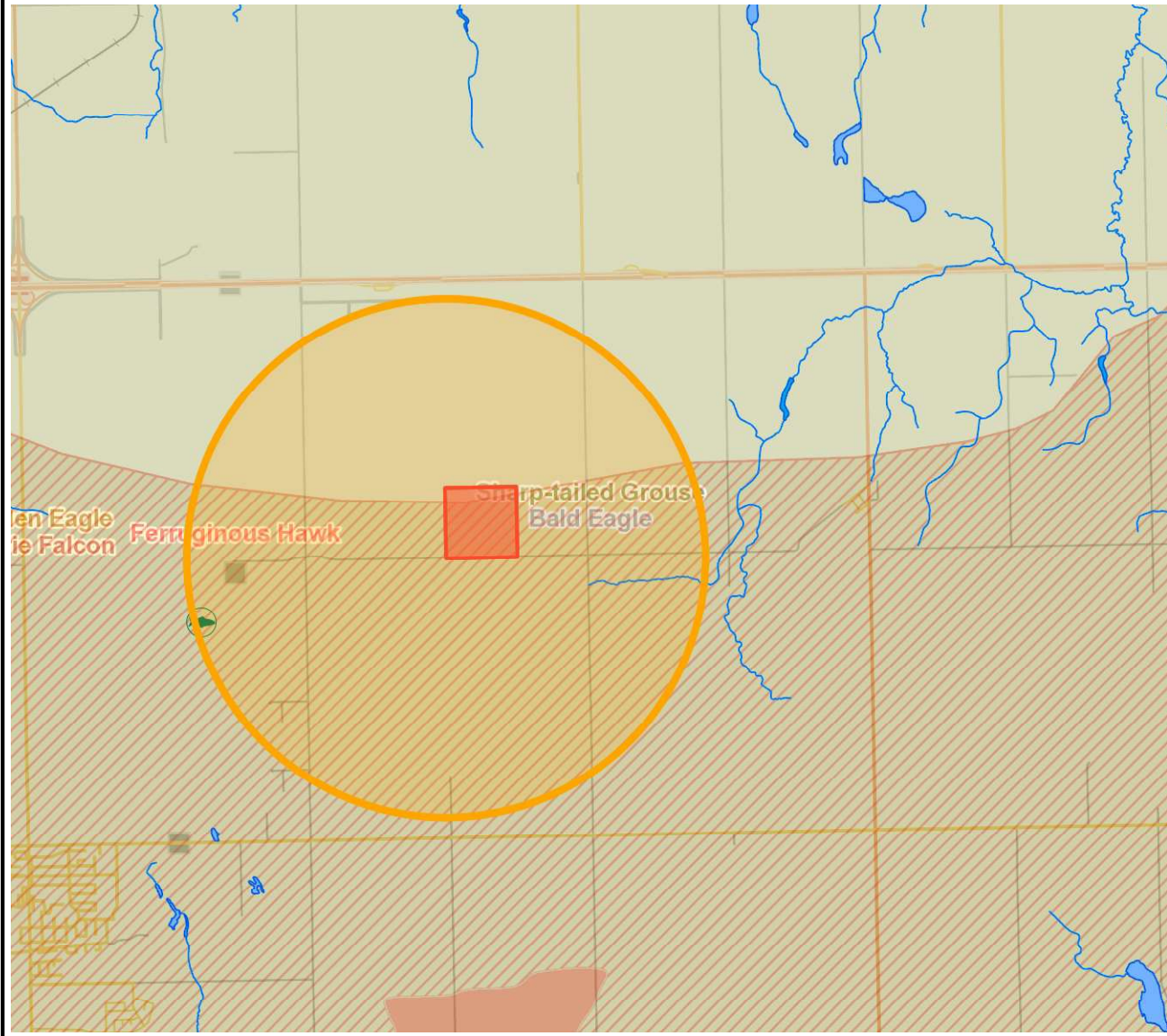
Radius or Dimensions

3 kilometers

Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>



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Appendix I

Landscape Analysis
Tool Search Results

Landscape Analysis Tool (LAT) Report

Miscellaneous Lease

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LAT Number:	00000589E0	LAT Date:	2019-08-16	16:07:17
Project Name:	100-1533 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.

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Base Features

Green/White Area	White Area
Municipality	Wheatland 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	

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Higher Level Plans

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

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Additional Application Requirements

Wildlife Survey	Yes	DND Area	
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Historical Resources

HRV Rating	Category
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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.

