# Appendix 10 - Threatened and Endangered Species Report



## Threatened and Endangered Species Report –

Beadle, Brown, Clark, Codington, Edmunds, Hamlin, Hand, Hyde, Kingsbury, Lake, Lincoln, McCook, McPherson, Miner, Minnehaha, Spink, Sully, and Turner counties, South Dakota

SCS Midwest Carbon Express

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# List of Acronyms and Abbreviations

AWBP	Aransas Wood Buffalo Population
BGEPA	Bald and Golden Eagle Protection Act
CO <sub>2</sub>	Carbon Dioxide
DBH	Diameter-At-Breast-Height
ESA	Endangered Species Act of 1973
HDD	Horizontal Directional Drilling
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act of 1918
NGP	Northern Great Plains Population
NLEB	Northern Long-Eared Bat
NMFS	National Marine Fisheries Service
PEM	Palustrine Emergent
Perennial	Perennial Environmental Services, LLC
PFO	Palustrine Forested
Project	Midwest Carbon Express Project
PSS	Palustrine Scrub-Shrub
SCS	Summit Carbon Solutions
SDGFP	South Dakota Game Fish and Parks
T&E	Threatened and Endangered
USFWS	U.S. Fish and Wildlife Service
WNS	White-Nose Syndrome
WPFO	Western Prairie Fringed Orchid

## 1 Introduction

Summit Carbon Solutions, LLC (SCS) is proposing to construct, own, and operate the Midwest Carbon Express (MCE) Project. MCE will capture carbon dioxide (CO2) from 31 ethanol plants across five states (i.e., Iowa, Minnesota, Nebraska, South Dakota, and North Dakota) and transport the captured CO2 via pipeline to North Dakota to be permanently sequestered within deep underground geologic formations. SCS aims to reduce the carbon intensity of biofuels produced from ethanol facilities and work towards achieving climate goals while creating jobs and other economic benefits across the Project footprint. The planned pipeline is approximately 2,000 miles, with diameters ranging from 4 to 24 inches and operating pressure of 2,100 pounds per square inch. The locations of the Project components are depicted in the attached mapping exhibits (**Appendix A**).

SCS retained Perennial Environmental Services, LLC (Perennial) to conduct a threatened and endangered (T&E) species habitat assessment for the proposed Project facilities in South Dakota. Perennial's purpose was to identify any T&E species, designated critical habitat, or potentially suitable habitat within a defined survey area. This report summarizes the survey methodology, results of the literature review and field surveys, and Perennial's assessment of the Project's potential impacts on T&E species.

## 2 Endangered Species Act of 1973

The Endangered Species Act (ESA) was passed by Congress in 1973 to protect and recover imperiled species and the ecosystems on which they depend. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS), which has primary responsibility for terrestrial and freshwater organisms, and the Commerce Department's National Marine Fisheries Service (NMFS), which has primary responsibility for marine wildlife such as whales and anadromous fish such as salmon (USFWS, 2017).

Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened.

Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with USFWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species. Agencies must confer with the USFWS per Section 7(a)(4) of the ESA if any action is likely to jeopardize a species proposed for listing or to destroy or adversely modify proposed critical habitat (USFWS 1973).

The ESA protects listed species and their habitats by 1) prohibiting the "take" of listed animals and the interstate or international trade in listed plants or animals, including their parts or products, except under federal permit; and 2) prohibiting federal actions that are likely to jeopardize the continued existence of listed species or adversely modify designated critical habitats.

The ESA makes it unlawful to take a listed animal without a permit. "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal land. Protection from commercial trade and the effects of federal actions do apply for plants (USFWS, 2017).

Take of endangered species may be either "purposeful take" or "incidental take". "Purposeful take" is when the reason for the activity or action is to conduct some form of take. For instance, conducting a research project that includes collecting and tagging a listed species is a form of purposeful take. Intentionally killing or harming a listed species is also purposeful take and is prohibited. "Incidental take" is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill endangered bats that are roosting in the trees, but the purpose of that activity is not to kill bats (USFWS, 2016b).

USFWS also maintains a list of "candidate" species. These are species in which USFWS has enough information to warrant proposing them for listing but is precluded from doing so by higher listing priorities (USFWS, 2017). There are generally no Section 7 requirements for candidate species; however, all agencies are encouraged to take advantage of any opportunity they may have to conserve the species. For example, after ground disturbance, reseed the area with a native seed mix that includes milkweed (*Asclepias* spp.) (USFWS, 2020c) pending landowner approval for their intended land use.

## 3 Migratory Birds

Most native migratory birds are protected under the *Migratory Bird Treaty Act* (MBTA). Originally passed in 1918, the MBTA implements the U.S.' commitment to four bilateral treaties, or conventions, for the protection of a shared migratory bird resource, protecting more than 1,000 species of birds. The MBTA states that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized by the Secretary of the Interior. "Take" is defined in the regulations as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 Code of Federal Regulations 10) (USFWS, 2010). Executive Order 13186 (January 2001) directs federal agencies to consider the effects of agency actions on migratory birds, with emphasis on bird species of concern.

Birds of Management Concern (BMC) are a subset of all birds protected under the MBTA that pose difficult management challenges such as low population numbers and conflicts with human interests. Birds of Conservation Concern (BCC) are a subset of BMC and include all species, subspecies, and populations of migratory non-game birds that are likely to become candidates for listing under the *Endangered Species Act* (ESA) of 1973 without additional conservation action (USFWS, 2008).

The Project is located within Bird Conservation Regions 11, and 22, which are defined as the Prairie Pothole and Eastern Tallgrass Prairie regions of the United States, respectively (USFWS, 2008). **Appendix B** lists all BCC with the potential to occur within the Project area as identified by the USFWS Information and Planning Consultation (IPaC) online system (USFWS, 2022b).

### 4 Background Literature Review

Prior to conducting the field surveys, Perennial reviewed various sources of available data to determine the federally and state listed T&E or protected species that could potentially inhabit or traverse the Project area. Perennial utilized the USFWS Information, Planning, and Conservation (IPaC) System (USFWS, 2021d) to obtain an official species list to determine the federally listed or protected species that could potentially occur within the Project area (**Appendix B**). State-listed species information was obtained from the South Dakota Game, Fish and Parks (SDGFP) State and Federally Listed Threatened, Endangered, and Candidate Species Documented in South Dakota By County (SDGFP, 2016), 2020 Threatened and Endangered Status Reviews (SDGFP, 2020b) the South Dakota Environmental Review Tool (SDGFP 2022), and the South Dakota Wildlife Action Plan Explorer (SDGFP 2022). Perennial also obtained species occurrence information from the South Dakota Natural Heritage Program

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Database to identify potential occurrence of federally or state listed species along the Project route (South Dakota Natural Heritage Program, 2021).

Perennial performed species-specific background literature reviews to determine habitat requirements for each of the federally and state listed T&E or protected species that could potentially occur within the Project area. Documents reviewed include the species-specific recovery plans and/or five-year species reviews prepared by USFWS, species habitat information provided by SDGFP, and other ecological websites such as Nature Serve Explorer and Environmental Consultation Online System (ECOS). Prior to the field survey, Perennial also reviewed U.S. Geological Survey 7.5-minute quadrangle maps and aerial imagery to identify areas of potential habitat for federally and state listed T&E species.

The sections below provide general descriptions of the life distribution and habitat requirements for each of the federally and state listed T&E species and species of concern that could potentially occur within the Project area.

#### 4.1 Birds

#### 4.1.1 Bald eagle (Haliaeetus leucocephalus)

Though bald eagles were federally delisted in 2007 due to population resurgence, they are still protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) of 1940. Similar to the ESA, the BGEPA and MBTA define "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

Bald eagle habitat ranges throughout North America into northern Mexico and this species occurs as breeding year-round residents and also migratory residents in South Dakota (SDGFP, 2005). Each year, about 300 bald eagles winter in South Dakota along the Missouri River or in the Black Hills (USFWS, 2019c). In South Dakota, bald eagles begin nesting in November and lay eggs from February to May, and they may have one or more alternate nests within a breeding territory they return to and enlarge each year. Bald eagles are generally found near water sources, such as lakes, reservoirs, marshes, or coasts, and their nests are generally found on large trees near open water. This species is opportunistic, meaning they may hunt live prey, scavenge, or steal food from other animals, and they generally feed on waterfowl, rabbits, turtles, snakes, and other small animals (USFWS, 2007b). Nesting and foraging habitats for bald eagles are present in the Project area located near large waterbodies (e.g., Big Sioux River).

#### 4.1.2 Piping plover (*Charadrius melodus*)

The piping plover, federally and state listed as threatened, is a migratory bird that occurs as three separately located populations in North America. The population located within the Project vicinity in South Dakota is referenced as the Northern Great Plains (NGP) Population, which breeds along the rivers and wetlands of the northern Great Plains from Nebraska to the southern Prairie Provinces in Canada. This species primarily utilizes alkaline lakes and wetlands, large inland lakes, reservoirs, and rivers for breeding and foraging. This species arrives in South Dakota in early April, followed by courtship and nesting in mid-to-late April. Hatching begins in late May to early June, with peak hatching season occurring in June and early July. Piping plovers begin to leave the breeding grounds as early as mid-July. The piping plover diet consists of marine worms, beetles, spiders, crustaceans, mollusks, and other small marine organisms (USFWS, 2016a).

#### 4.1.3 Red knot (*Cadris canutus rufa*)

The red knot, federally listed as threatened by USFWS, is a highly migratory bird species that migrates annually between breeding grounds in the central Canadian arctic tundra and four wintering regions throughout South America and the Gulf of Mexico. During spring and fall migrations, red knots rely on key staging areas and other stopover areas to rest and feed. Though South Dakota does not house any of the key staging areas, red knot migration is highly unpredictable and wide ranging. Red knots require a reliable network of coastal and inland staging areas with abundant, high-quality prey timed when birds are present and allowing particularly high rates of weight gain. Additionally, red knots may need to suddenly shift among habitat patches based on food, predator, disturbance, weather, tides, and other conditions. In the Northern Great Plains, habitat may include alkaline or saline lakes, riverine wetlands, sandbars, and manmade impoundments. Across all habitat types, red knots require sparse vegetation to aid in predator defense (USFWS, 2021b).

#### 4.1.4 Whooping crane (Grus americana)

Whooping cranes, federally listed as endangered by USFWS, are a migratory species that exist as a small number of wild populations. The population located within the Project vicinity is the only self-sustaining wild population: the Aransas Wood Buffalo Population (AWBP). This population nests in the Northwest Territories of Canada, primarily in the Wood Buffalo National Park. This park is located approximately 1,050 miles to the northwest in Alberta, Canada. In the spring and fall, this population migrates through the Great Plains states of Montana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. Winter habitat is located in the Gulf of Mexico coast at Aransas National Wildlife Refuge and adjacent areas. Migration habitat consists of mosaic wetlands, shallow, seasonally and semi-permanently flooded palustrine wetlands, riverine habitats, and various croplands. All habitat types are typically sparsely vegetated (USFWS, 2007a).

#### 4.1.5 Interior least tern (Sternula antillarum athalassos)

The interior least tern, federally listed as endangered by USFWS, is a migratory bird species that nests along freshwater habitats of the Missouri and Mississippi rivers, and overwinters in the Caribbean and South America (USFWS, 2020a). The nesting areas are barren, treeless beaches of sand, gravel or shells; dry mudflats and salt flats; and sand and gravel pits along rivers. Interior least terns arrive in South Dakota in early May and begin nesting in late May or early June, often in conjunction with piping plovers. This species nests along the Missouri and Cheyenne rivers (Sully County, South Dakota), with the majority nesting below Gavins Point Dam in southeastern South Dakota. The least tern eats small adult fish, fingerlings, and crustaceans (SDGFP, 2020b).

#### 4.1.6 Greater prairie chicken (*Tympanuchus cupido*)

The greater prairie chicken not currently listed by USFWS or SDGFP, but is considered "vulnerable" by SDGFP. This species is endemic to the grasslands of the central U.S. Great Plains, and exists primarily in undisturbed tallgrass prairie (USFWS, 2005). Due to habitat fragmentation and loss through agricultural development, the current range of the greater prairie chicken is in northeast Colorado, Kansas, Nebraska, South Dakota, North Dakota, Minnesota and a small northwest section of Iowa (South Dakota Birds, 2022). Habitat in the core of the greater prairie-chicken's distribution in South Dakota (Fort Pierre National Grassland and Lower Brule Indian Reservation) is primarily mid-grass prairie where dominant grasses include western wheatgrass (*Agropyron smithii*) and green needlegrass (*Stipa viridula*) (USFWS, 2005). May and June breeding in South Dakota, with lek displays occurring earlier. The nest itself is a simple depression on the ground, lined with grasses, feathers, and sometimes dead leaves or other vegetative material. Maintaining healthy, undisturbed leks for this species is the primary concern related to conservation of the greater prairie chicken. Diet for the greater prairie chicken consists of leaves, seeds, berries, and waste grain in winter, as well as various insects in summer (South Dakota Birds, 2022).

#### 4.1.7 Sharp-tailed grouse (*Tympanuchus phasianellus*)

The sharp-tailed grouse is not currently listed by USFWS or SDGFP. Although this species' conservation status is Least Concern, the SDGFP recommends avoidance of the leks for this species and maintains an active database of active sites. This species of prairie grouse commonly occupies brushy areas, openings, and bogs in boreal forest. In winter, sharp-tailed grouse rely on riparian areas, deciduous hardwood shrub gullies, deciduous, open coniferous woods, and grasslands. This species typically utilized deciduous trees and shrubs for feeding,

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roosting, and cover. In Spring, males and females gather at traditional breeding locations (called leks) where an elaborate "dancing" occurs in order to attract mates. Following the courtship ritual, females will begin nesting and brood-rearing in spring and early summer. Nests are shallow, hollowed-out depressions on the ground, commonly located beneath low shrubs and can be found on flat land or slopes facing north/northeast (NRCS, 2007). The diet for the sharp-tailed grouse typically consists of a variety of forbs, grasses, flowers, fruits, seeds, buds, and insects (NRCS, 2007).

#### 4.2 Fish

#### 4.2.1 Topeka shiner (Notropis topeka)

Topeka shiners, federally listed as endangered by USFWS, are small minnows that are found in small prairie streams and creeks that exhibit perennial and nearly perennial flow. Substrate is usually clean gravel, cobble, or sand. Historically, Topeka shiners were abundant throughout the prairie regions of South Dakota, Minnesota, Kansas, Iowa, and Missouri (USFWS, 2019f). In South Dakota, there are populations of Topeka shiner throughout the Central Prairie region of the Missouri, Mississippi, and Arkansas River drainages (SDGFP, 2003). Spawning occurs from late-May to mid-August, depending on the water temperature. Reporting on spawning behavior is mixed; some reports state the behavior is poorly understood, and Topeka shiners are thought to spawn on silt-free substrates found in the quieter waters of stream pools (USFWS, 2019f), whereas other reports state they nest over gravel nests of green sunfish (*Lepomis cyanellus*) and orangespotted sunfish (*Lepomis humilis*). The diet of the Topeka shiner includes plant material, zooplankton, and small aquatic insects (SDGFP, 2003).

#### 4.2.2 Pallid sturgeon (Scaphirhynchus albus)

Pallid sturgeons, federally and state listed as endangered, are fish with a primitive appearance and a cartilaginous skeleton. They are large, bottom-oriented river fish that inhabit the Missouri, Mississippi, Big Sioux, Vermillion, and James rivers where the conditions can be described as large, free-flowing, and turbid with diverse assemblages of dynamic physical habitat (USFWS, 2014). Spawning habitat is unknown, but it is suspected to involve rock or gravel substrates in main river channels. Warming water in late spring or early summer is thought to be a spawning trigger. Both males and females experience lengthy maturation (7-9 years for males and 7-10 years for females) and require several years between spawns (2-3 years for males and 3-10 years for females). The known population consists entirely of adult fish. Spawning may be occurring, but recruitment (the number of fish born within a time period that survive to the juvenile stage) is suspected to be nonexistent (USFWS, 2019d).

#### 4.2.3 Northern redbelly dace (Chrosomus eos)

Northern redbelly dace, state listed as threatened by SDGFP, are small minnows found in either lentic (nonor limited-flowing freshwater lakes and ponds) or lotic (rivers or streams with moving water) habitats. They prefer spring-fed streams with adequate vegetation; slow to moderate current, and silt or sand substrates. Within South Dakota, northern redbelly dace are found primarily east of the Missouri River, and have been reported from tributaries of the Missouri, Big Sioux, Minnesota, White, Niobrara, and Keva Paha river drainages. Little is known about their reproductive biology or life history; however, it is presumed they spawn between late April and June over aquatic vegetation. Their diet includes diatoms, filamentous algae, zooplankton, invertebrates, and plant material (SDGFP, 2020a).

#### 4.2.4 Banded killifish (Fundulus diaphanous)

Banded killifish, state listed as endangered by SDGFP, are small fish found in lentic or lotic habitats. They prefer quiet and shallow waters of sloughs, marshes, ponds, and lakes, as well as low gradient streams with gravel or sand substrate and abundant vegetation. They have been reported in a few lakes in eastern South Dakota: Lake Andes, Garden Creek, Lake Eureka, Long Lake, Lake Cochrane, Lazarus Creek, Blue Dog Lake, Waubay Lakes, and

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Bitter Lake. Since 2000, reported banded killifish have been limited to the inlet of Bitter Lake in Day County and Little Eureka Lake in McPherson County. Banded killifish spawn in late spring and summer in vegetated areas. Their diet consists of small crustaceans, insect larvae, and some plant material. Banded killifish are widespread and secure throughout the eastern portion of its range, however, at the western edge of their range, they are listed as critically imperiled in South Dakota. (SDGFP, 2020a).

#### 4.2.5 Blacknose shiner (*Notropis heterolepis*)

Blacknose shiner, state listed as endangered by SDGFP, are a slender, silvery minnow with large eyes. They prefer cool, clear glacial lakes, and small prairies streams that are highly vegetated and contain sand, gravel and rock substrates. Blacknose shiner have been reported from the tributaries of the James, Big Sioux, Minnesota, Missouri, and Keya Paha river drainages. Since 200, only single fish occurrences have been reported from the tributaries of the Big Sioux, Minnesota, Missouri, and Keya Paha river drainages. Missouri, and Keya Paha River drainages (SDGFP, 2020a). Little is known about their reproductive biology or life history, but it is believed they spawn from May to June over sandy substrates. Blacknose shiner are benthic feeders with a diet consisting of plants, small insects, crustaceans and algae (SDGFP, 2022).

#### 4.3 Insects

#### 4.3.1 Dakota skipper (*Heperia dacotae*)

The Dakota skipper, federally listed as threatened by USFWS, is a small prairie butterfly that inhabits remnants of tallgrass prairie and mixed-grass prairie in the north-central U.S. and into southern Saskatchewan and Manitoba Provinces of Canada. This species' life cycle lasts one year, with the adult stage occurring for only 3 to 4 weeks from the middle of June to the end of July. Mating occurs in this period and eggs are deposited on broadleaf plants and grasses. After hatching, the larvae crawl to the ground and construct silk shelters. This species overwinters in the larval stage and metamorphosizes as an adult again in late June and early July (USFWS, 2018).

Within the habitat fragments where it persists, this species relies on high-quality, diverse, native prairie habitat conditions and on natural or human disturbances that maintain the integrity of these plant communities while minimizing mortality to vulnerable life stages (USFWS, 2021e). These beneficial disturbances include properly managed grazing, having, burning, and use of pesticides. Specifically, this species inhabits two distinct habitat types: 'Type A' habitat and 'Type B' habitat. 'Type A' habitat, which occurs primarily in North Dakota, is a low, wet-mesic prairie with little to no topographic relief that occurs on near-shore glacial lake deposits. This habitat type may be flooded in some years but has sufficient relief to provide segments of non-inundated habitat during the spring larval growth period within any single season. 'Type A' habitat is dominated by bluestem grasses (Andropogon spp.), with wood lily (Lilium philadelphicum), bluebell bellflower (Campanula rotundifolia), and mountain death camas (Zigadenus elegans) almost always present (USFWS, 2018). 'Type B' habitat is upland prairie that is relatively dry and often found on ridges and hillsides. Bluestem grasses and needlegrasses (*Stipa* spp) dominate these prairies; purple coneflower (Echinacea angustifolia) is typical of high quality sites that support this skipper (USFWS, 2019a). Other flowering vegetation likely present in this habitat include bluebell bellflower, wood lily, upright prairie coneflower (Ratibida columnifera), and blanketflower (Gaillardia spp.) (USFWS, 2018). Both of these habitat types are unlikely to be reestablished on a site that has been plowed. Therefore, activities that maintain the original native grass habitat are fundamental to the species' conservation (USFWS, 2019a).

#### 4.3.2 Monarch butterfly (Danaus plexippus)

The monarch butterfly, a candidate species for listing by USFWS, is an insect with a variable life cycle based on geographic location. Non-migratory populations, such as those in Florida, breed year-round. Monarchs in more temperate climates, such as the Project area, undergo long-distance migration. Adults of migratory populations live for an extended period of time, and the breeding period for these adults is paused for a portion of the year (fall through spring). During breeding and migration, adult monarch butterflies require a diversity of blooming nectar resources. Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat. The correct phenology, or timing, of monarchs, nectar plants, and milkweed is important for monarch survival (USFWS, 2020b).

#### 4.3.3 Poweshiek skipperling (Oarisma poweshiek)

The Poweshiek skipperling, federally listed as endangered by USFWS, is a prairie butterfly that inhabits remnant prairie areas including prairie fens, grassy lake and stream margins, moist meadows, sedge meadows, and wet-to-dry prairie. This species relies on high-quality habitat conditions and on natural or human disturbances that maintain the integrity of these plant communities, while minimizing mortality to vulnerable life stages. During the short time that adults are alive (2 to 4 weeks in summer), they need sufficient high-quality nectar from flowers for feeding and healthy and abundant suitable grasses (host plants) for egg-laying. Larvae require sufficient host grasses to feed on throughout summer as well as suitable microhabitat (temperature and humidity). The species overwinters as a larva above ground on the blades or stem of the host plant; thus, they also need habitat that provides a suitable microclimate for shelter during the winter (USFWS, 2021a).

#### 4.4 Mammals

#### 4.4.1 Northern long-eared bat (*Myotis septentrionalis*)

The northern long-eared bat (NLEB), federally listed as threatened by USFWS, roosts in caves and abandoned mines during the winter months. This species occupies hardwood forests for roosting and foraging during the summer months. NLEBs roost singly or in colonies in cavities, crevices, hollows, or beneath the bark of live and dead trees and/or snags, regardless of tree species. This species prefers trees with a diameter-at-breast-height (dbh) of greater than or equal to 3 inches. Deviation from this typical habitat has been observed, with some bats roosting in man-made structures (sheds, barns, etc.) and males and non-reproductive females roosting in areas with colder temperatures (caves and mines). The NLEB forages at dusk on insects in forested hillsides and ridges (USFWS, 2021c).

#### 4.4.2 Swift fox (*Vulpes velox*)

The swift fox, state listed as threatened by SDGFP, inhabits open prairies, plains, and shrubby desert areas and are usually found in areas with gently rolling hills or undulating topography. This species prefers short to midgrass prairies, and use den sites year-round (USFWS, 2019e). In South Dakota, swift fox were historically found statewide, but are currently found in the western part of the state, with a small population in southern Fall River County (SDGFP, 2020a). Breeding begins in February or March, with two to four pups born in April or May. The pups are born underground and emerge from the den after one month, and are weaned after six to seven weeks (USFWS, 2019e). The swift fox is an opportunistic forager, traveling at night in search of prey. Their diet includes jackrabbits, cottontails, prairie dogs, ground squirrels, mice, insects, birds, berries, vegetation, and carrion (SDGFP, 2020a).

#### 4.5 Reptiles

#### 4.5.1 Lined snake (*Tropidoclonion lineatum*)

The lined snake, state listed as endangered by SDGFP, is a small snake found in open grasslands and sparsely wooded areas preferring moist habitat near springs, ponds, marshes, streams, and rivers. They are also found in urban areas. In South Dakota, their distribution is restricted to the southeast corner of the state along the Big Sioux River corridor. Lined snakes are active at night and typically shelter beneath rocks and logs during the day. They are most active from April to October, and activity appears to increase after periods of rain. While lined

snakes are typically solitary, they can be found in groups in overwintering dens or during the breeding season. Mating occurs in the fall and females give birth to six to seven live young in mid-August (SDGFP, 2020a).

#### 4.5.2 False map turtle (Graptemys pseudogeographica)

False map turtles, state listed as threatened, were once the most common turtle in the Missouri River. This species has an olive to brown carapace (shell) with knobs running down the center of the back and a saw-tooth edge along the rear border. The neck has yellow stripes with a yellow "L" shaped spot behind each eye. This species is found in rivers, reservoirs, lakes, and ponds with a muddy substrate, basking sites, and some aquatic vegetation. False map turtles use sparsely vegetated sand bars and beaches for nesting. There is evidence to suggest that this species prefers backwater habitats (areas connected to the main river channel but with reduced velocity and shallower depth) and areas where tributaries enter the Missouri River. In South Dakota, this species is primarily associated with the Missouri River (SDGFP 2020a).

#### 4.6 Plants

#### 4.6.1 Western prairie fringed orchid (*Platanthera praeclara*)

The western prairie fringed orchid (WPFO), federally listed as threatened by USFWS, is a perennial orchid of the North American tallgrass prairie. Generally, this species is found in several kinds of fire and grazing adapted communities dominated by species of Poaceae (grass family) (USFWS, 1996). It is found most often on unplowed, calcareous prairies and sedge meadows. It may also be found at disturbed sites in successional communities such as borrow pits, old field, and roadside ditches. The largest-known population of this species is located in the Sheyenne National Grassland in North Dakota, located approximately 70 miles to the northeast. This species is also found in North Dakota in the sedge meadow community on the Glacial Sheyenne Delta and in the tallgrass prairie community classified as Midland Grassland habitat type. Although South Dakota hosts areas of potential habitat, there are no known populations of the WPFO within the state. Status surveys have been conducted; however, due to the fact that the species may not flower every year, there is a possibility that plants may be overlooked (USFWS, 2021f).

### 5 Field Reconnaissance Methodology

Perennial biologists conducted pedestrian surveys of the 17,559.53-acre Project survey area from August through November, 2021 to characterize and determine if federally protected species and/or their potential habitat was present within a defined survey area. In general, the survey area consisted of a 300-foot-wide corridor for the proposed pipeline (**Appendix A**). If encountered, federally protected species habitats were documented using Environmental Systems Research Institute's (ESRI's) FieldMaps software on an iPhone XR equipped with a Trimble R1 GPS wireless Bluetooth receiver to geographically reference the location. These units have real-time and post-processed sub-meter accuracy. Geographic Information System software was used to analyze collected features and generate the attached mapping.

Other USFWS-approved methodologies will be applied during species-specific presence/absence surveys to be completed in spring/summer 2022. Documentation of the methods for the presence/absence surveys will be submitted to USFWS for review and approval prior to completing presence/absence surveys, and results will be submitted to USFWS and SDGFP for review and concurrence.

#### 5.1 Aerial Interpretation

To date, field surveys have been completed for 61 percent of the Project survey area in South Dakota. However, due to ongoing landowner negotiations and engineering design, surveys have not yet been completed for 100 percent of the Project survey area. A summary of the areas that have not been surveyed to date is presented

in **Table 1** below and the locations are identified within mapping exhibits provided as **Appendix A**. Field surveys for these areas, which have not yet been surveyed to date, are anticipated to be completed in the spring of 2022, access and weather permitting.

Table 1 Area of Desktop Review within the Project Survey Area in South Dakota									
County	Total Survey Area Acreage	Total Acres of Desktop Review	Percentage of Desktop Review						
McPherson County	2120.86	713.33	34%						
Edmunds County	927.44	361.13	39%						
Brown County	1083.00	505.79	47%						
Spink County	2716.34	1288.27	47%						
Hand County	1189.98	289.23	24%						
Hyde County	680.82	108.68	16%						
Sully County	735.72	122.17	17%						
Beadle County	1378.49	516.46	37%						
Clark County	801.18	440.86	55%						
Hamlin County	475.78	333.00	70%						
Codington County	483.90	345.34	71%						
<b>Kingsbury County</b>	1069.22	245.47	23%						
Miner County	612.40	342.25	56%						
Lake County	1196.57	343.81	29%						
McCook County	81.52	0.00	0%						
Minnehaha County	1064.27	624.88	59%						
Turner County	80.09	19.28	24%						
Lincoln County	861.97	332.72	39%						
Totals	17559.53	6932.67	39%						

For areas not yet field surveyed within the Project area, a desktop review was performed utilizing the following data sources:

- USGS 7.5 topographic quadrangle maps (USGS, 1982).
- LiDAR data,
- NWI data;
- U.S. Department of Agriculture (USDA) NRCS soils maps (USDA, 2020); and
- Google Earth historical aerial photography.

The USGS topographic maps and NWI maps were used to identify any potential habitat for listed species that may be present within the Project area. The NRCS soils maps were used to identify soil types that underlie the survey corridor. Aerial photography was used to compare photographic signatures with areas that were pedestrian surveyed and to look for photographic signatures that are consistent with wetlands and other habitat features in the region. In total, 6,932.67 acres of the Project survey area were reviewed utilizing desktop resources, and these areas are depicted on the attached mapping exhibits (**Appendix A**).

## 6 Results

#### 6.1 Habitat within Project Area

Nine general habitat types were identified throughout the Project area, including forested land, active agricultural land, fallow agricultural land, prairie habitat, palustrine forested wetlands (PFO), palustrine sapling/shrub wetlands (PSS), palustrine emergent wetlands (PEM), tame/planted grasslands, and hayfields. A description of each encountered habitat type is presented below.

#### 6.1.1 Forested Land

Forests within the Project area are characterized as hardwood forests. Dominant vegetation observed in forested land within the Project survey area consisted of boxelder (*Acer negundo*), smooth brome (*Bromus inermis*), green ash (*Fraxinus pennsylvanica*), Maximilian sunflower (*Helianthus maximiliani*), eastern red-cedar (*Juniperus virginiana*), common motherwort (*Leonurus cardiaca*), thicket-creeper (*Parthenocissus inserta*), reed canarygrass (*Phalaris arundinacea*), European buckthorn (*Rhamnus cathartica*), golden currant (*Ribes aureum*), white panicled American-aster (*Symphyotrichum lanceolatum*), American elm (*Ulmus americana*), Siberian elm (*Ulmus pumila*), and stinging nettle (*Urtica dioica*).

#### 6.1.2 Active Agricultural Land

Active agricultural land is comprised of areas that exhibit planted crops or actively (recently) plowed fields. Dominant vegetation observed in active agricultural land within the Proejct survey area consisted of horseradish (*Armoracia rusticana*), Canadian thistle (*Cirsium arvense*), orchard grass (*Dactylis glomerata*), creeping wildrye (*Elymus repens*), soybean (*Glycine max*), alfalfa (*Medicago sativa*), cultivated radish (*Raphanus sativus*), common wheat (*Triticum x aestivum*), broad-leaf Cattail (*Typha latifolia*), and corn (*Zea mays*).

#### 6.1.3 Fallow Agricultural Land

Fallow agricultural land is comprised of areas where crop rows are present, but no cultivated vegetation was observed at the time of survey. This method is used to restore the land's fertility as part of a crop rotation or to avoid surplus production. These areas may be heavily vegetated, but without crop production. Dominant vegetation observed in fallow agricultural land within the Project survey area consisted of careless weed (*Amaranthus palmeri*), red-root (*Amaranthus retroflexus*), absinthium (*Artemisia absinthium*), Mexican-fireweed (*Bassia scoparia*), lamb's-quarters (*Chenopodium album*), barnyardgrass (*Echinochloa crus-galli*), creeping wildrye, soybean, black medick (*Medicago lupulina*), alfalfa, Kentucky bluegrass (*Poa pratensis*), curly dock (*Rumex crispus*), cereal rye (*Secale cereale*), and yellow bristlegrass (*Setaria pumila*).

#### 6.1.4 Prairie Habitat

Prairie habitat consists of open land with a diverse mix of grass species. These include tall grass, mixed grass, and short grass prairie types. Dominant vegetation observed in prairie habitat within the Project survey area consisted of velvetleaf (*Abutilon theophrasti*), intermediate wheatgrass (*Agropyron intermedium*), careless weed, annual ragweed (*Ambrosia artemisiifolia*), perennial ragweed (*Ambrosia psilostachya*), big bluestem (*Andropogon gerardii*), white sagebrush (*Artemisia ludoviciana*), buffalograss (*Bouteloua dactyloides*), smooth brome, Canadian thistle, creeping wildrye, slender wildrye (*Elymus trachycaulus*), curlycup gumweed (*Grindelia squarrosa*), prairie sunflower (*Helianthus petiolaris*) smooth oxeye (*Heliopsis helianthoides*), fox-tail barley (*Hordeum jubatum*), prairie junegrass (*Koeleria nitida*), alfalfa, western-wheat grass (*Pascopyrum smithii*), Kentucky bluegrass, yard knotweed (*Polygonum aviculare*), little false bluestem (*Schizachyrium scoparium*), yellow bristlegrass, Canadian goldenrod (*Solidago canadensis*), stiff goldenrod (*Solidago rigida*), field sow-thistle (*Sonchus arvensis*), needle and thread

(*Stipa comata*), porcupine grass (*Stipa spartea*), western snowberry (*Symphoricarpos occidentalis*), white heath aster (*Symphyotrichum ericoides*), and common dandelion (*Taraxacum officinale*).

#### 6.1.5 Wetlands

Wetlands are classified as areas that exhibit positive hydrology indicators, hydric soils, and hydrophytic vegetation. Dominant vegetation associated with wetlands is categorized by wetland type, including PEM, PSS, and PFO. The dominant vegetative species for each wetland type observed within the Project survey areas are listed in **Table 3** within **Appendix C**.

#### 6.1.6 Tame/Planted Grasslands

Tame or planted grasslands consist of tame pastures of cultivated fields planted with introduced (nonnative) grass and legume species or cultivars with the multiple purposes of providing livestock grazing and foraging. Dominant vegetation observed in tame/planted grasslands within the Project survey area consisted of crested wheatgrass (*Agropyron cristatum*), perennial ragweed, big bluestem, buffalograss, blue grama (*Bouteloua gracilis*), smooth brome, needleleaf sedge (*Carex duriuscula*), wavy-leaf thistle (*Cirsium undulatum*), creeping wild rye, slender wildrye, green ash, eastern red-cedar, perennial ryegrass (*Lolium perenne*), alfalfa, reed canarygrass, Kentucky bluegrass, eastern cottonwood (*Populus deltoides*), yellow bristle grass, European buckthorn, common dandelion, and broad-leaf cattail, American elm, and Siberian elm.

#### 6.1.7 Hayfields

Hayfields are similar to other grasslands however they should show evidence of improvement and bailing. Dominant vegetation observed in hayfields within the Project survey area consisted of oat (*Avena sativa*), blue grama, smooth brome, redroot (*Ceanothus americanus*), orchardgrass, creeping wildrye, soybean, fox-tail barley, alfalfa, reed canarygrass, Kentucky bluegrass, tall false ryegrass (*Schedeonorus arundinaceus*), and common dandelion.

#### 6.2 Species Effect Determinations

Based on the literature and background review conducted prior to field survey efforts, Perennial identified federally and state listed T&E and other protected species with the potential to occur within the counties impacted by the Project. The field surveys focused on determining if any of the listed species or their associated habitats were present within the Project area. The common name, scientific name, federal and state status, listed county, determination of effect, and assessment for each federally and state listed species are presented in **Table 2** below.

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	Federal and	d State Lis	sted Thr	eatened and End	Table 2 angered Species Potentially Occurri	ng within the Project Area	
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect
Birds		1	1	I	I	I	1
Bald Eagle	Haliaeetus Ieucocephalus	MBTA BGEPA	NL	Beadle <sup>b</sup> Brown <sup>b</sup> Clark <sup>b</sup> Codington <sup>b</sup> Edmunds <sup>b</sup> Hamlin <sup>b</sup> Hand <sup>b</sup> Hyde <sup>b</sup> Kingsbury <sup>b</sup> Lake <sup>b</sup> Lincoln <sup>b</sup> McCook <sup>b</sup> McPherson <sup>b</sup> Miner <sup>b</sup> Minnehaha <sup>b</sup> Spink <sup>b</sup> Sully <sup>b</sup> Turner <sup>b</sup>	Bald eagles prefer large rivers and lakes or wetlands bordered with mature stands of trees, or a single large tree, such as cottonwood. Breeding habitat often includes some type of edge and relatively open canopy. The large nests are usually built within the top quarter of tall, living trees, with fewer nests in dead trees. Nests are relatively close to water, typically less than 2 km. Every year, about 300 bald eagles winter in South Dakota along the Missouri River or in the Black Hills	Suitable habitat for the bald eagle may be present at various locations within the Project area in South Dakota, especially near large rivers and streams such as the Big Sioux River and the Vermillion River. Although bald eagles were observed during the survey, eagle nests were not observed within the Project area. In the event a bald eagle is observed prior to or during construction, SCS will coordinate with SDGFP. Additionally, SCS will adhere to the conservation measures established in the USFWS <i>National Bald Eagle Management</i> <i>Guidelines.</i>	N/A

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	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area									
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect			
Piping Plover	Charadrius melodus	т	т	Clark <sup>b</sup> Codington <sup>b</sup> Edmunds <sup>b</sup> Kingsbury <sup>a b</sup> McPherson <sup>b</sup> Sully <sup>a b</sup>	Piping plovers are a migratory bird species that breed along the rivers and wetlands of the northern Great Plains from Nebraska to the southern Prairie Provinces in Canada. The breeding period is from April-August. This species primarily uses alkaline lakes and wetlands, large inland lakes, reservoirs, and rivers.	Suitable habitat for the piping plover may be present at various locations within the Project area, especially near large rivers such as the Big Sioux River. However, this species is only potentially present during the breeding season (April- August) where suitable sand bars or nesting habitat is found along major rivers. Construction activities will start prior to and will continue through the breeding season; therefore, individuals would be anticipated to utilize suitable habitat located outside of the Project area where disturbance in actively occurring. Additionally, this species is highly mobile and would likely avoid the construction area. Therefore, the Project is not likely to adversely affect the piping plover	Not Likely to Adversely Affect			

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	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area									
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect			
Red Knot	Calidris canutus rufa	т	NL	Beadle <sup>a</sup> Brown <sup>a</sup> Clark <sup>a</sup> Codington <sup>a</sup> Edmunds <sup>a</sup> Hamlin <sup>a</sup> Hand <sup>a</sup> Hyde <sup>a</sup> Kingsbury <sup>a</sup> Lake <sup>a</sup> Lincoln <sup>a</sup> McCook <sup>a</sup> McPherson <sup>a</sup> Miner <sup>a</sup> Minnehaha <sup>a</sup> Spink <sup>a</sup> Sully <sup>a</sup> Turner <sup>a</sup>	Red knots are a long- distance migratory bird species that migrate annually between their breeding grounds on the Canadian tundra and various wintering grounds in South America and the Gulf of Mexico. During migration, this species relies on alkaline and saline lakes, riverine wetlands, sandbars, and manmade impoundments.	Suitable habitat for the red knot may be present at various locations within the Project area. However, this species is only present during migration (March-May, July- September) and South Dakota does not host one of the designated key stopover areas for the red knot. Construction activities will start prior to and will continue through when the red knots would be expected to inhabit the area during migration. Therefore, it is anticipated that the red knot would utilize similar habitat beyond the Project area where disturbance is actively occurring. Additionally, this species is highly mobile and would likely avoid the construction area. Therefore, the Project is not likely to adversely affect the red knot.	Not Likely to Adversely Affect			

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	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area									
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect			
Whooping Crane	Grus americana	Ε	Ε	Beadle <sup>a b</sup> Brown <sup>a b</sup> Clark <sup>a b</sup> Edmunds <sup>a b</sup> Hamlin <sup>a</sup> Hand <sup>a b</sup> Hyde <sup>a b</sup> Kingsbury <sup>a b</sup> McPherson <sup>a b</sup> McCook <sup>a b</sup> Miner <sup>a b</sup> Spink <sup>a b</sup> Sully <sup>a b</sup>	Whooping cranes utilize shallow, freshwater ponds, tidal flat, herbaceous wetlands, marshes and wet prairies as they migrate from their breeding grounds in Wood Buffalo National Park in Alberta, Canada to their wintering grounds in Aransas National Wildlife refuge on the Texas coast. Whooping cranes rely on wetland mosaics, riverine habitats, shallow, seasonally and semi- permanently flooded palustrine wetlands for roosting, and various cropland and emergent wetlands for feeding. Whooping cranes are observed in South Dakota beginning in early to mid-April during the spring and again in October during the fall migration. During migration, they can be found anywhere in South Dakota, but are most commonly found along and adjacent to the Missouri River.	Suitable habitat for the whooping crane may be present in the Project area. Construction activities will start prior to and will continue through when the whooping cranes would be expected to inhabit the area during migration. Therefore, it is anticipated that the whooping crane would utilize similar habitat beyond the Project area where disturbance is actively occurring. Additionally, this species is highly mobile and would likely avoid the construction area. In the event a whooping crane is observed prior to or during construction, SCS will coordinate with SDGFP.	Not Likely to Adversely Affect			

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	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area									
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect			
Interior Least Tern	Sternula antillarum athalassos	N/A <sup>1</sup>	E	Sully <sup>b</sup>	Interior least terns are a migratory bird species typically found along large rivers. The nesting areas are barren, treeless beaches of sand, gravel, or shells; dry mudflats and salt flats; and sand and gravel pits along rivers. Interior least terns arrive in South Dakota in early May and leave at the end of the summer. In South Dakota, interior least terns nest along the Missouri and Cheyenne rivers, with the majority nesting below Gavin's Point Dam.	Suitable habitat for the interior least tern may be present west and south of the Project area. However, this species is only present in South Dakota during the nesting season (May-August). Construction activities will start prior to and will continue through when the least tern would be expected to inhabit the area during migration. Therefore, it is anticipated that the least tern would utilize similar habitat beyond the Project area where disturbance is actively occurring. Additionally, this species is highly mobile and would likely avoid the construction area. Therefore, the project is not likely to adversely impact the interior least tern.	Not Likely to Adversely Affect			

	Federa <u>l</u> and	d State Lis	sted Thr	eatened and <u>End</u>	Table 2 angered Species Potentially Occurri	ng within the Project Area	
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect
Greater prairie chicken	Tympanuchus cupido	NL۵	NL	Hand <sup>b</sup> Hyde <sup>b</sup> Sully <sup>b</sup> Beadle <sup>b</sup>	The greater prairie chicken is endemic to the grasslands of the central U.S. Great Plains, and exists primarily in undisturbed tallgrass prairie. Due to habitat fragmentation and loss through agricultural development, the current range of the greater prairie chicken is in northeast Colorado, Kansas, Nebraska, South Dakota, North Dakota, Minnesota and a small northwest section of Iowa. Habitat in the core of the greater prairie- chicken's distribution in South Dakota (Fort Pierre National Grassland and Lower Brule Indian Reservation) is primarily mid-grass prairie where dominant grasses include western wheatgrass ( <i>Agropyron smithii</i> ) and green needlegrass ( <i>Stipa viridula</i> ).	Suitable habitat for the lesser prairie chicken may be present in the Project area, especially in the mid and tall grass prairie regions. However, determination is pending further coordination with SDGFP regarding species range and potential need for presence/absence surveys.	Undetermined
Sharp-tailed grouse	Tympanuchus phasianellus	NL	NL	McPherson <sup>b</sup> Edmunds <sup>b</sup> Brown <sup>b</sup> Spink <sup>b</sup> Clark <sup>b</sup> Codington <sup>b</sup> Hamlin <sup>b</sup> Beadle <sup>b</sup> Hand <sup>b</sup> Hyde <sup>b</sup> Sully <sup>b</sup> Kingsbury <sup>b</sup> Miner <sup>b</sup> Lake <sup>b</sup> McCook <sup>b</sup>	The sharp-tailed grouse commonly occupies brushy areas, openings, and bogs in boreal forest. In winter, sharp- tailed grouse rely on riparian areas, deciduous hardwood shrub gullies, deciduous, open coniferous woods, and grasslands. This species typically utilized deciduous trees and shrubs for feeding, roosting, and cover. Nests are shallow, hollowed-out depressions on the ground, commonly located beneath low shrubs and can be found on flat land or slopes facing north/northeast.	Suitable habitat for the sharp-tailed grouse may be present in the Project area, especially in grassland- shrub areas with adequate ground- cover and riparian zones of streams. However, determination is pending further coordination with SDGFP regarding species range and potential need for presence/absence surveys.	Undetermined

	Federal and	State Lis	ted Thr	eatened and End	Table 2 angered Species Potentially Occurri	ing within the Project Area	
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect
Fish					1	1	
Topeka Shiner	Notropis topeka	E	NL	Beadle <sup>a</sup> Brown <sup>a</sup> Clark <sup>a</sup> Codington <sup>a</sup> Hamlin <sup>a</sup> Hand <sup>a</sup> Kingsbury <sup>a</sup> Lincoln <sup>a</sup> McCook <sup>a</sup> McPherson <sup>a</sup> Miner <sup>a</sup> Minnehaha <sup>a</sup> Spink <sup>a</sup> Turner <sup>a</sup>	Topeka shiners are found in small prairie streams and creeks that exhibit perennial and nearly perennial flow. Substrate is usually clean gravel, cobble, or sand. Topeka shiners exist in fragmented and isolated populations throughout the prairie regions of South Dakota, Minnesota, Kansas, Iowa, and Missouri. Spawning occurs from late- May to mid-August, depending on water temperature.	Suitable habitat for the Topeka shiner may be present in the Project area, especially in the tributaries of the Big Sioux River (Minnehaha County), the Vermillion River (Lake, McCook, Minnehaha, Lincoln, and Turner counties), and the James River (Brown, Spink, Beadle, Kingsbury, Miner, and McCook counties). However, SCS will coordinate with USFWS to implement minimization measures for this species, such as HDD crossing, among other measures. Therefore, the Project is <i>not likely to</i> <i>adversely affect</i> the Topeka <u>shiner</u> .	Not Likely to Adversely Affect
Pallid Sturgeon	Scaphirhynchus albus	E	E	Hyde <sup>a b</sup> Sully <sup>a b</sup>	Pallid sturgeon historically inhabited the Missouri, Big Sioux, Vermillion, and James rivers in South Dakota. The conditions are large, free-flowing, and turbid with diverse assemblages of dynamic physical habitat.	Suitable habitat for the pallid sturgeon may be present in the Project area within the Big Sioux River. However, the recorded range in the Big Sioux River for this species does not extend up to the Project area. Additionally, the only Project activities within this area will consist of horizontal directional drilling beneath the Big Sioux River, thereby, avoiding impacts. There will be no dredging or other impacts in this area. Therefore, the Project will have <i>no effect</i> on this species.	No Effect

Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area								
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect	
Northern Redbelly Dace	Chrosomus eos	NL	т	Codington <sup>b</sup> Hamlin <sup>b</sup> Kingsbury <sup>b</sup> Lincoln <sup>b</sup> McCook <sup>b</sup> Miner <sup>b</sup> Minnehaha <sup>b</sup> Turner <sup>b</sup>	Northern redbelly dace inhabit spring- fed streams with adequate vegetation, slow to moderate current, and silt or sand substrates. Habitat also includes boggy lakes, ponds, beaver ponds, and pools of headwater stream. Within South Dakota, northern redbelly dace are found primarily east of the Missouri River and have been reported from tributaries of the Missouri, Big Sioux, Minnesota, White, Niobrara, and Keya Paha river drainages.	Suitable habitat for the northern redbelly dace may present in the Project area in tributaries of the Missouri and Big Sioux rivers. However, determination is pending further coordination with USFWS regarding species range and potential need for presence/absence surveys.	Undetermined	
Banded Killifish	Fundulus diaphanous	NL	E	Brown <sup>b</sup> McPherson <sup>b</sup> Edmunds <sup>b</sup>	Banded killifish may be found in either lentic (freshwater lakes or ponds) or lotic (rivers or streams) habitats, with the fish preferring quiet and shallow waters of sloughs, marshes, ponds, and lakes, as well as low gradient streams with gravel and sand substrate and abundant vegetation. Banded killifish have been reported from a few lakes in eastern South Dakota which is on the western periphery of its range. Since 2000, reported banded killifish have been limited to the inlet of Bitter Lake, Day County and Little Eureka Lake, McPherson County.	Suitable habitat for the banded killifish may be present in the Project area, especially in quiet shallow streams ponds, and lakes within McPherson County (Hydrologic Unit Code 10: 1013010603). However, determination is pending further coordination with SDGFP regarding species range and potential need for presence/absence surveys.	Undetermined	
Blacknose Shiner	Notropis heteroleps	NL	E	Brown <sup>b</sup> Codington <sup>b</sup>	Blacknose shiner prefer cool, highly vegetated streams, small rivers, and lakes with sandy substrates. In South Dakota, blacknose shiner have been reported from tributaries of the James and Keya Paha River basins.	Suitable habitat for the blacknose shiner may be present in the project area in the tributaries of the James and Paha River basins. However, determination is pending further coordination with USFWS regarding species range and potential need for presence/absence surveys.	Undetermined	

	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area									
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect			
Insects										
Dakota Skipper	Hesperia dacotae	т	NL	Codington <sup>a b</sup> Hamlin <sup>a b</sup> McPherson <sup>a b</sup>	Dakota skippers inhabit remnants of tallgrass prairie and mixed-grass prairie in the north-central United States. In South Dakota, habitat may be either Type A habitat: low wet-mesic prairie dominated by bluestem grasses, with wood lily, bluebell bellflower, and mountain death camas almost always present; or Type B habitat: rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem, little bluestem, purple coneflower, and needle-and-thread or porcupine grasses.	Suitable habitat for the Dakota skipper may be present in the Project area. However, determination is pending further coordination with USFWS and SDGFP regarding species range and potential need for presence/absence surveys.	Undetermined			
Monarch Butterfly	Danaus plexippus	с	NL	Beadle <sup>b</sup> Brown <sup>b</sup> Clark <sup>b</sup> Codington <sup>b</sup> Edmunds <sup>b</sup> Hamlin <sup>b</sup> Hand <sup>b</sup> Hyde <sup>b</sup> Kingsbury <sup>b</sup> Lake <sup>b</sup> Lincoln <sup>b</sup> McCook <sup>b</sup> McPherson <sup>b</sup> Miner <sup>b</sup> Minnehaha <sup>b</sup> Spink <sup>b</sup> Sully <sup>b</sup> Turner <sup>b</sup>	Adult monarch butterflies require a diversity of blooming nectar resources for feeding during breeding (spring through fall) and migration. Monarchs also need milkweed ( <i>Asclepias</i> spp.) embedded within this diverse nectaring habitat to use for both oviposition and larval feeding	Suitable habitat for the monarch butterfly may be present in the Project area. However, there are generally no Section 7 requirements for candidate species, though agencies are encouraged to take advantage of any opportunity to conserve the species. Therefore, determination of effect for this species is not applicable.	N/A			

	Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area								
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect		
Poweshiek Skipperling	Oarisma poweshiek	E	NL	Clark <sup>a</sup> Codington <sup>a b</sup> Hamlin <sup>a b</sup>	Poweshiek skipperling habitat includes remnant prairie areas including prairie fens, grassy lake and stream margins, moist meadows, sedge meadows, and wet-to-dry prairie.	Suitable habitat for the Poweshiek skipperling may be present in the Project area. However, since the time of listing in 2014, there have been no sightings in South Dakota and there are no sites where the Poweshiek skipperling is currently considered to be present in South Dakota. Therefore, the Project will have no effect on this species.	No Effect		
Mammals									
Northern Long-eared Bat	Myotis septentrionalis	т	NL	Beadle <sup>a</sup> Brown <sup>a</sup> Clark <sup>a</sup> Codington <sup>a</sup> Edmunds <sup>a</sup> Hamlin <sup>a</sup> Hand <sup>a</sup> Hyde <sup>a</sup> Kingsbury <sup>a</sup> Lake <sup>a</sup> Lincoln <sup>a</sup> McCook <sup>a</sup> McPherson <sup>a</sup> Miner <sup>a</sup> Minnehaha <sup>a</sup> Spink <sup>a</sup> Sully <sup>a</sup> Turner <sup>a</sup>	NLEB summer roosting habitat includes large trees and snags with shingled bark, crevices, or cavities for roosting. Additionally, this species may roost in human structures, such as sheds or barns. Winter hibernation habitat includes caves and abandoned mines.	Suitable summer roosting habitat may be present within the Project area. However, all tree clearing will occur outside the pup season (June 1 through July 31). Tree clearing is not designated as "take" within the aforementioned timeframe under the 4(d) rule. Additionally, no suitable winter hibernation habitat occurs within the Project area. Therefore, the Project is not likely to adversely affect the NLEB.	Not Likely to Adversely Affect		

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Table 2 Federal and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area								
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect	
Swift Fox	Vulpes velox	c	Т	Hyde <sup>b</sup> Sully <sup>b</sup>	The swift fox inhabits open prairies, plains, and shrubby desert areas away from extensively cultivated land. In South Dakota, swift foxes are typically found in the western part of the state, usually in areas with gently rolling hills or undulating topography. Swift foxes prefer short to midgrass prairies. This species uses den sites year-round. It may excavate its own den or occupy abandoned badger dens or prairie dog burrows on or near hilltops. Dens may also occur in a sandy stream valley or along a fencerow.	Suitable habitat may be present within the Project area, especially in Sully and Hyde Counties. However, determination is pending further coordination with SDGFP regarding species range and potential need for presence/absence surveys	Undetermined	
Reptiles								
Lined Snake	Tropidoclonion lineatum	NL	E	Lincoln <sup>b</sup> Minnehaha <sup>b</sup>	The lined snake is found in open grasslands and sparsely wooded areas preferring moist habitat near springs, ponds, marshes, streams, and rivers. They are also found in urban areas. Distribution is restricted to the southeast corner of South Dakota along the Big Sioux River corridor.	Suitable habitat for the lined snake may be present in the Project area in the tributaries of the Big Sioux River. However, determination is pending further coordination with SDGFP regarding species range and potential need for presence/absence surveys.	Undetermined	

	Federal and	State Lis	ted Thre	eatened and End	Table 2 angered Species Potentially Occurri	ng within the Project Area		
Common Name	Scientific Name	Federal Status	State Status	County(ies)	Habitat Description	Project Impact Assessment	Determination of Effect	
False Map Turtle	Graptemys Pseudogenographica	NL	т	Sully <sup>b</sup> Hyde <sup>b</sup>	False map turtles are found in rivers, reservoirs, lakes, and ponds with a muddy substrate. This species prefers backwater habitats and areas where tributaries enter the Missouri River. In South Dakota, this species is most often found along the Missouri River, such as in Sully and Hyde counties.	Suitable habitat for the false map turtle may be present in the Project area. However, the Project area within the range of this species has largely been converted to agricultural use. One small pond and wetland complex is present within the species range and Project area, but due to the small size of the feature and its isolation from other lakes, rivers, and ponds, it is highly unlikely to support this species. Therefore, the project is not likely to adversely affect the false map turtle.	Not Likely to Adversely Affect	
Flowering Plan	its							
Western Prairie Fringed Orchid	Platanthera praeclara	т	NL	Lake <sup>a</sup> Lincoln <sup>a</sup> McCook <sup>a</sup> Miner <sup>a</sup> Minnehaha <sup>a</sup> Turner <sup>a</sup>	WPFO are found most often on unplowed, calcareous prairies and sedge meadows. Soil moisture is a critical determinant of growth, flowering, and distribution of western prairie fringed orchid. The persistence of WPFO is dependent on periodic disturbance by fire, mowing, or grazing	Status surveys have been completed for the WPFO in South Dakota, but currently there are no known populations of this species in South Dakota. Therefore, the Project will have no effect on this species.	No Effect	
BGEPA= Bald and Golden Eagle Protection Act C = Candidate E = Endangered MBTA= Migratory Bird Treaty Act N/A = Not Applicable NL = Not Listed T = Threatened <sup>1</sup> This species is federally listed as endangered, but was not listed in the Project-specific IPaC search results. Therefore, federal status is not considered for this species in relation to this Project. <sup>a</sup> Sourced from South Dakota Species by County List (2021) <sup>b</sup> Sourced from South Dakota Environmental Review Tool <sup>c</sup> Species is not currently listed under the Endangered Species Act (ESA), but is considered "vulnerable"								

## 7 Impacts and Minimization Measures Discussion

#### 7.1 Piping plover, red knot, and interior least tern

Potentially suitable habitat for the piping plover, red knot and least tern may be present along the proposed Project route; however, these species are only present during the migration and breeding seasons (comprehensively March through September). SCS will minimize impacts on suitable stopover, foraging and nesting habitat located within the Project area by implementing the following measures:

- Construction activities will begin prior to and continue through the breeding or migratory period for the above listed species. Therefore, it is anticipated that individuals would utilize suitable habitat located outside of the Project area where disturbance is not actively occurring.
- All rivers and major waterbodies will be crossed via HDD. No dredging or other impacts will occur to major river systems.
- All temporarily impacted wetlands will be returned to pre-construction contours and allowed to
  revegetate naturally upon completion of construction. SCS has also designed the Project to avoid the
  placement of permanent fill in wetlands to the greatest extent practicable; thereby, minimizing the
  permanent loss of wetlands which could provide suitable habitat for the piping plover, red knot and
  interior least tern. In the event that any of these species are observed in the Project area prior to or
  during construction, SCS will consult with USFWS and SDGFP to identify recommended measures to
  avoid and/or minimize impacts.

Based on the mitigation measures listed above, the Project is *not likely to adversely affect* the piping plover, red knot, or interior least tern.

#### 7.2 Whooping crane

Potentially suitable habitat for the whooping crane may be present along the Project route; however, this species is only present during the spring and fall migration (April and October, though migration timeframes may shift slightly from year to year). SCS will minimize impacts on suitable stopover and foraging habitat located within the Project area by implementing the following measures:

- Construction activities will begin prior to and continue through the migratory period for the whooping crane. Therefore, it is anticipated that individuals would utilize suitable habitat located outside of the Project area where disturbance is not actively occurring.
- All rivers and major waterbodies will be crossed via HDD. No dredging or other impacts will occur to major river systems.
- Contractors performing work will be educated on how to identify a whooping crane and be advised that if a crane appears within 1,000 feet of construction activities, all work will cease until the crane or cranes move outside the 1,000-foot buffer area.
- If equipment over 15 feet high is to be used for project work, the equipment will be flagged or marked to increase visibility to whooping cranes and lessen the risk of collisions.
- During nighttime hours and periods of low visibility all construction equipment containing components that could reach 15 feet (i.e., track hoe boom) would be lowered to prevent any potential interference with whooping crane individuals, should they be traveling at lower altitudes in the vicinity of the Project area.
- All temporarily impacted wetlands will be returned to pre-construction contours and allowed to revegetate naturally upon completion of construction. SCS has also designed the Project to avoid the placement of permanent fill in wetlands to the greatest extent practicable; thereby, minimizing the

permanent loss of wetlands which could provide suitable stopover habitat for the whooping crane. In the event that any of these species are observed in the Project area prior to or during construction, SCS will consult with USFWS and SDGFP to identify recommended measures to avoid and/or minimize impacts.

Based on the mitigation measures listed above, the Project is *not likely to adversely affect* the whooping crane.

#### 7.3 Topeka shiner

Potentially suitable habitat and critical habitat for the Topeka shiner is present along the proposed Project route. However, this species' occurrence is well-documented by USFWS. SCS is coordinating with USFWS to identify known locations of Topeka shiner as well as associated tributaries of those waterbodies. SCS plans to either conduct presence/absence surveys or cross those waterbodies via trenchless methods where Topeka shiner are known to occur. Within the associated tributaries, SCS plans to utilize dry crossing methods such as dam and pump or flume, to prevent entrapment and minimize disturbance of the species. Therefore, the Project is *not likely to adversely affect* the Topeka shiner.

#### 7.4 Northern long-eared bat

Potentially suitable summer roosting habitat for NLEB may be present along the proposed Project route. NLEB is protected by the 4(d) rule of the ESA. The 4(d) rule targets the take prohibitions to only those that provide conservation benefits for the species. This targeted approach can reduce ESA conflicts by allowing some activities that do not harm the species to continue, while focusing efforts on the threats that make a difference to the species' recovery.

For NLEB, the 4(d) rule tailors protections to areas affected by White-Nose Syndrome (WNS) during the bat's most sensitive life stages, such as the breeding season. The rule is designed to protect the bat while minimizing regulatory requirements for landowners, land managers, government agencies and others within the species' range. For NLEB, the 4(d) rule prohibits "purposeful take" of the species (with some exceptions such as removal of hazardous trees or in defense of human life). The 4(d) rule also prohibits "incidental take" of species in the WNS zone. "Incidental take" is prohibited under the following circumstances:

- If it occurs within a hibernaculum.
- If it results from tree removal activities and
  - the activity occurs within 0.25 mile (0.4 kilometer) of a known hibernaculum; or
  - the activity cuts or destroys a known, occupied maternity roost tree or other trees within a 150foot radius from the maternity roost tree during the pup season from June 1 through July 31 (USFWS, 2016b).

It is anticipated that any individuals located within the Project area at the time of construction would relocate to adjacent non-disturbed areas. However, in accordance with the 4(d) rule, SCS will minimize impacts on suitable summer roosting habitat located within the Project area by implementing the following measures:

- Construction activities will begin prior to and continue through the breeding period for NLEB. Therefore, individuals would be anticipated to utilize suitable habitat located outside of the Project area where disturbance would not be actively occurring.
- All tree clearing will occur outside of the pup season (June 1 through July 31). Tree clearing is not designated as "take" within the aforementioned timeframe under the 4(d) rule.
- SCS has designed the Project area to limit the amount of workspace through forested areas to only that which is necessary to safely construct the proposed Project. Additionally, all temporarily impacted areas will be allowed to revegetate naturally upon completion of construction.

Based on the mitigation measures listed above, the Project is not likely to adversely affect NLEB.

#### 7.5 False map turtle

Potentially suitable habitat for the false map turtle may occur within the Project area. However, the documented range of this species is limited near the Project area, overlapping approximately 0.50 mile of the proposed Project route. Potentially suitable habitat for the false map turtle within this overlap is limited to a small, isolated pond-wetland complex totaling 0.17 acre (pond feature ID: S2007SU010; wetland feature ID: W2007SU027). This pond-wetland complex is located between MP 0.4 and MP 0.5 on pipeline SDL-320. Due to the small size of this pond and its isolation from other suitable habitat, it is unlikely that this habitat could support the false map turtle. Additionally, all temporarily impacted areas will be allowed to revegetate naturally upon completion of construction. Therefore, the Project is *not likely to adversely affect* the false map turtle.

#### 7.6 Birds of Conservation Concern

Of the BCC species identified as having the potential to occur within the Project area, 17 occur in the Project area during the breeding season and six species potentially occur during migration. Project activities with the potential to result in adverse impacts on these 23 BCC species include the clearing of vegetation and increased noise during Project construction and operation.

Although the Project will result in the clearing of potential habitat for several of the BCC species, there is a significant amount of similar habitat surrounding the Project, and individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats. While this could result in increased competition in nearby habitats, the population-level effects of this potential displacement are not anticipated to be significant due to the abundant amount of similar habitat in the area. Project clearing activities are anticipated to begin and continue throughout the nesting period (April 1 to September 10) for all BCC. Therefore, individuals would be anticipated to utilize suitable habitat located outside of the Project area where disturbance would not be actively occurring. However, if Project activities are delayed, SCS will conduct nest surveys prior to construction to prevent adverse impacts on BCC species with suitable breeding habitat in the Project area. The nesting period for BCC in the Project area varies by nesting habitat. The nesting period for BCCs that construct tree nests is from March 1 to September 10. Further, all temporarily disturbed areas will be allowed to revegetate upon completion of construction. Therefore, significant impacts on migratory birds resulting from the clearing of vegetation during the Project area not anticipated to occur.

Migratory birds present within the Project area may be adversely affected by noise associated with construction and operation of the Project facilities. Noise impacts associated with construction activities will be temporary and of short duration as the noise levels within a majority of the Project areas will return to preconstruction levels immediately following completion of construction activities. Noise associated with the aboveground facilities will be permanent; however, the noise generating aboveground facilities associated with the Project are either located adjacent to existing industrial facilities or within an area with an abundance of similar, adjacent habitats that would support any migratory birds displaced by noise emanating from the aboveground permanent facilities. Therefore, noise associated with construction and operation of the Project is not anticipated to significantly impact the BCC species that could potentially occur in the Project area.

#### 8 Summary

A total of nine federally listed species and ten state listed species were identified as potentially occurring within the Project area. Based upon field surveys and review of available sources, it has been determined that the Project will either have *No Effect* or is *Not Likely to Adversely Affect* seven of the federally listed T&E species and five of the state listed T&E species that could potentially occur within the Project area. The seven federally listed T&E species for which the Project will either have *No Effect* or is *Not Likely to Adversely Affect* area. The seven federally listed T&E species for which the Project will either have *No Effect* or is *Not Likely to Adversely Affect* include the piping plover,

red knot, whooping crane, pallid sturgeon, Topeka shiner, northern long-eared bat, Poweshiek skipperling, and western prairie fringed orchid. The five state listed T&E species for which the Project will either have *No Effect or is Not Likely to Adversely Affect* include the piping plover, whooping crane, pallid sturgeon, false map turtle and interior least tern. The species effect determination is not applicable for the monarch butterfly, which is currently listed as a candidate species. Nor is the species effect determination applicable for the bald eagle, which is protected under the MBTA and BGEPA. The Project impact assessment is *Undetermined* for one federally listed species: the Dakota skipper; and the remaining five state-listed species: the northern redbelly dace, the banded killifish, the blacknose shiner, the swift fox, and the lined snake. Though the sharp-tailed grouse and greater prairie chicken are not currently listed by USFWS or SDGFP, SDGFP has indicated that these species be considered in the Project impact determinations for these eight species are pending further coordination with USFWS and/or SDGFP regarding species range and potential need for presence/absence surveys, which, if recommended, will be completed in summer of 2022 in accordance with an USFWS-approved survey protocol for the Project.

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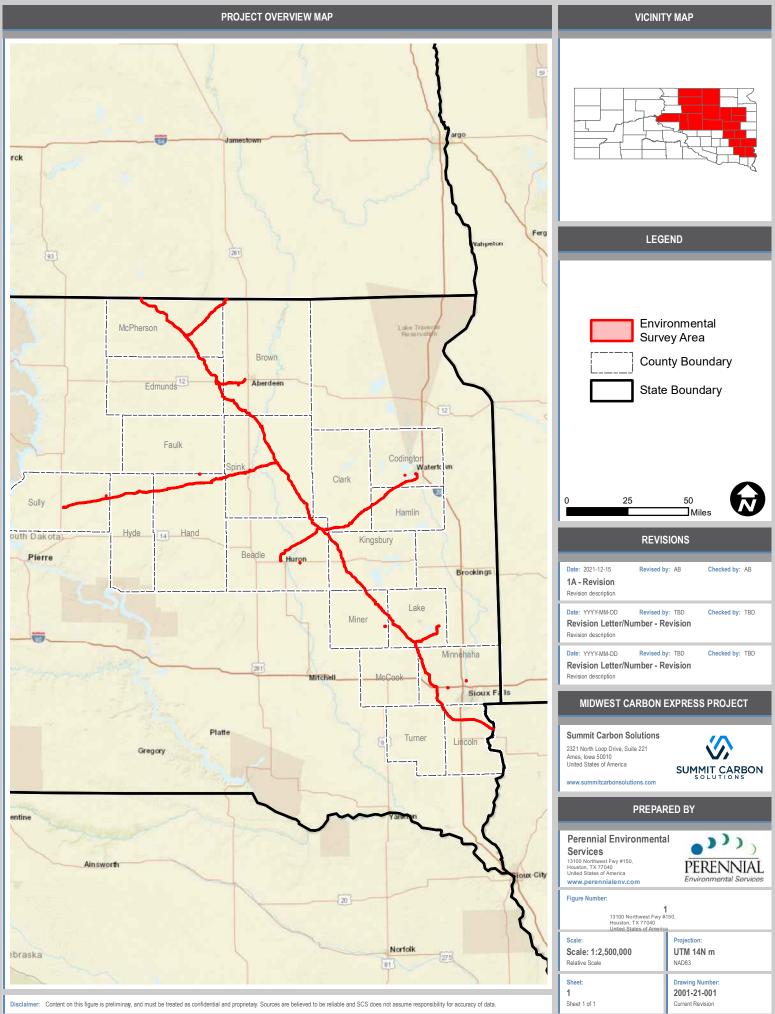
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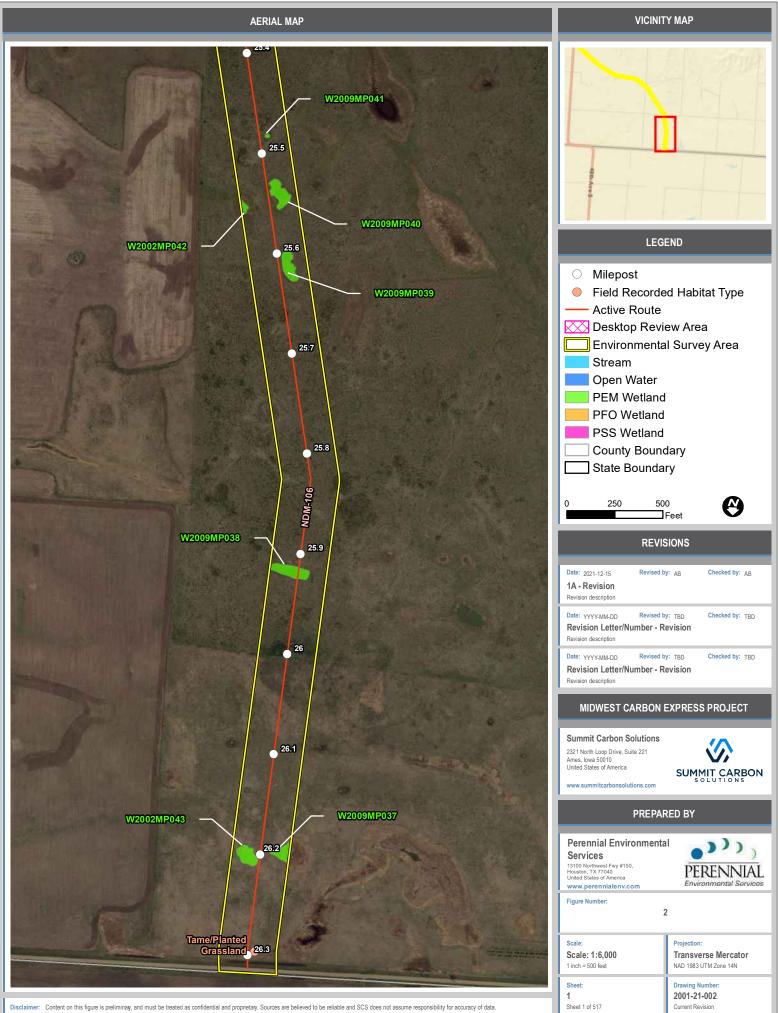
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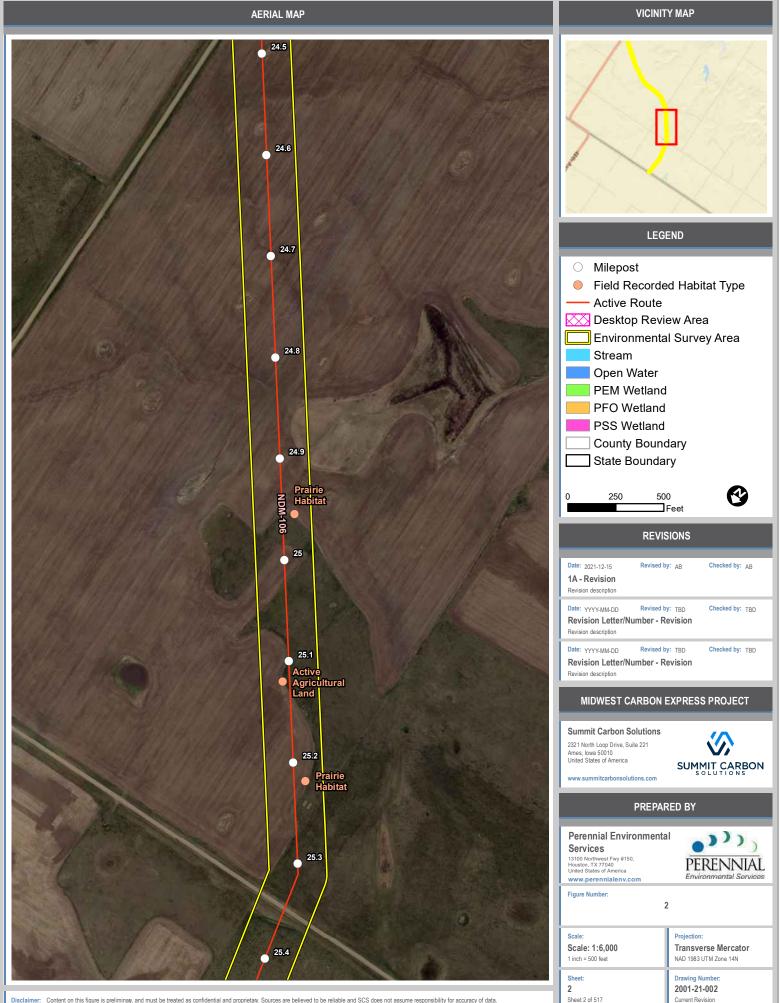
Appendix A – Mapping Exhibits

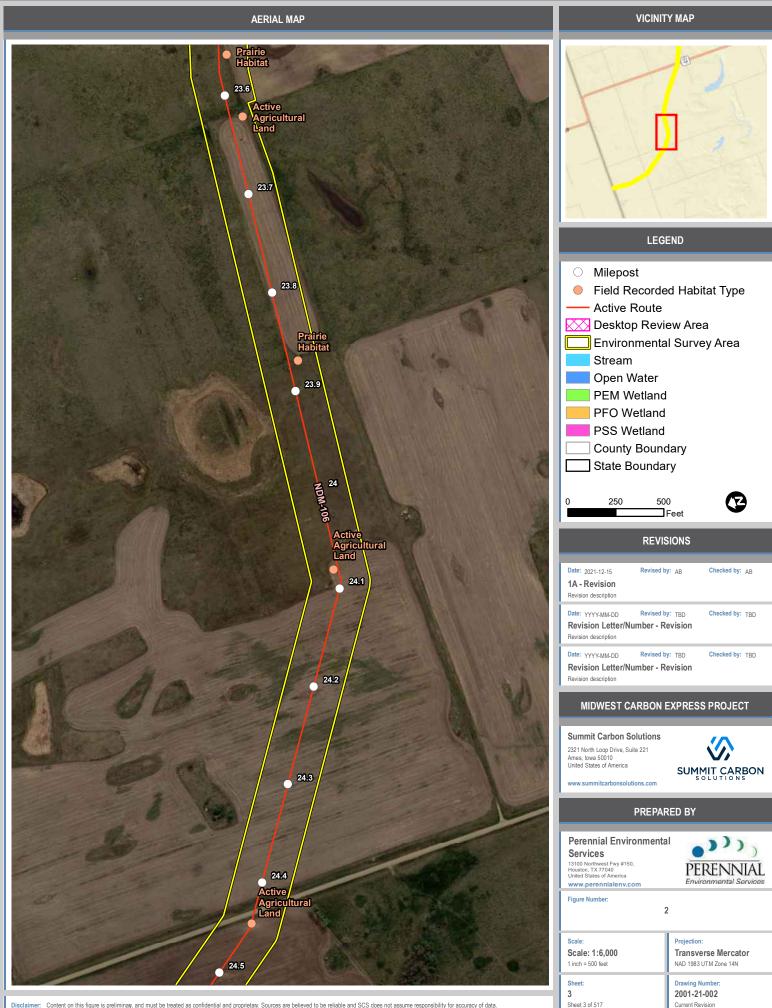
Vicinity Map



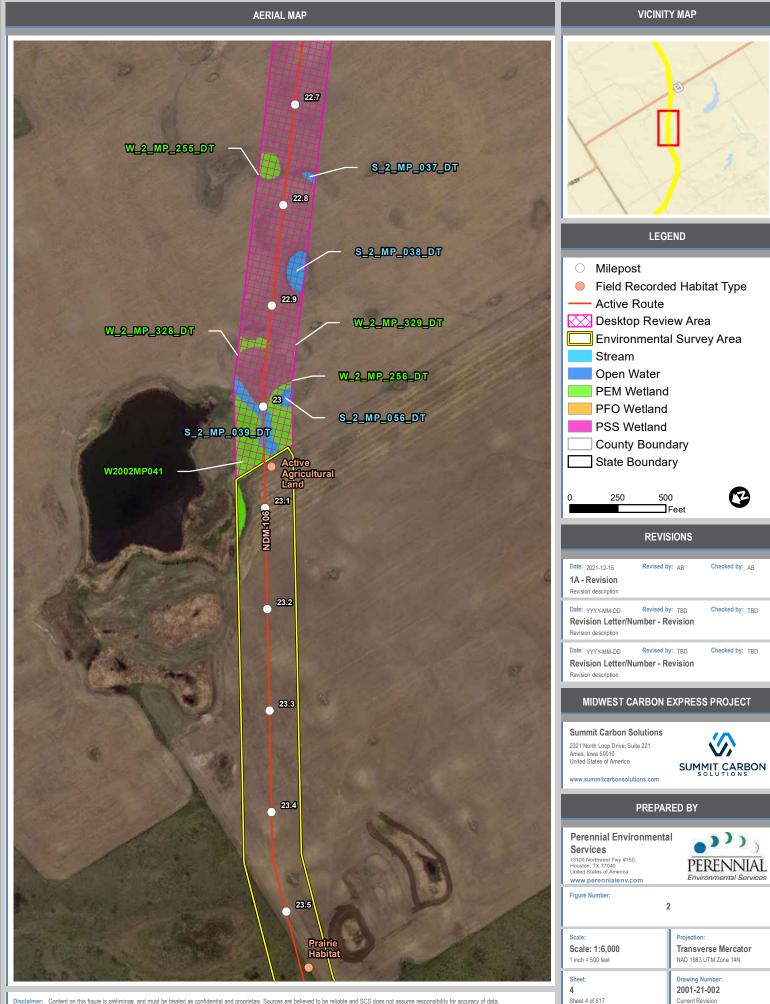
Aerial Map

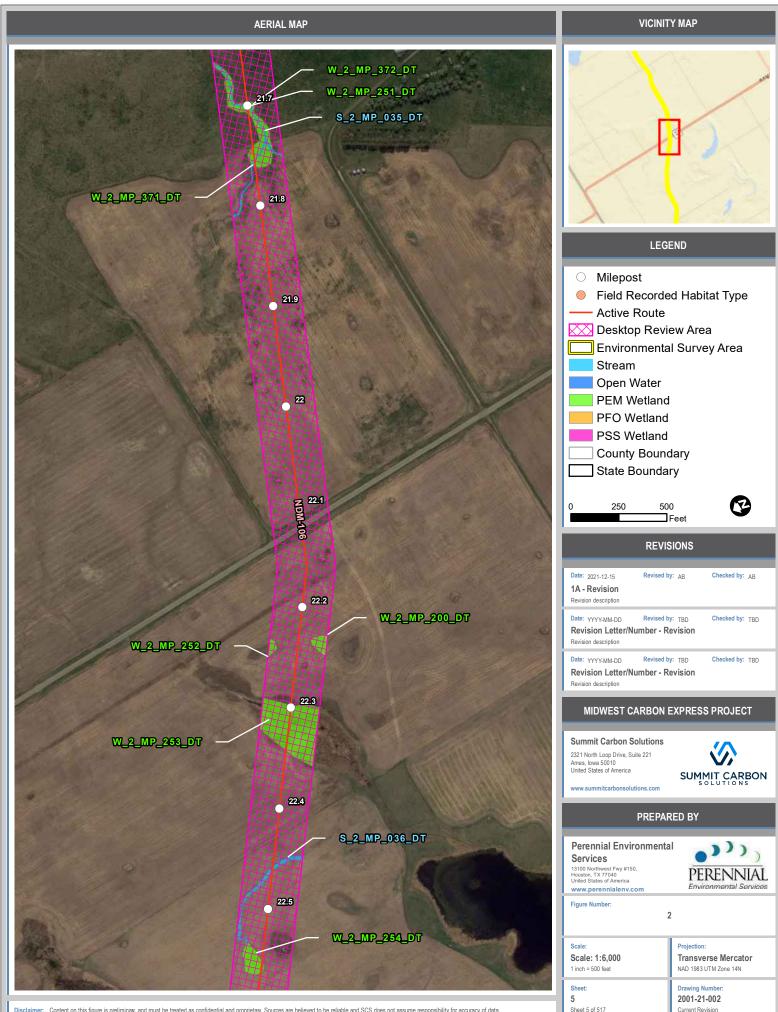


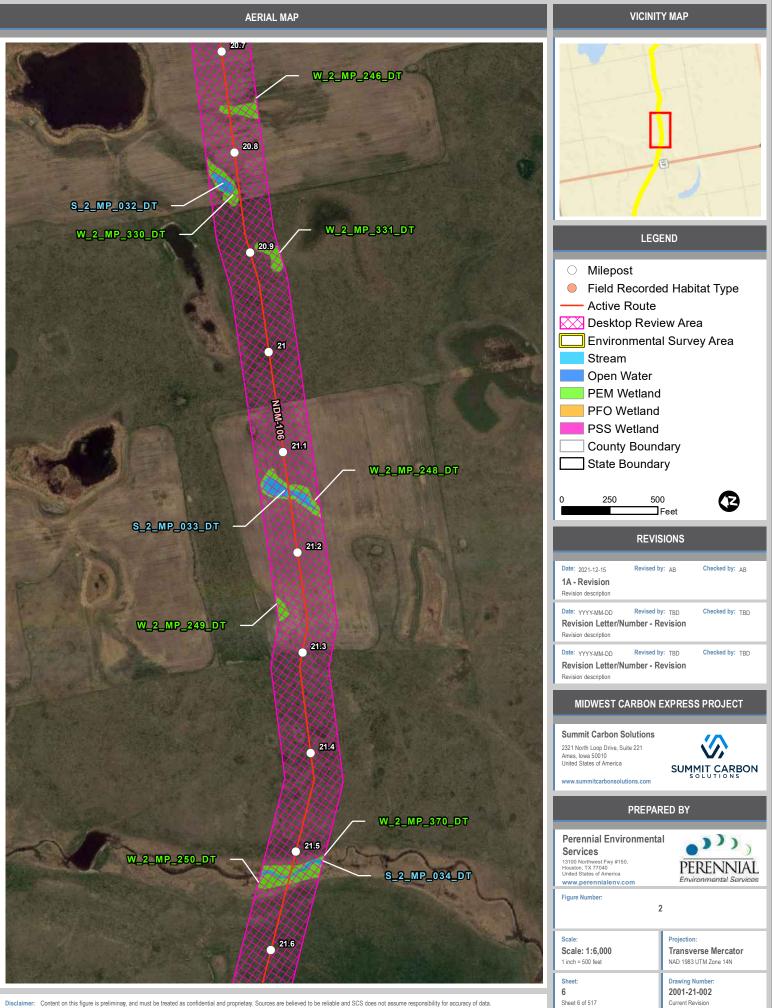


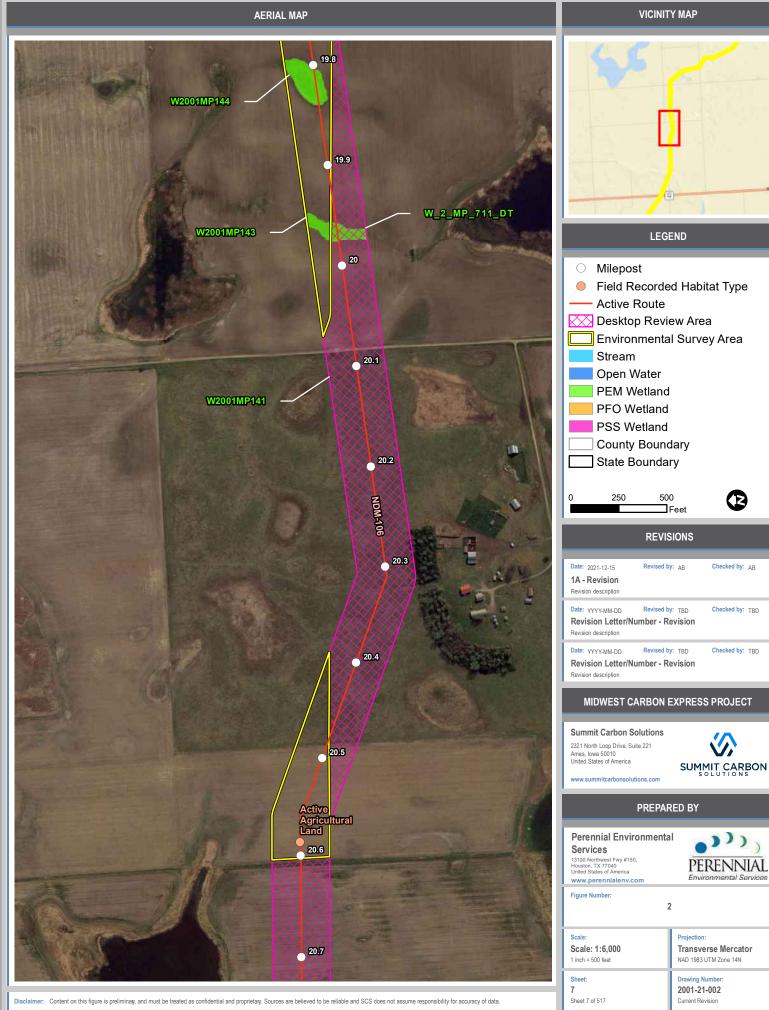


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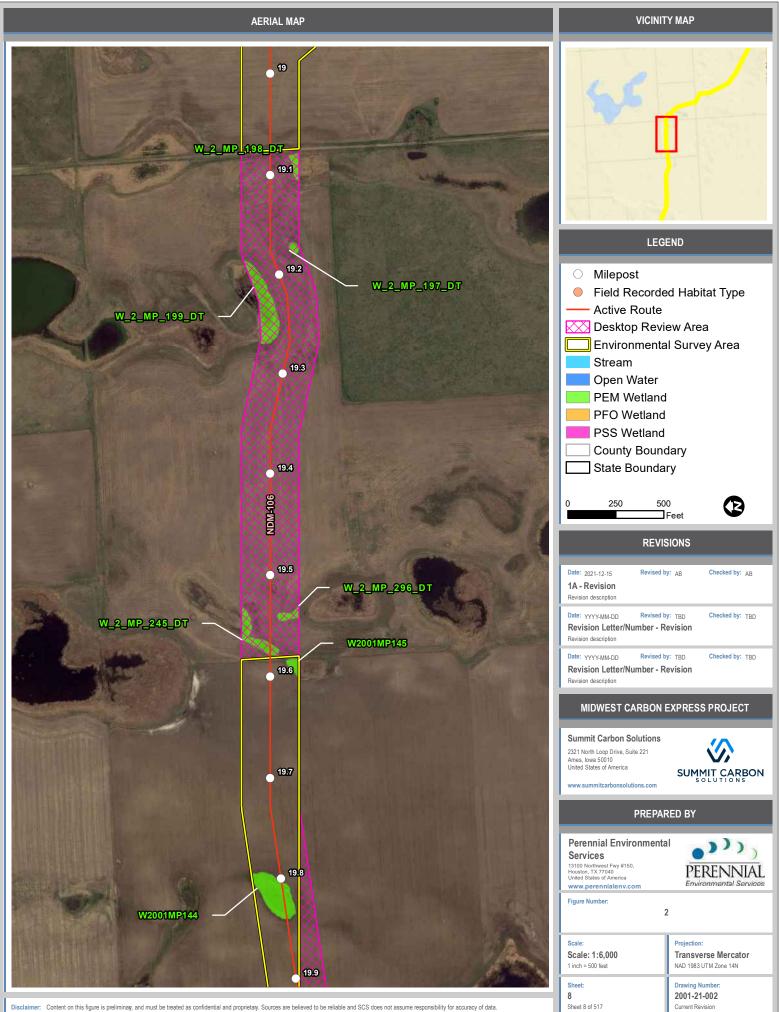