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Sensitive Features

Wildlife and Other Sensitive Species			
	Intersected		Intersected
Burrowing Owl Range		Ord's Kangaroo Rat Key Habitat Area	
Caribou Range		Other Sensitive and Endangered Species	Yes
Colonial Nesting Birds		Piping Plover Waterbodies	
Endangered and Threatened Plants Ranges		Sensitive Amphibian Ranges	
Federal Aquatic Critical Habitat		Sensitive Raptor Range	Yes
Greater Short-horned Lizard Habitat		Sensitive Snake Species Range	
Greater Short-horned Lizard Range		Sharp-tailed Grouse Leks and Buffer	
Greater Sage Grouse Range		Sharp-tailed Grouse Survey	Yes
Greater Sage Grouse Leks and Buffer		Special Access Area	
Grizzly Bear Zone		Swift Fox Range	
Key Wildlife and Biodiversity Areas		Trumpeter Swan Buffer	
Mountain Goat and Sheep Areas		Trumpeter Swan Waterbodies/Watercourse	
Ord's Kangaroo Rat Range			

Federal Orders:			
	Intersected		
Greater Sage Grouse			

Grassland and Natural Regions:			
	Intersected		Intersected
Central Parkland		Mixed Grass Sub-region layer	
Central Parkland and Northern Fescue		Montane	
Chinook Grasslands	Yes	Northern Fescue	
Dry Mixed Grass		Peace River Parkland	
Foothills Fescue	Yes	Permafrost	
Foothills Parkland Grasslands		Rough Fescue PNT	
Grassland and Parkland Natural Region	Yes	Subalpine or Alpine	

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Alberta Township System (ATS) Land List

Quarter	Section	Township	Range	Meridian	Road Allow.	Sensitive Features Identified
NW	9	24	26	4	RW	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
NW	17	24	26	4		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SW	5	24	26	4	RI	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
NW	9	24	26	4		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
NE	8	24	26	4		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SE	16	24	26	4	RS	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
NE	9	24	26	4		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SE	8	24	26	4		Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SW	9	24	26	4	RW	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SW	16	24	26	4	RS	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
SW	17	24	26	4	RI	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area
NW	5	24	26	4	RW	Grassland and Parkland Natural Region, Sensitive Raptor Range, Sharp-tailed Grouse Survey, Other Sensitive and Endangered Species, Chinook Grasslands, Foothills Fescue, Green / White Area

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SE	5	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	17	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	5	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SE	17	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	17	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	4	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	5	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	17	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SE	17	24	26	4	RS	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	8	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	10	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	17	24	26	4	RS	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	4	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	8	24	26	4	RW	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area

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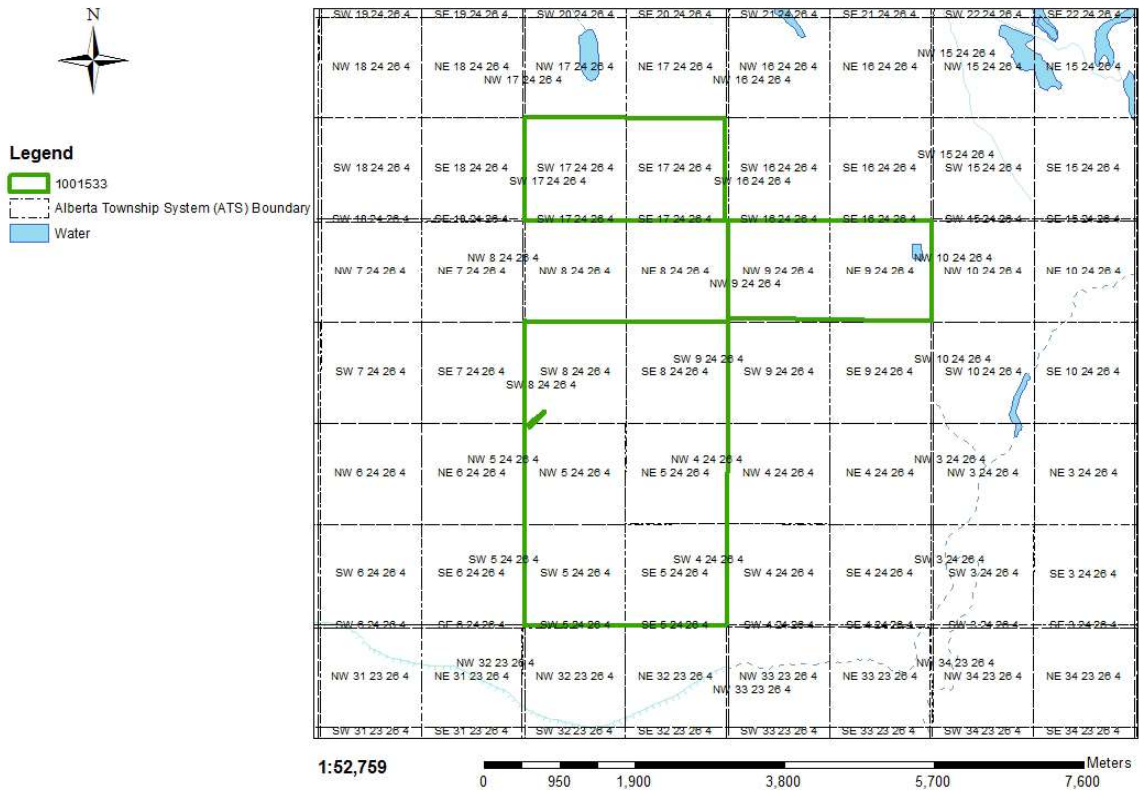
SE	5	24	26	4	RS	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	8	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NW	5	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	8	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	16	24	26	4	RI	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	15	24	26	4	RI	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NE	5	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
SW	5	24	26	4	RS	Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area
NE	17	24	26	4		Grassland and Parkland Natural Region,Sensitive Raptor Range,Sharp-tailed Grouse Survey,Other Sensitive and Endangered Species,Chinook Grasslands,Foothills Fescue,Green / White Area