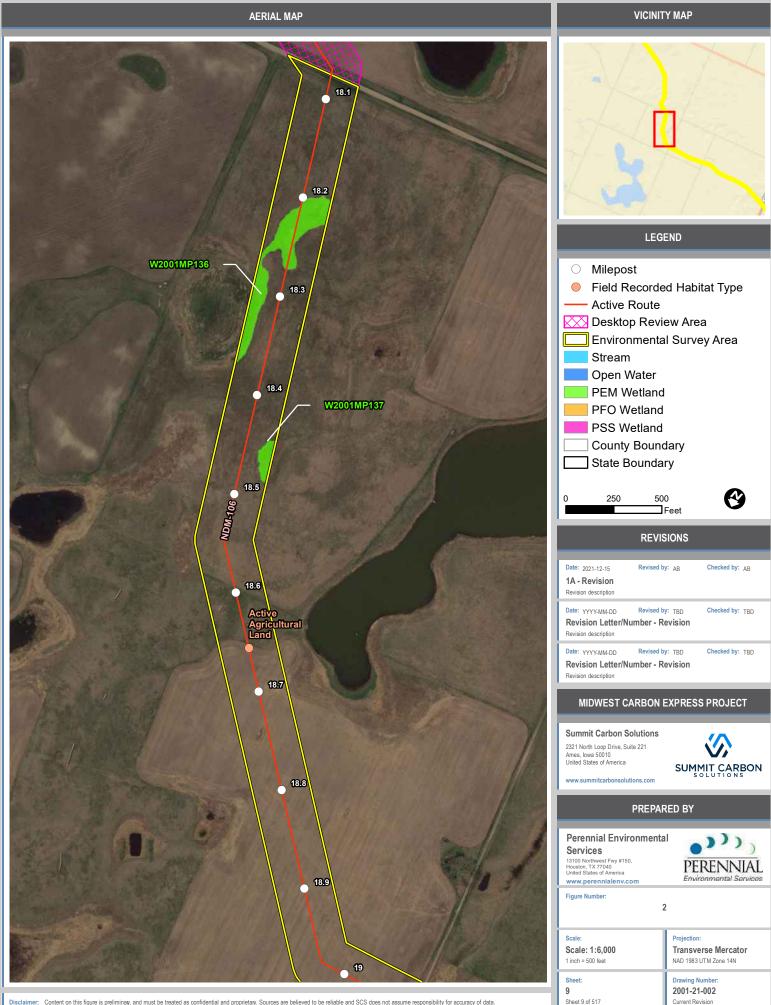


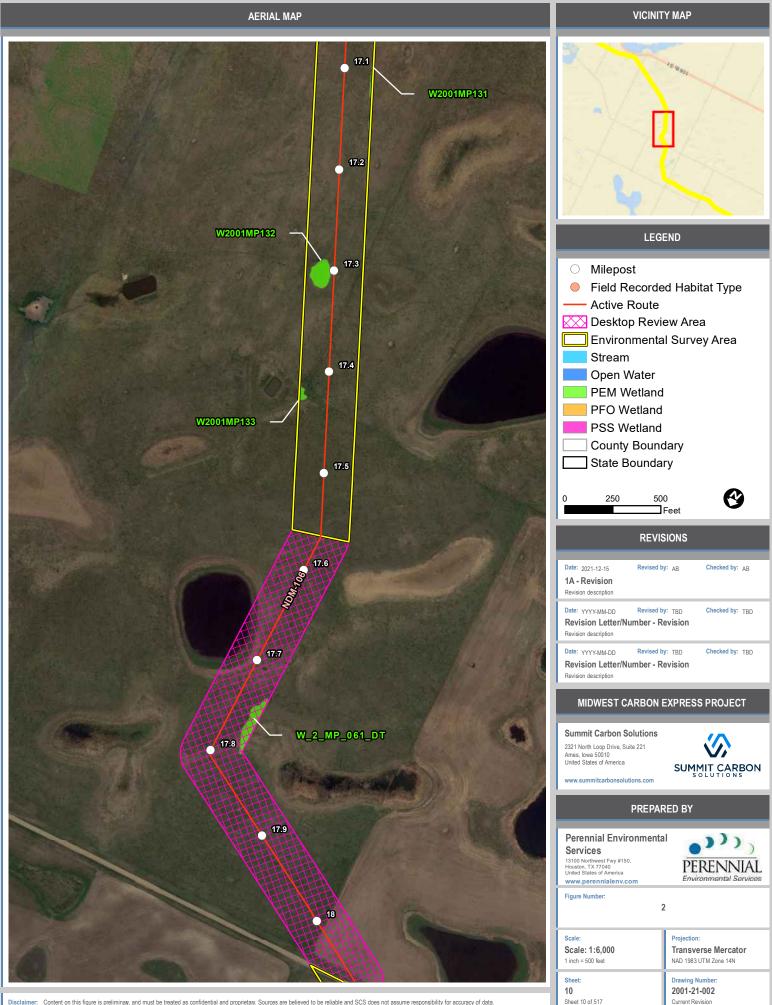


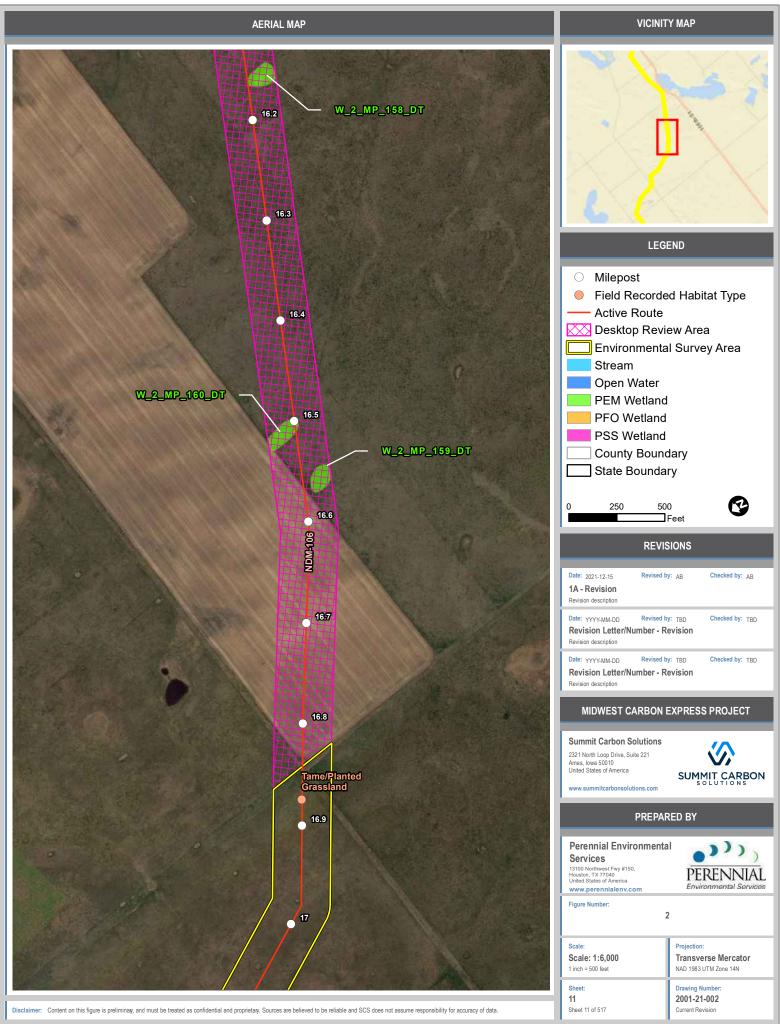
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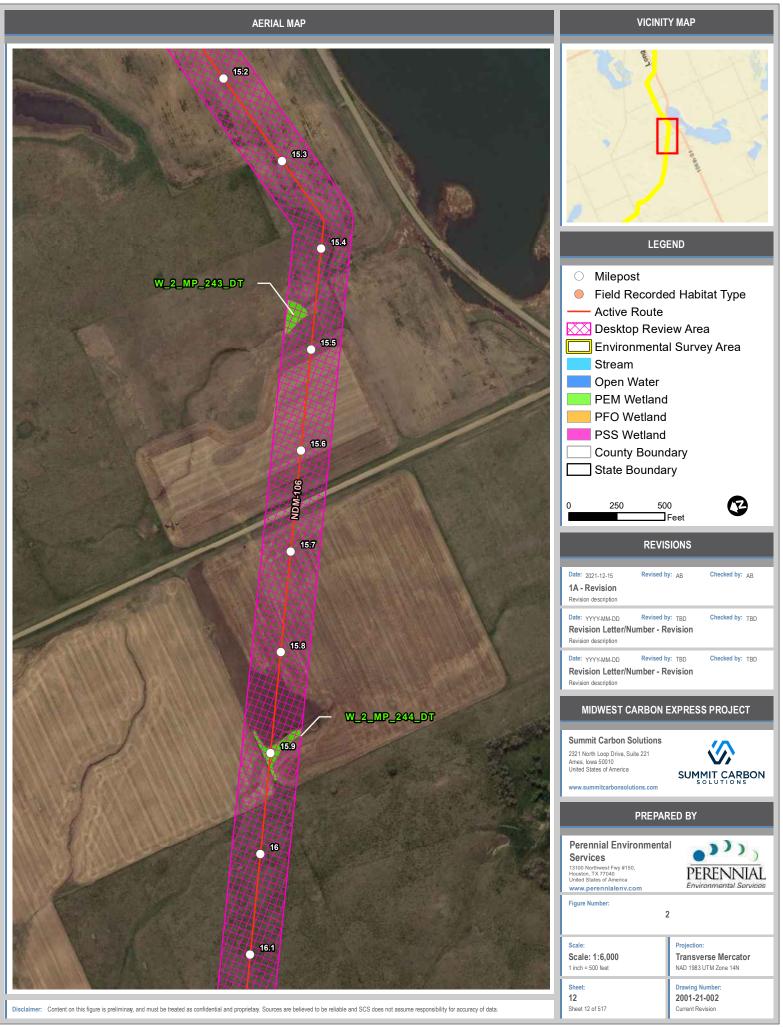
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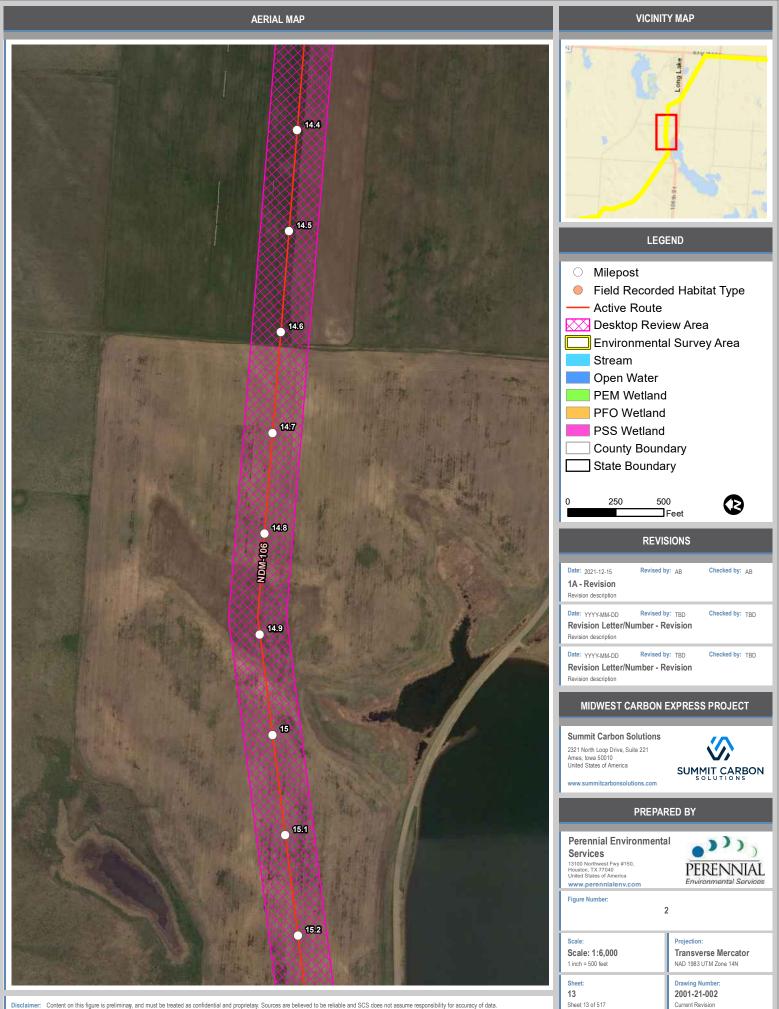


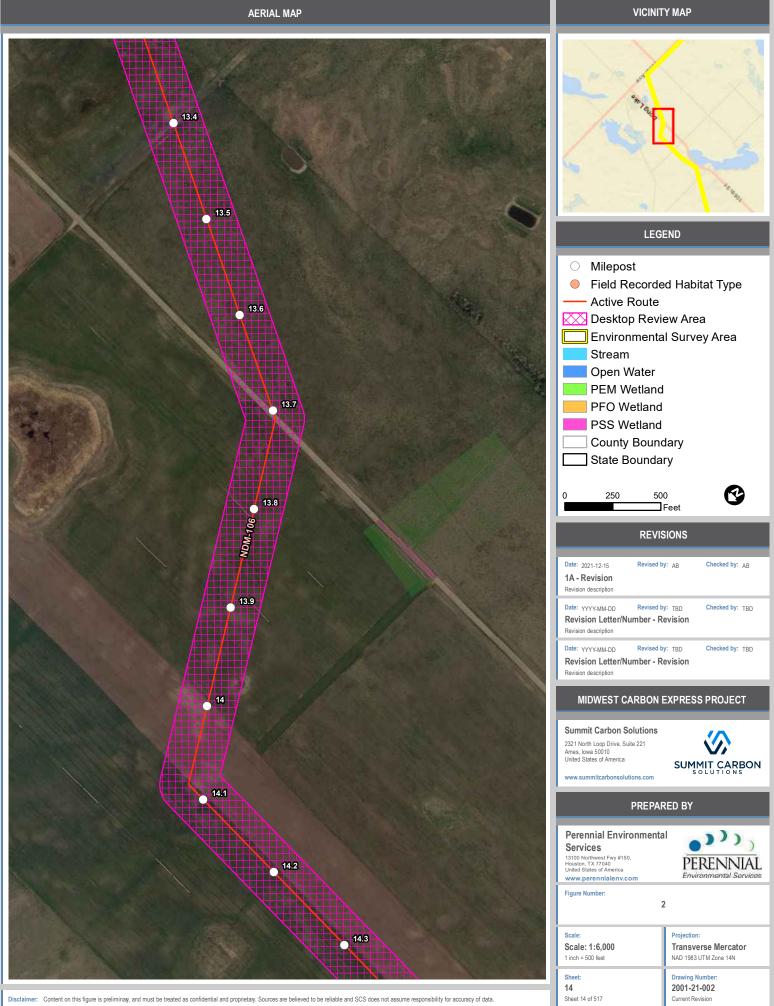




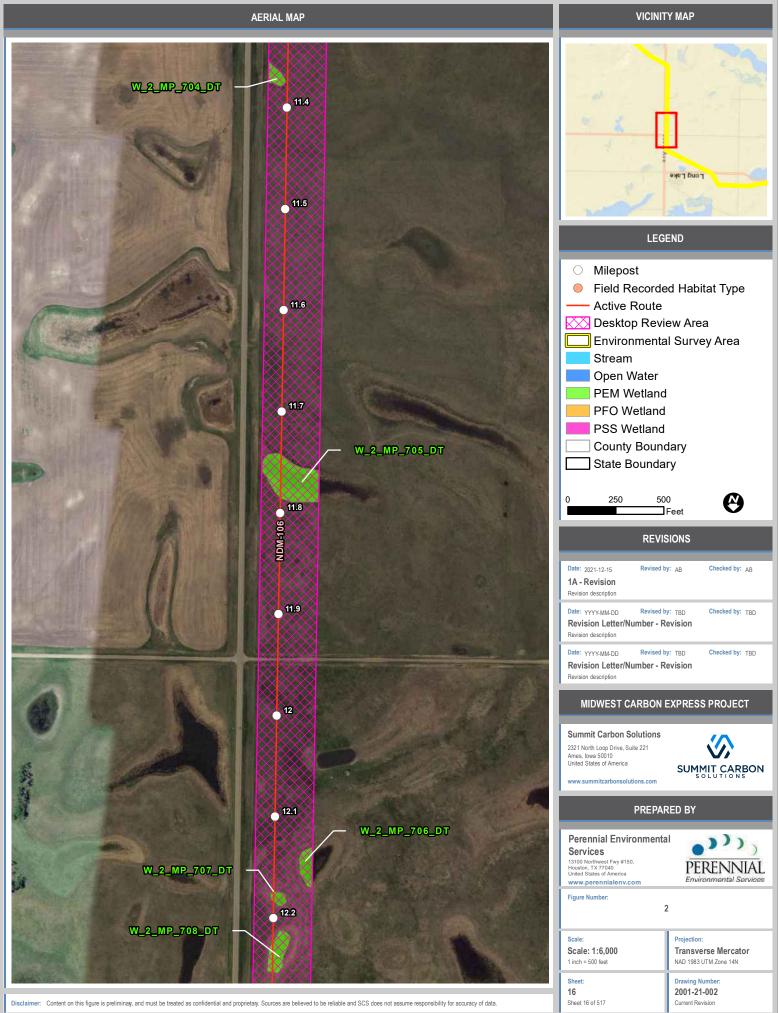
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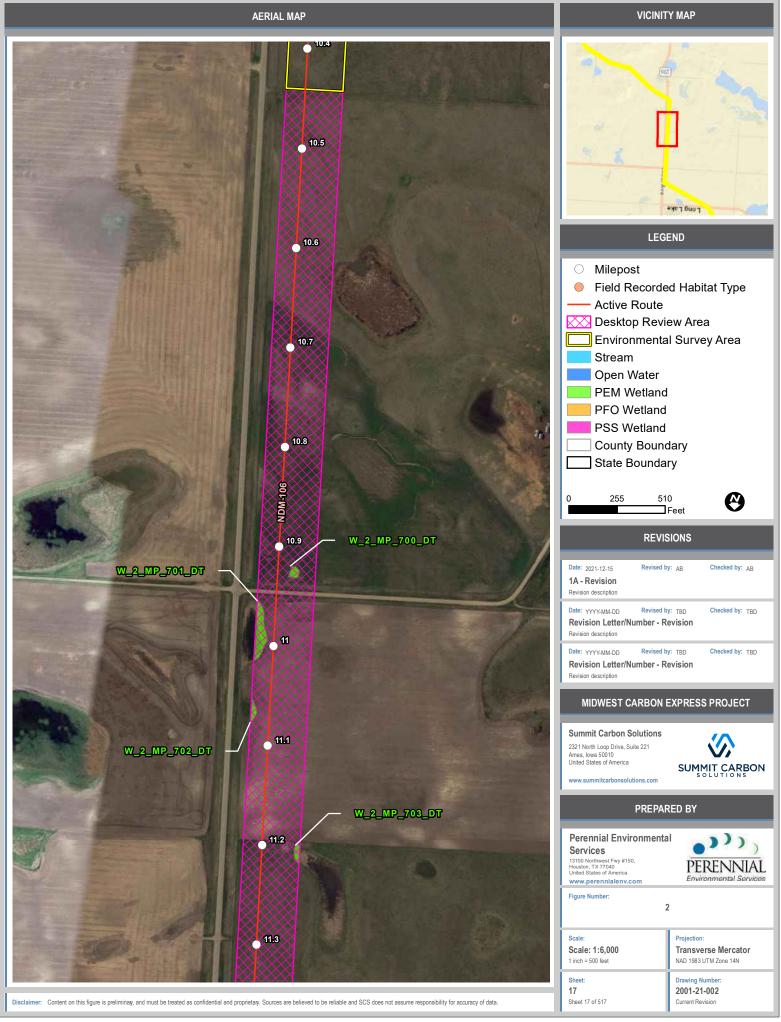






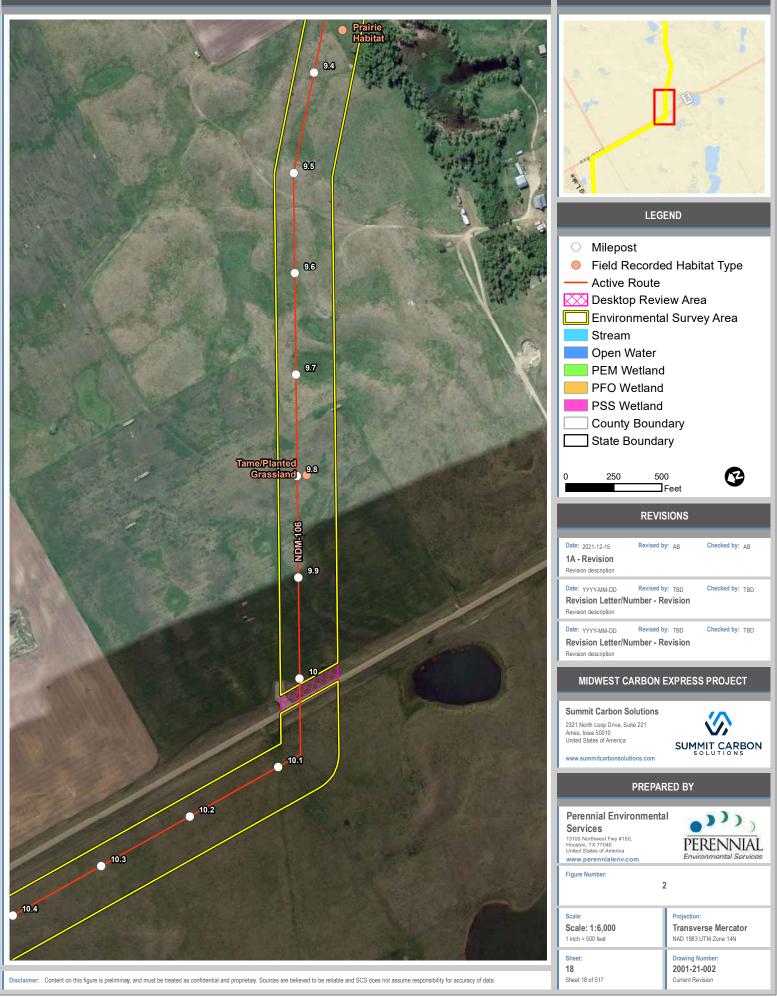


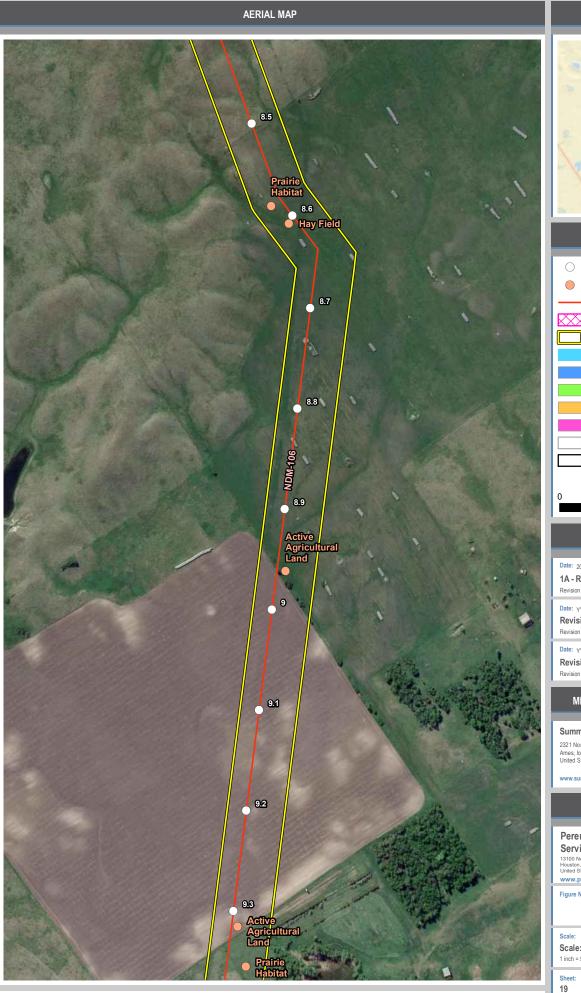


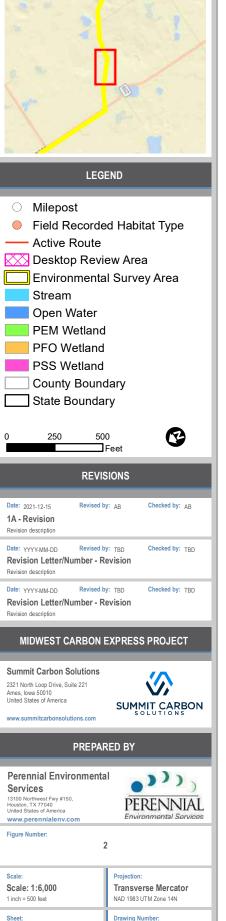




## VICINITY MAP







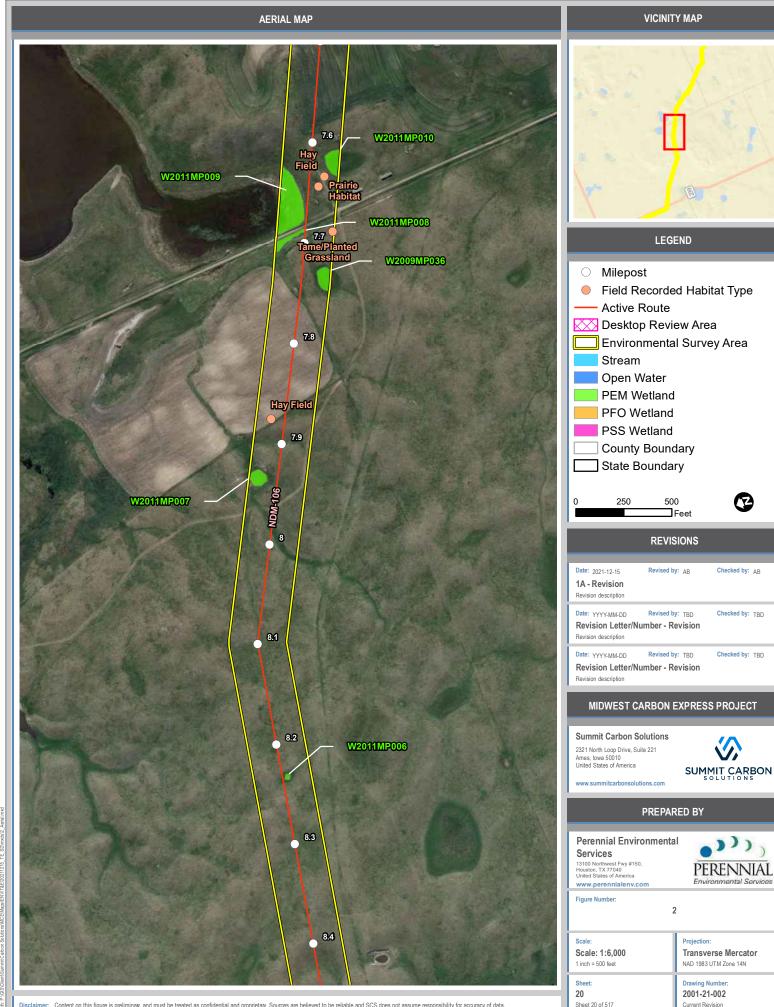
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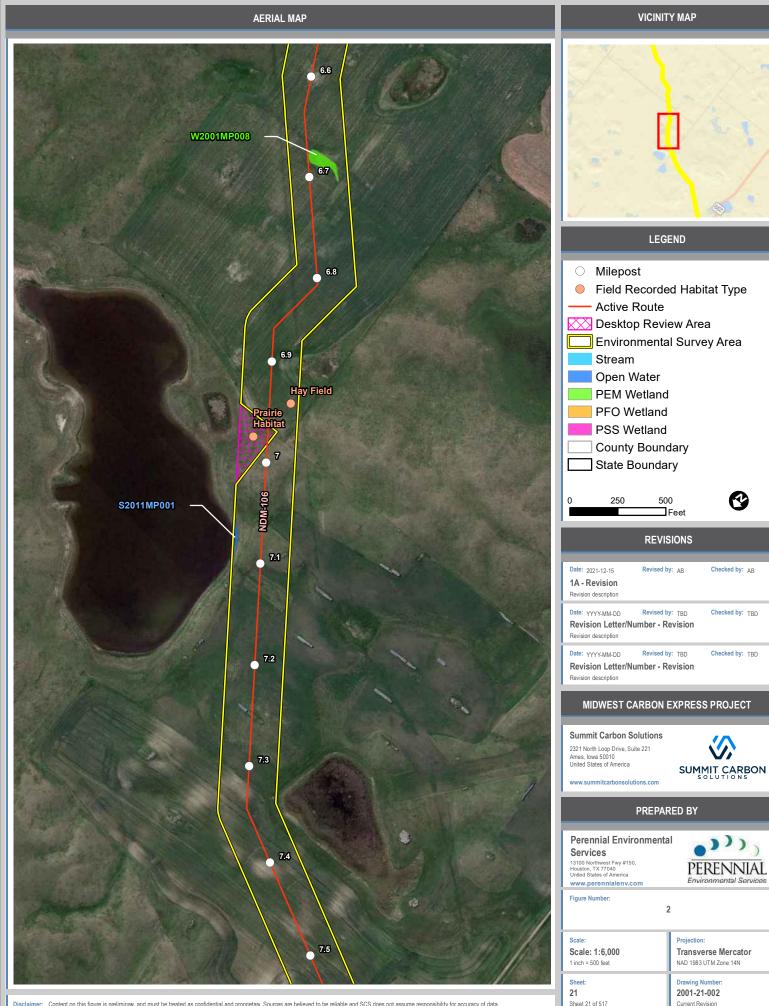
Current Revision

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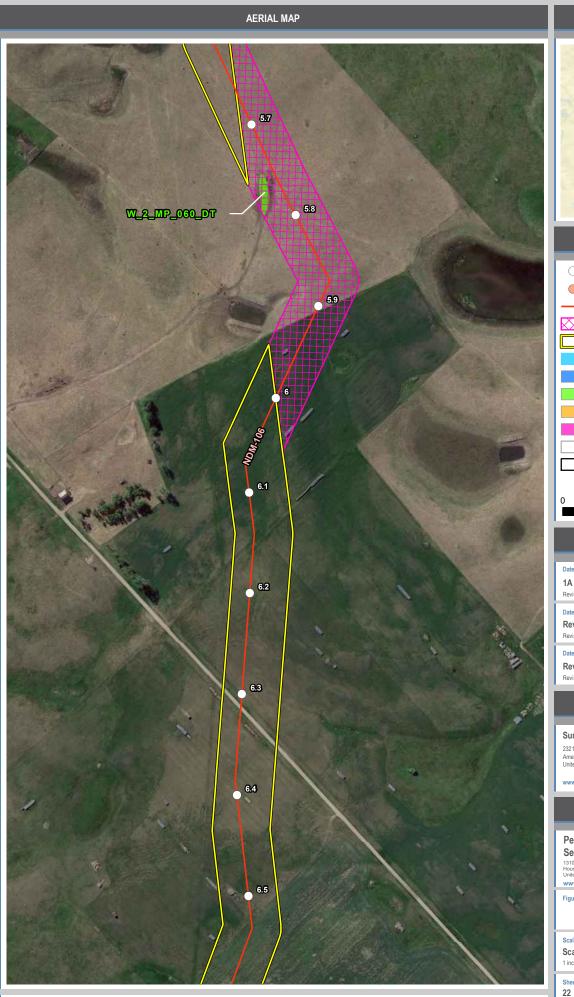
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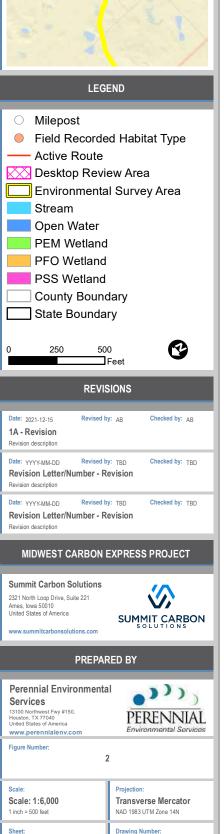
VICINITY MAP





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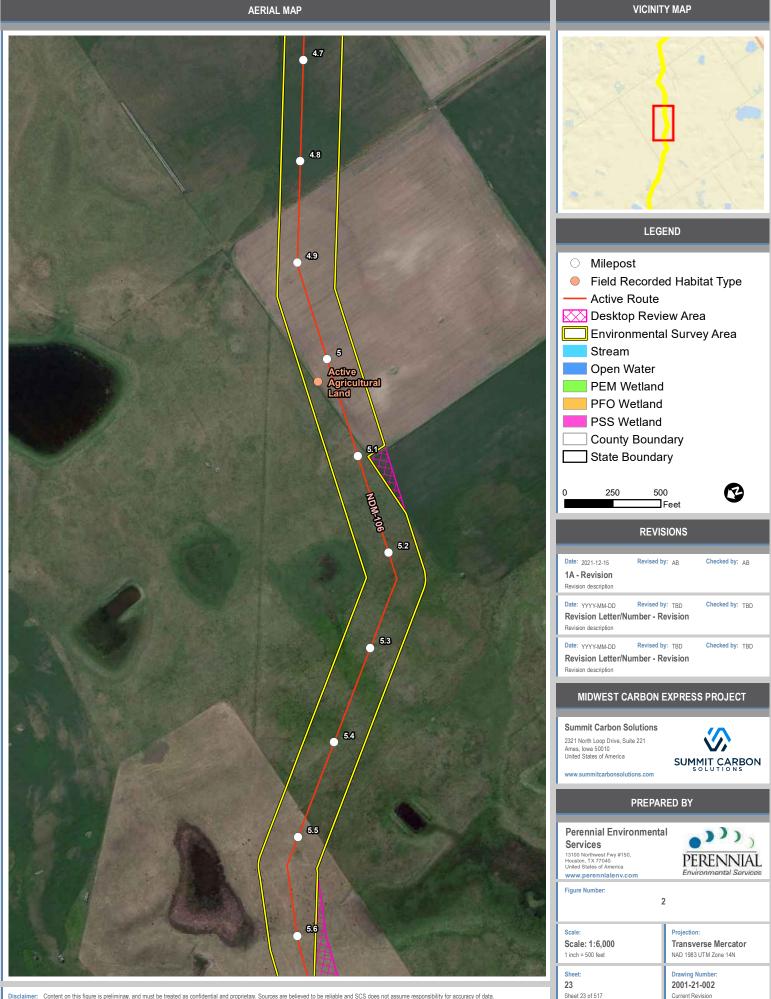


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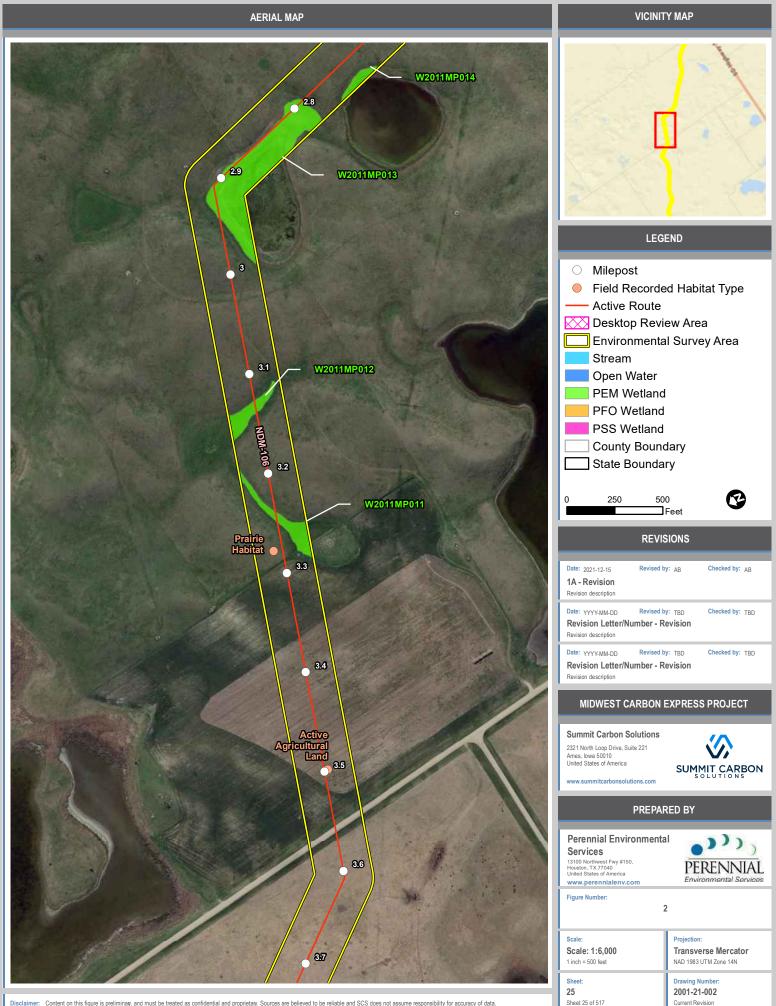
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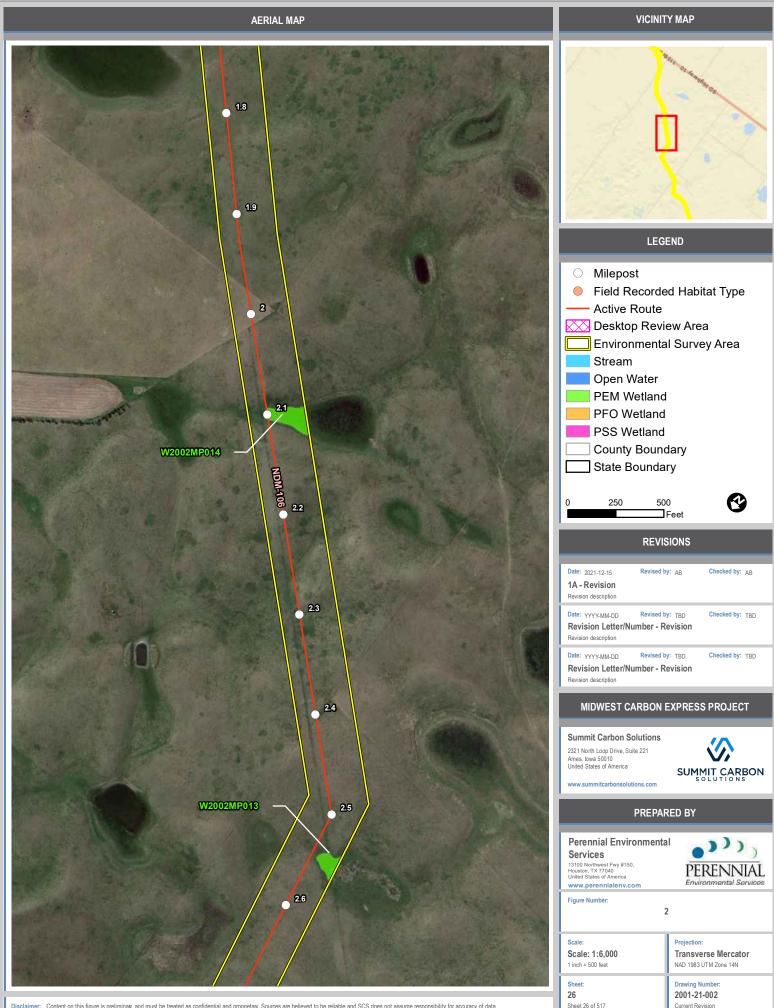
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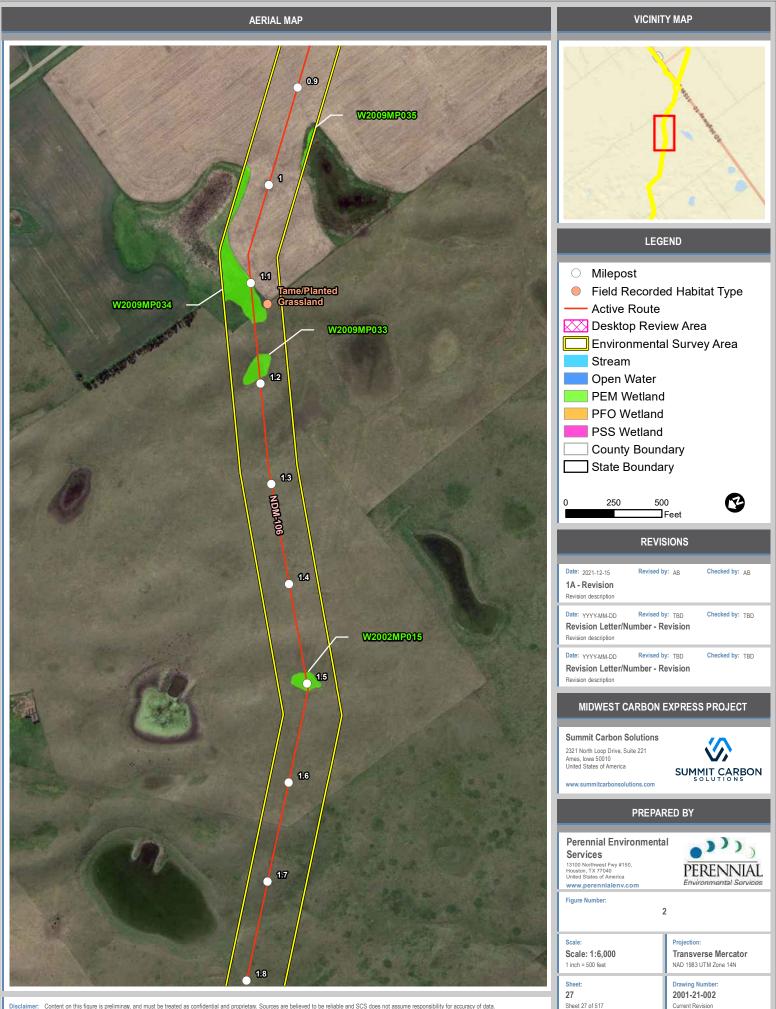


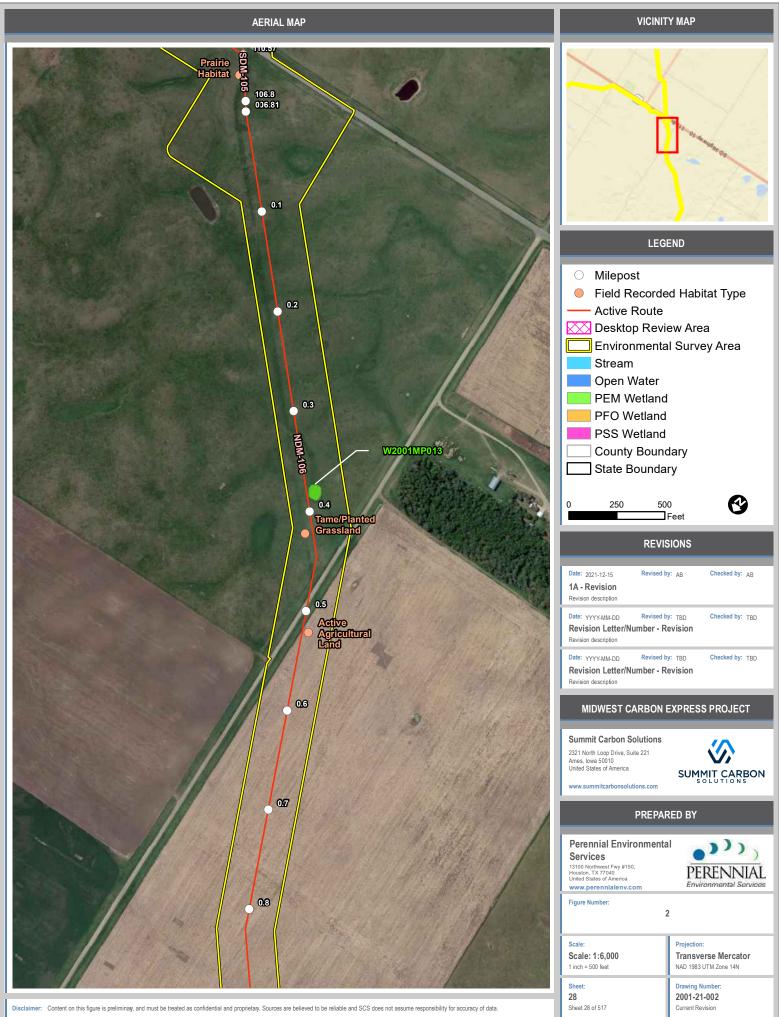


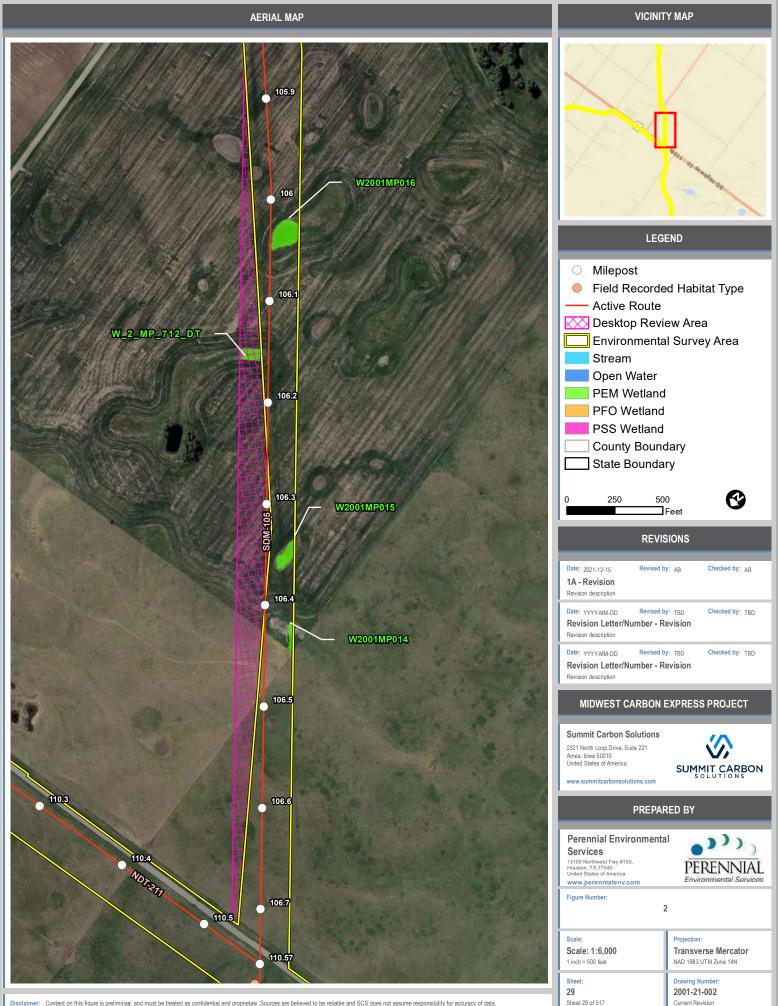
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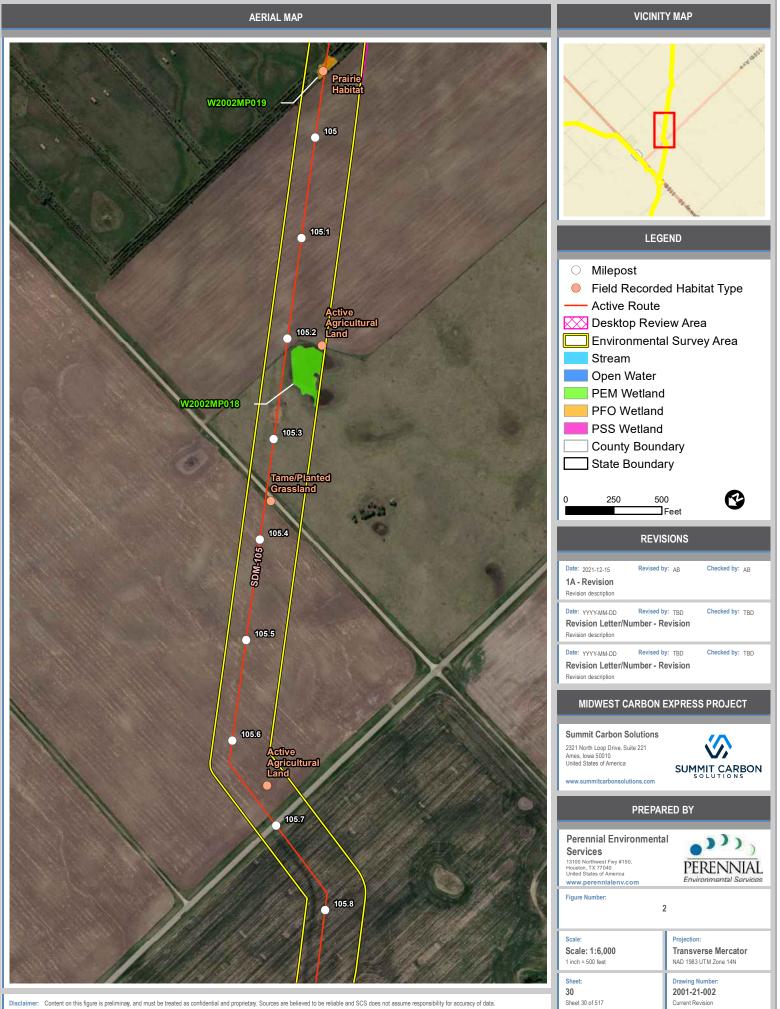


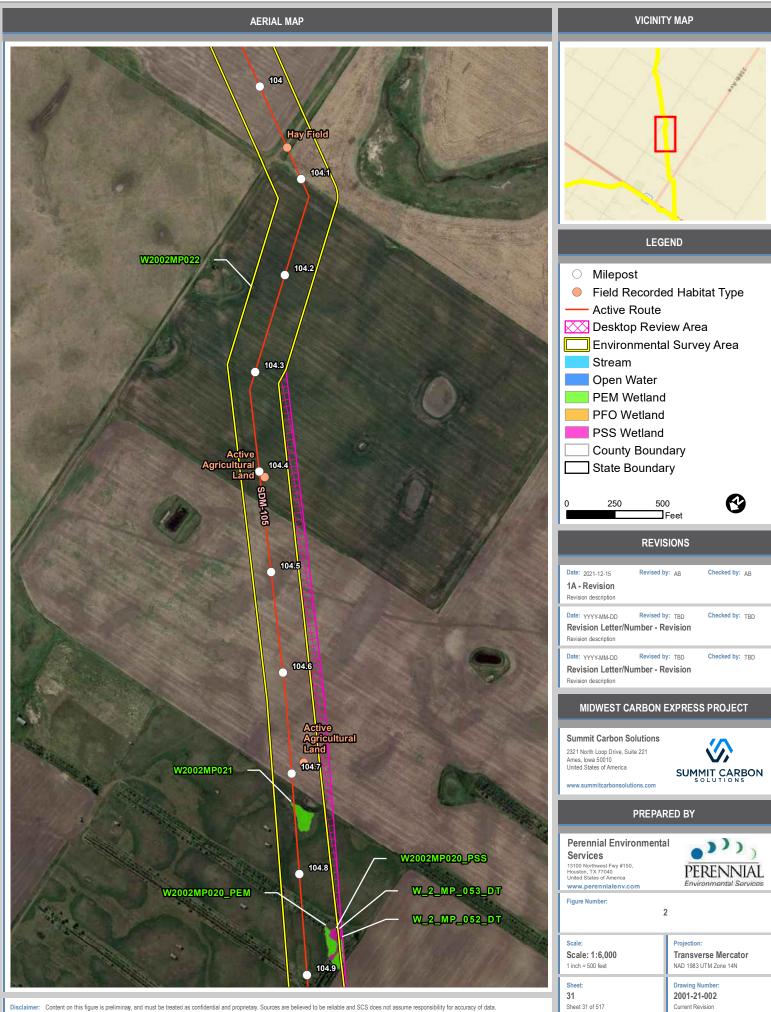


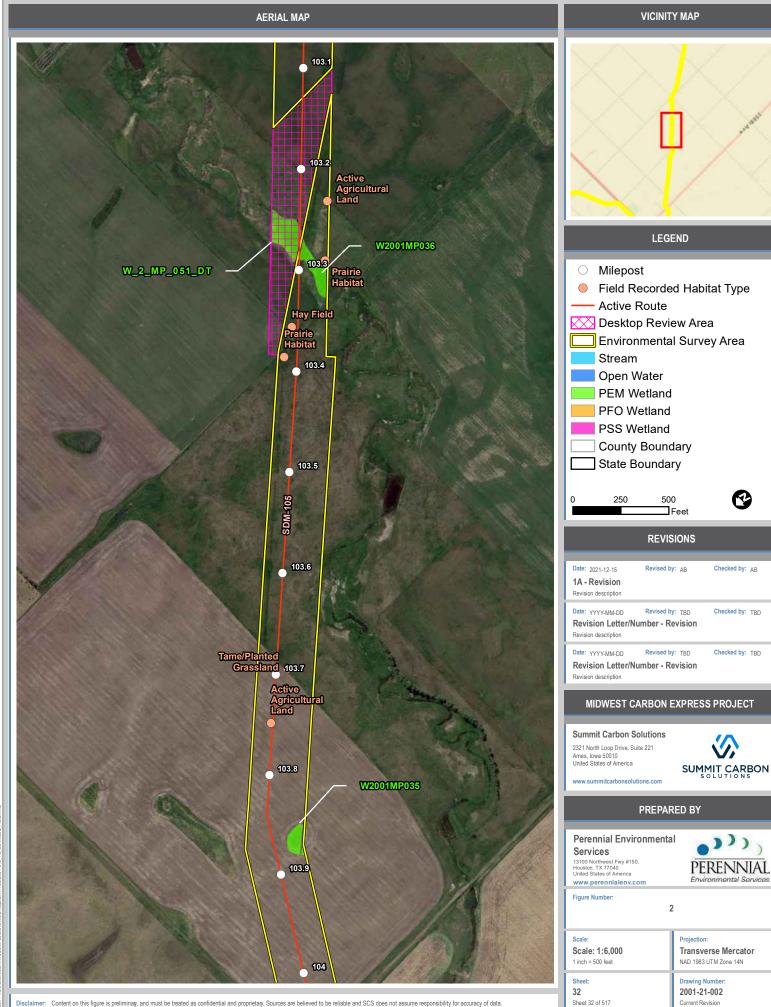


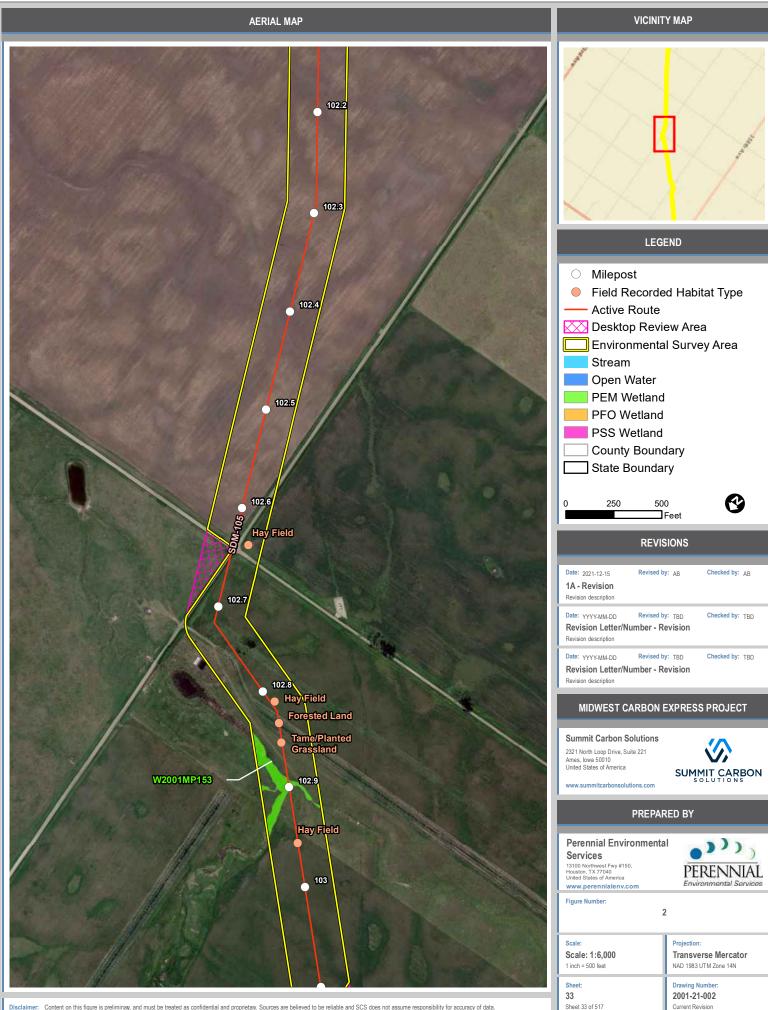


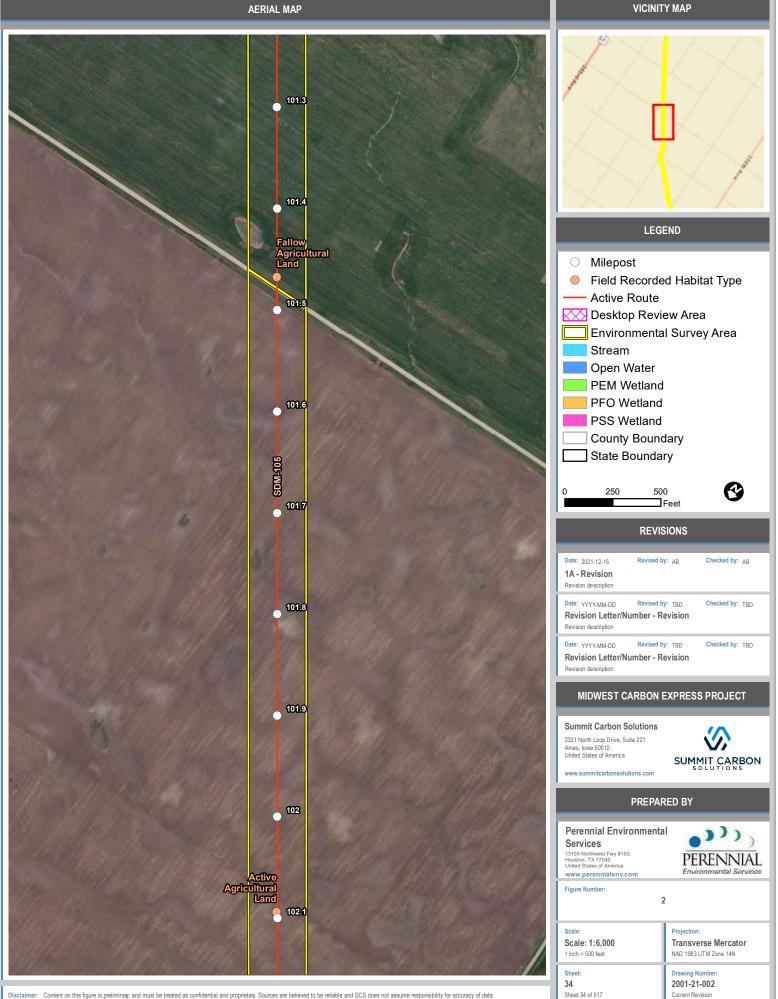
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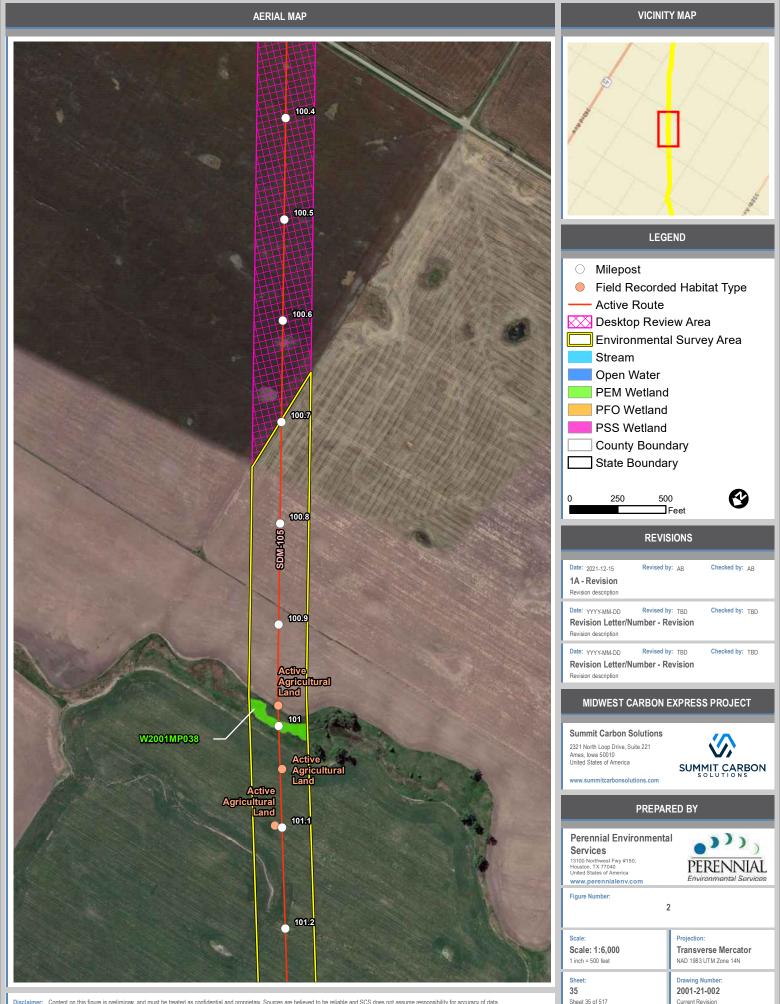




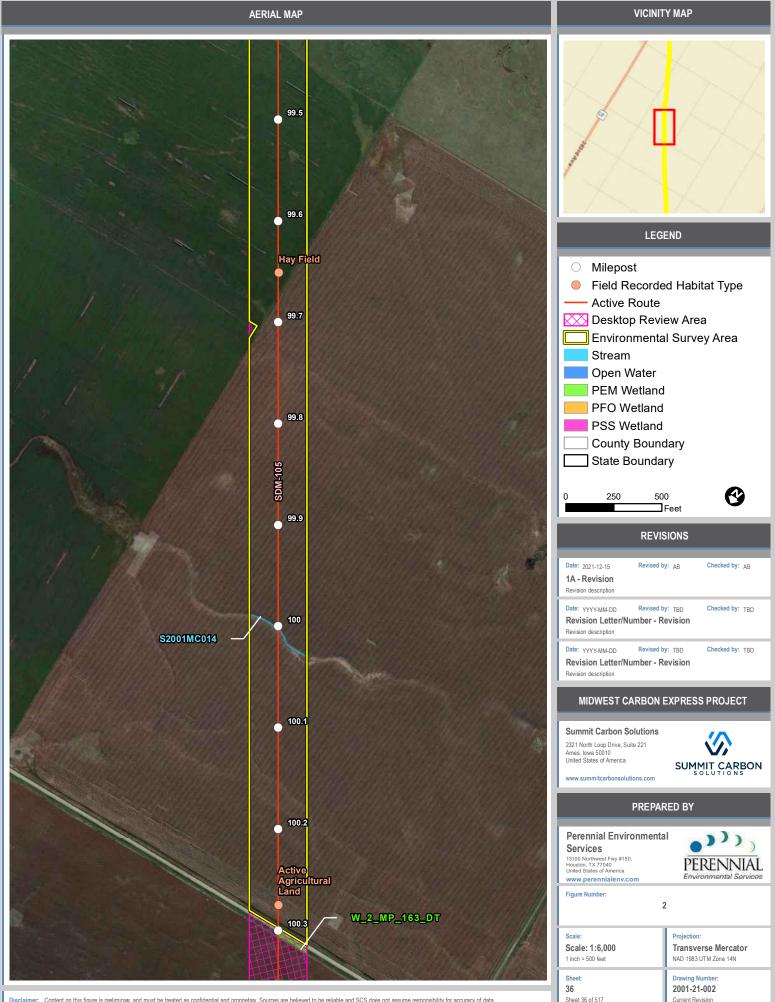




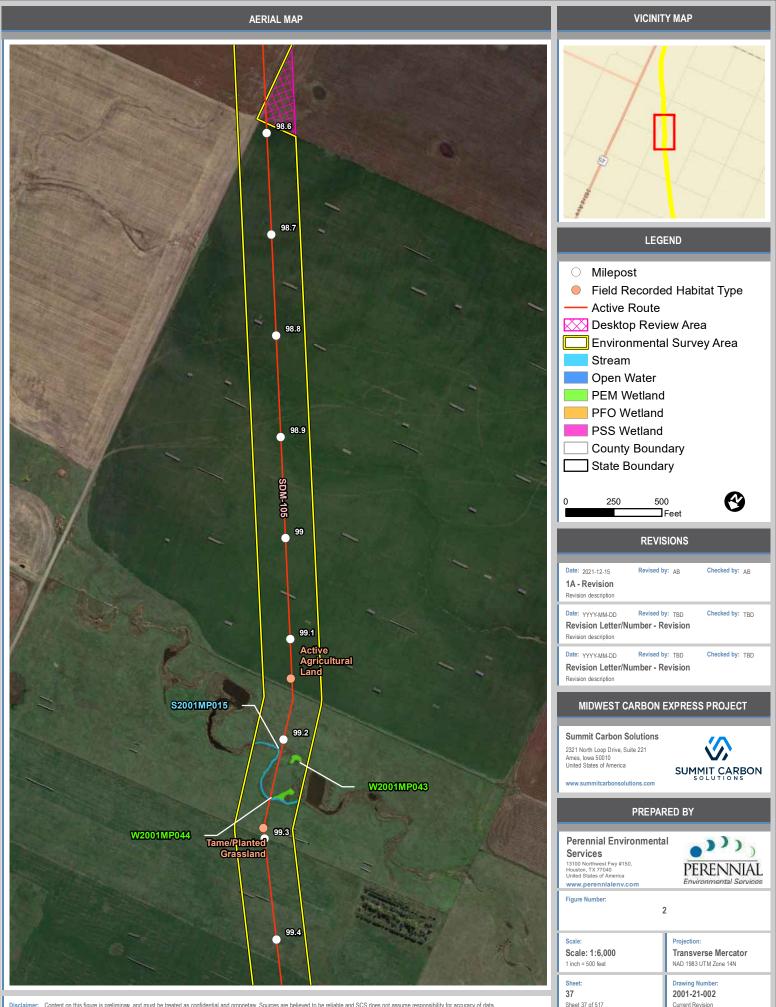




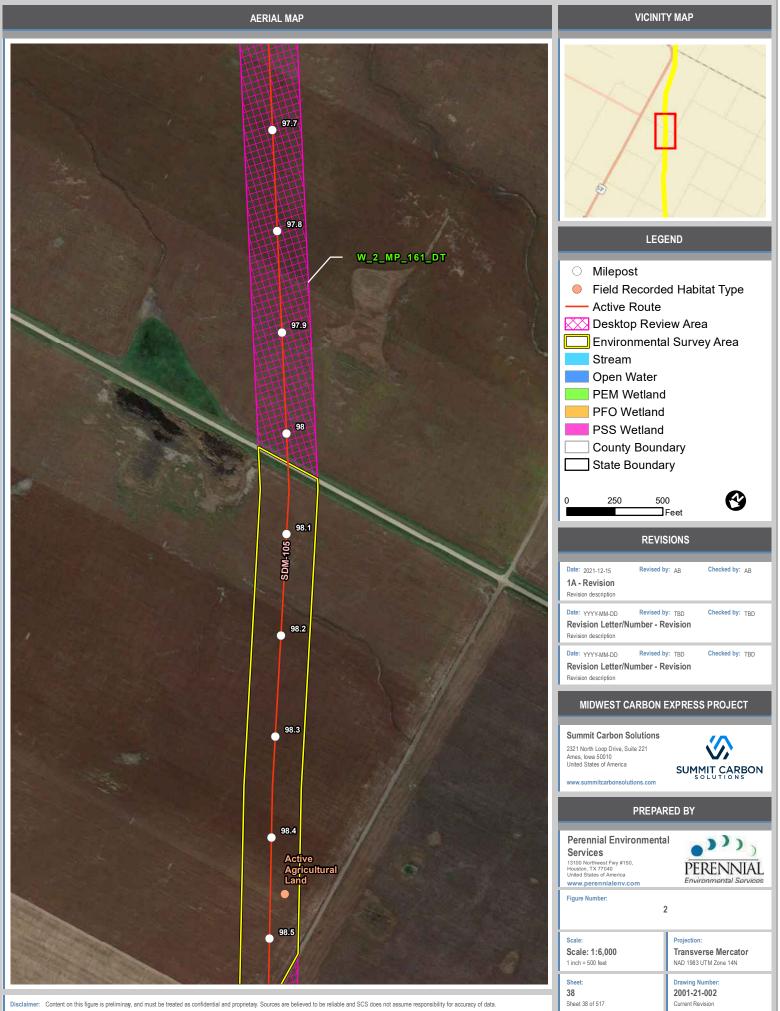
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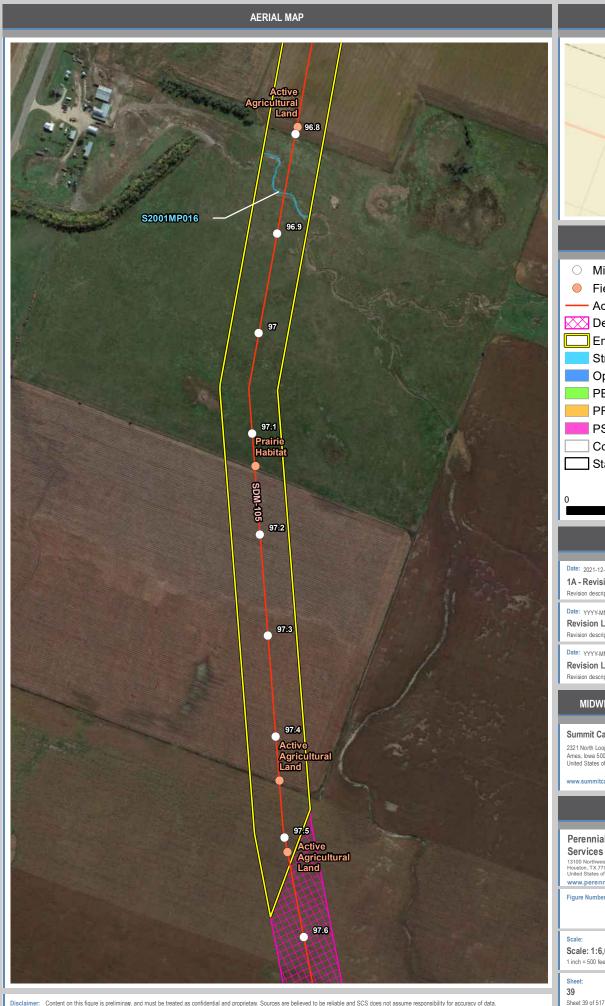


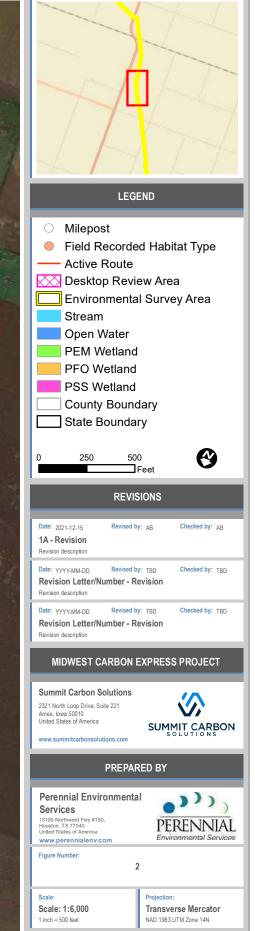
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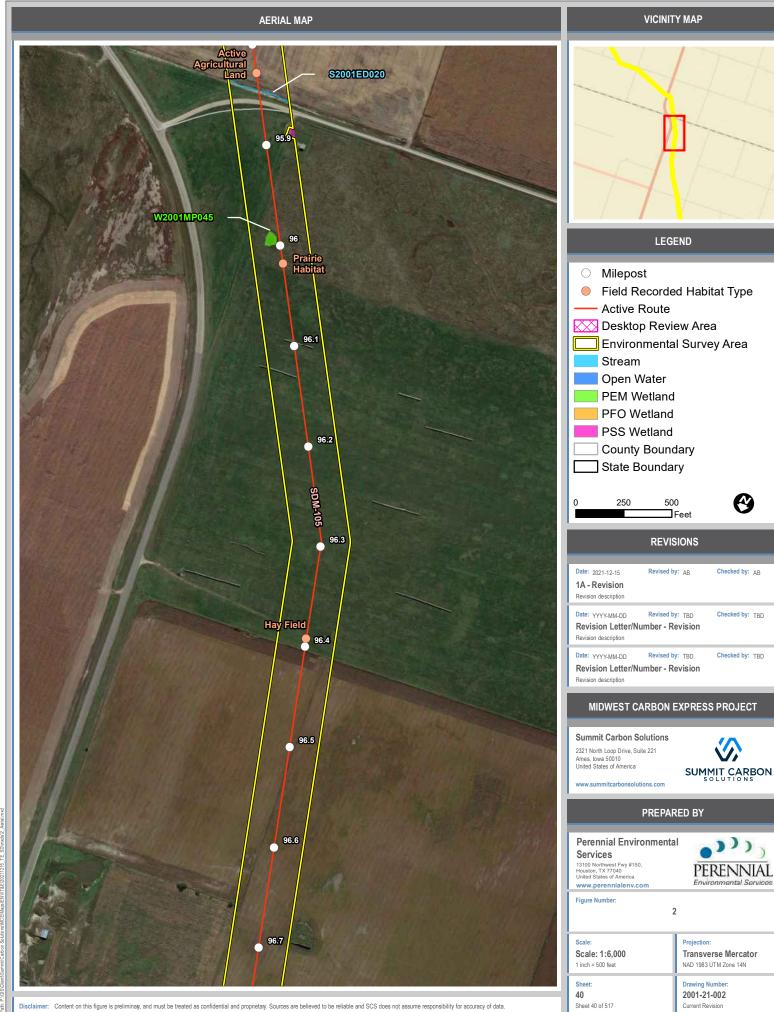


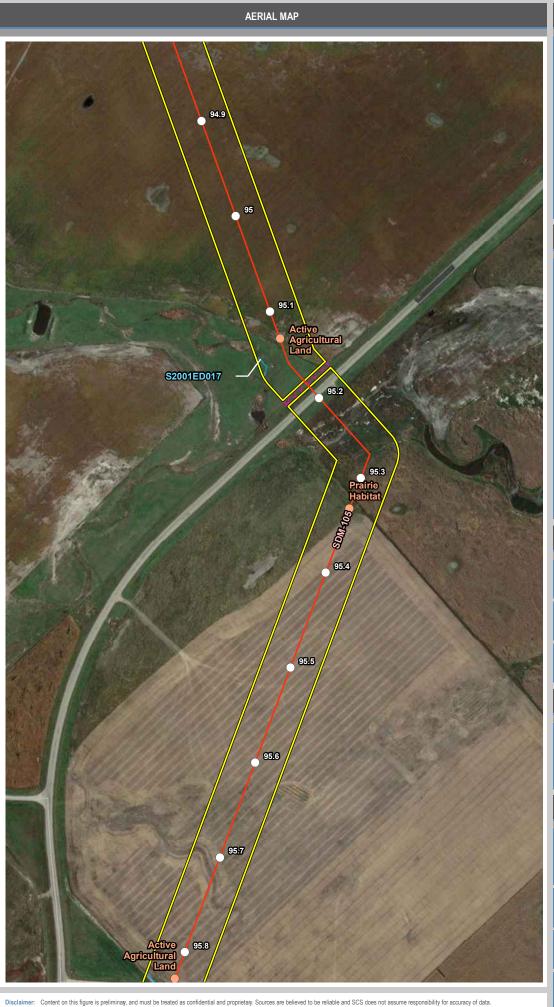


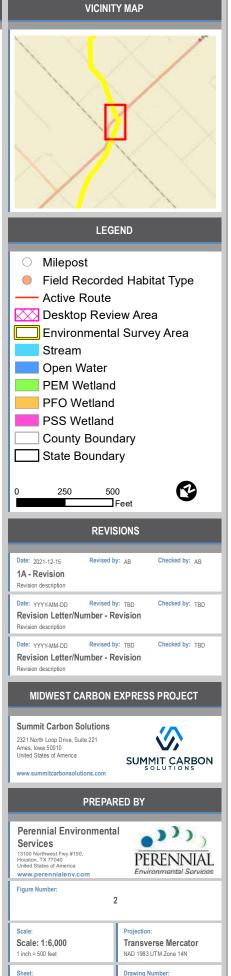
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VICINITY MAP



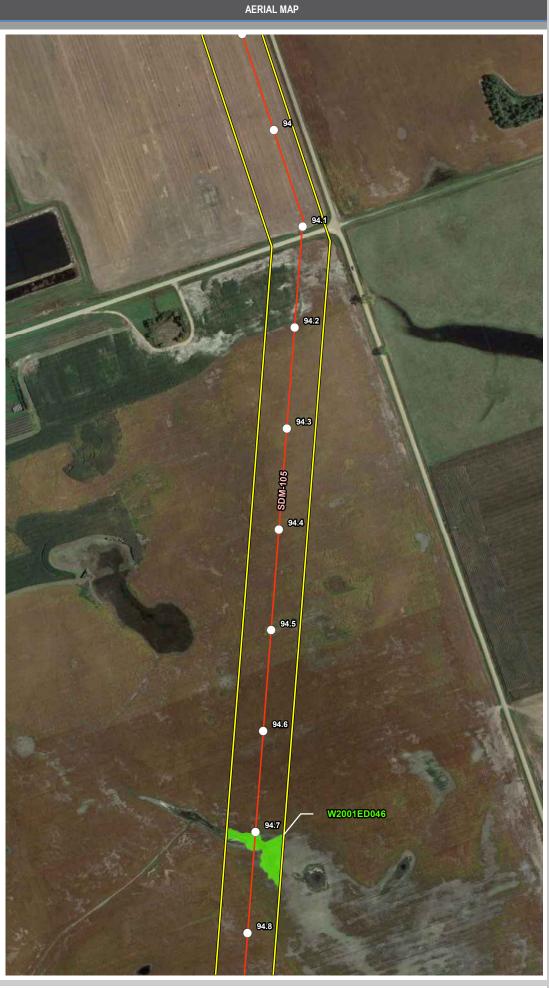




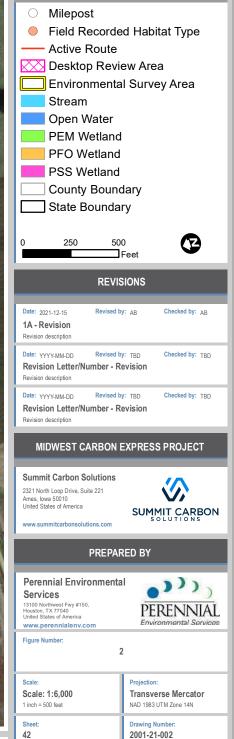
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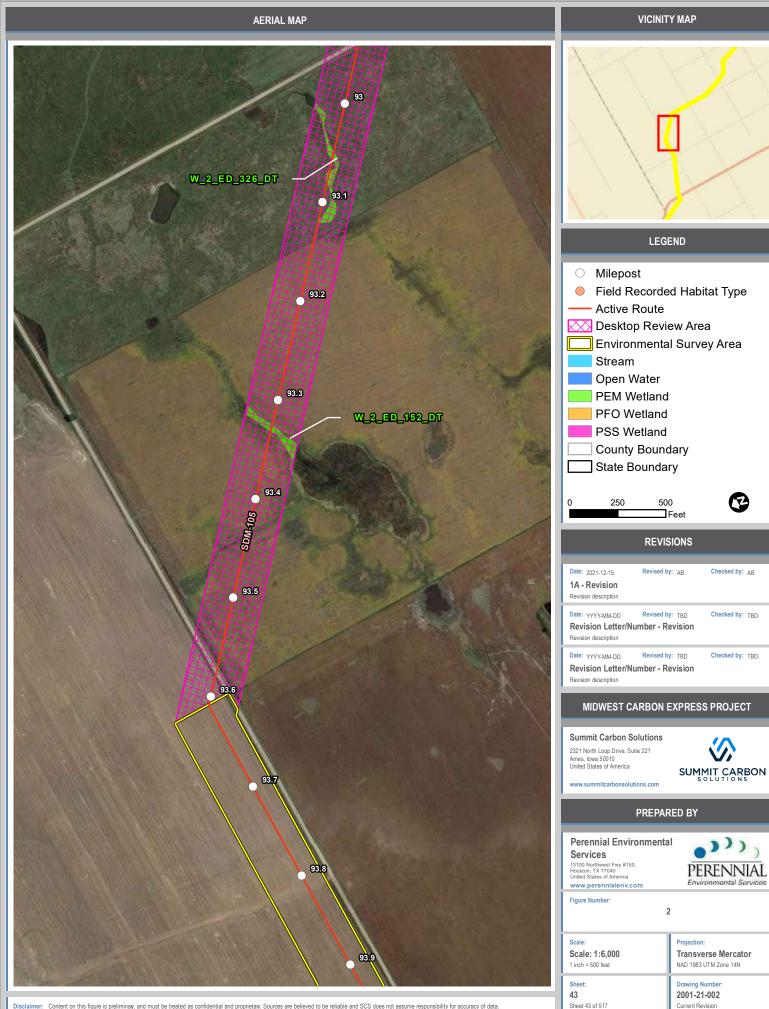


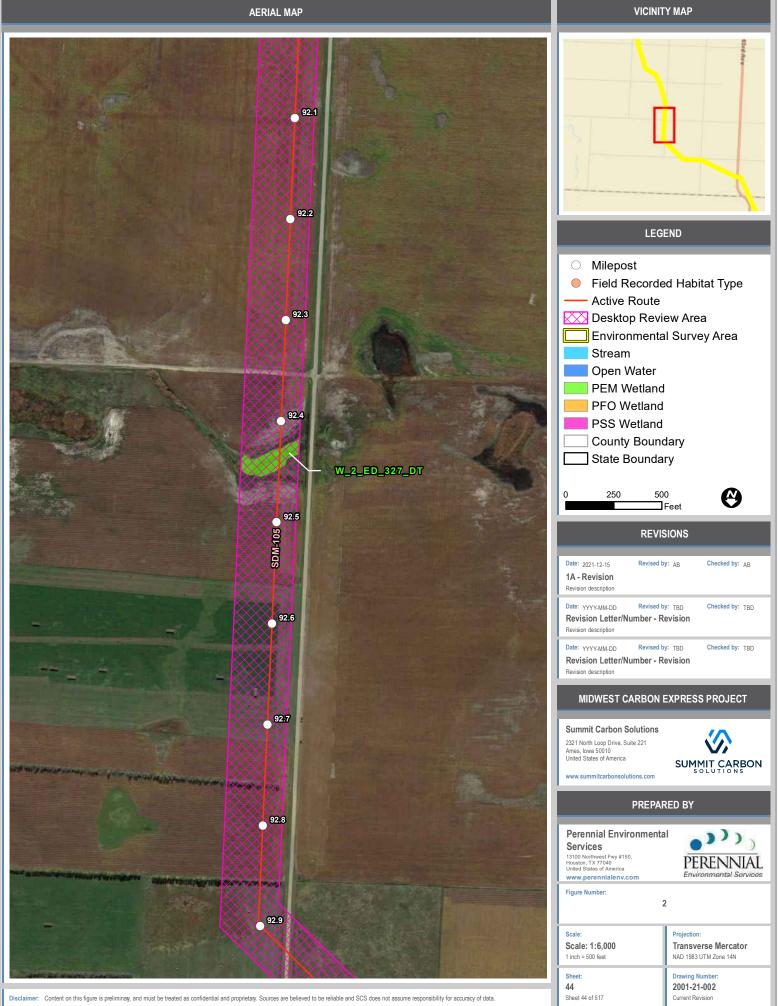


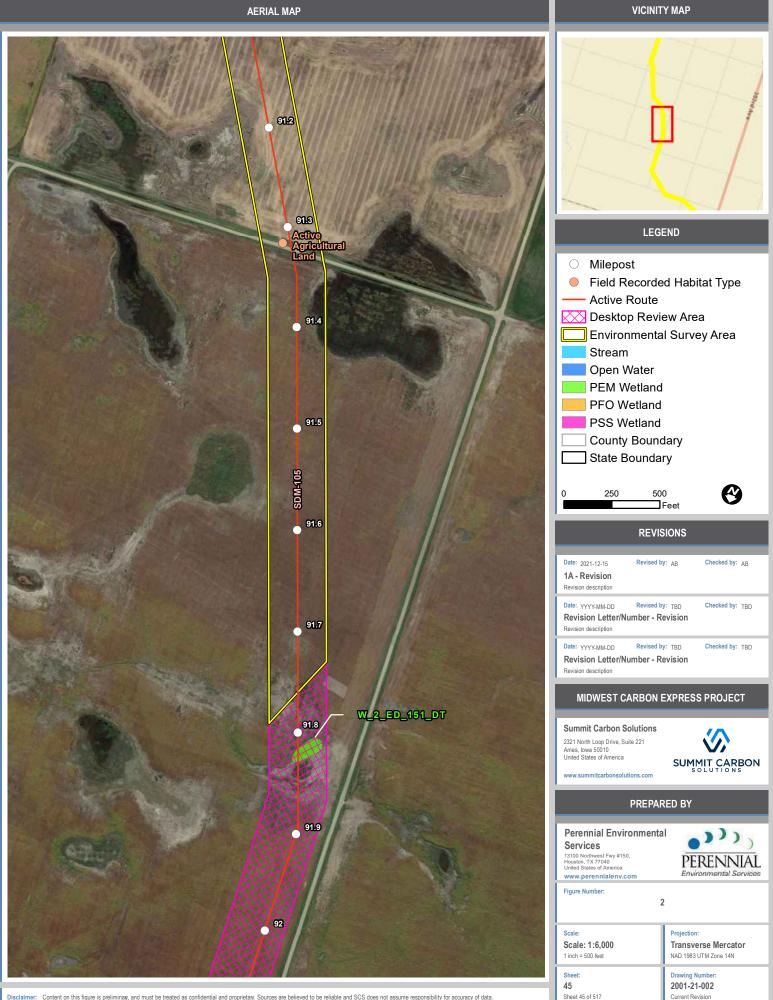


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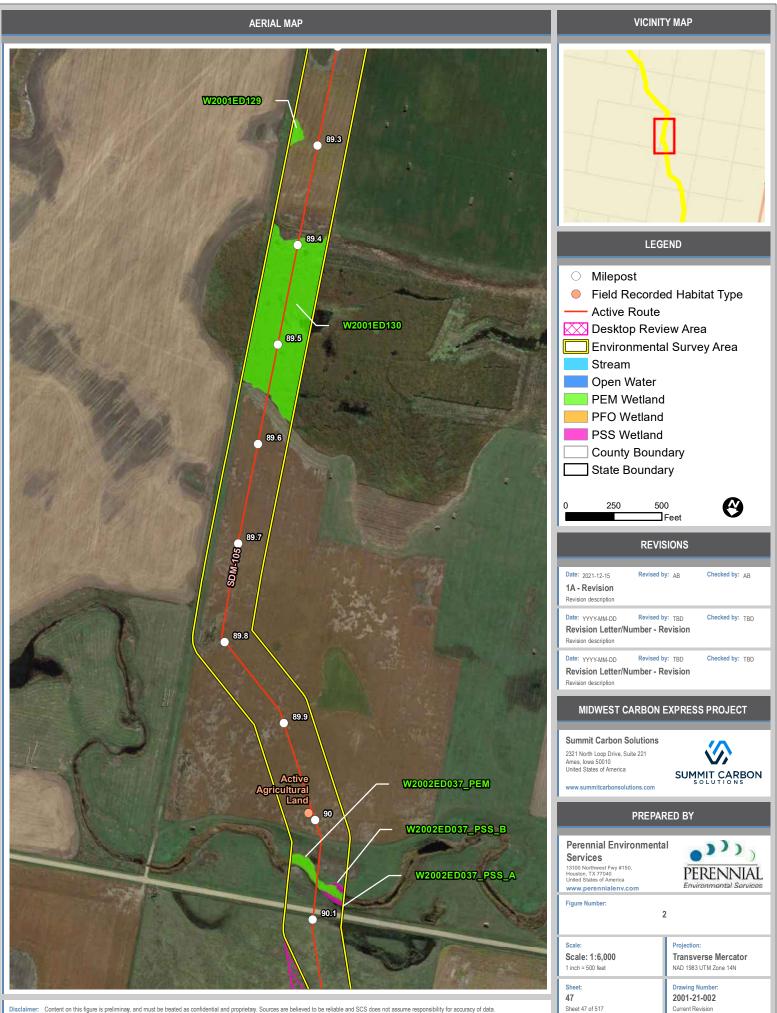
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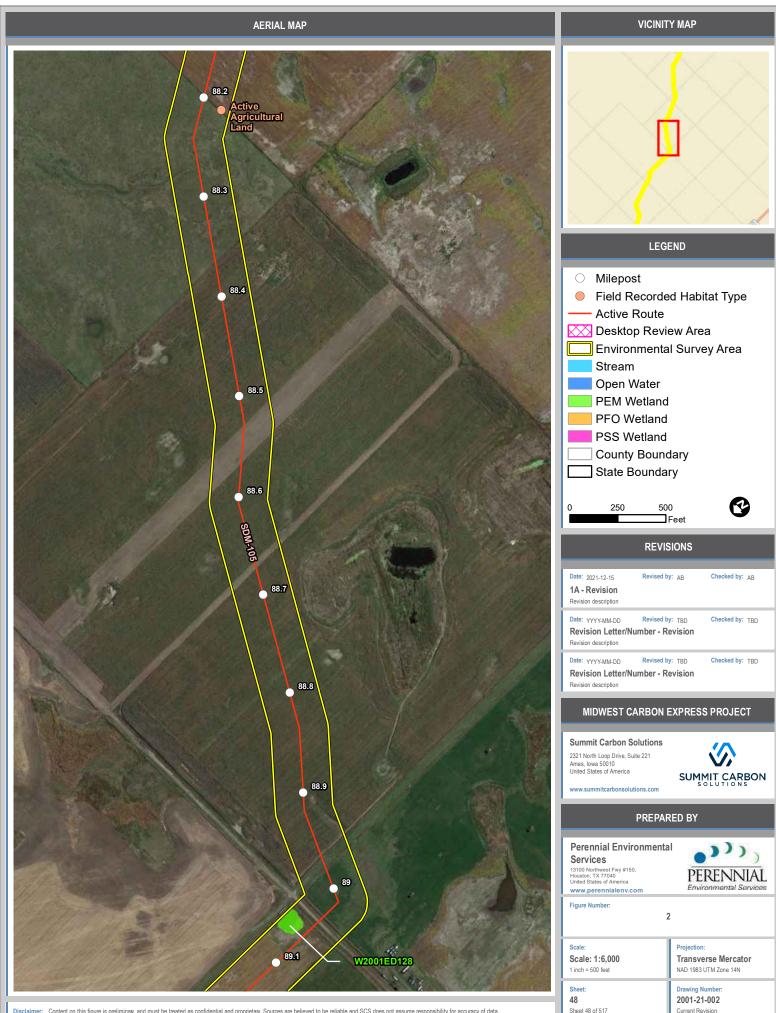
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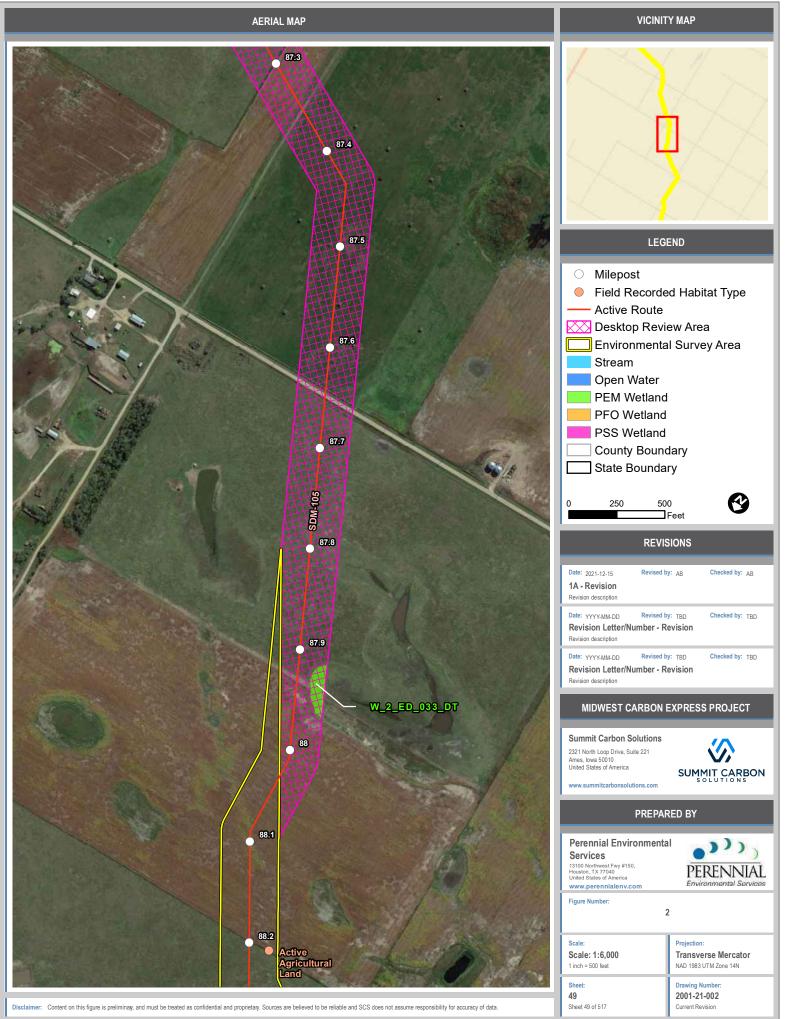
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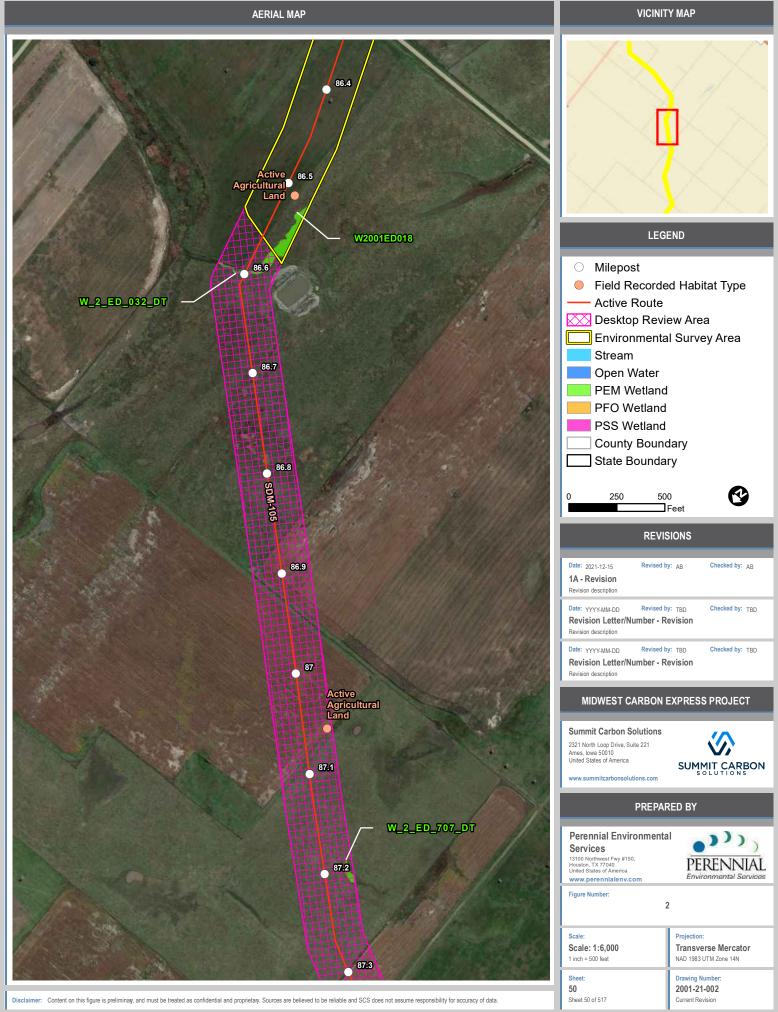