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Land Management		
Report ID	Approval	Condition
1	1032-AS	Incidental Activities* as referenced on the associated supplement that fall within the sizing parameters, as defined within the PLAR Approvals and Authorizations Administrative Procedure's as amended, identified at the time of application are subject to the conditions of the associated Disposition and available for use for a term of four years from date of Disposition approval.
2	1035-AS	Where an Integrated Resource Plan or a Reservation/Protective Notation identifies a greater set back, the greater set back will prevail.
3	1036-AS	The Disposition Holder must not submit additional applications for access dispositions if access under disposition already exists.
4	1037-AS	Where a Higher Level Plan* exists, the Disposition Holder must follow any direction provided within that plan.
5	1039-AS	With the exception of pipelines, for activities that fall within any Protective Notation (PNT) lands with a purpose code 400 Series encompassing a section of land (259 hectares) or less, located in the Provincial White Area* (i.e., Provincial settled lands), the Disposition Holder must construct all activities within lands developed as range improvement. Where no range improvement exists, activities must occur within 100 metres of the PNT perimeter (i.e., outside boundary).
6	1046	The Disposition Holder must repair or replace any identified improvements (e.g., fences, water control structures, and signage) that were damaged as a result of industry activities on the land to pre-existing condition within 30 days of entry or immediately if occupied by livestock.
7	1047	The Disposition Holder must maintain all activities for proper drainage of surface water.
8	1049	For activities that occur on Canadian Forces Bases, the Disposition Holder must coordinate all activities through Energy Industry Control at (780) 842-5850 for activity on Canadian Forces Base/Area Support Unit, Wainwright, and (780) 573-7206 for activity on Canadian Forces Base/Area Support Unit, Cold Lake.
9	1051	The Disposition Holder must comply with all requirements and direction as defined within the Pre-Application Requirements for Formal Dispositions as amended from time to time.
10	1053-AS	The Disposition Holder must not locate activities within 45 meters from the top of any coulees* with the exception of activities such as; access, pipelines and linear easements crossing those features.
11	1058	The Disposition Holder must remove all garbage and waste material from this site to the satisfaction of the Regulatory Body, in its sole discretion.
12	1062	The Disposition Holder must not enter the boundaries of any research or sample plot.

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13	1063	<p>When proposed activities cross designated or recreation trail(s)* or when operations encroach on those trail(s)*, the Disposition Holder must ensure that:</p> <ul style="list-style-type: none"> • Activities crossing trails* are constructed in a manner that will not remove snow from the trail(s)*, produce ruts in the trail(s)*, or otherwise adversely affect travel. • No mechanical equipment is permitted to travel along the trail(s)*, unless approved in writing by the Regulatory Body. • Warning signs are posted along trail(s)* during construction and reclamation activities advising trail* users of the upcoming crossing location. • Any recording devices or equipment laid along the trail(s)* are placed off of the travel portion so that the geophones do not interfere with travel.
14	1071	<p>Where a Wildfire Prevention Plan or FireSmart Plan is reviewed and approved by the Wildfire Management Branch, the Disposition Holder must ensure any proposed clearing on public land has been authorized by the Regulatory Body.</p>