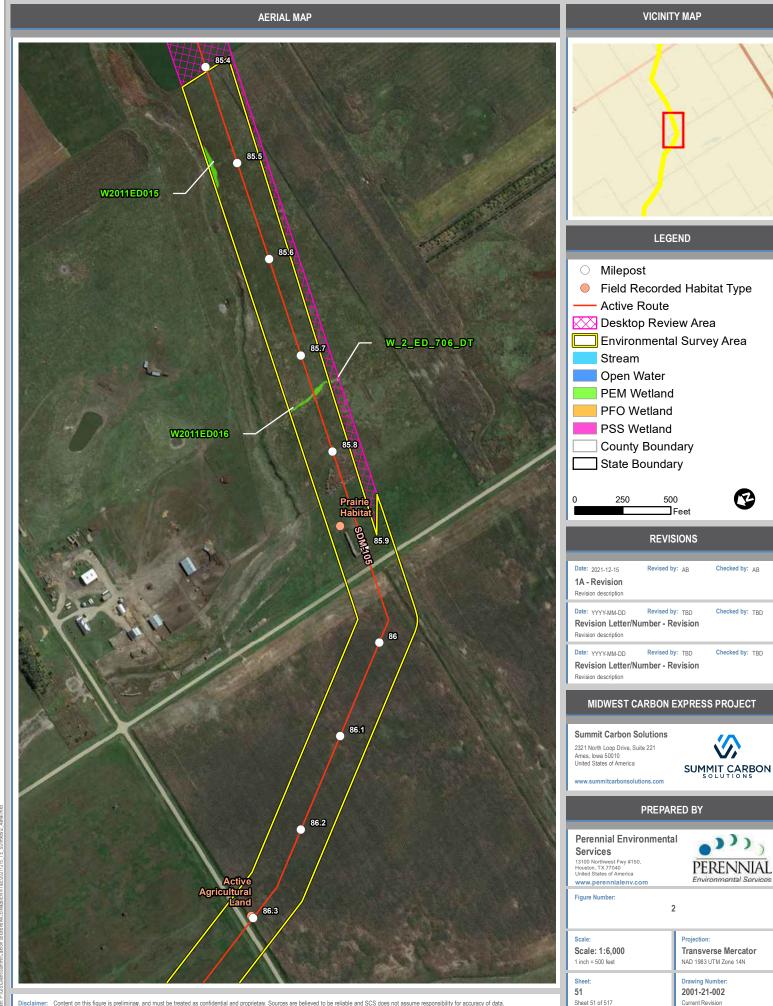


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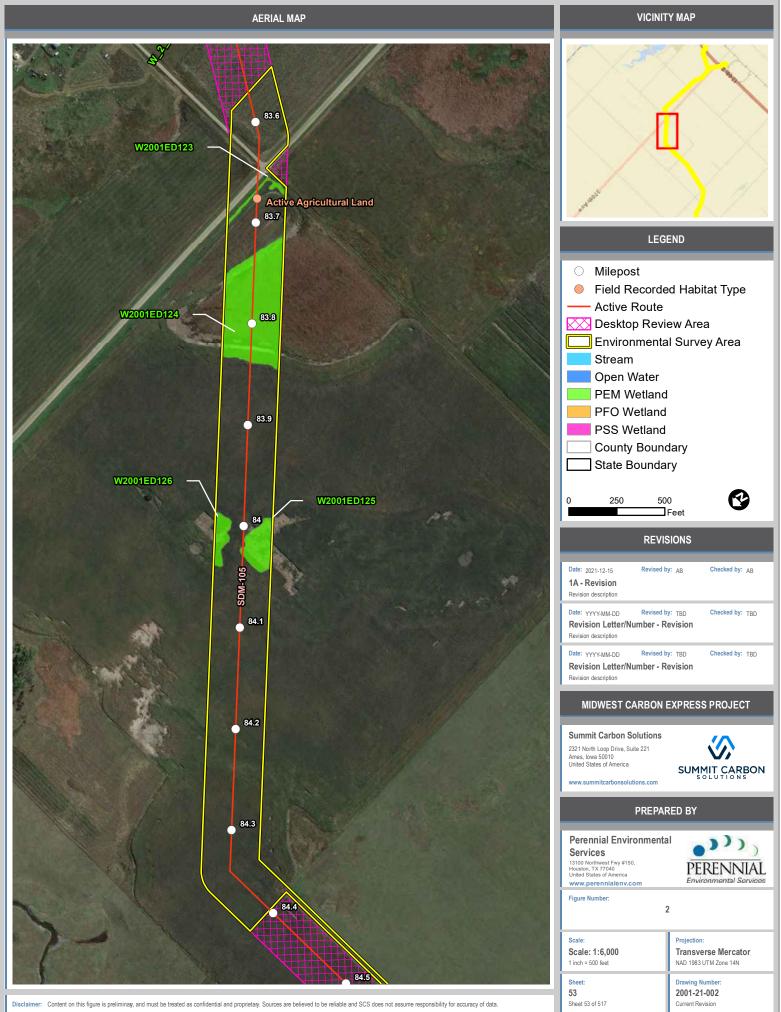


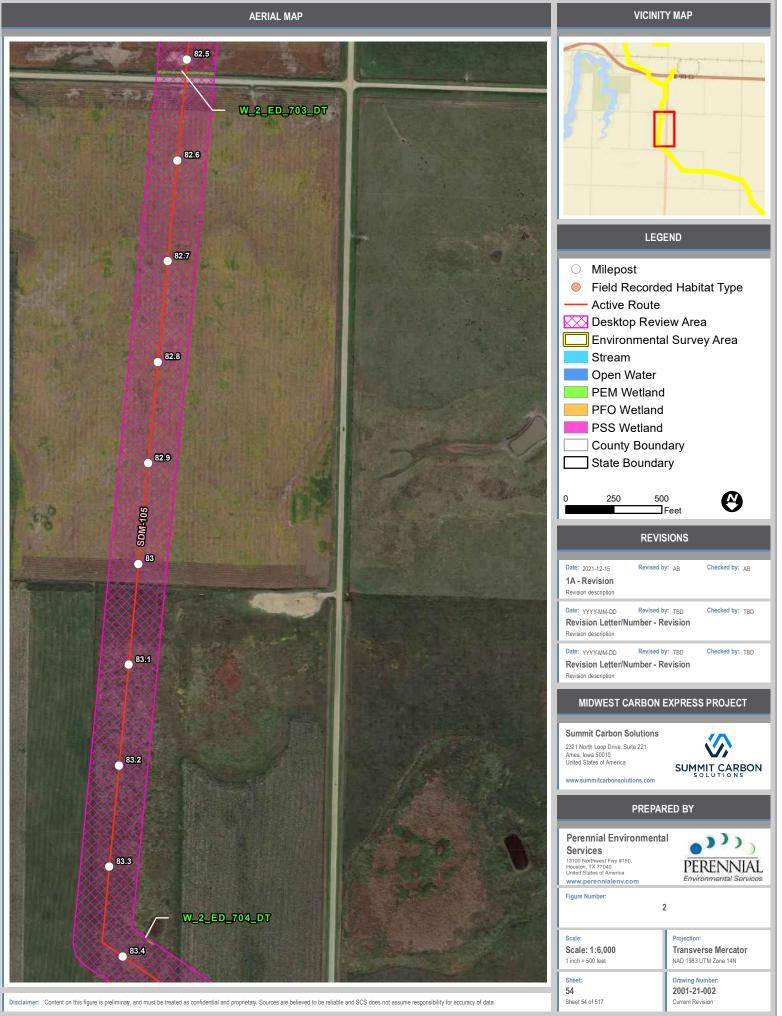
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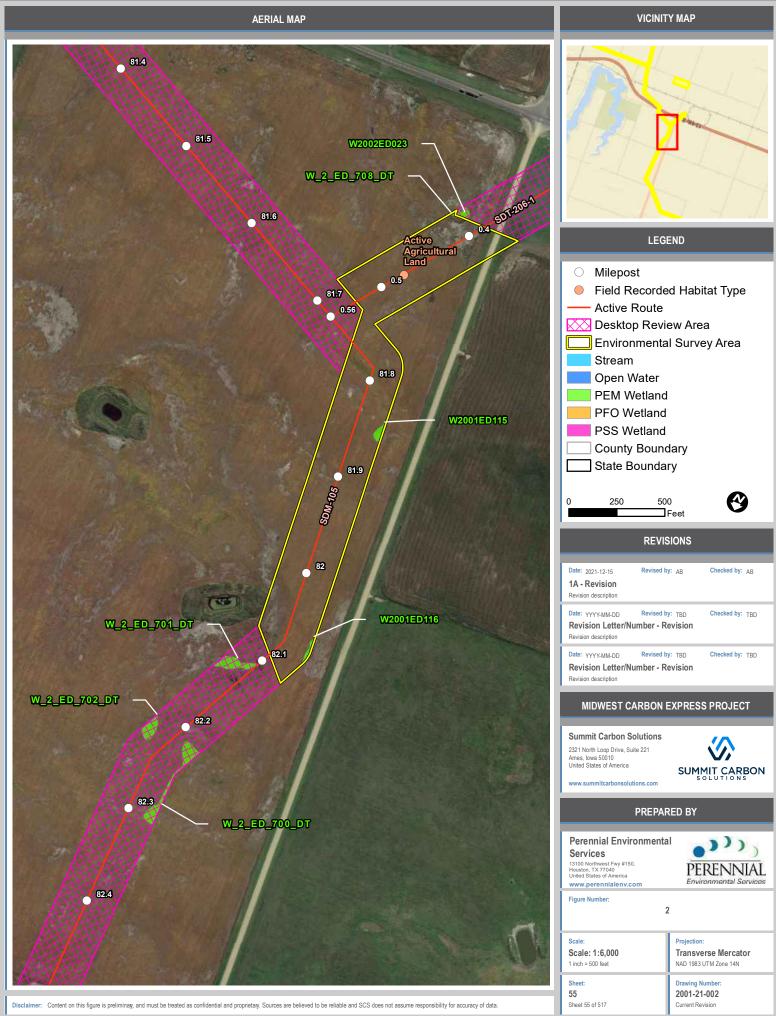


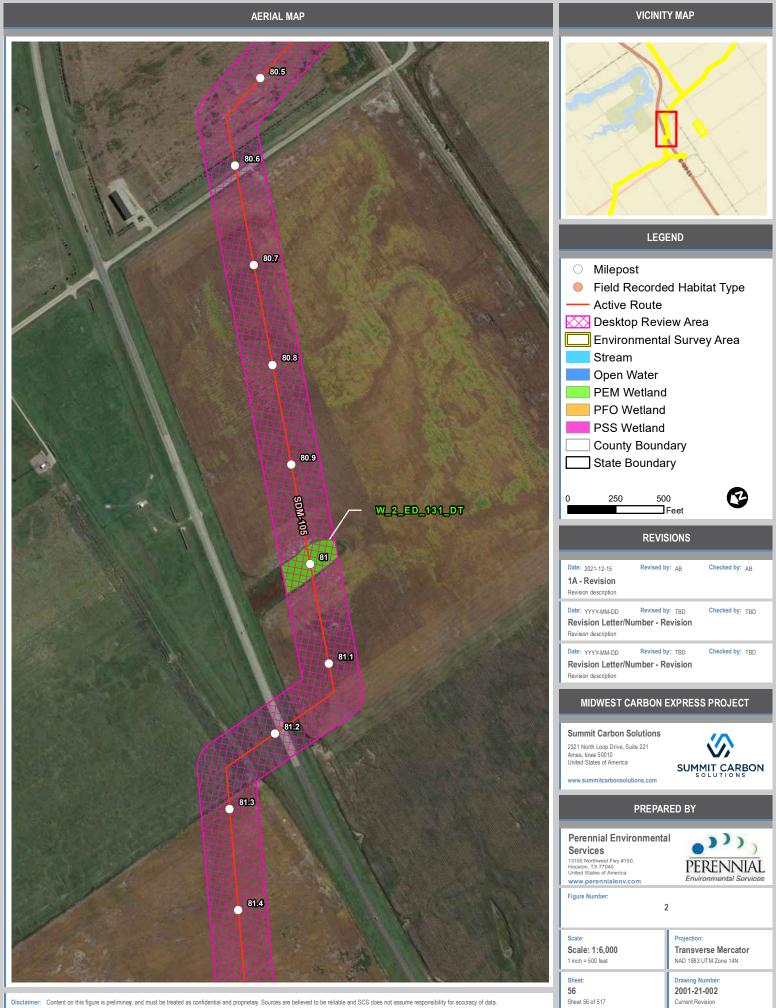


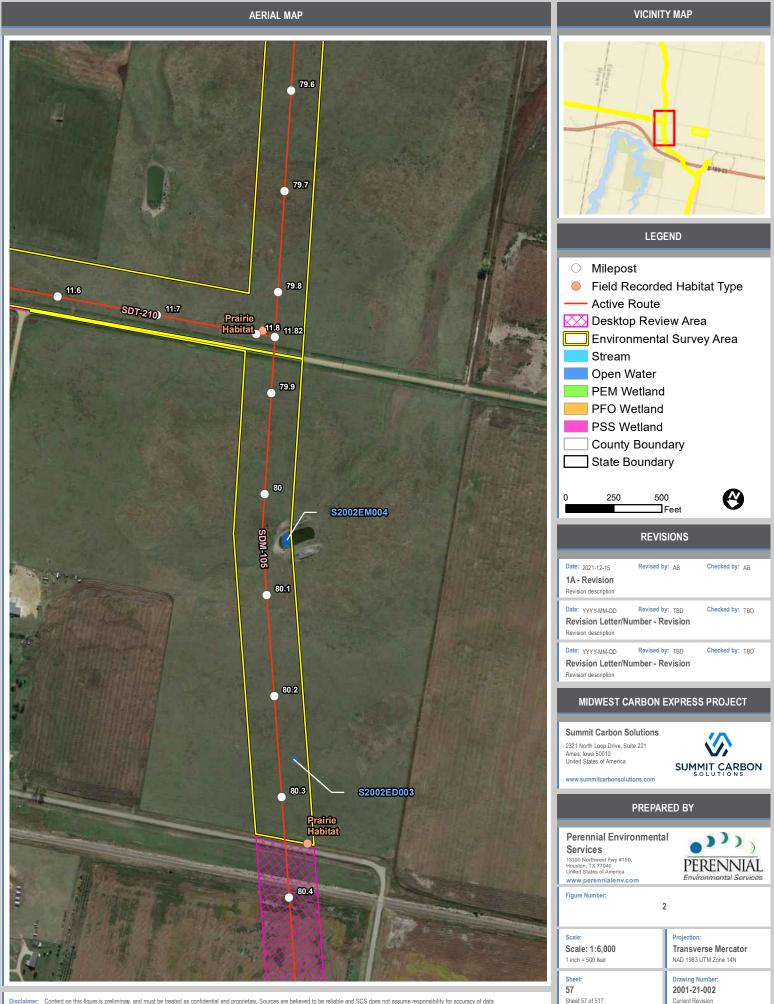






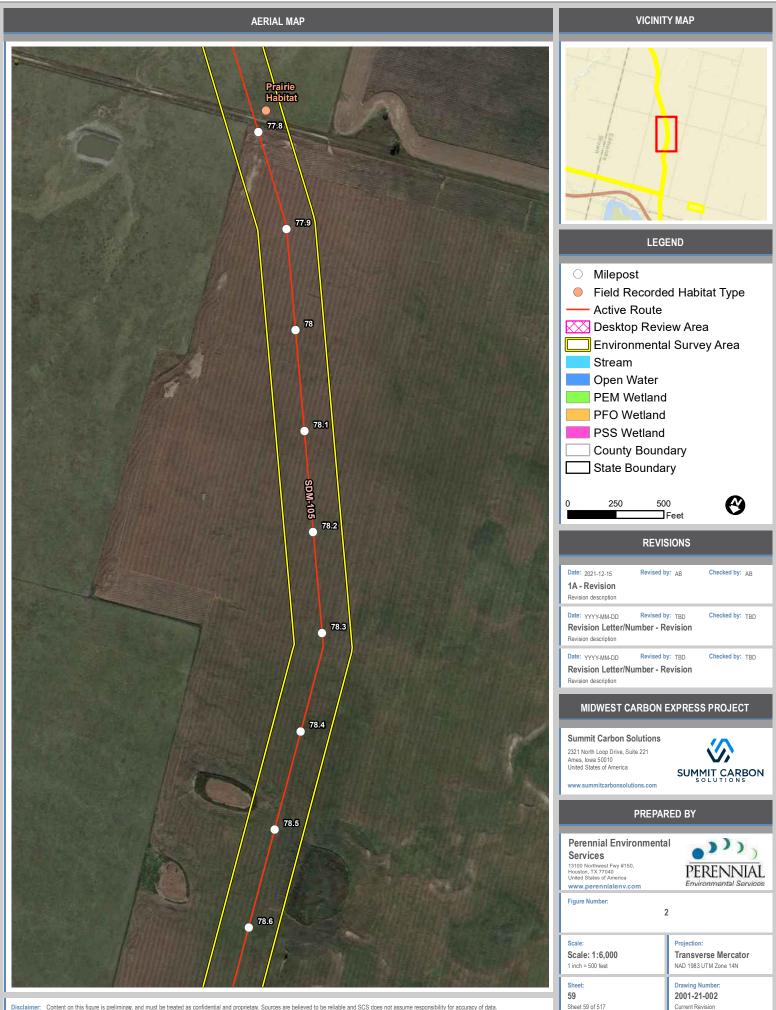


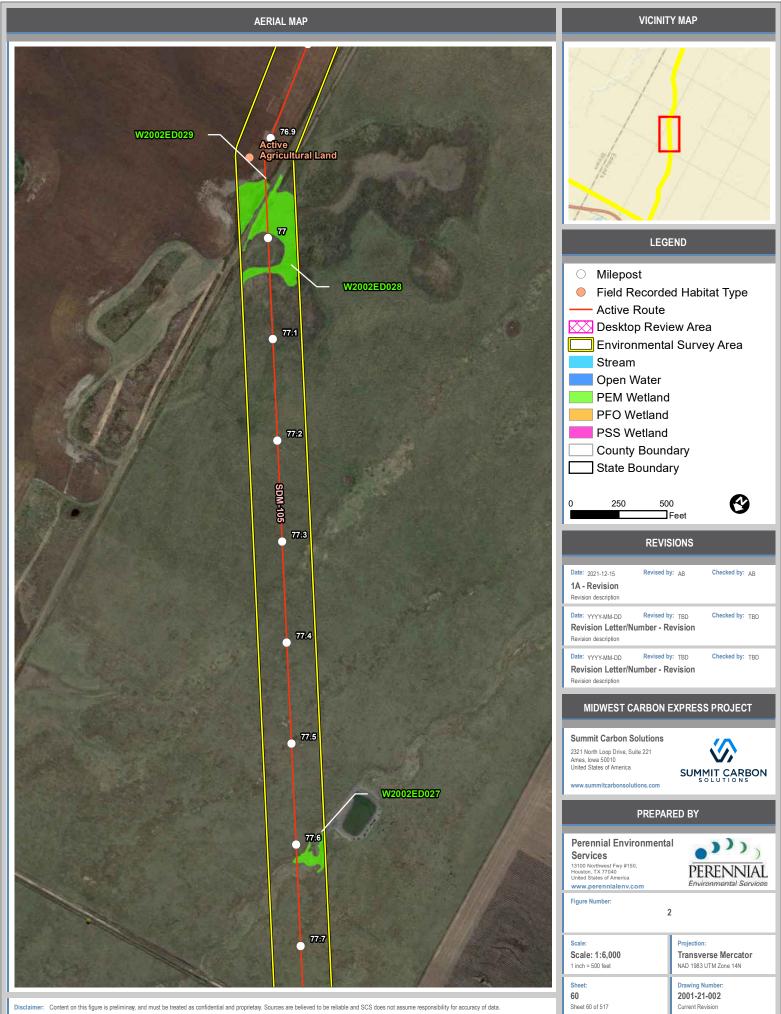




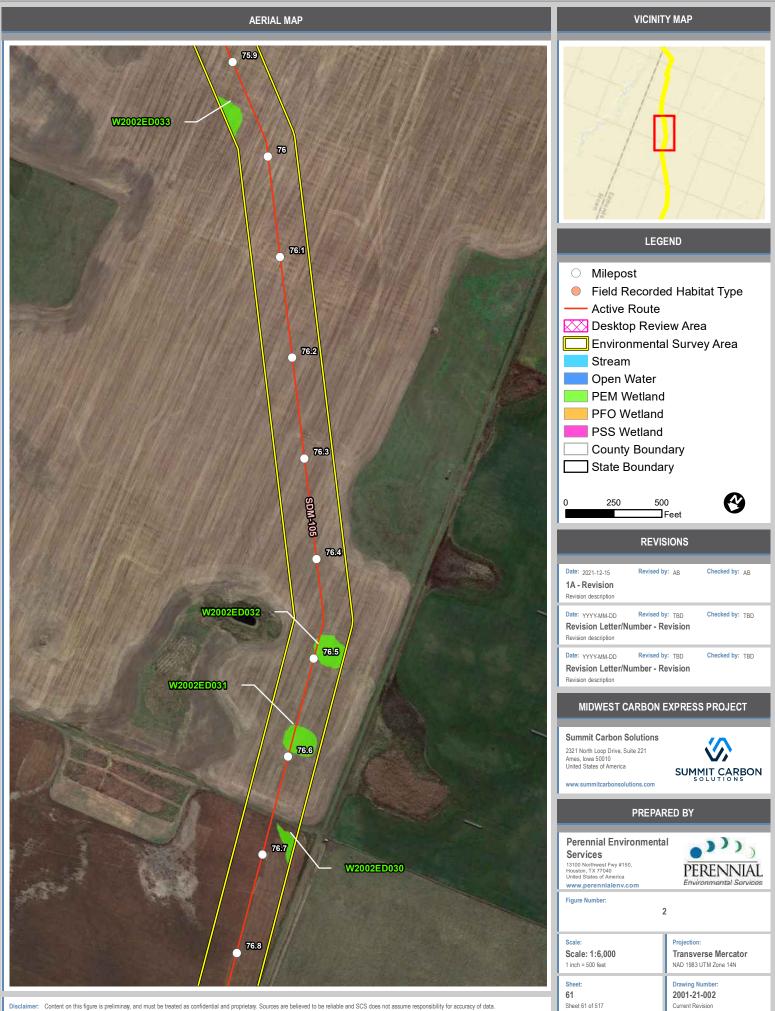


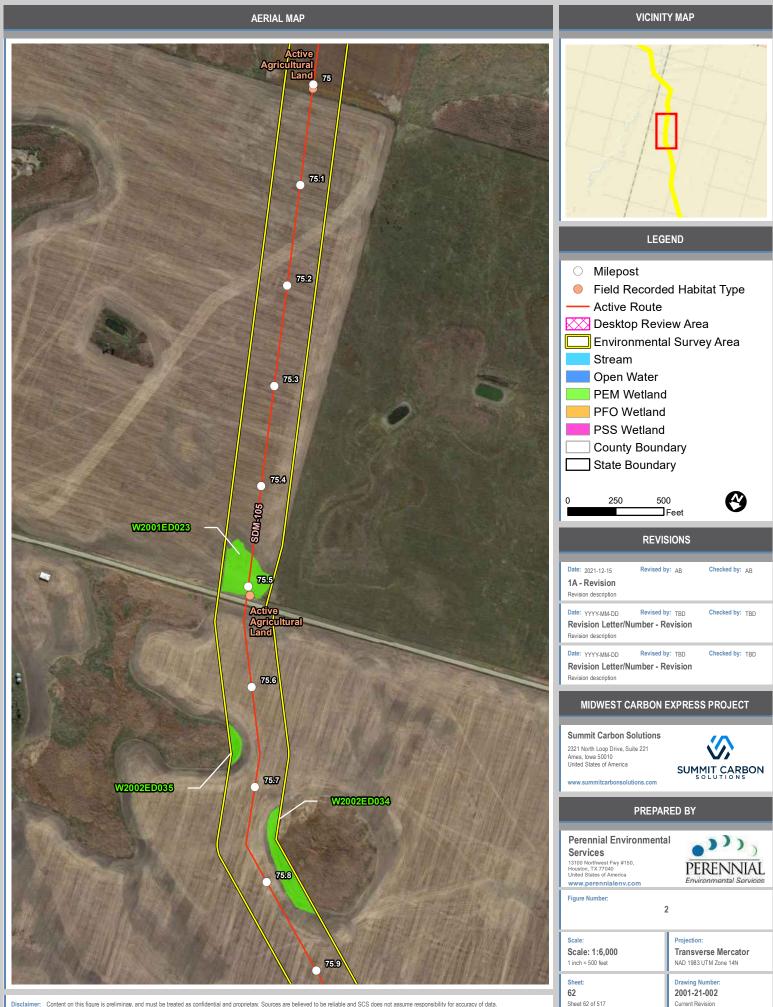
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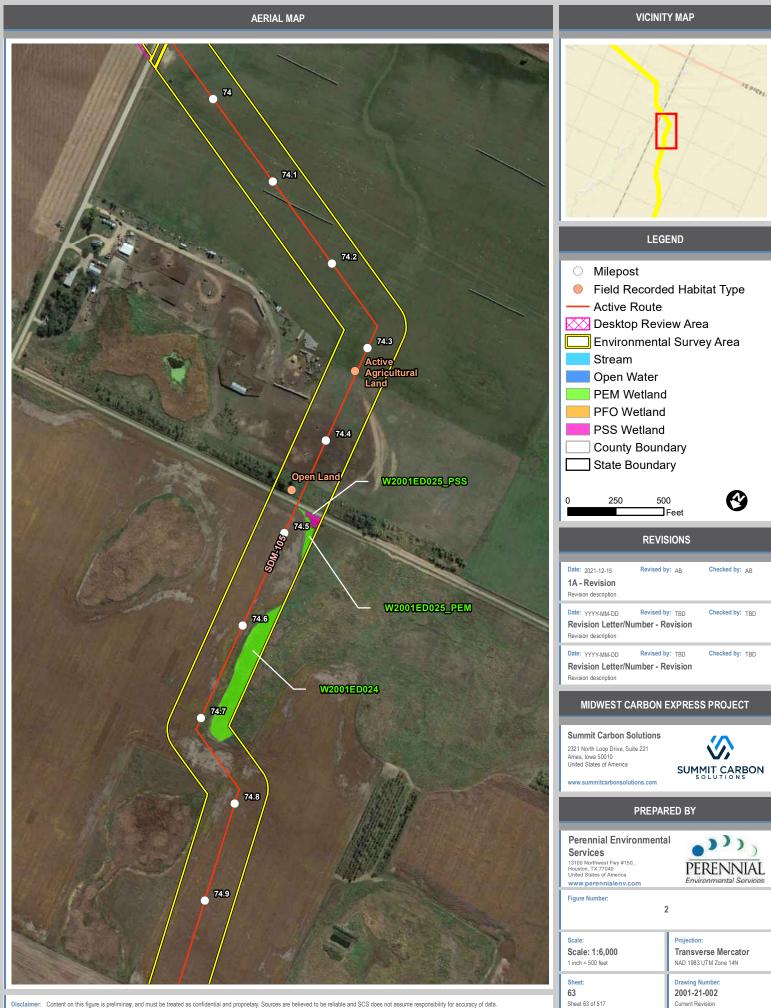


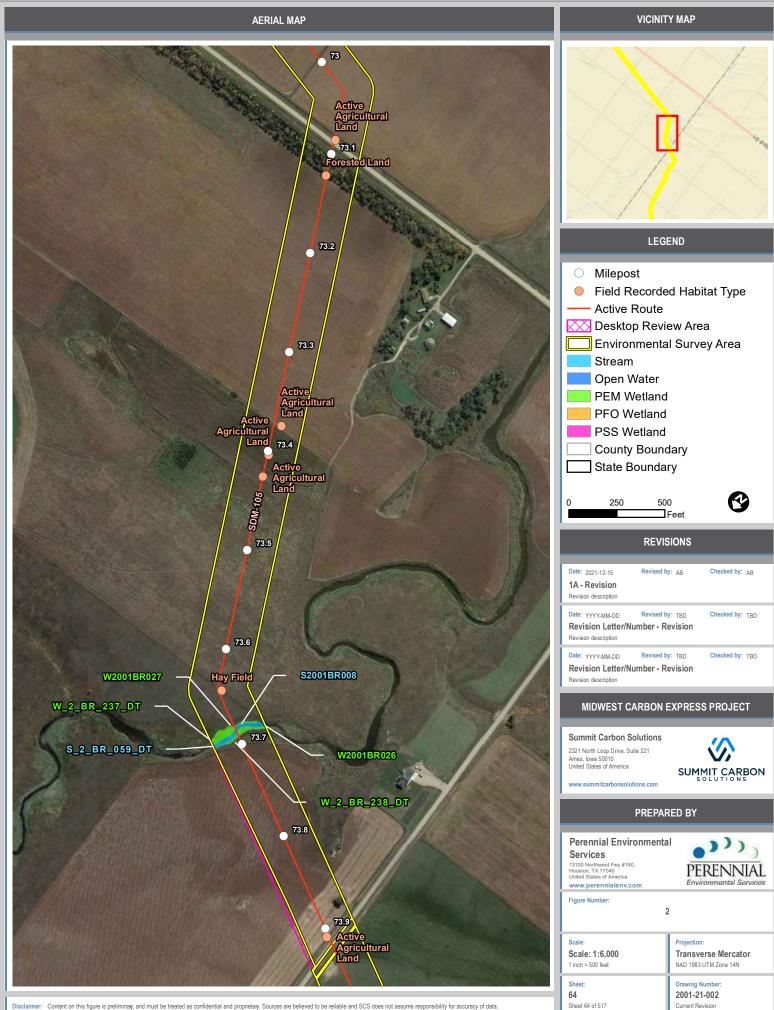


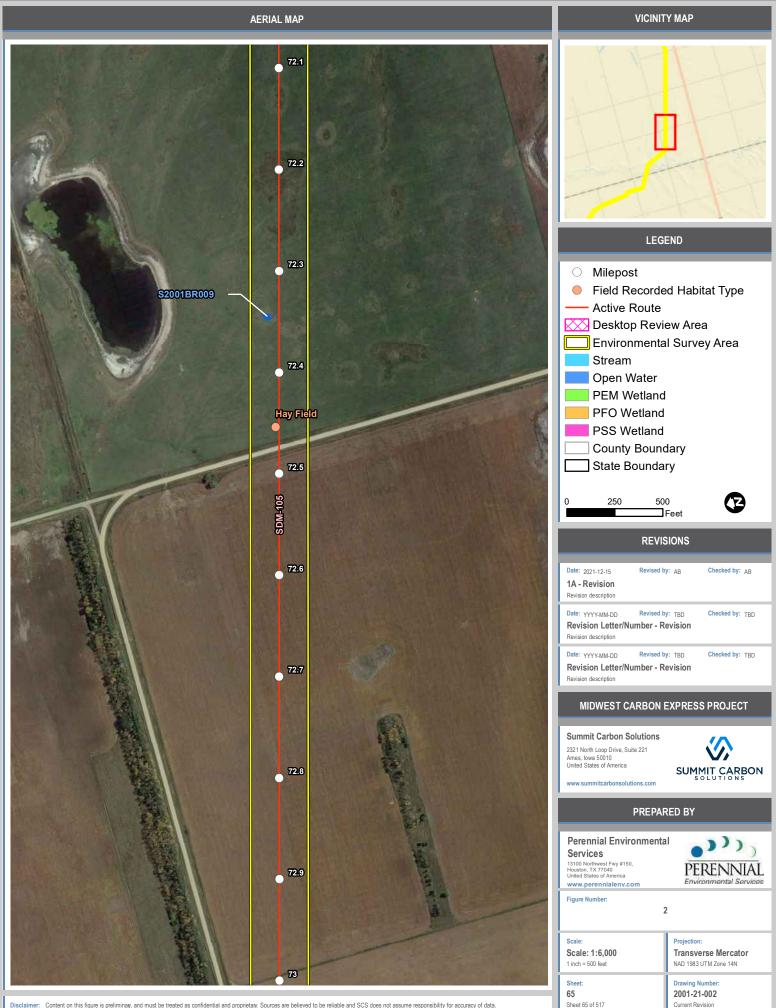
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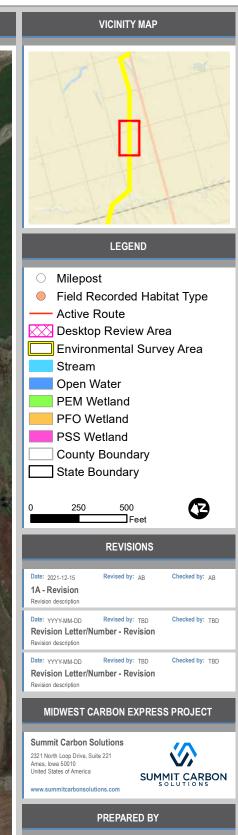






71.2 

71.3



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Perennial Environmenta Services 13100 Northwest Fwy #150, Houston, TX 77040 United States of America www.perennialenv.com	al PERENNIAL
Figure Number: 2	
Scale: Scale: 1:6,000 1 inch = 500 feet	Projection: Transverse Mercator NAD 1983 UTM Zone 14N

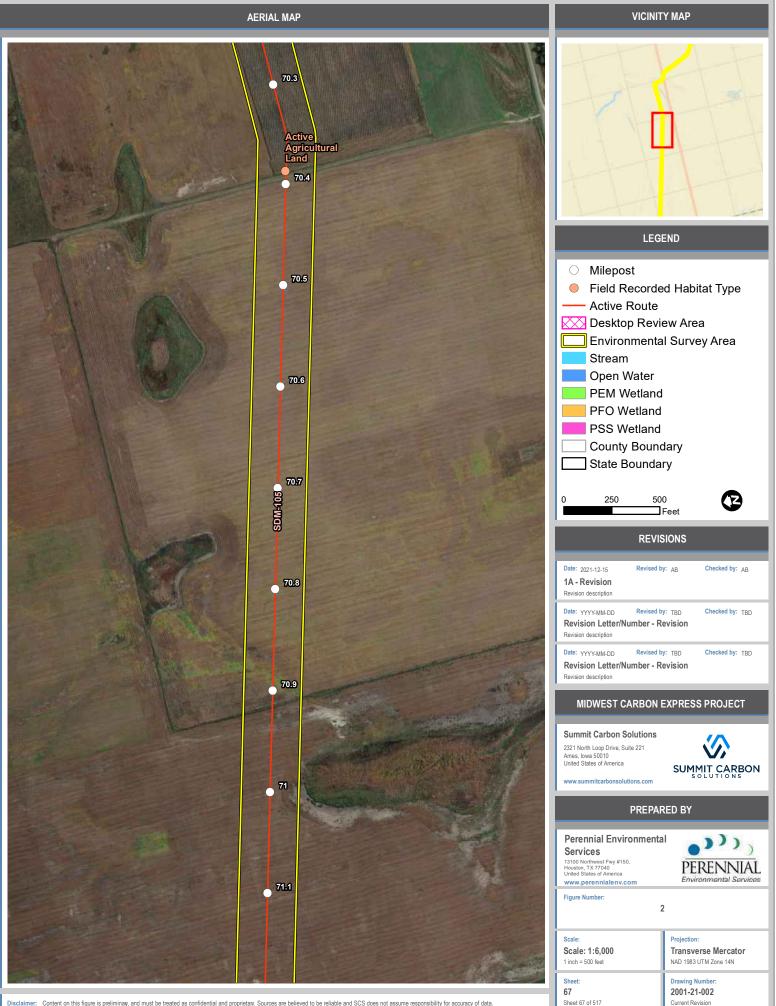
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Current Revision

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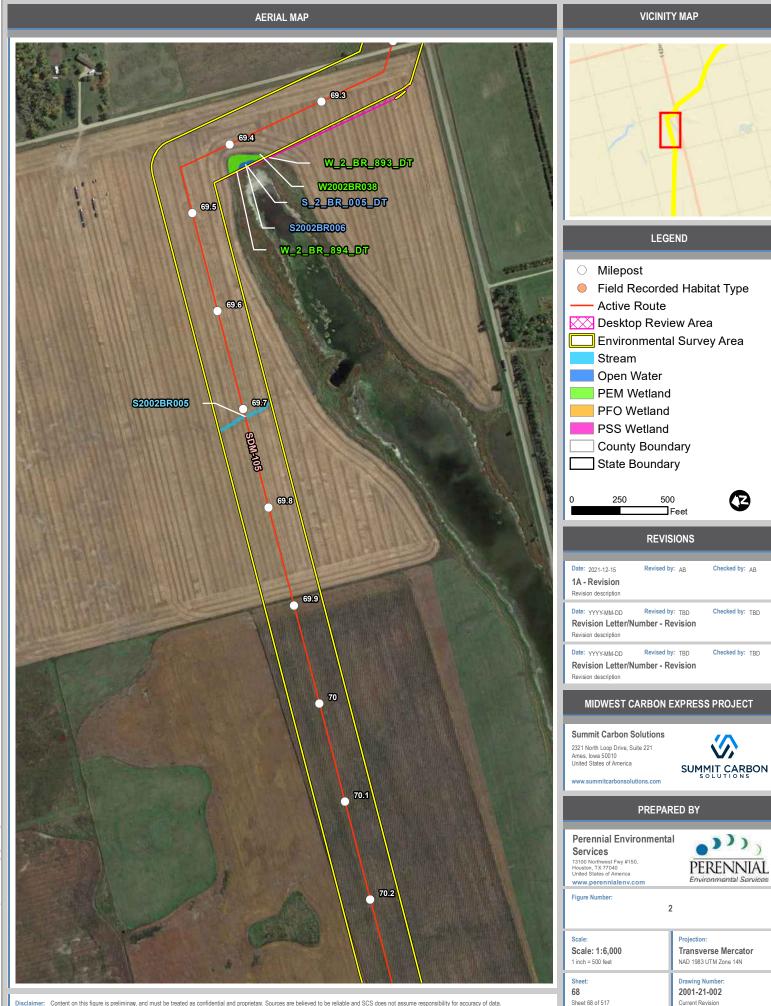
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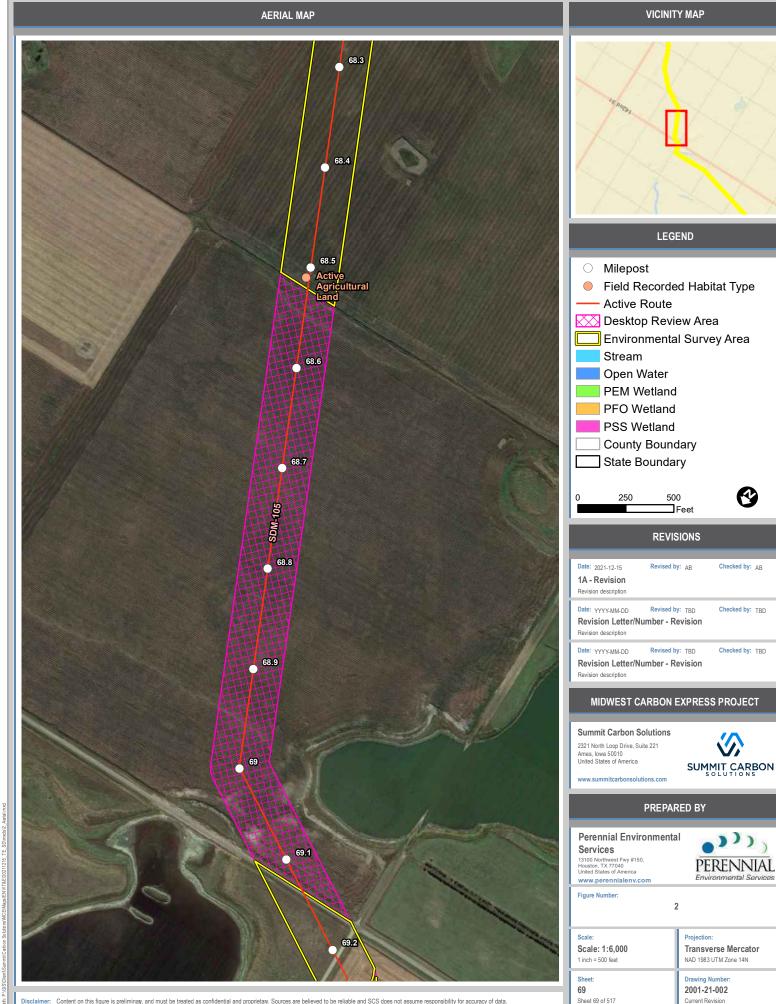




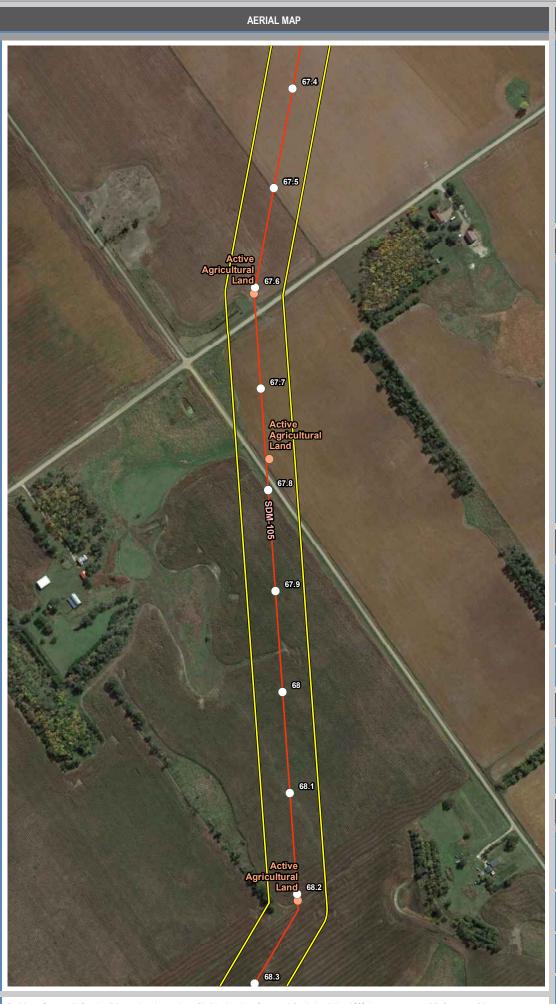
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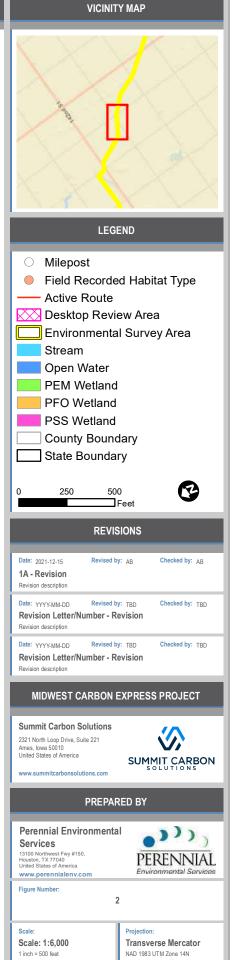
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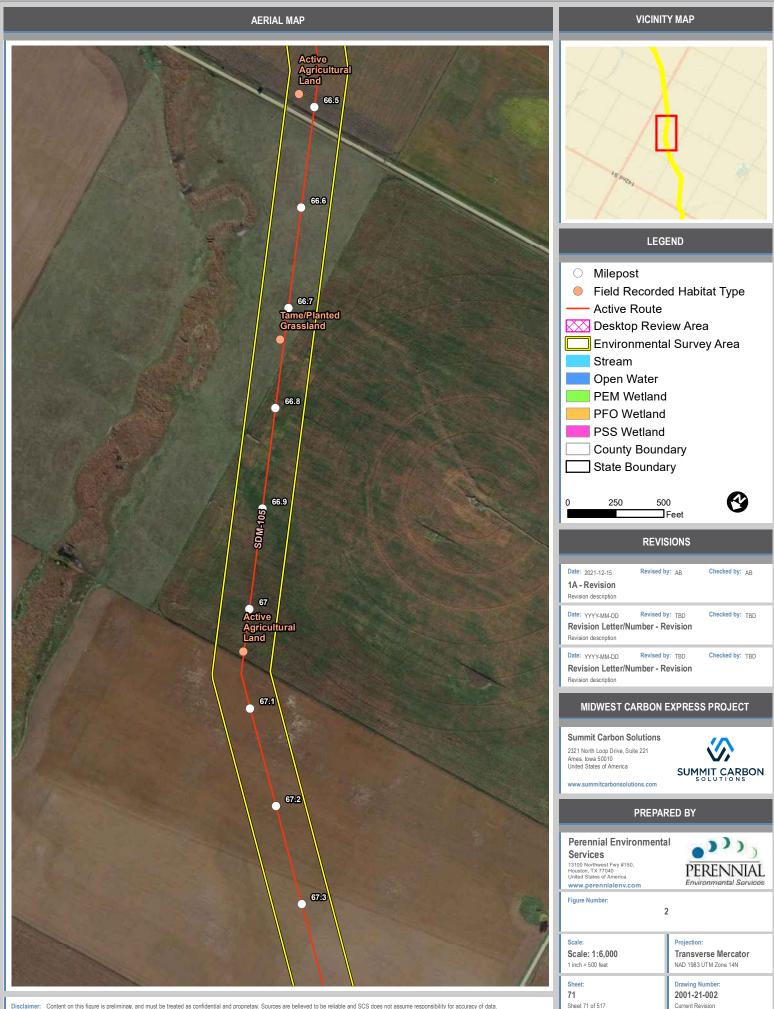


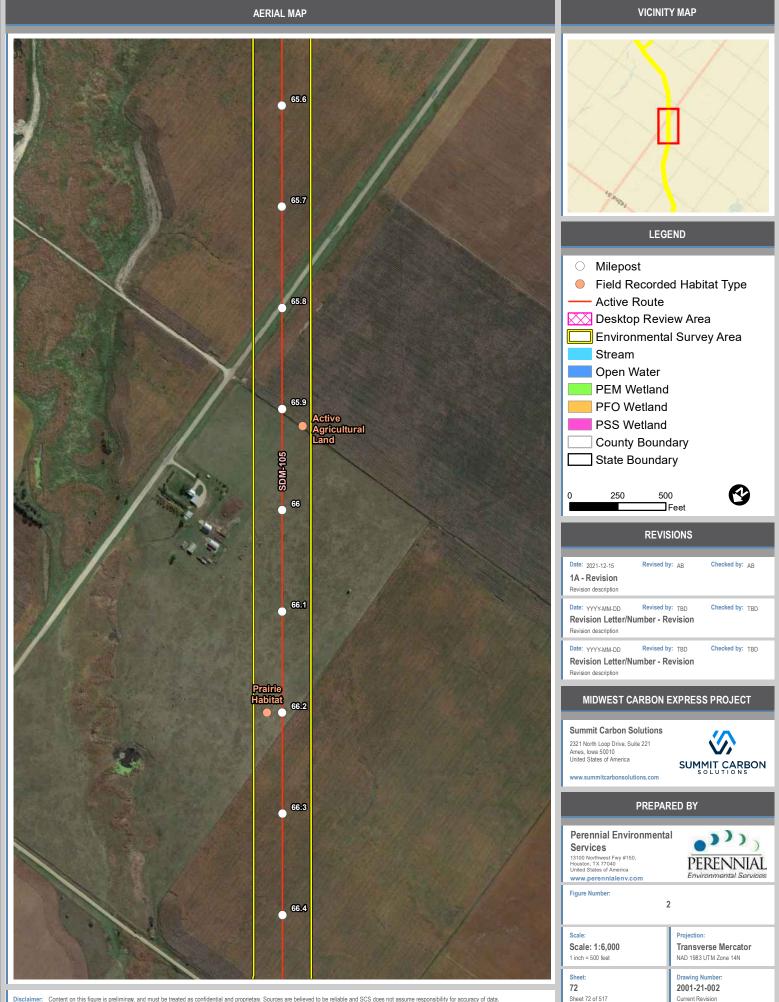
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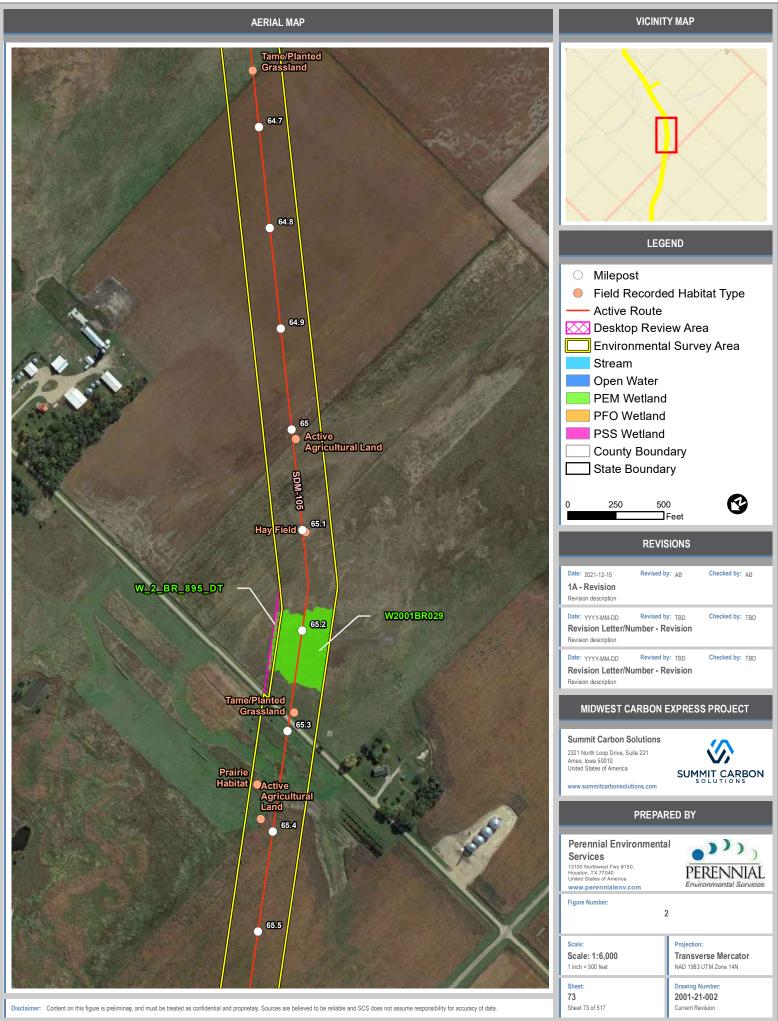
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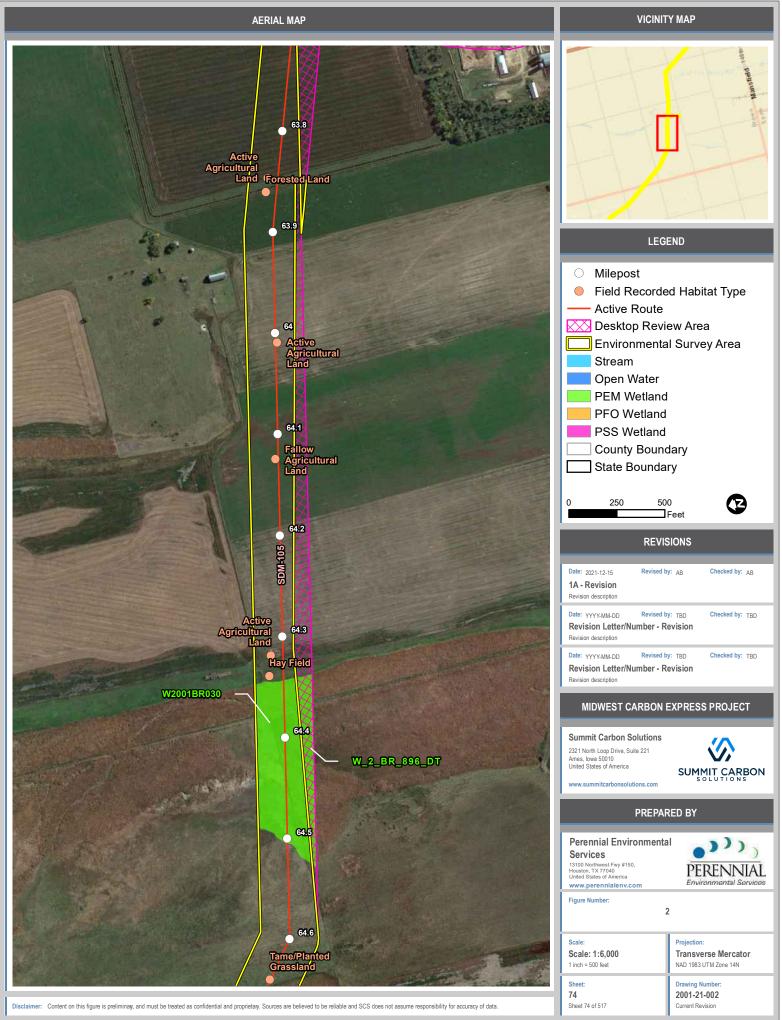
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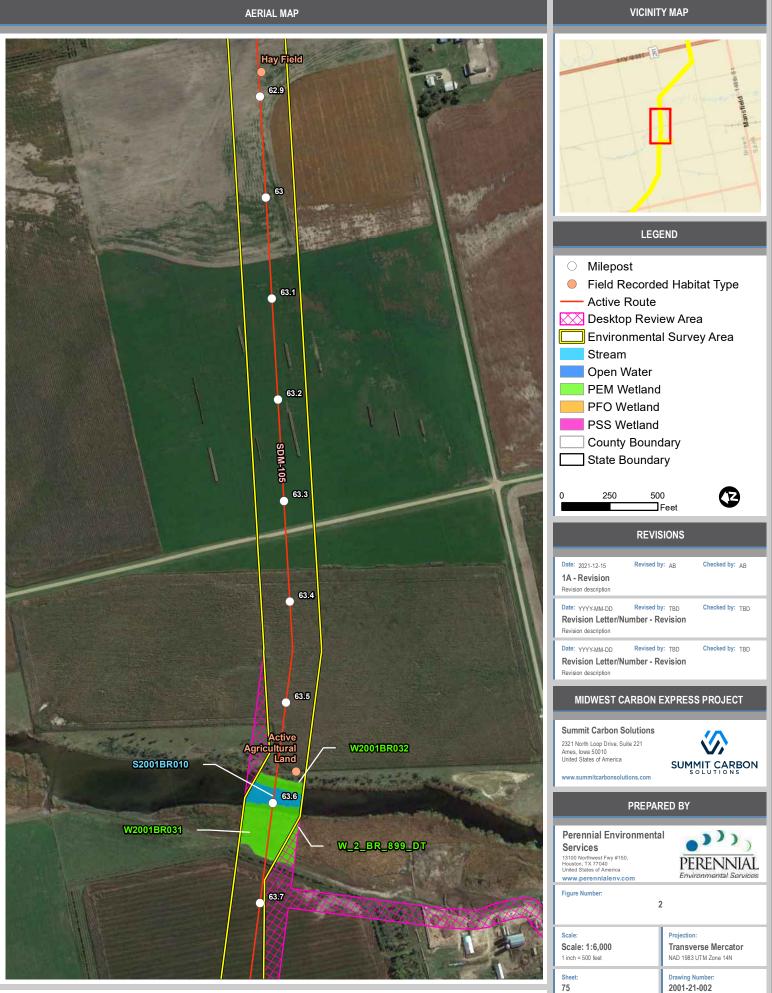




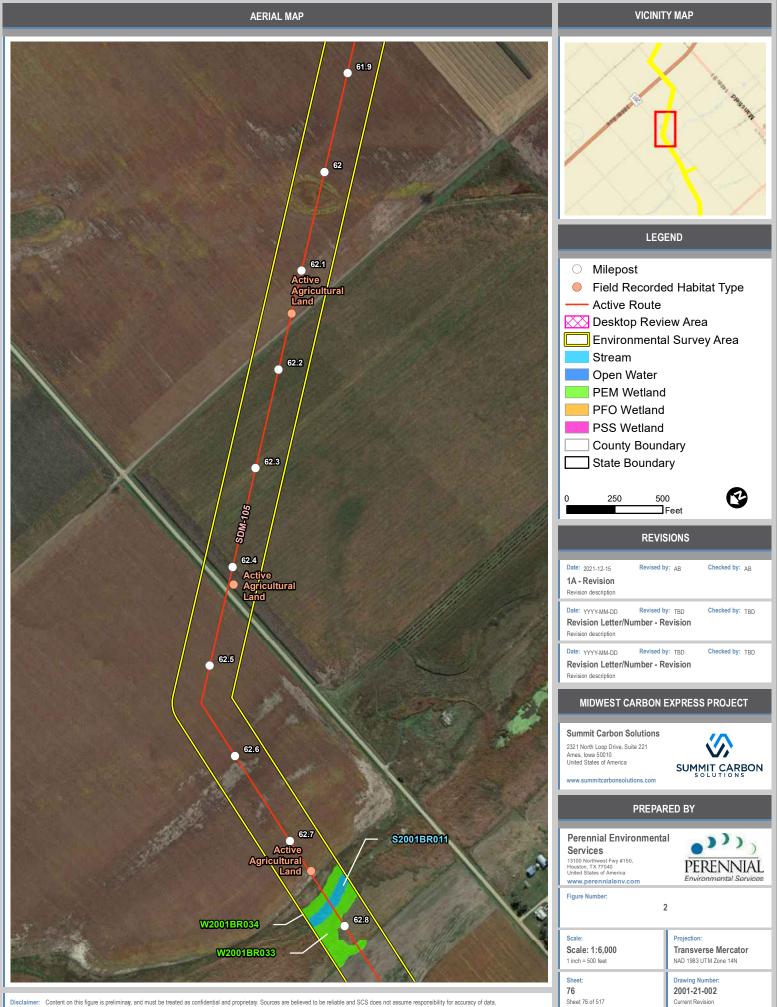


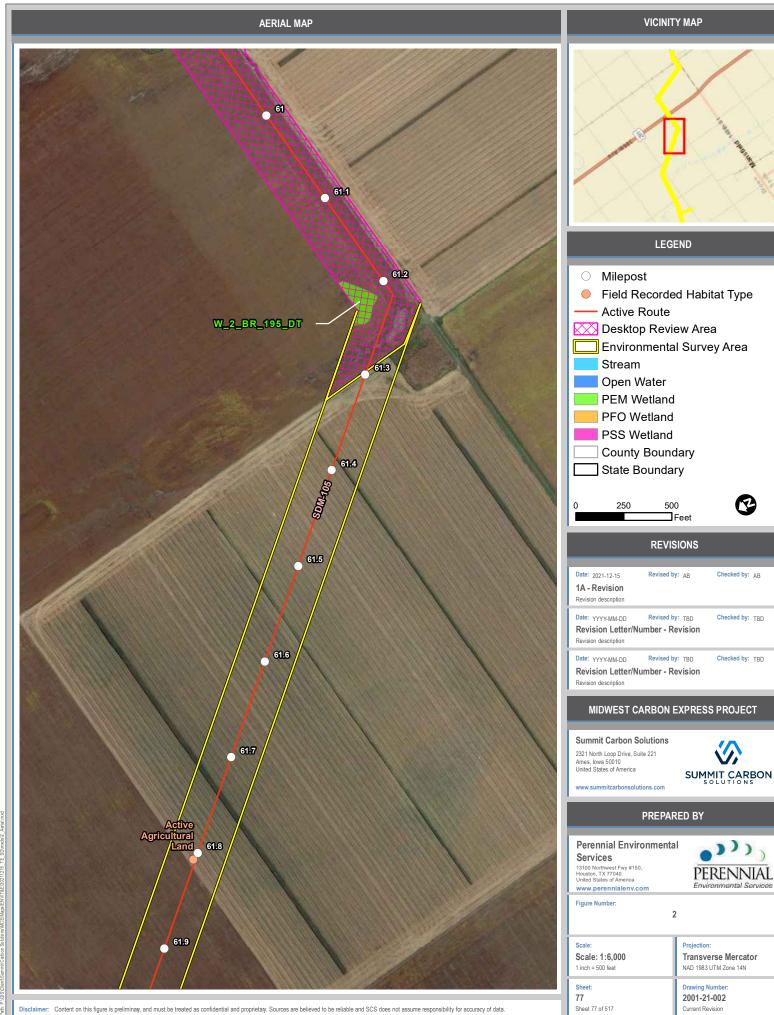


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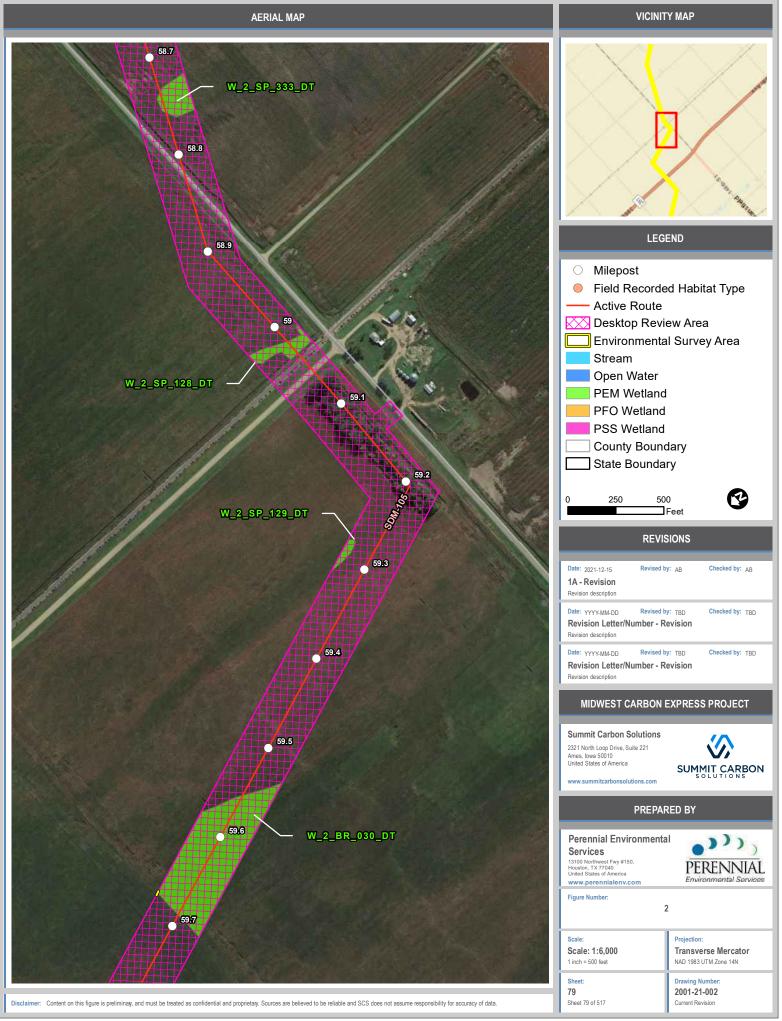
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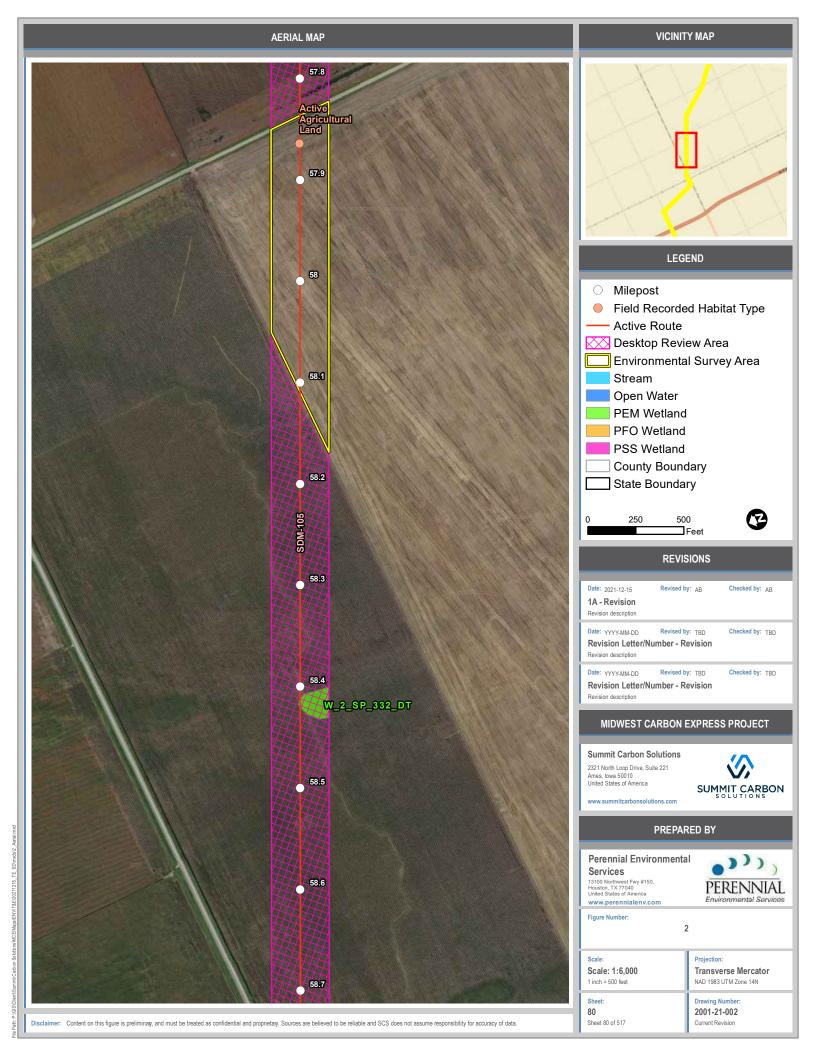
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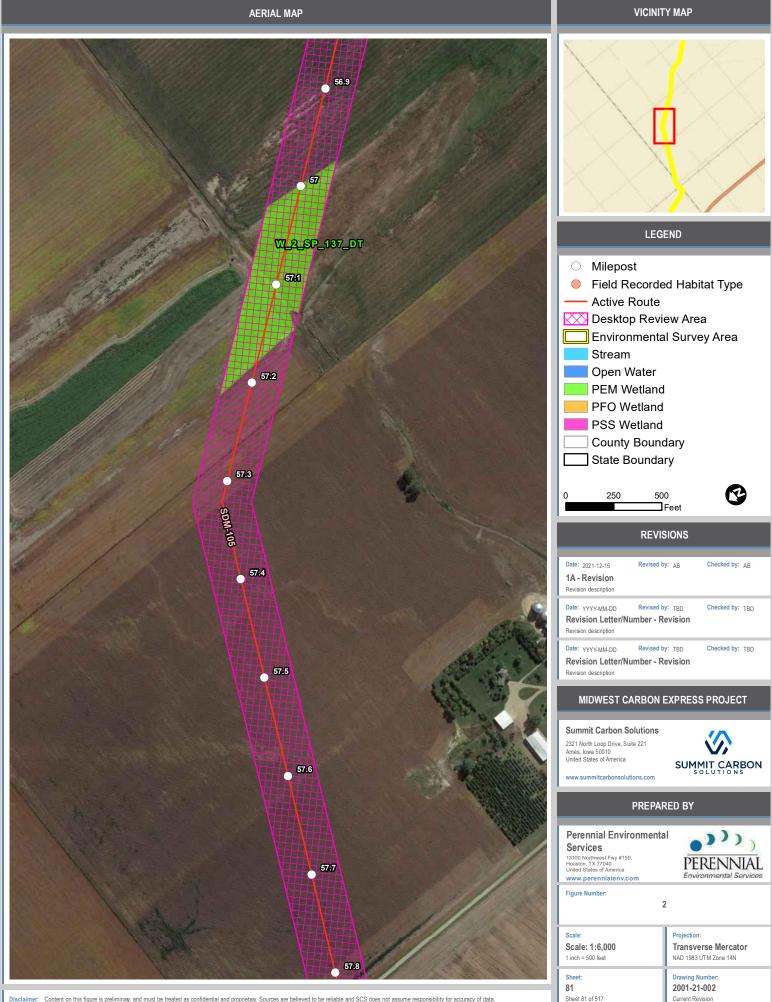
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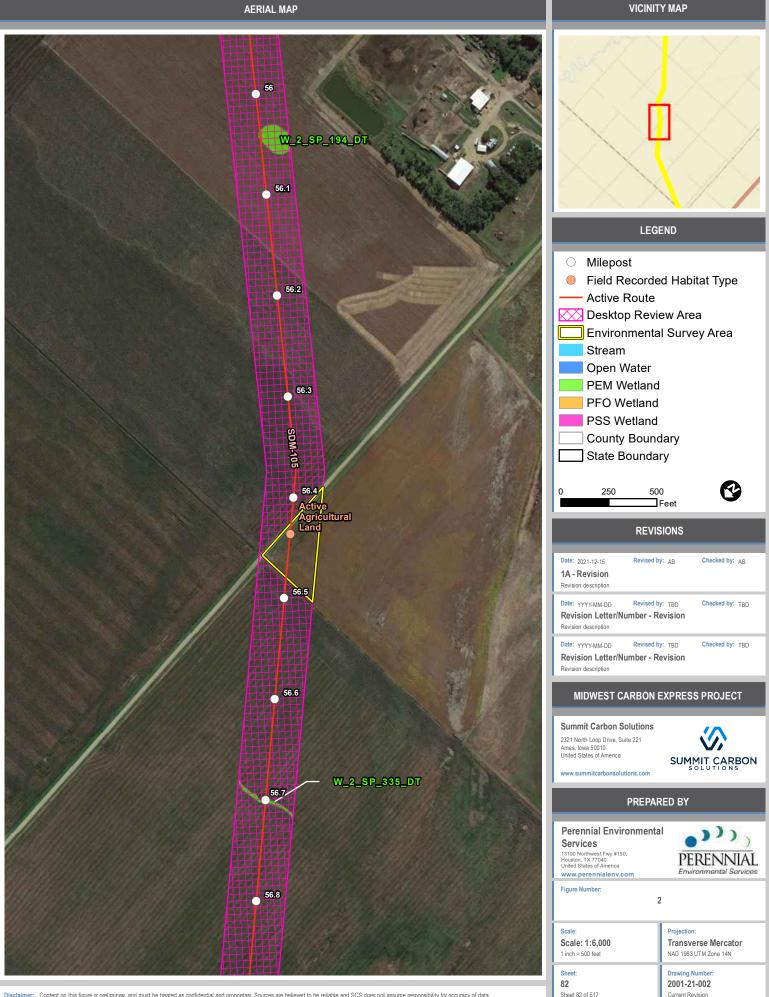




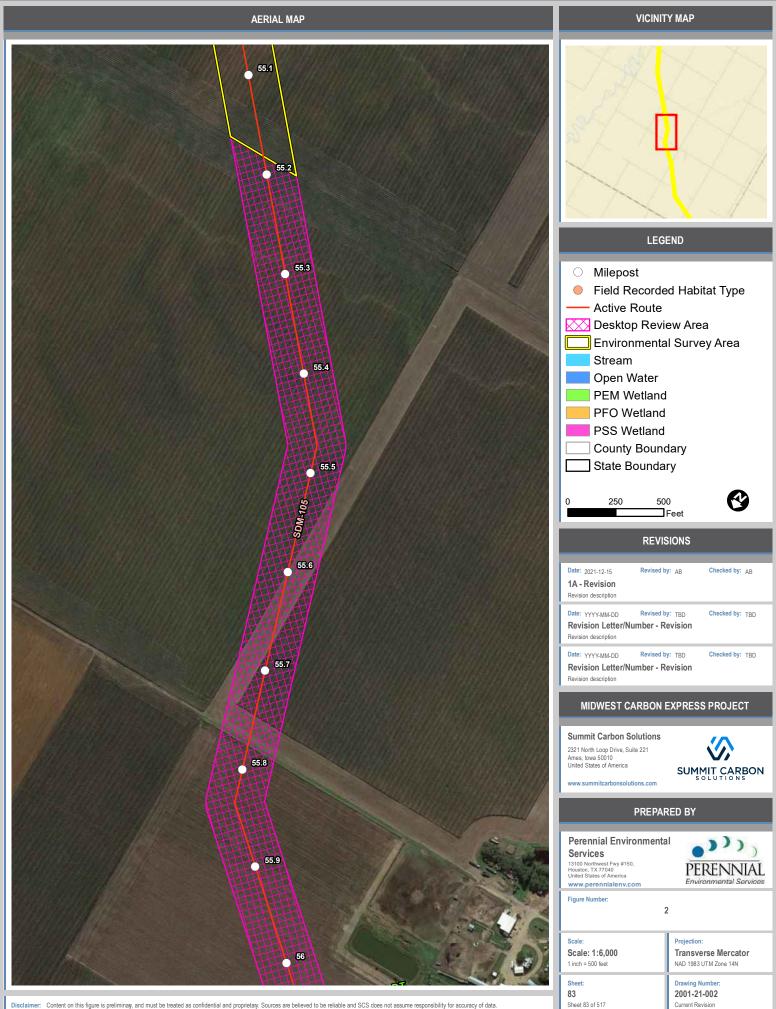


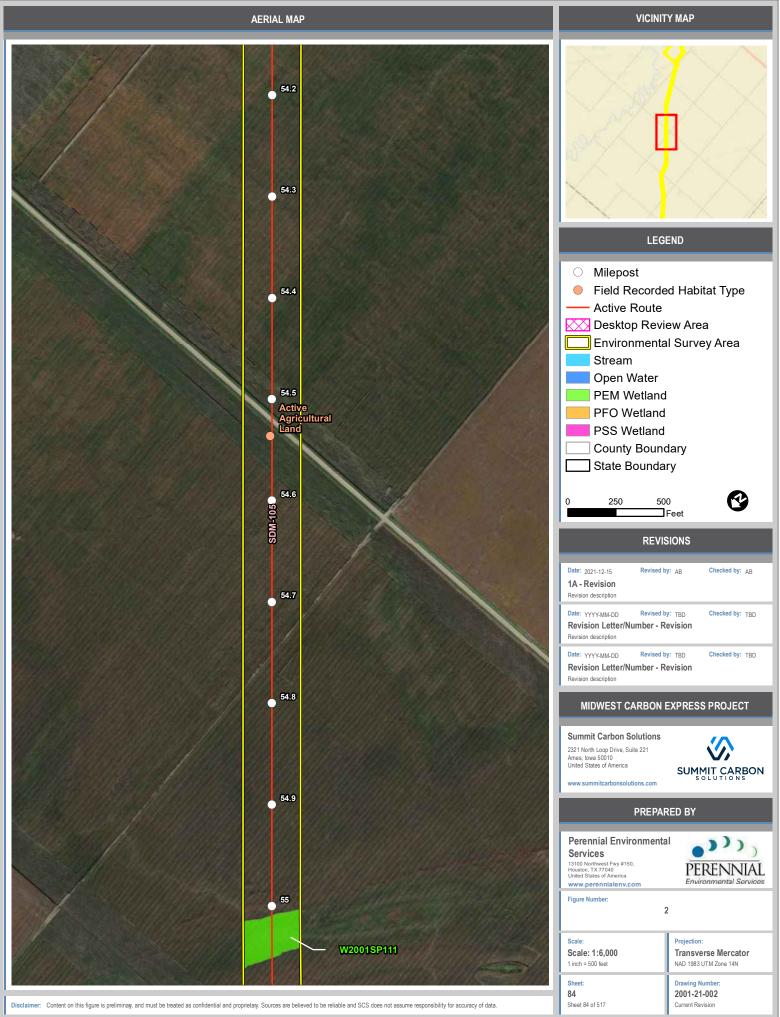


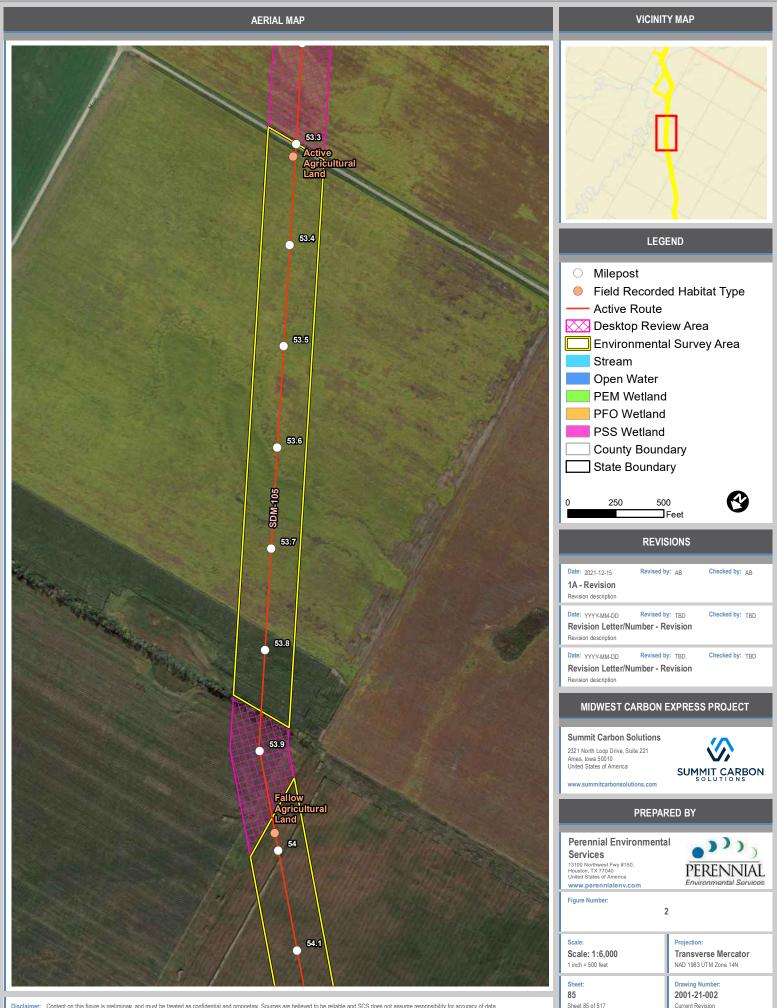
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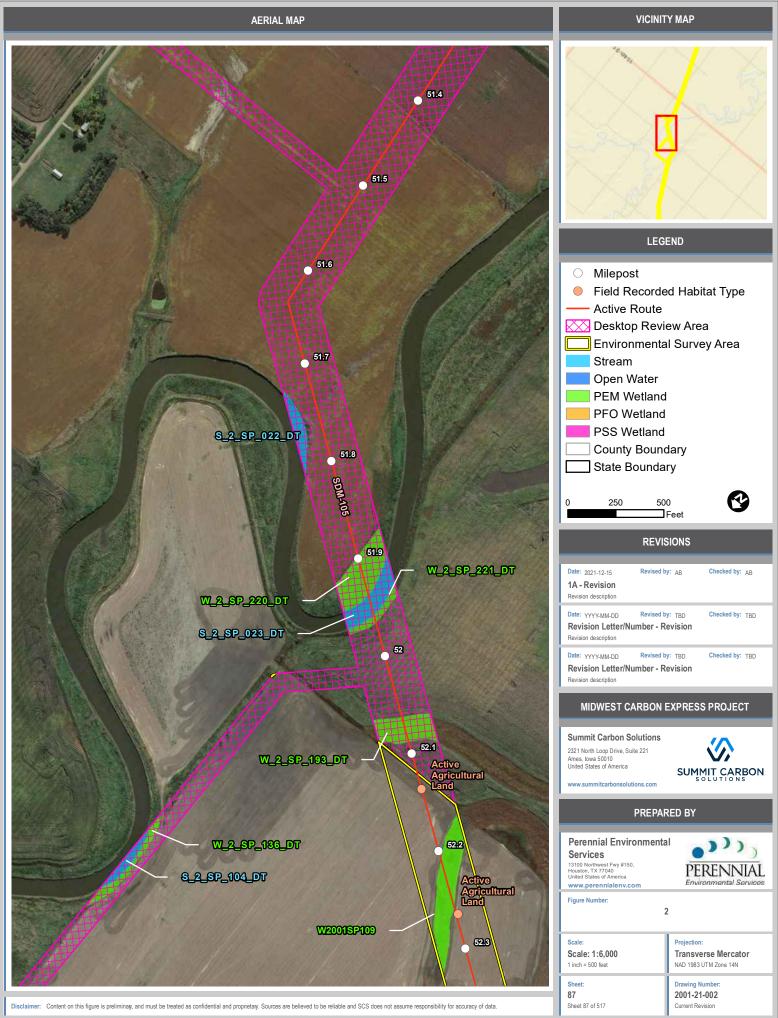
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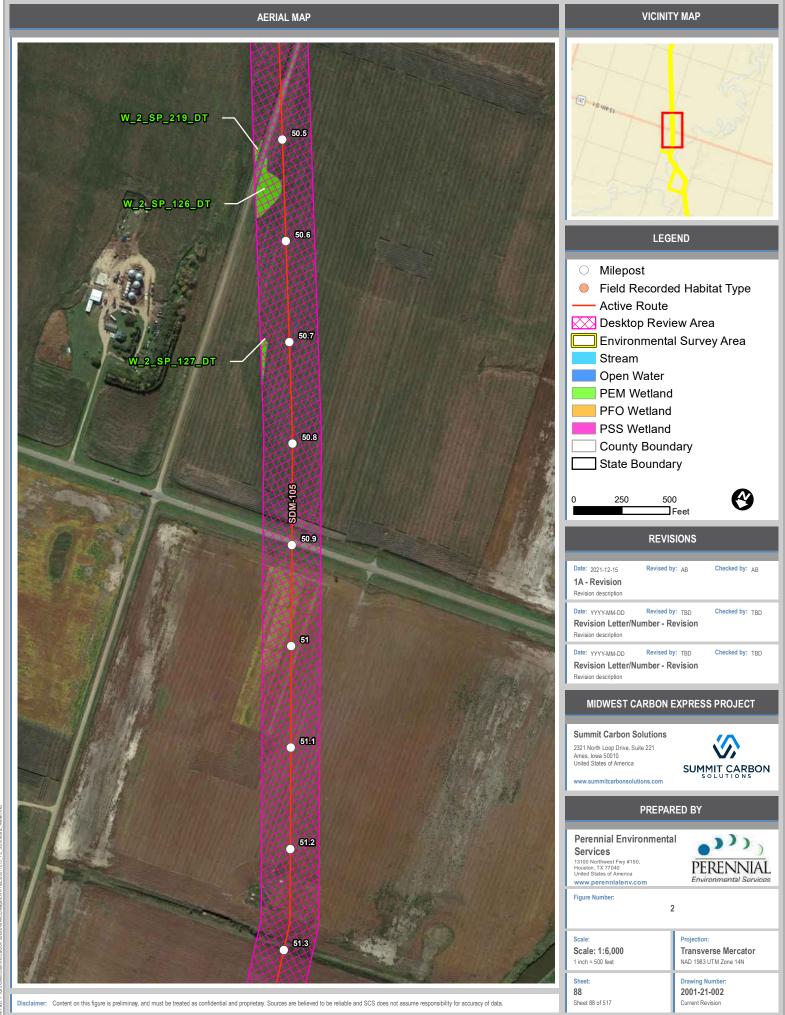