Vegetation

Report ID	Approval	Condition
15	1200	The Disposition Holder must manage all weeds as per the Weed Control Act.
16	1204	The Disposition Holder must ensure the chemical application for the purpose of vegetation control occurs in accordance with the Pesticide Regulation and Environmental Code of Practice for Pesticides.
17	1205	The Disposition Holder must salvage all merchantable timber and haul to the location of end use unless a request for waiver is approved under the Forests Act.
18	1206	The Disposition Holder must salvage merchantable timber according to the utilization standards for the overlapping timber disposition(s) (i.e., FMA, CTL, DTL) or, where no overlapping timber disposition exists, as per the approved forest management plan.
19	1207	The Disposition Holder must slash, limb and buck flat to the ground all woody debris* and leaning trees created by the activity to a length that must not exceed 2.4 metres.
20	1208	On forested lands, the Disposition Holder must dispose of excess coarse woody debris* remaining after rollback* or stockpiling for interim reclamation* and final reclamation*.
21	1209	The Disposition Holder must dispose of coarse woody debris* within FireSmart Community Zones* by burning unless a Debris Management Plan has been approved under the Forest and Prairie Protection Act.
22	1211	The Disposition Holder must not allow timber storage piles or windrows to encroach into standing timber.

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Soil		
Report ID	Approval	Condition
23	1256	The Disposition Holder must not conduct any activities during adverse ground conditions*.
24	1257	The Disposition Holder must conduct all activity to prevent and control erosion* and sedimentation on or adjacent* to the Lands.
25	1258	The Disposition Holder must install and maintain erosion control* measures.
26	1259-AS	The Disposition Holder must not transport from the Lands topsoil* or subsoil* unless authorized in writing by the Regulatory Body.
27	1260	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*.
28	1263	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.
29	1265	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 greater than 12 months must be stored with the topsoil*; and c. topsoil* and subsoil* must be stored separately.
30	1267	The Disposition Holder must not mix wood chips with any reclamation material*.
31	1268	The Disposition Holder must not apply wood chips to the lands at a depth greater than five (5) centimeters.
32	1269	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.
33	1270	The Disposition Holder must not store piles or windrows of reclamation material* that encroach into standing timber.
34	1271	The Disposition Holder must not use soil sterilants for any activities on the Lands.

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Watercourse / Waterbody		
Report ID	Approval	Condition
35	1301-AS	The Disposition Holder must not interrupt natural drainage (including ephemeral and fens*), block water flow or alter the water table.
36	1303-AS	The Disposition Holder must construct activities outside the appropriate watercourse* setbacks, except for vehicle or pipeline crossings: a) Intermittent watercourses* and springs must have a setback of at least 45 metres from the top of the break. b) Small Permanent watercourses* must have a setback of at least 45 metres from the top of the break. c) Large Permanent watercourses* must have a setback of at least 100 metres from the top of the break.
37	1304-AS	The Disposition Holder must maintain the following waterbody* setbacks from the disposition edge for all site activities, or paralleling linear dispositions, or pipeline bore site: a) A minimum setback of 45 metres of undisturbed vegetation must be maintained from non-permanent seasonal wetlands*. b) A minimum setback of 100 metres from the bed and shore* of semi-permanent and permanent ponds, wetlands*, shallow open water ponds and lakes.
38	1310	The Disposition Holder must not deposit or place debris*, soil or other deleterious materials* into or through any watercourse* and/or waterbody*, or on the ice of any watercourse* and/or waterbody*.
39	1315	The Disposition Holder must acquire an authorization for access (off-disposition) for water withdrawal activities.
40	1317	Where surface disturbance* will occur and a risk of surface erosion* exists, the Disposition Holder must install and maintain sediment* control structures to dissipate the flow of water and capture sediment* prior to it entering a watercourse* or waterbody*.
41	1325	The Disposition Holder must not remove or use water from dugouts, surface ponds, springs, or water wells within the grazing disposition unless an authorization is issued from the Environment and Parks (GoA) agrologist.
42	1327	All licences, authorizations and approvals issued under the Alberta Environmental Protection and Enhancement Act, Water Act or Public Lands Act should not be taken to mean the Disposition Holder has complied with federal legislation. The Disposition Holder should contact Habitat Management, Fisheries and Oceans in relation to the application of federal laws relating to the Fisheries Act (Canada). Fisheries Protection Program, Fisheries and Oceans Canada 867 Lakeshore Road, Burlington, Ontario, L7R 4A6 Telephone: 1-855-852-8320 Email: Fisheriesprotection@dfo-mpo.gc.ca Web address: www.dfo-mpo.gc.ca The Disposition Holder should also contact the Navigation Protection Program, Canadian Coast Guard, 4253-97 Street, Edmonton, Alberta, T6E 5Y7, phone: (780) 495-4220, relating to the Navigation Protection Act.