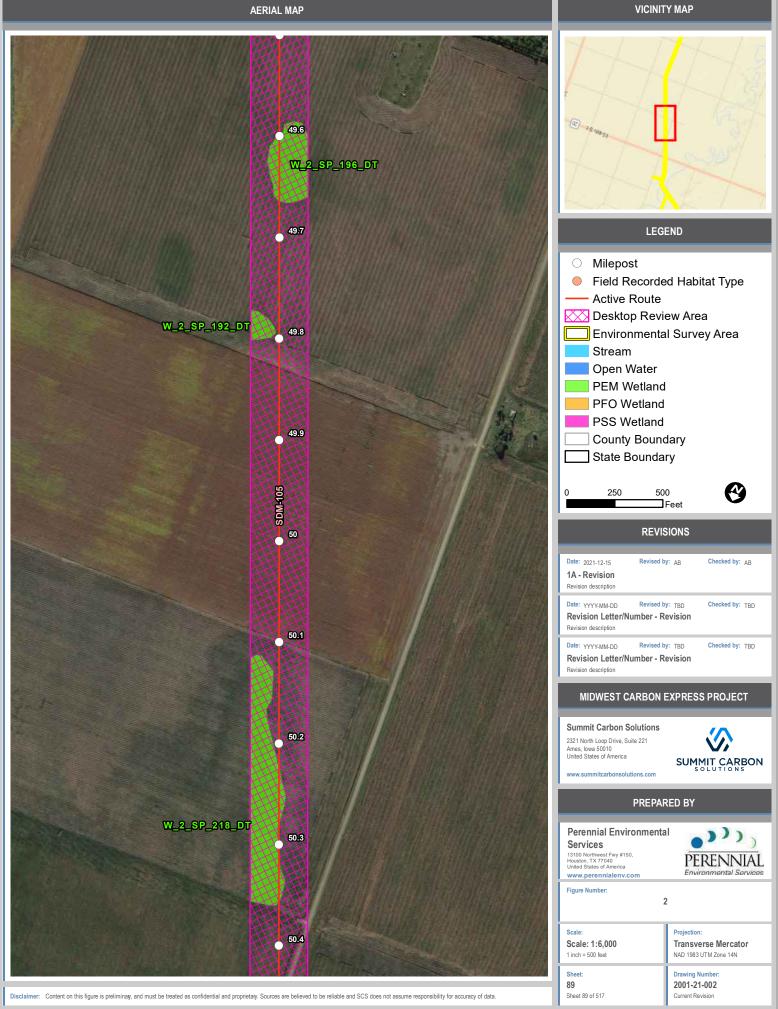


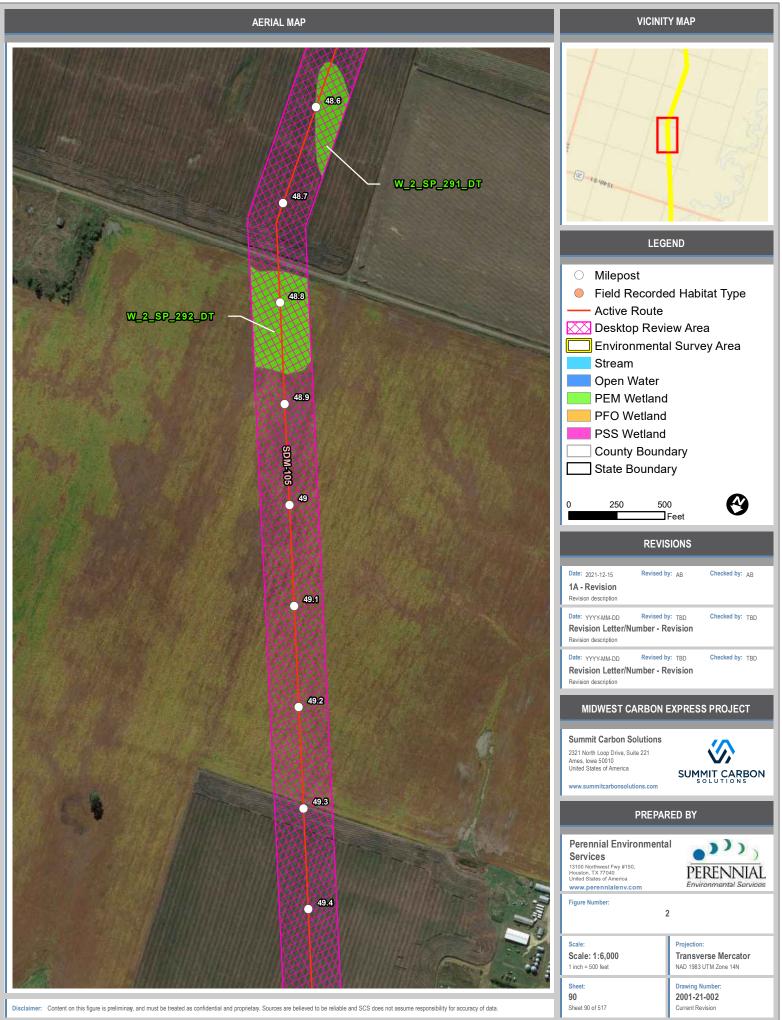


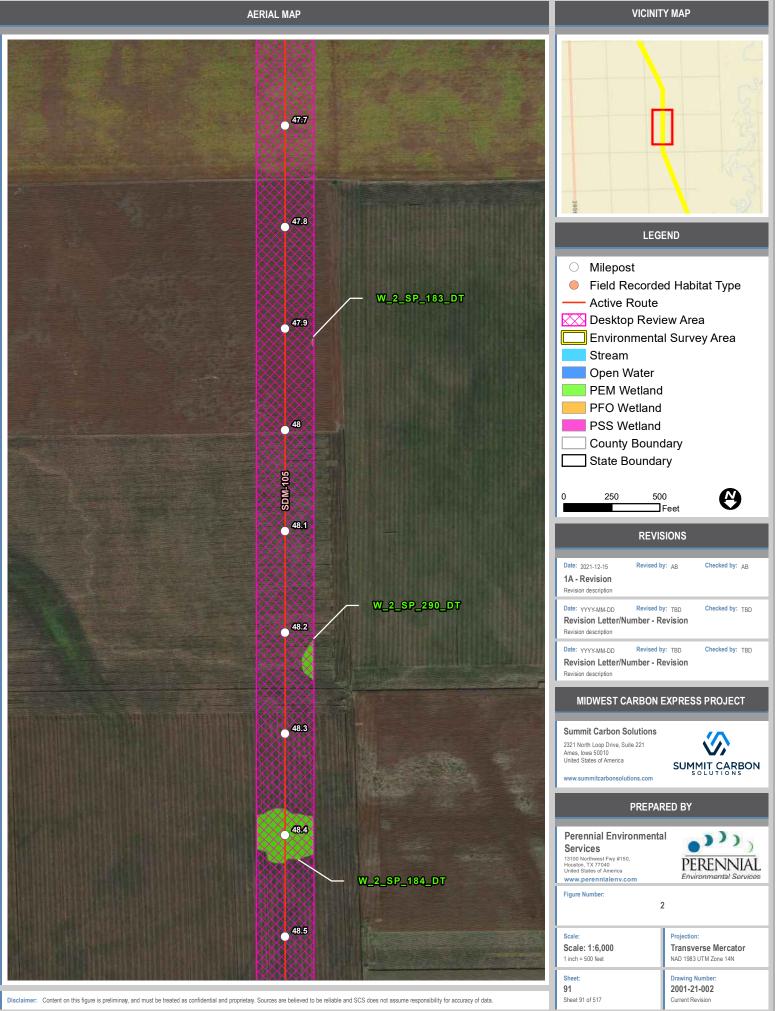




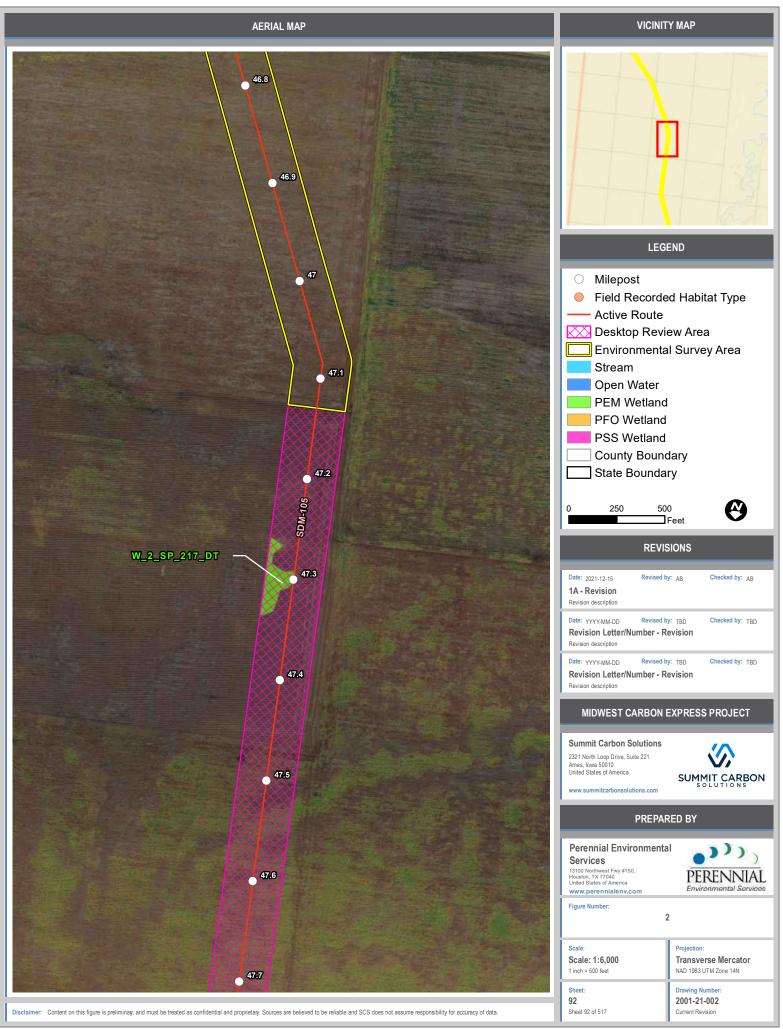


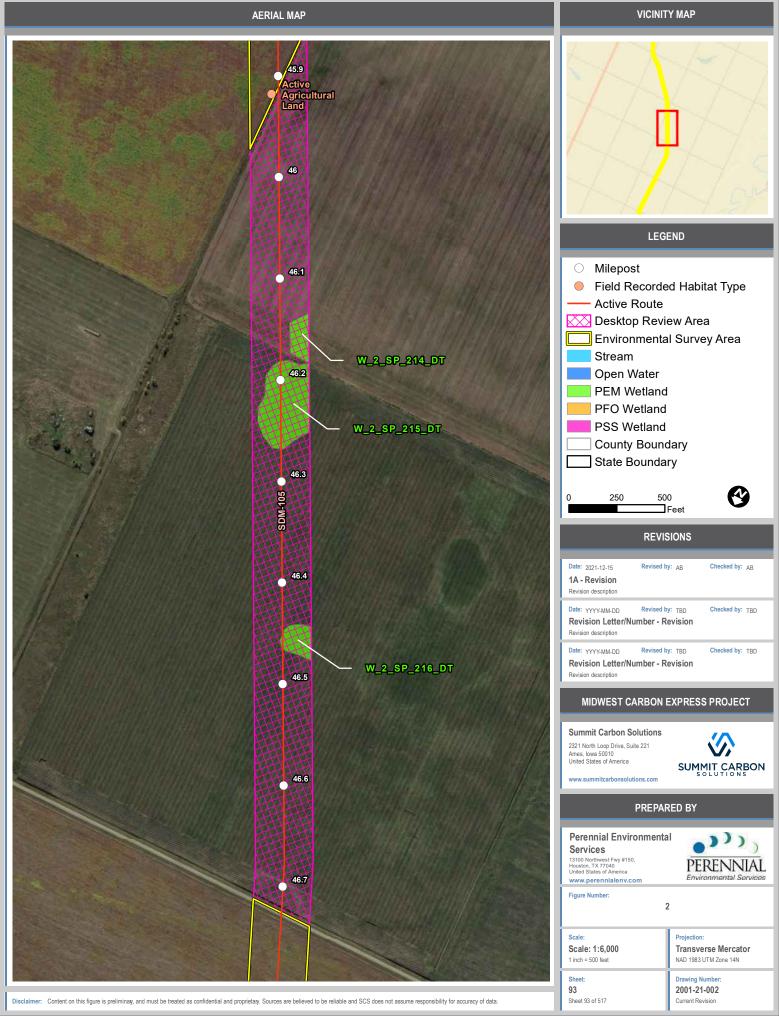


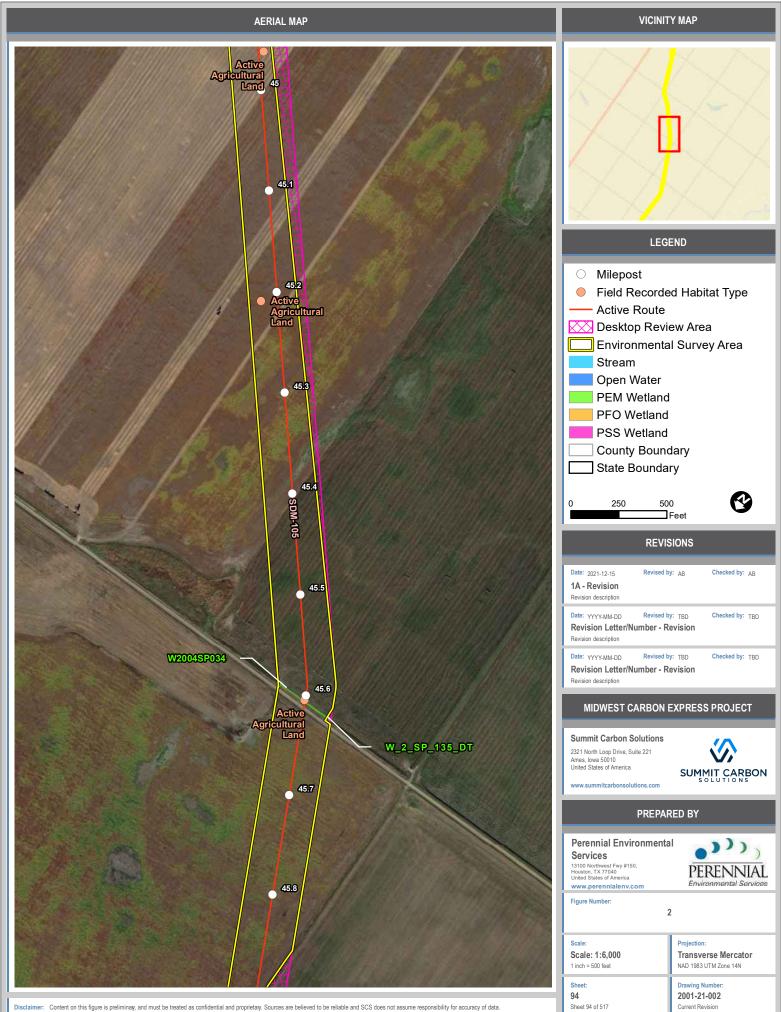


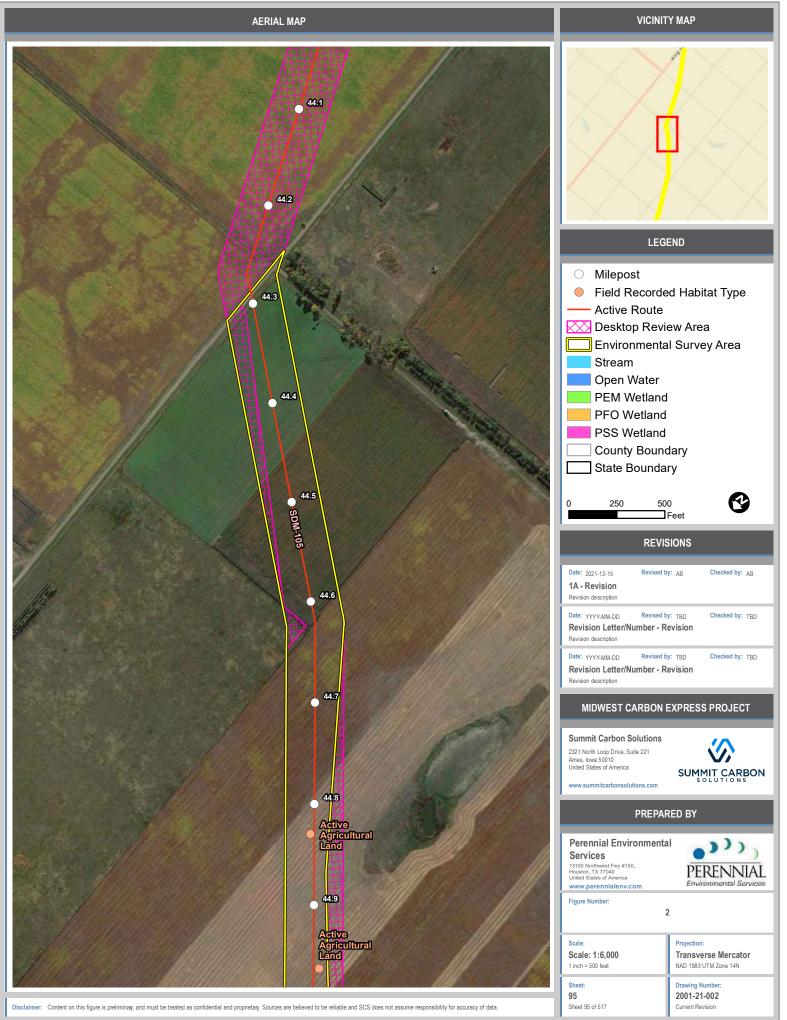


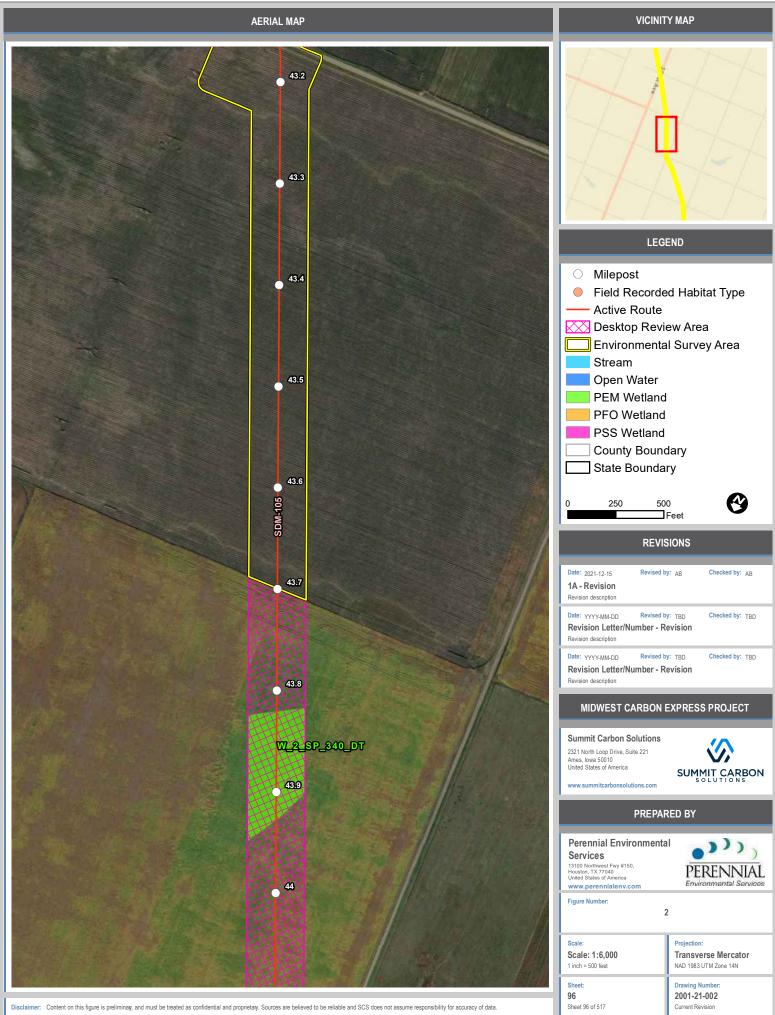
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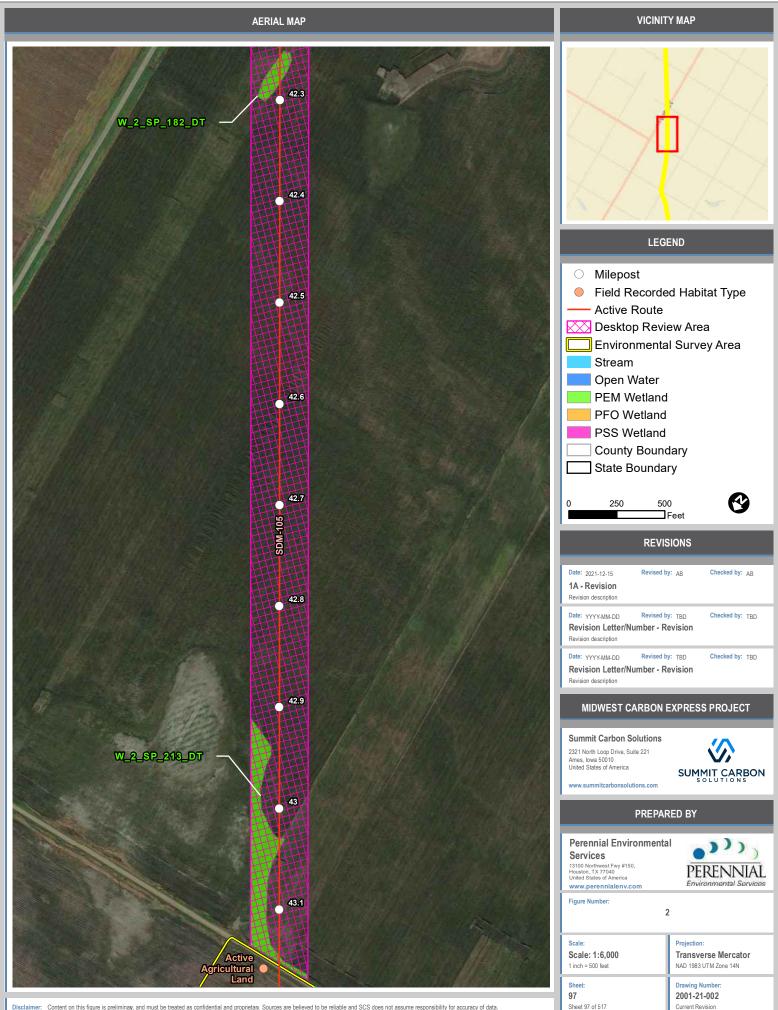


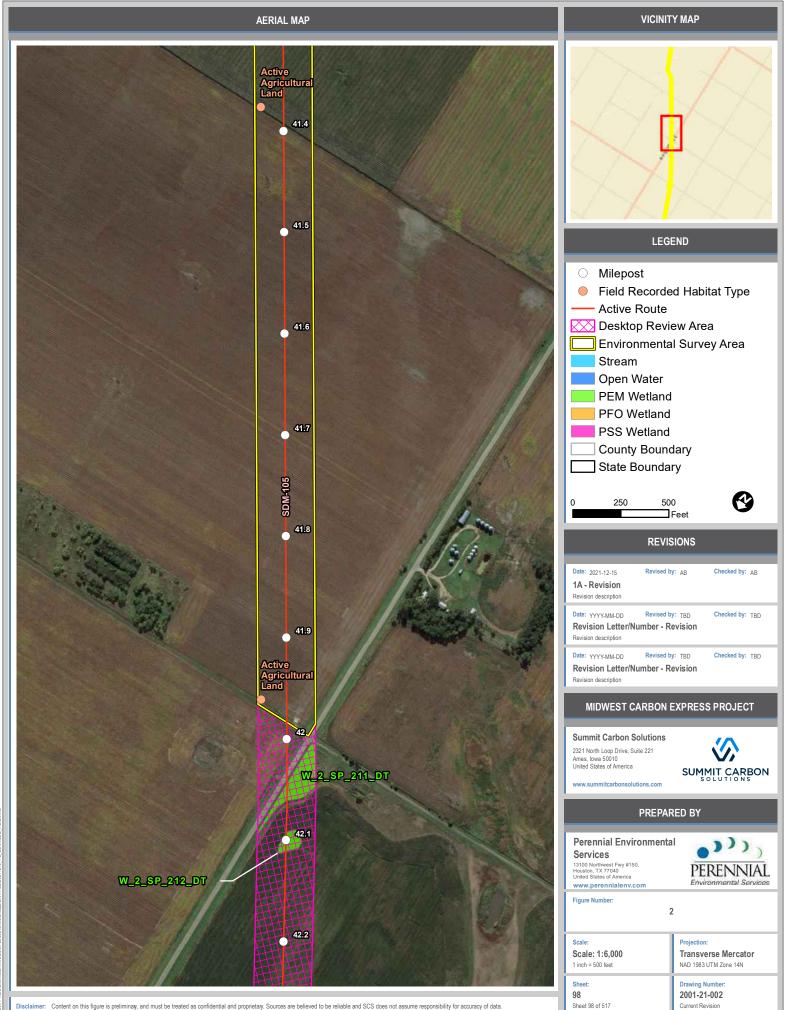


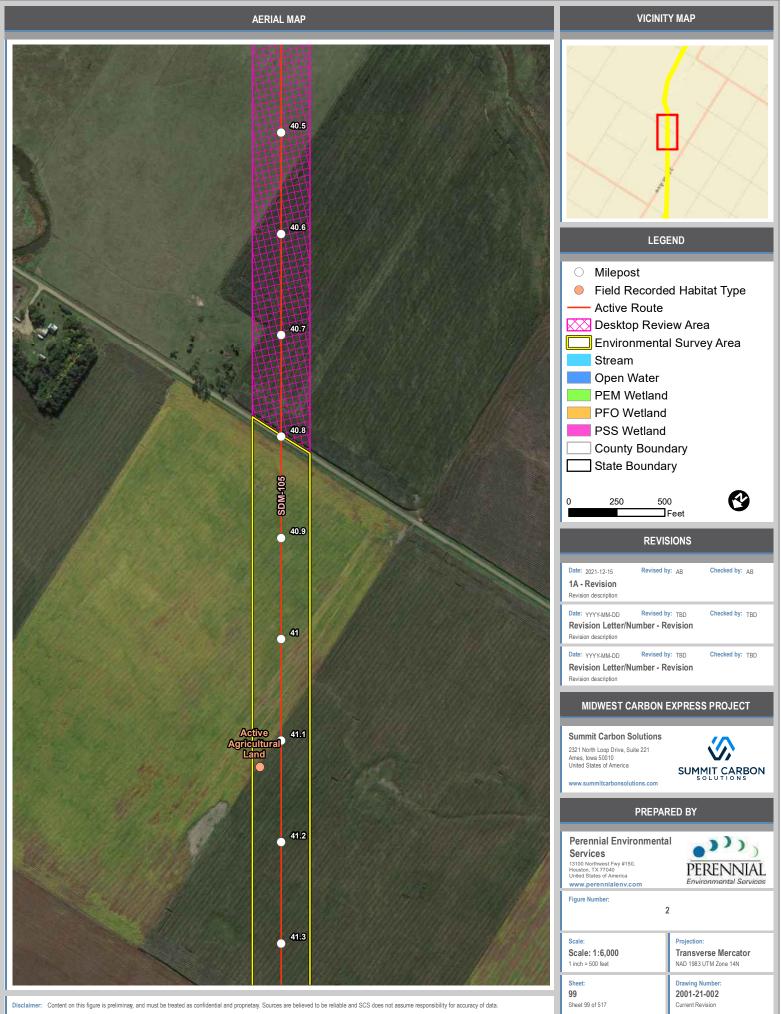




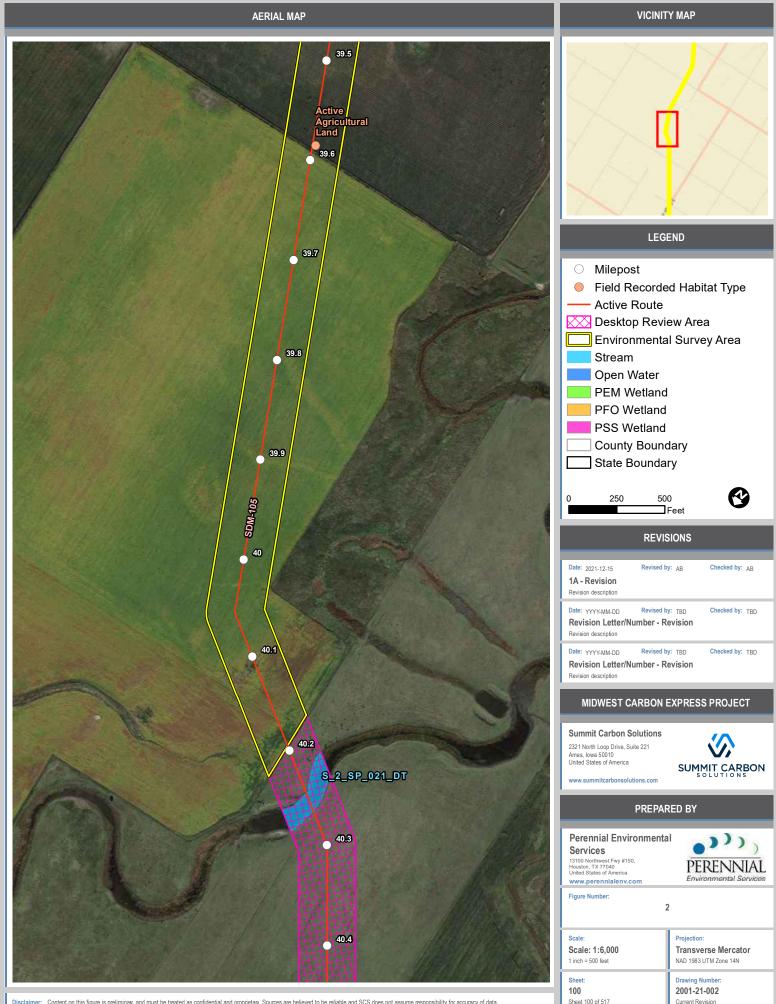


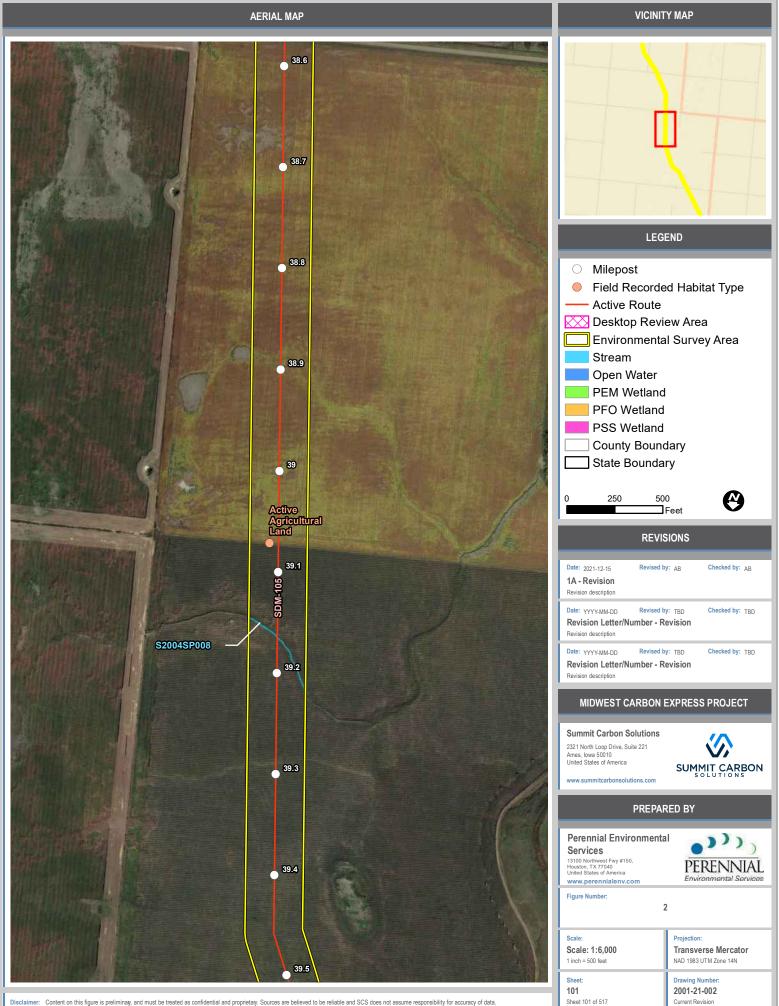


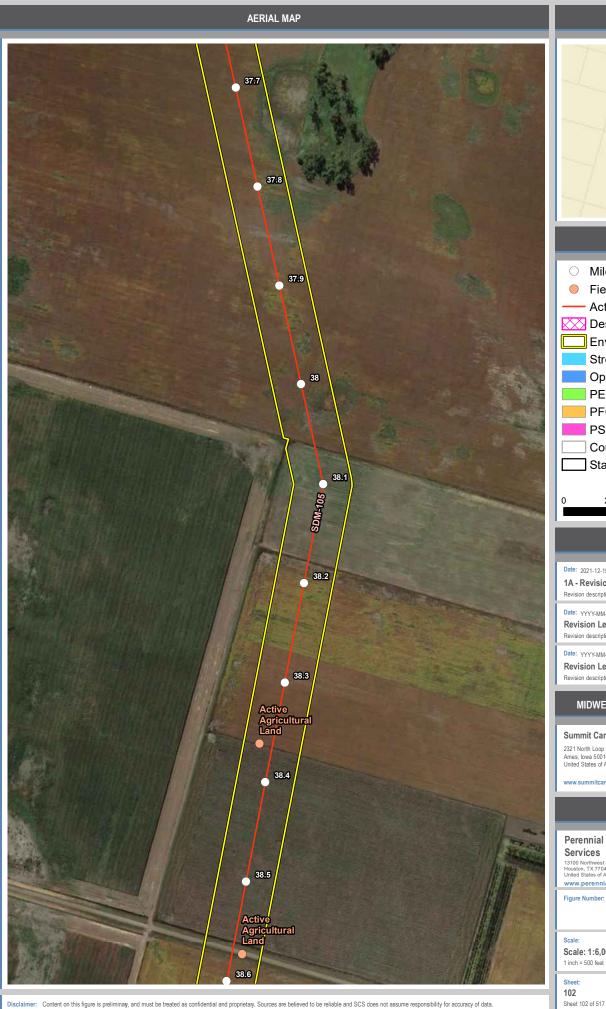


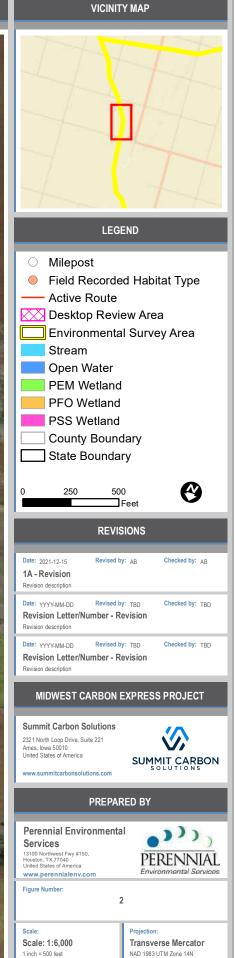


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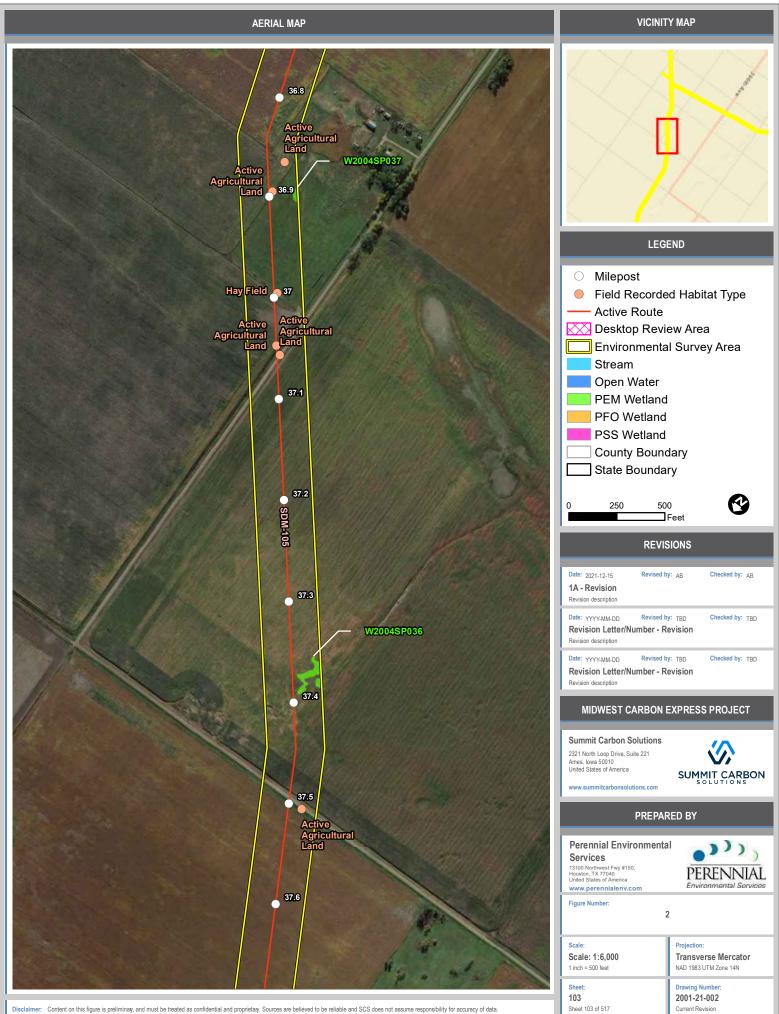


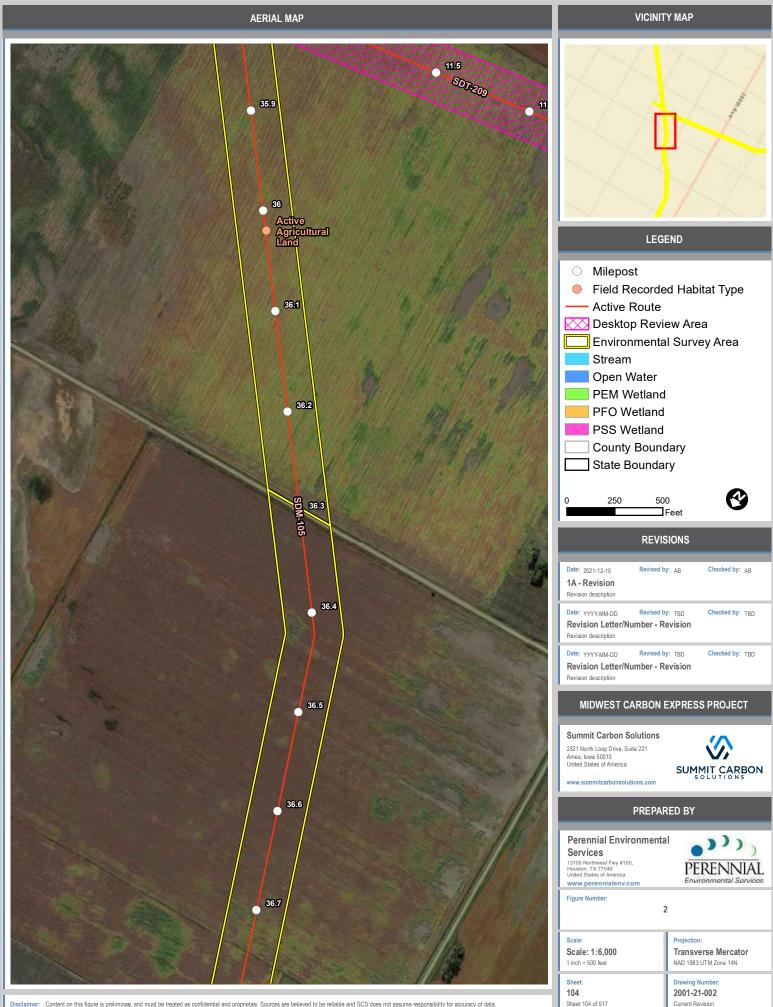
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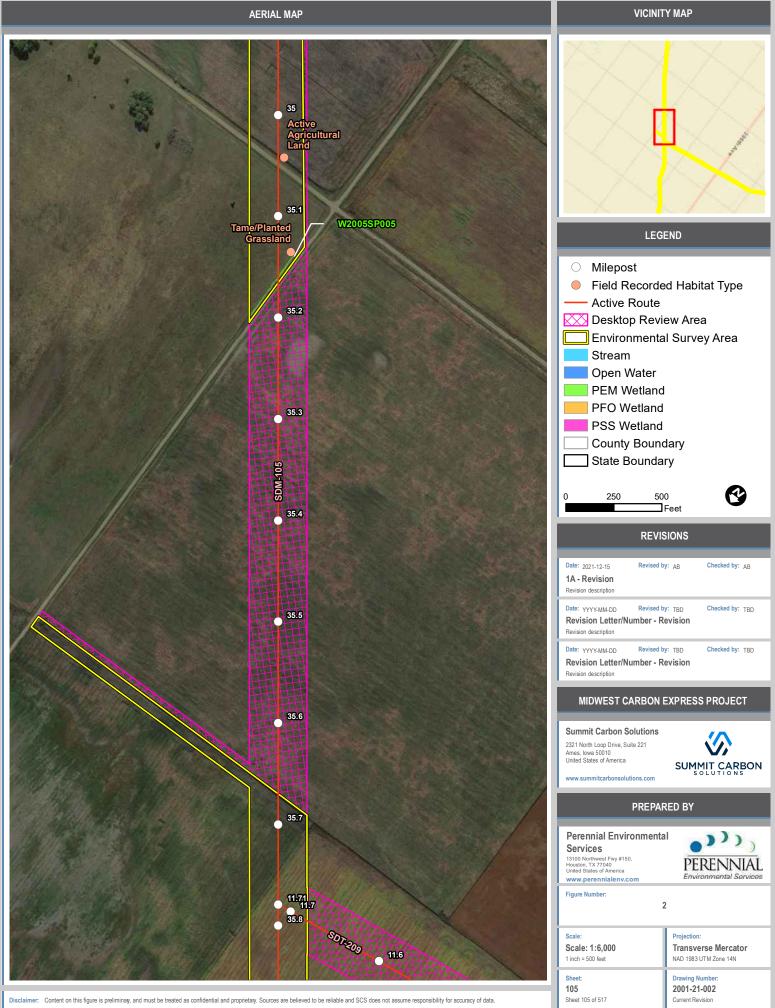
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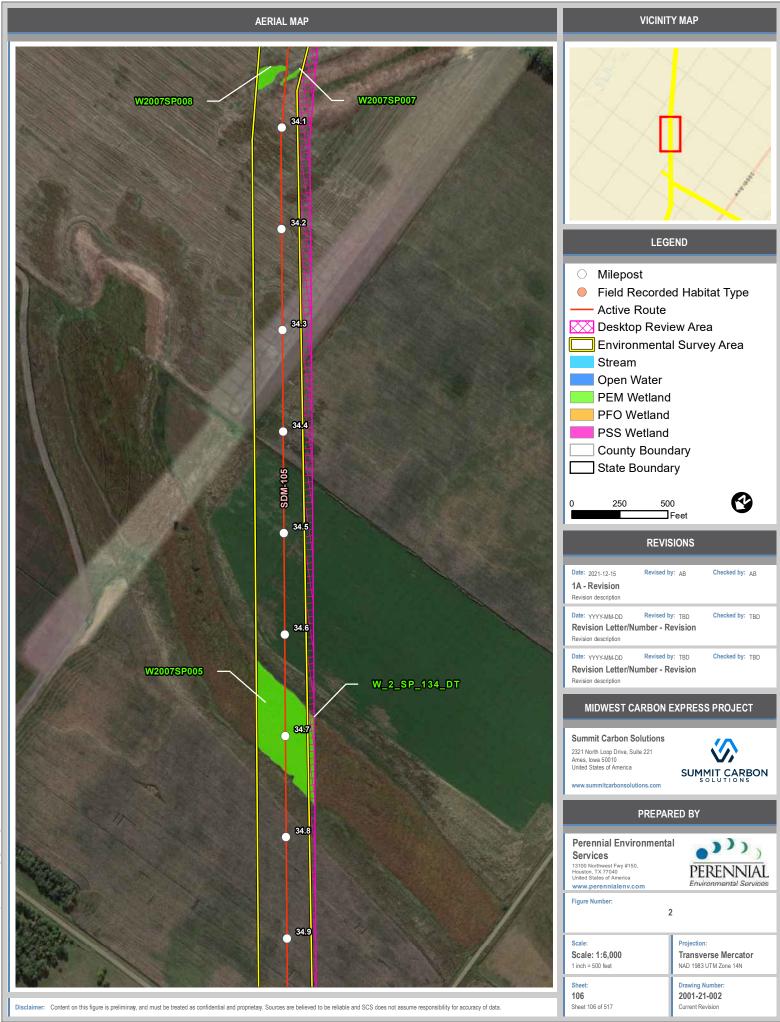
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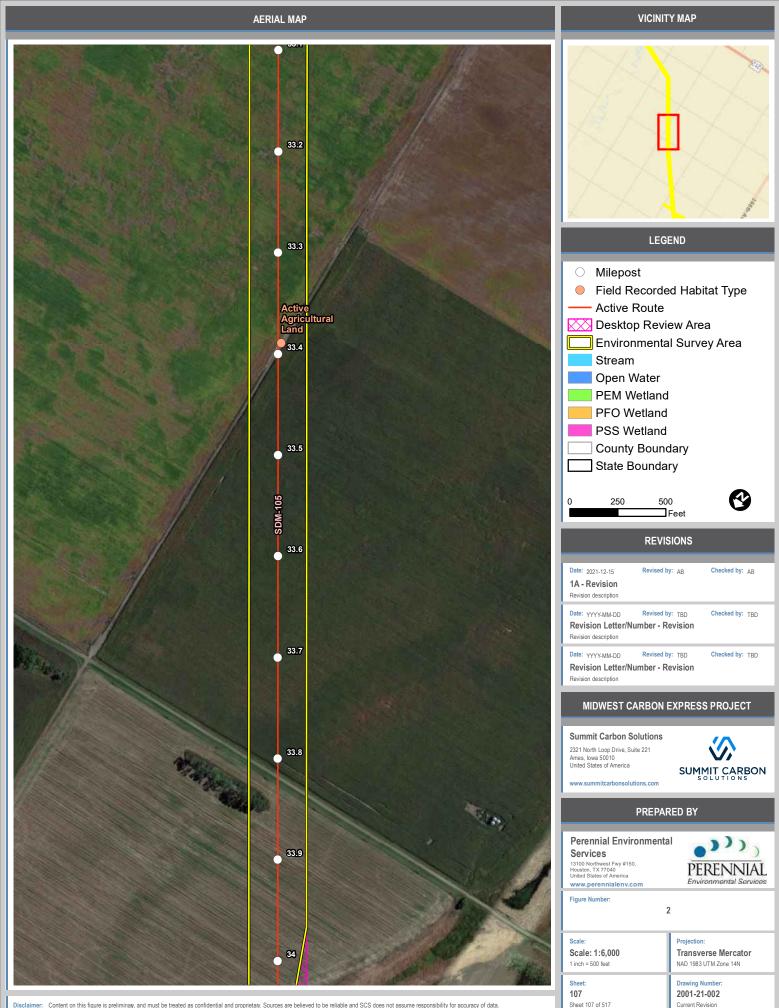
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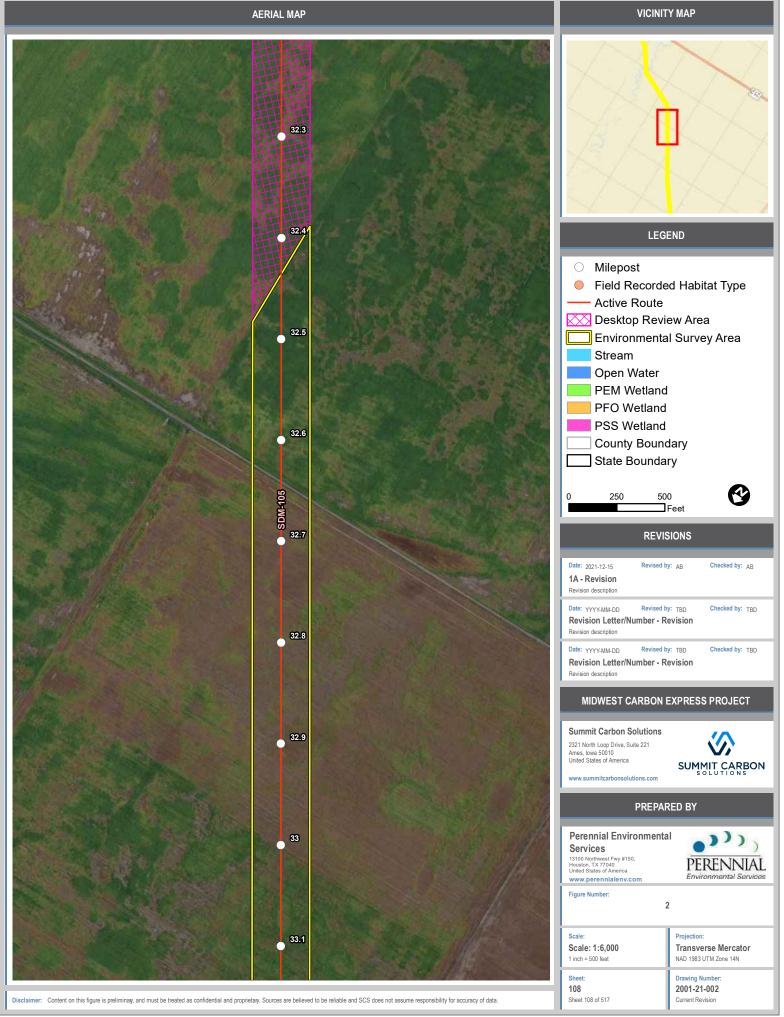




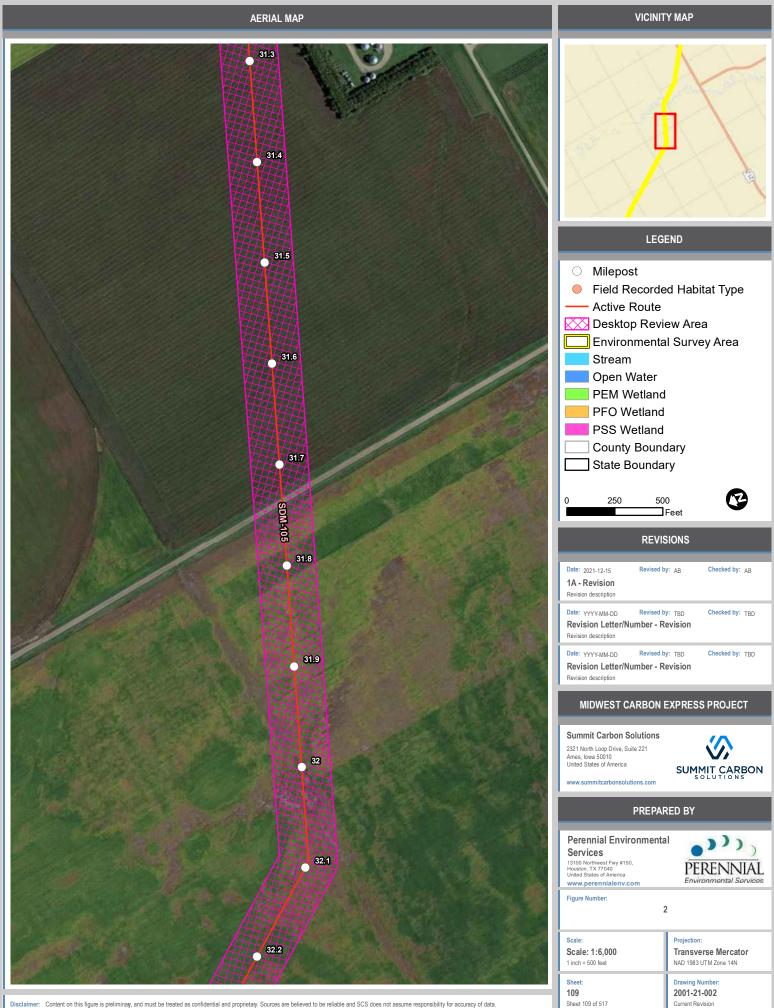


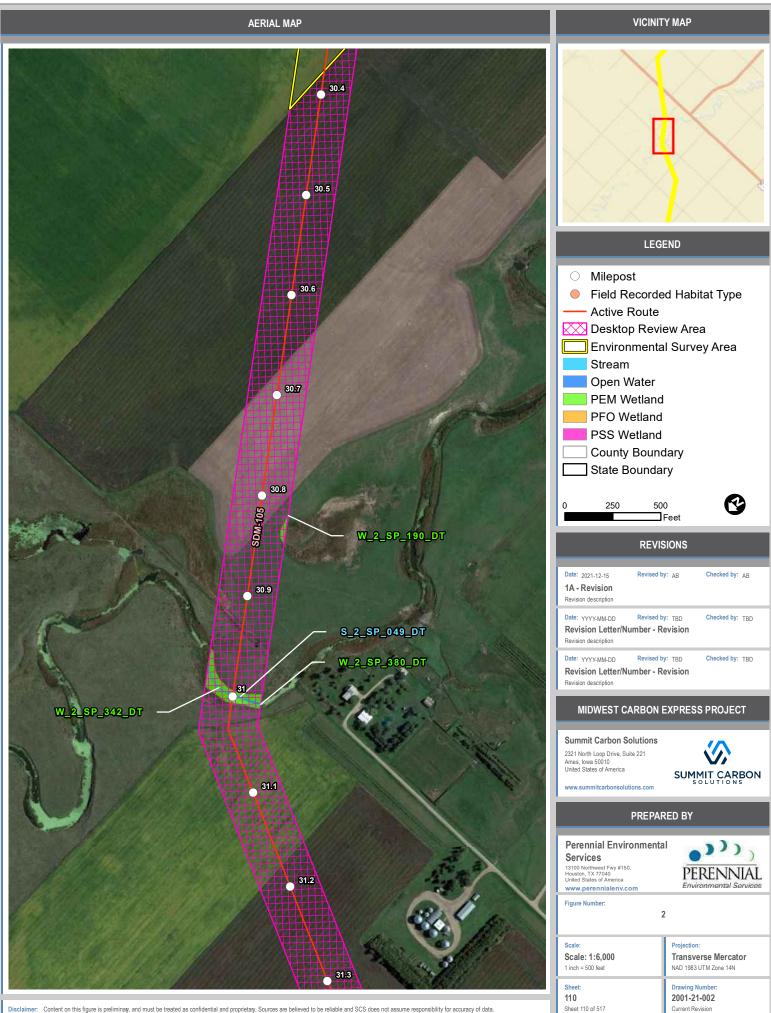


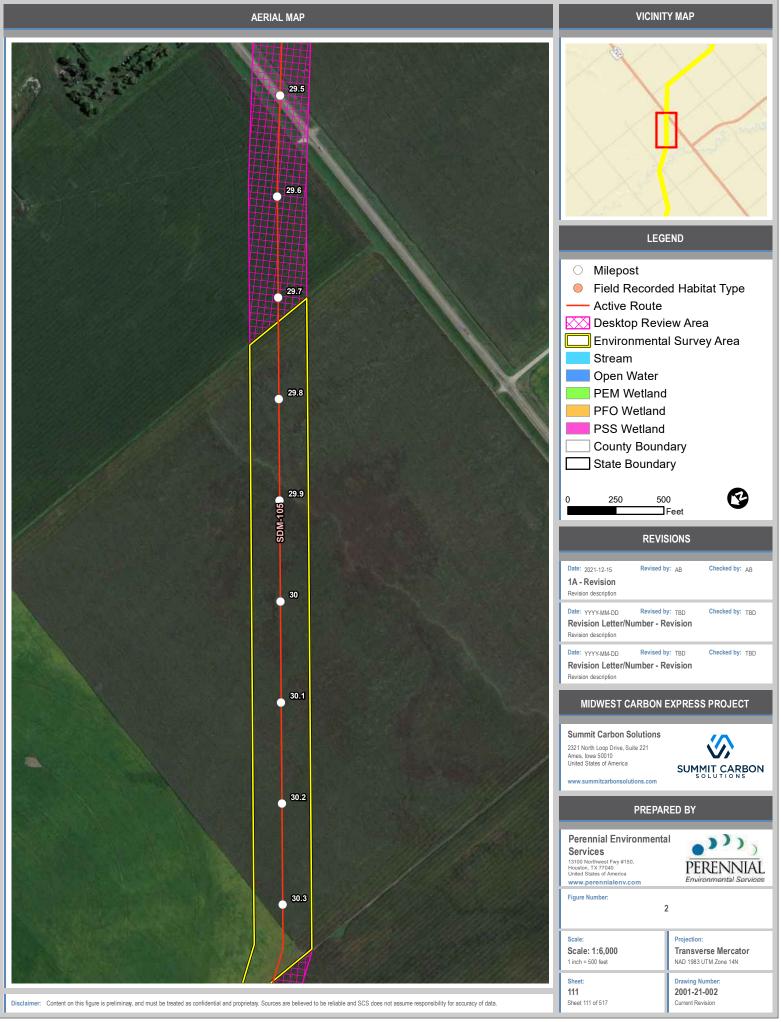
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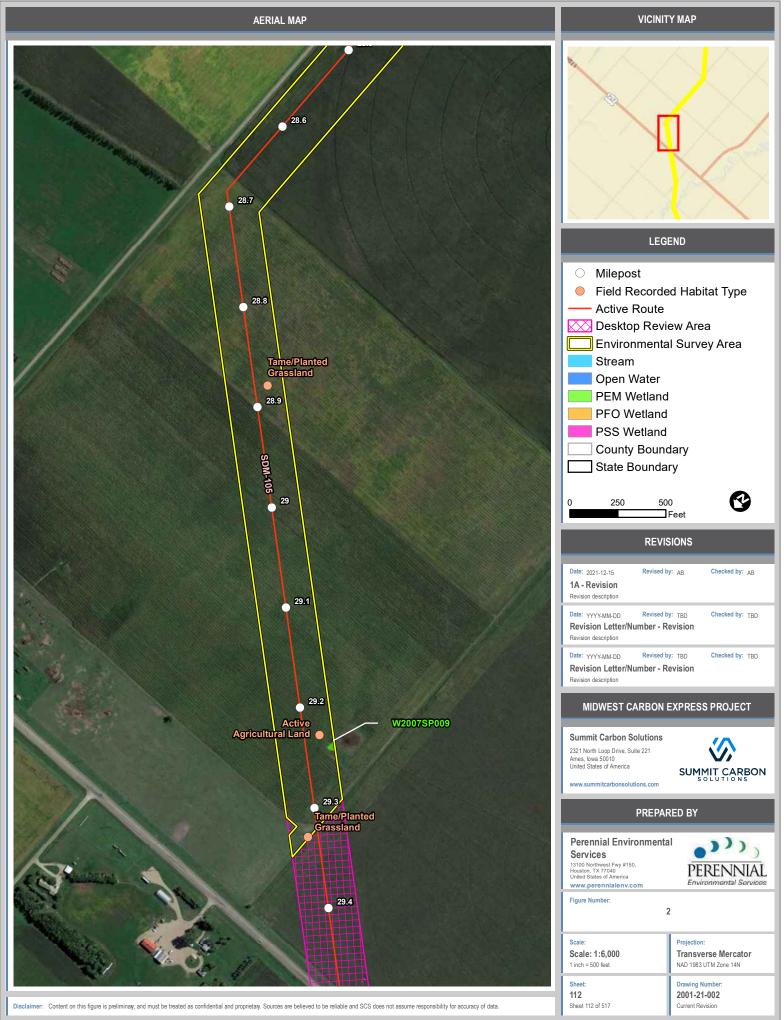