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Reclamation		
Report ID	Approval	Condition
43	1351	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.
44	1353	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*.
45	1354	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* 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 to be used for re-vegetation*; and e. any other information requested by the Regulatory Body.
46	1355	The Disposition Holder must only conduct seeding in accordance with the written request for seeding as approved by the Regulatory Body.
47	1356	The Disposition Holder must when seeding cultivated lands*, use agronomic or forage seed that meets or exceeds Certified #1 as outlined in the Seeds Act and Seeds Regulations. Seed mixes are to be free of species listed in the Weed Control Act. A seed certificate must be provided to the Regulatory Body within 30 days upon request.
48	1357	The Disposition Holder must re-vegetate the Lands with trees or shrubs within the Green Area* 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.
49	1359	The Disposition Holder must not have slash and rollback* accumulations within five (5) meters of the perimeter of the disposition boundary, greater than the percent ground cover on the surrounding undisturbed forest floor.
50	1361	The Disposition Holder must complete progressive reclamation* on forested lands* for all associated and incidental disturbances to the Disposition.

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51	1362	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.
52	1363	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.
53	1364	The Disposition Holder must reclaim the Lands to the pre-disturbance land use* type (forested*, grassland*, cultivated*, mineral wetland* and peatlands*) unless otherwise authorized in writing by the Regulatory Body.

Wildlife

Report ID	Approval	Condition
54	1500	The Disposition Holder must conduct a complete and immediate Wildlife Sweep* of the Lands (plus 100 metre buffer*) subject to the disposition prior to any activity.
55	1501	The Disposition Holder must submit results 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.
56	1502-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 (e.g. Species at Risk) for any and all key habitat features including, but not limited to leks*, nests, dens and houses identified in the Wildlife Sweep*.
57	1503	When Wildlife Surveys* are required, the Disposition Holder must submit results from the Wildlife Survey* to the Fisheries and Wildlife Management Information System (FWMIS).
58	1509	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*.

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59	1510	<p>The Disposition Holder is responsible for compliance with federal laws and should contact Environment and Climate Change Canada in relation to the application of federal laws relating to the Migratory Birds Convention Act and the Species at Risk Act.</p> <p>Canadian Wildlife Service Prairie Region Environment and Climate Change Canada Eastgate Offices 9250 – 49th Street Edmonton, Alberta T6B 1K5 Telephone: 1-855-245-0331 (toll free) Email: ec.leprpn-sarapnr.ec@canada.ca Web address: sararegistry.gc.ca</p>
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Sensitive Raptor Range

Report ID	Approval	Condition
60	1550-AS	The Disposition Holder must conduct appropriate pre-construction wildlife* surveys for all activities occurring within the identified Species At Risk ranges of the Landscape Analysis Tool, as per the direction of the Sensitive Species Inventory Guidelines as amended from time to time.
61	1551-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
62	1640-AS	The Disposition Holder must conduct appropriate pre-construction wildlife surveys* for all activities occurring within the identified Species At Risk ranges of the Landscape Analysis Tool, as per the direction of the Sensitive Species Inventory Guidelines 2013 as amended from time to time.

Other Sensitive and Endangered Species

Report ID	Approval	Condition
63	1780-AS	The Disposition Holder must conduct appropriate pre-construction wildlife* surveys for all activities occurring within the identified Species At Risk ranges of the Landscape Analysis Tool, as per the direction of the Sensitive Species Inventory Guidelines 2013 as amended from time to time.
64	1781-AS	Between April 15 and August 15, the Disposition Holder must not conduct any activities* within 100 meters of an active nest site for Federally listed species.

Grassland and Parkland Natural Region

Report ID	Approval	Condition
65	1941-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.

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66	1944	<p>On native grasslands*, the Disposition Holder must not crimp straw* subject to the following exceptions:</p> <p>a) The straw* used for crimping must be sourced from a native species* from the same ecological range site* as the Lands;</p> <p>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.</p>
67	1946	<p>In native grasslands* as identified by the Foothills Fescue Subregion Layer of the Landscape Analysis Tool 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:</p> <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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*; 5. Any other information requested by the Regulatory Body.
68	1957	<p>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.</p>
69	1958	<p>The Disposition Holder must not conduct any activities within 100 meters of an active nest site between April 15th and August 15th for the following species:</p> <ul style="list-style-type: none"> • short-eared owl • mountain plover • long-billed curlew • upland sandpiper • Sprague's pipit • Chestnut-collared longspur • Loggerhead Shrike • Bank Swallow

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