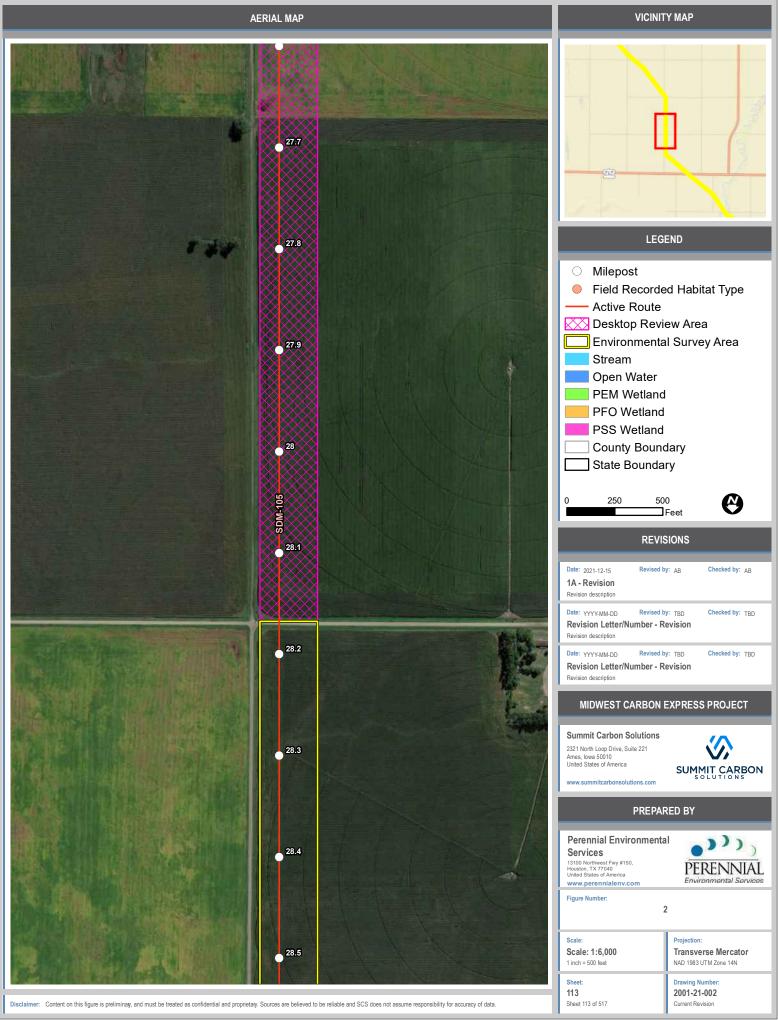
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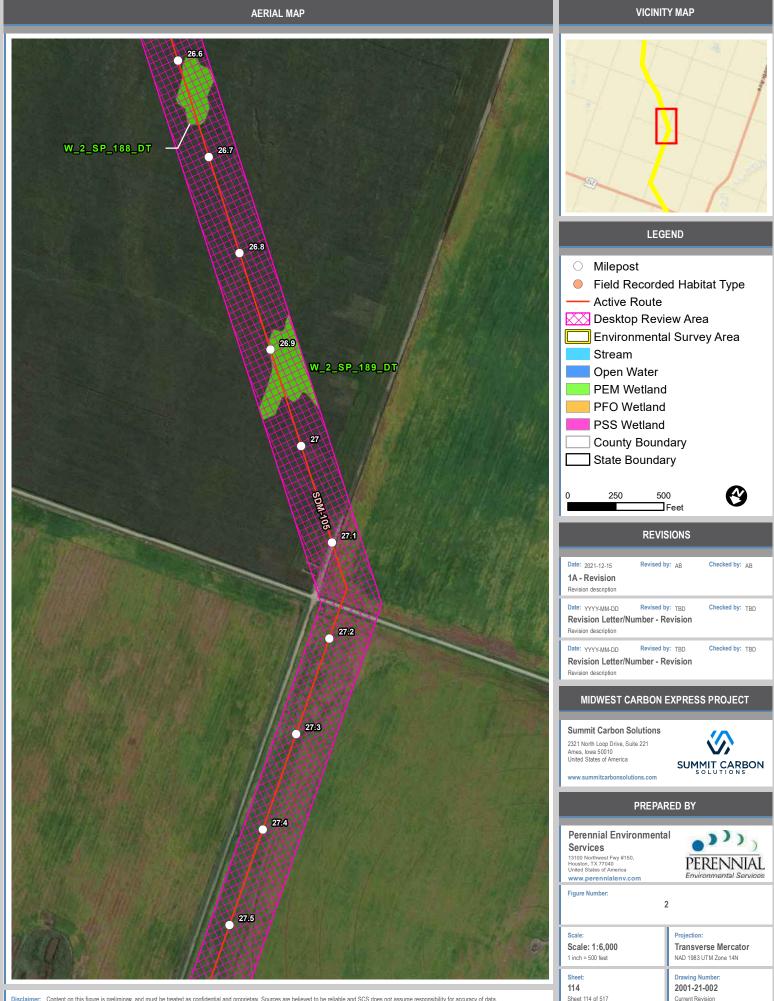


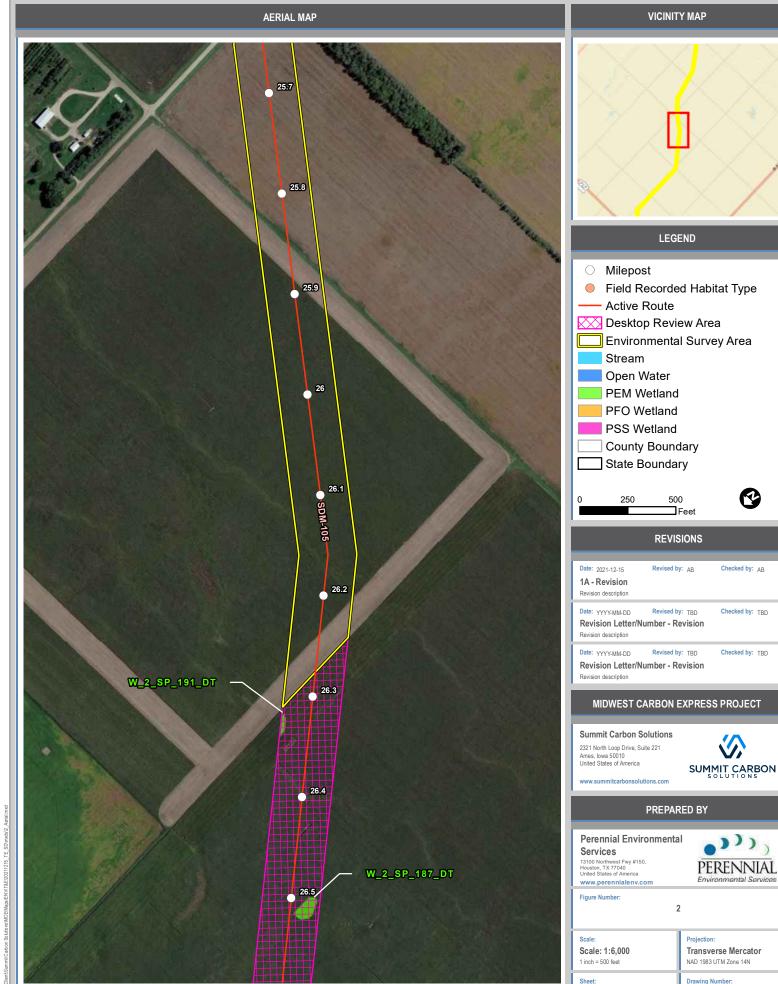




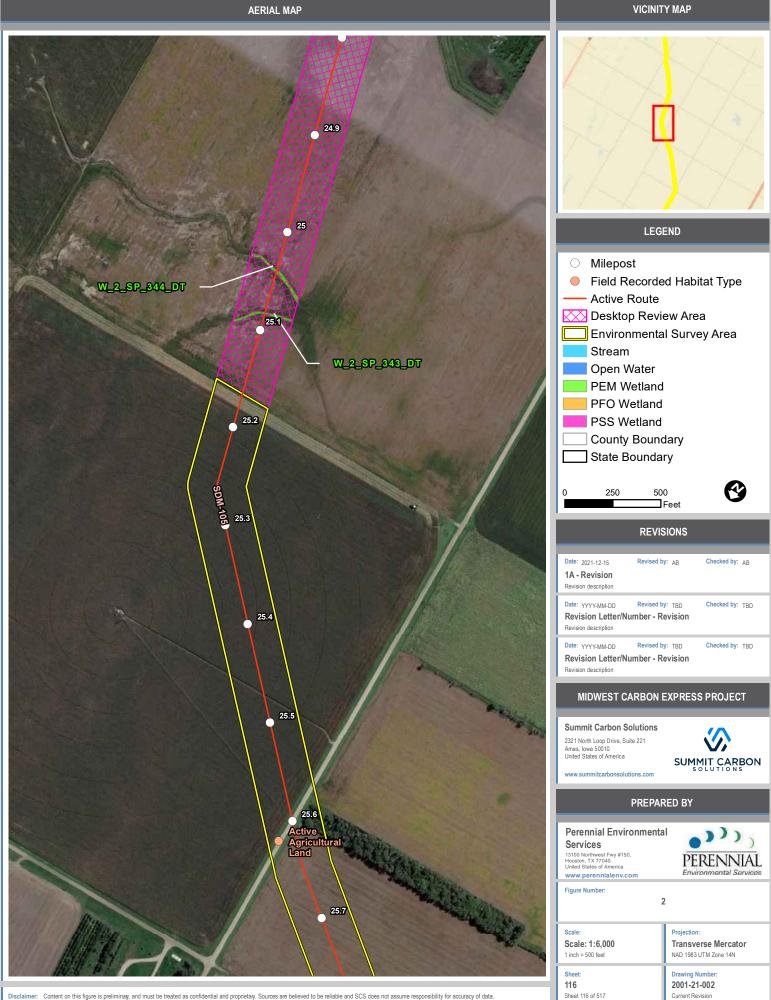




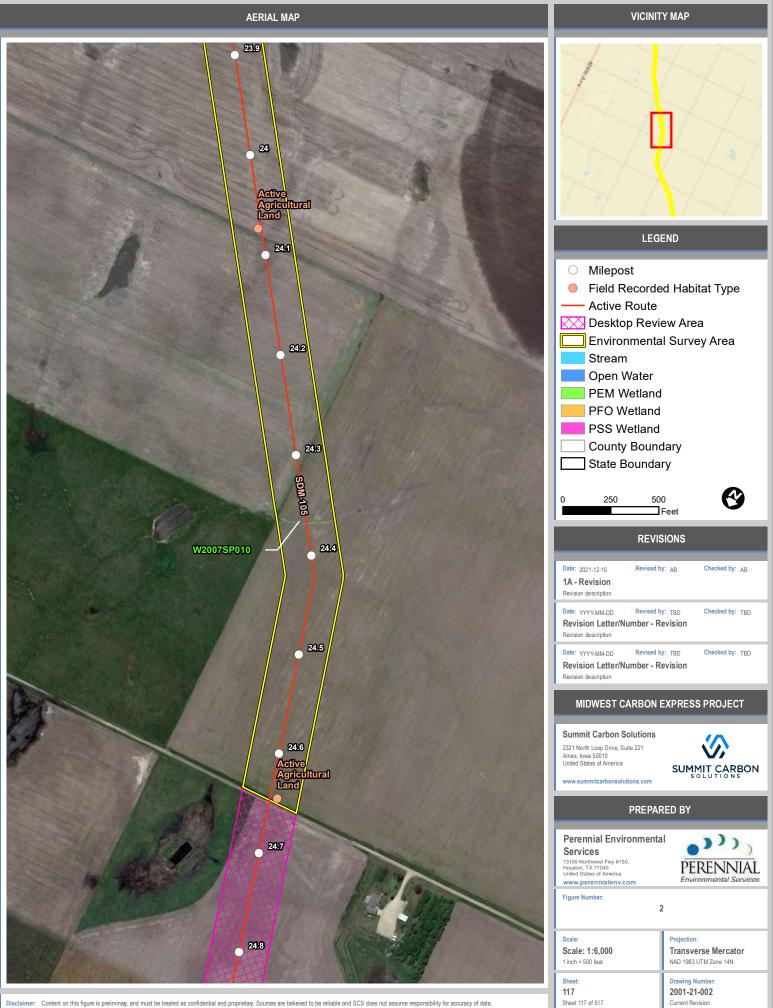


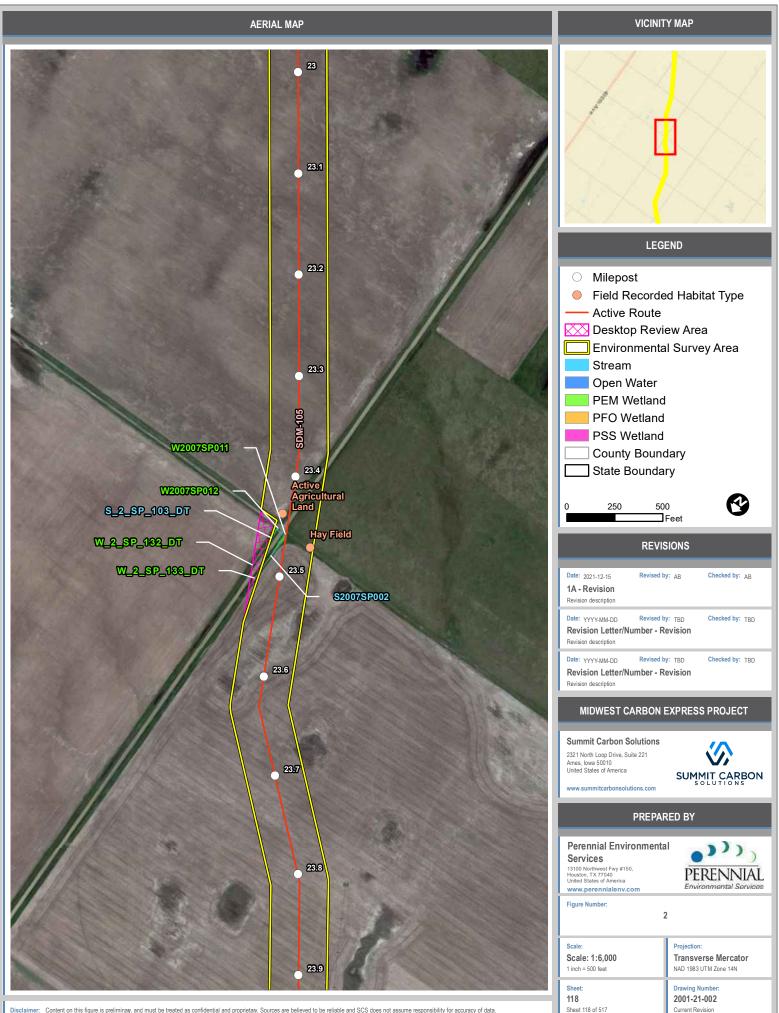


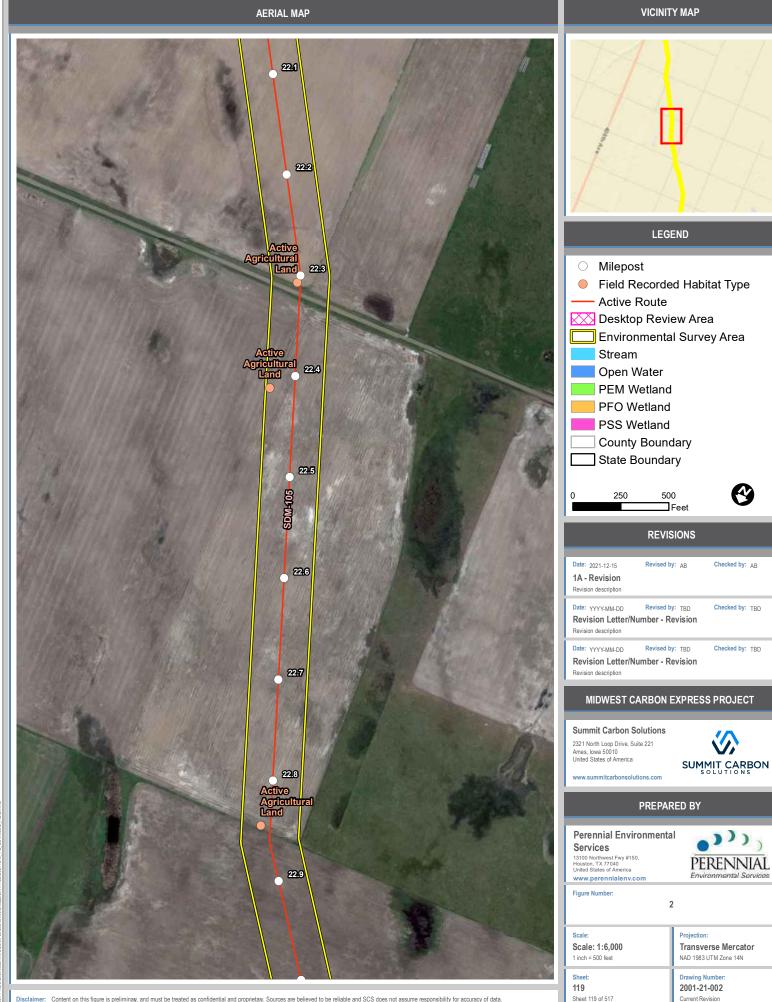
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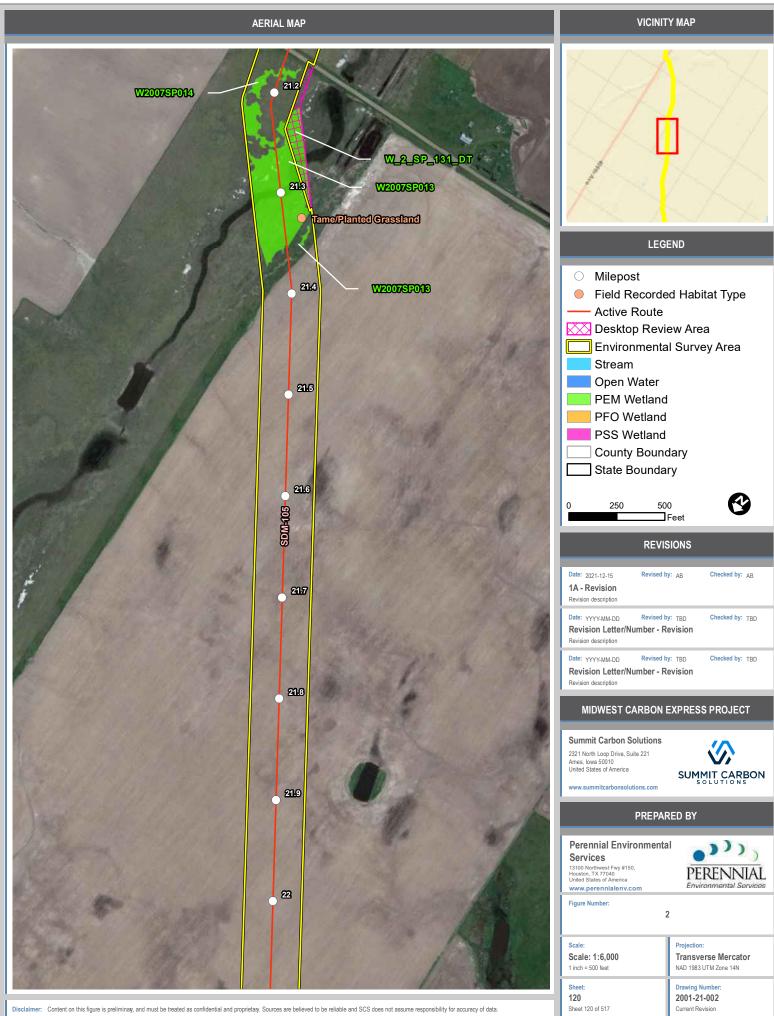
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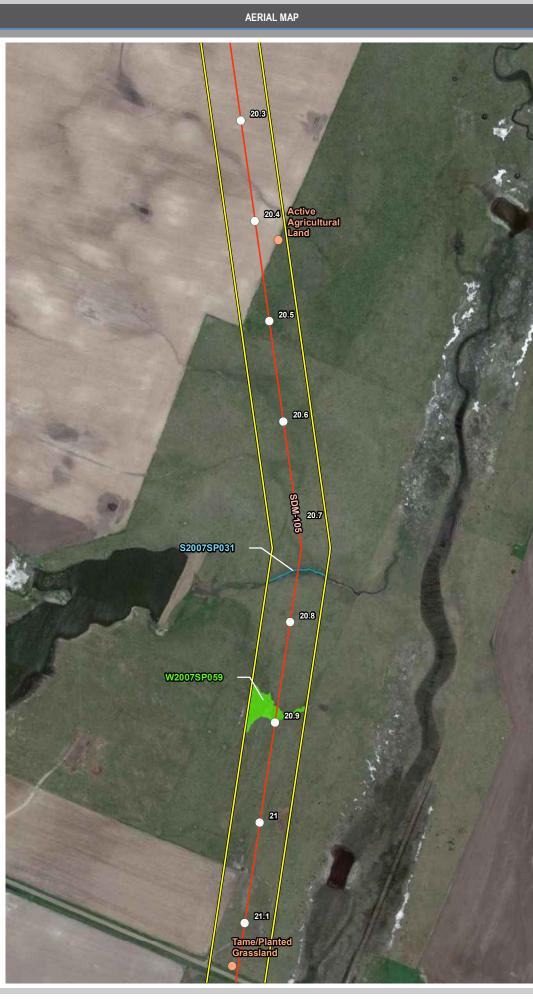


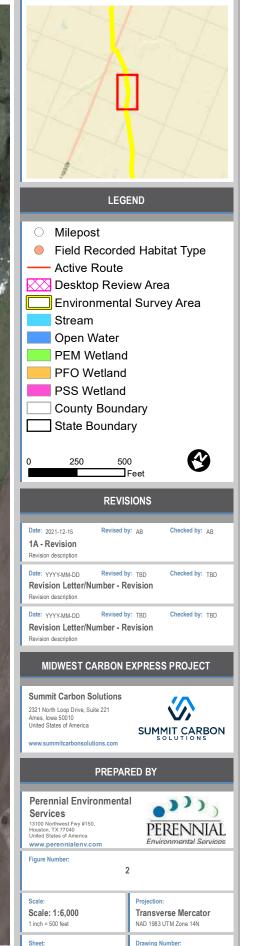




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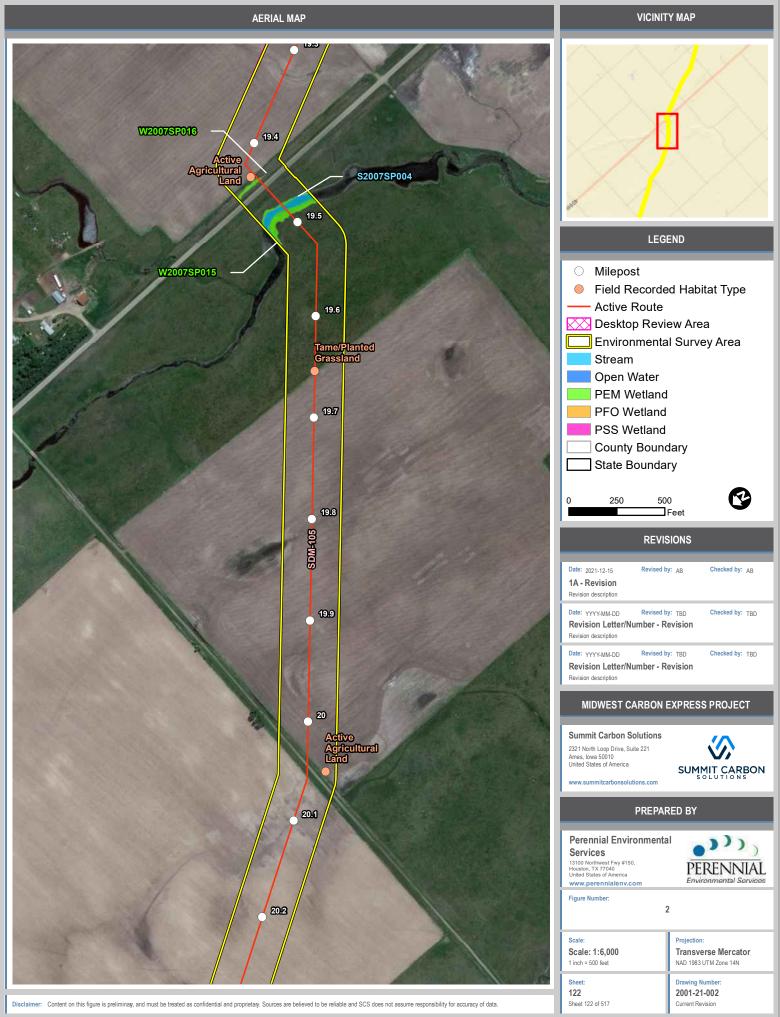




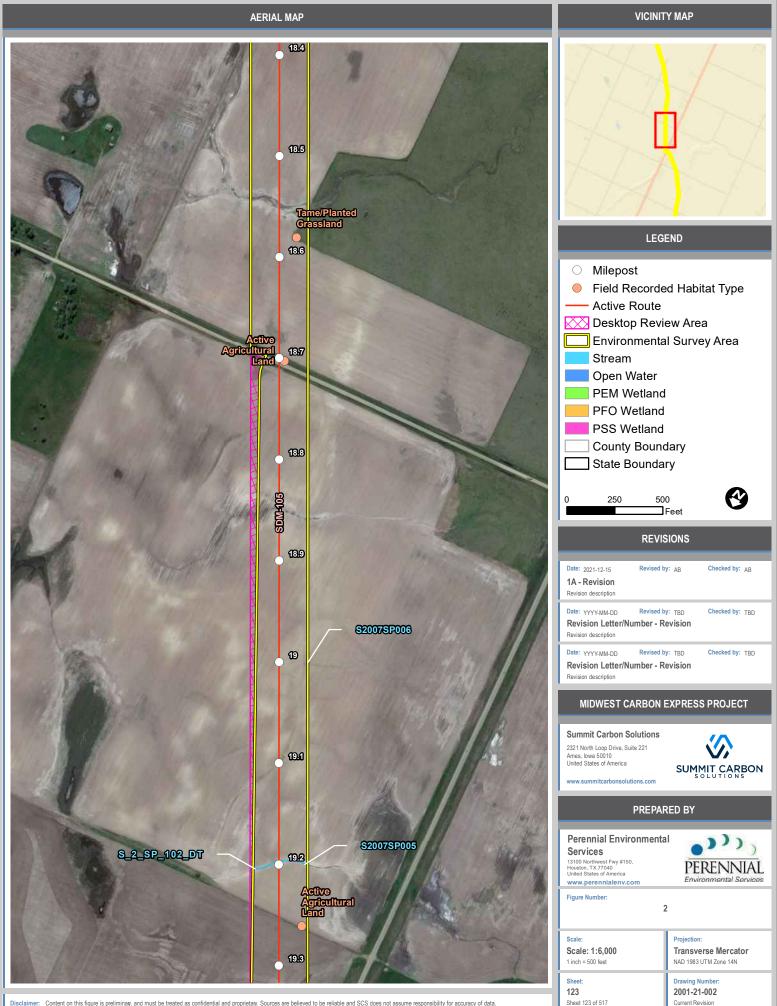
2001-21-002

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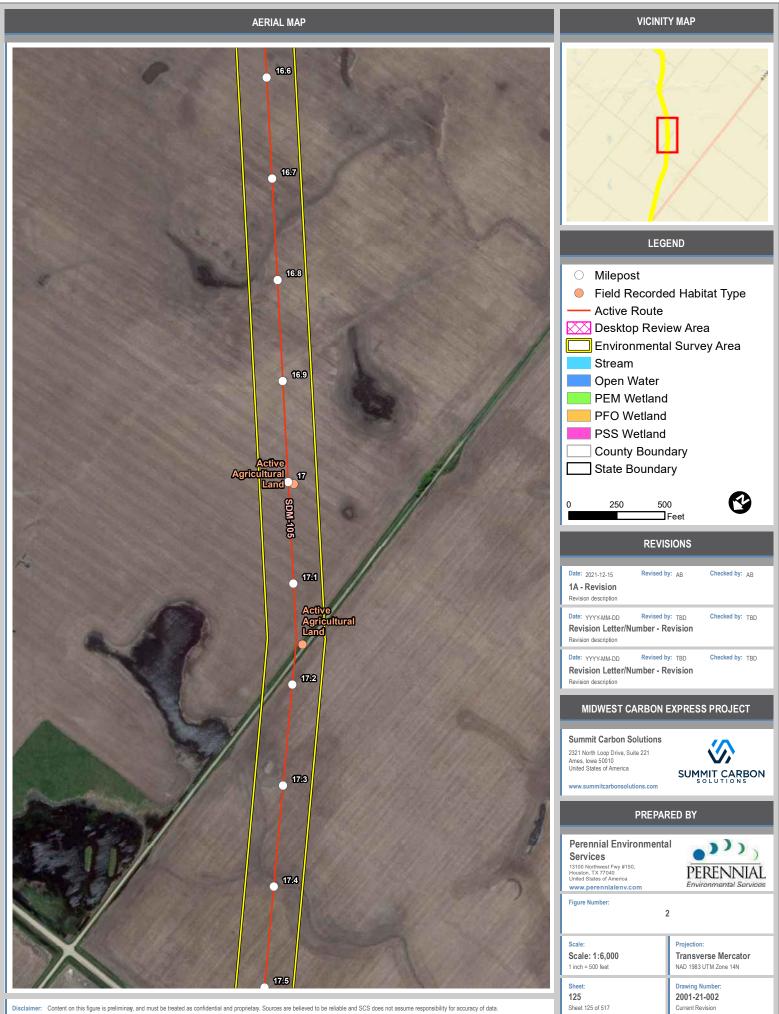


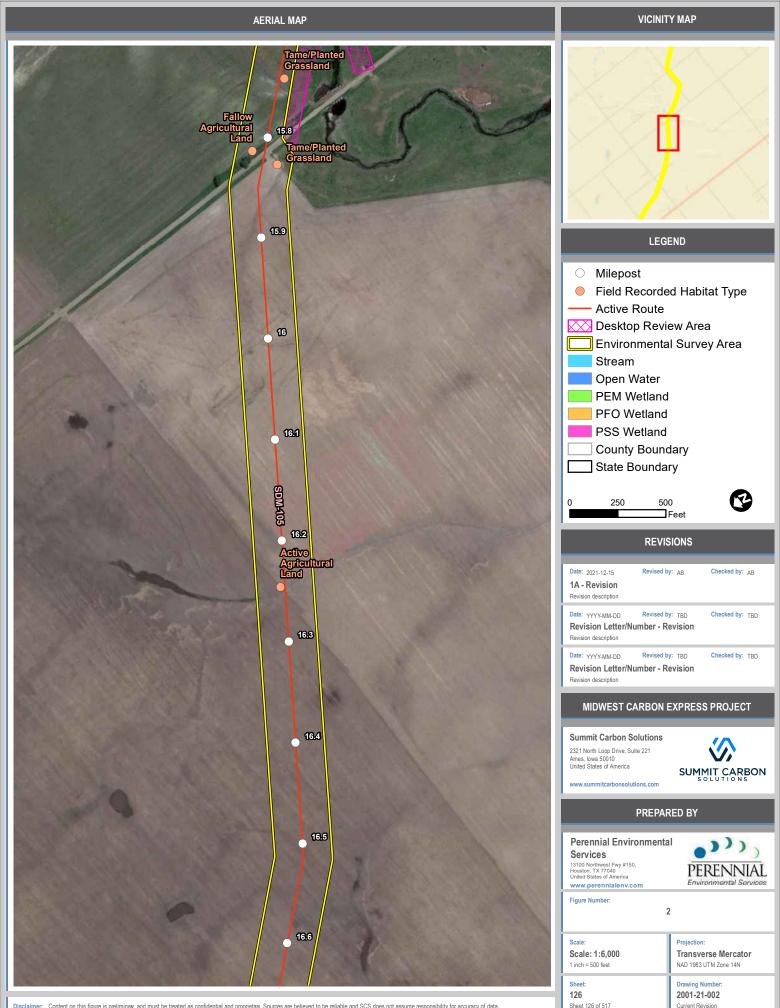
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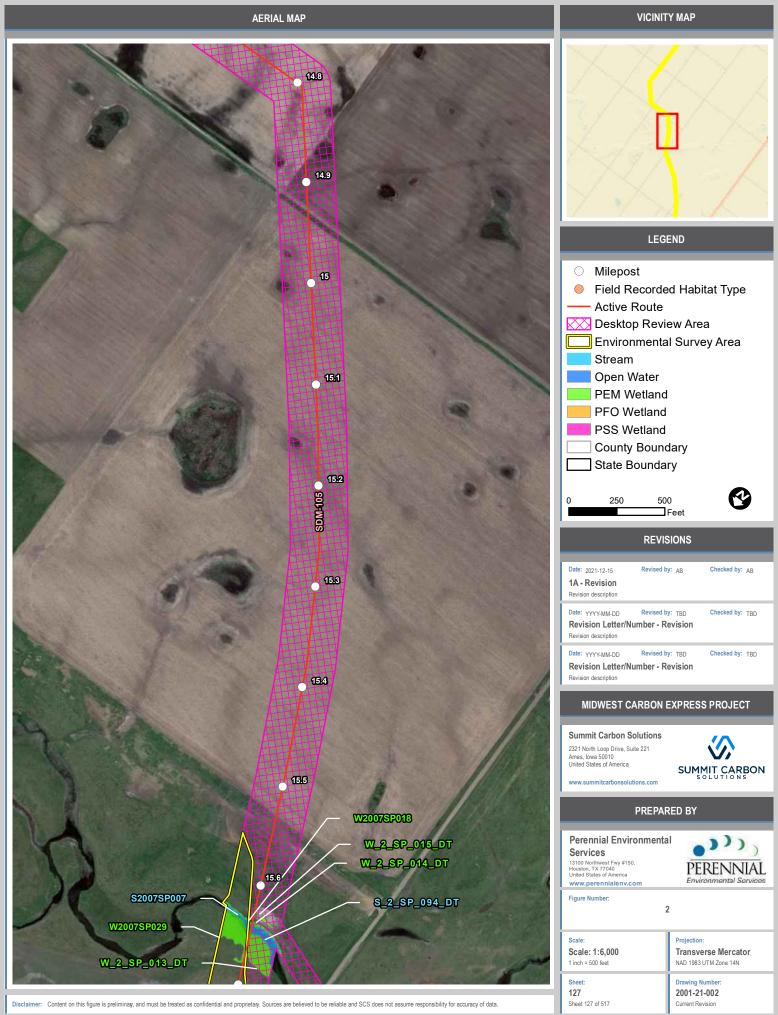


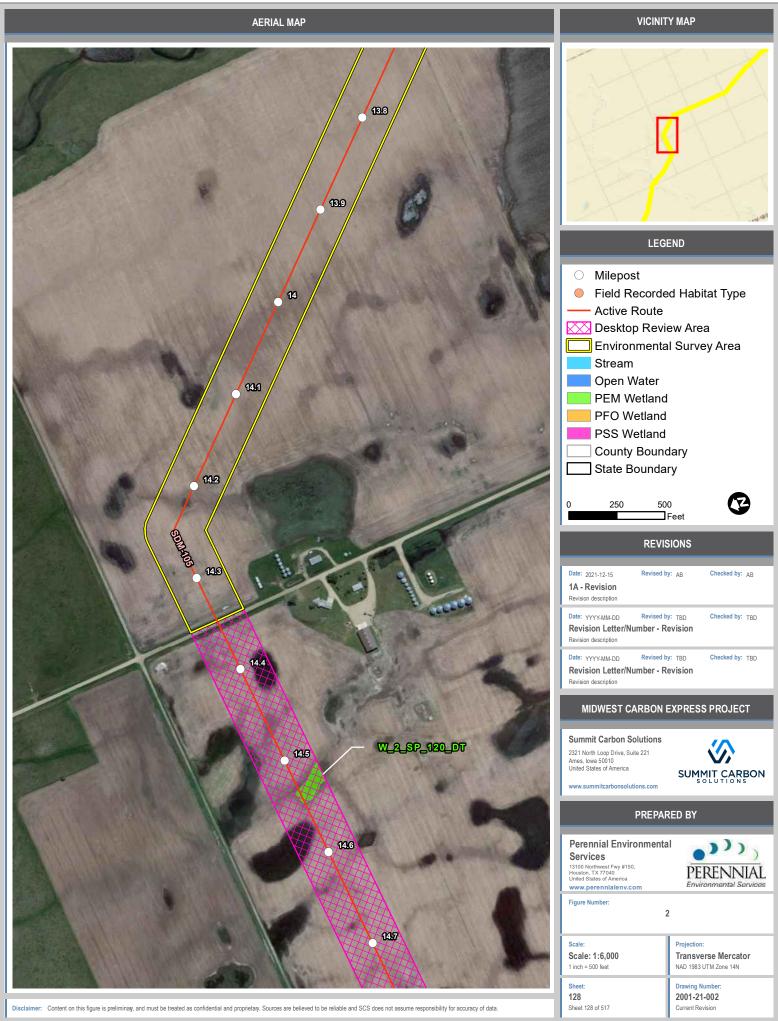


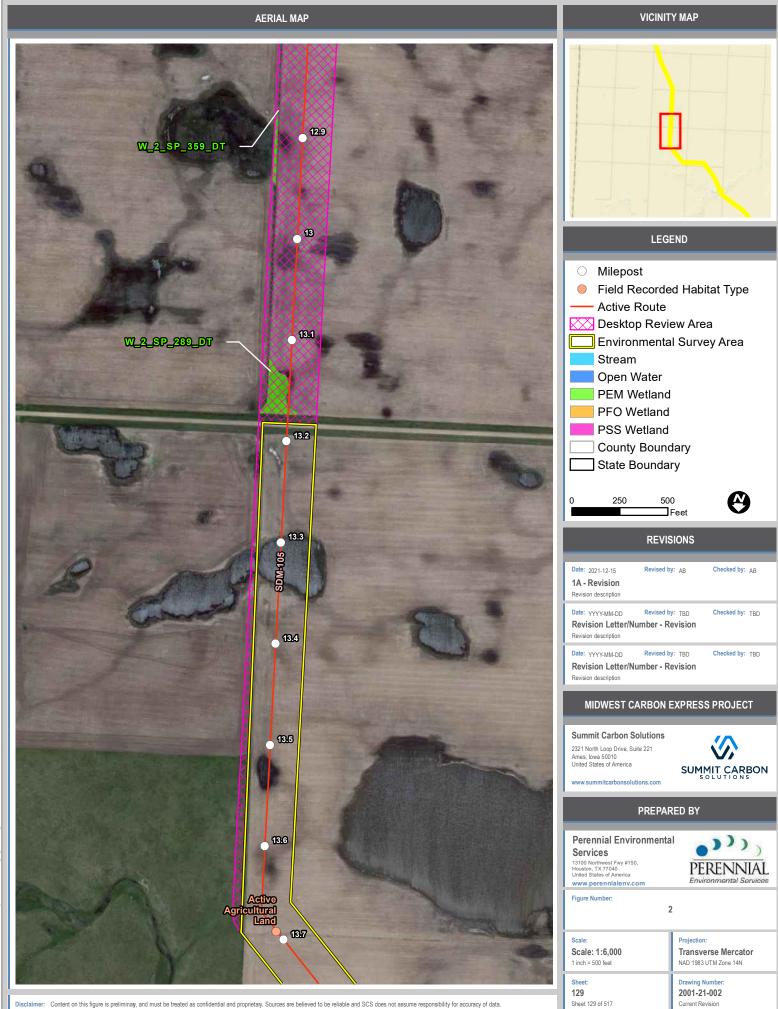
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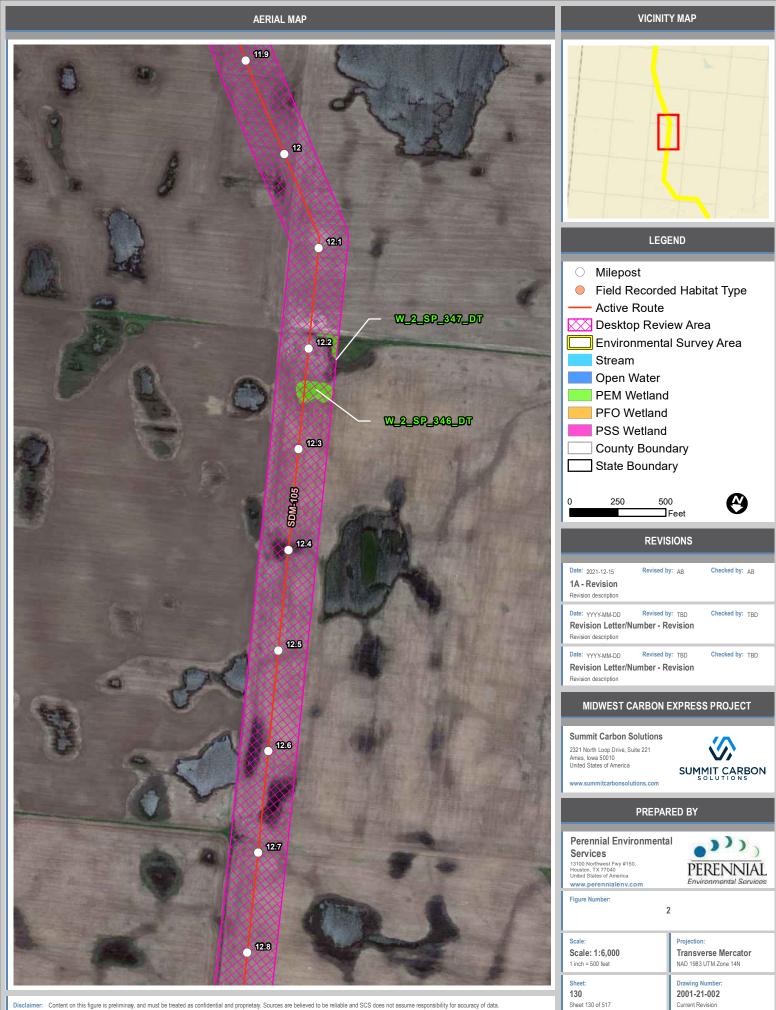


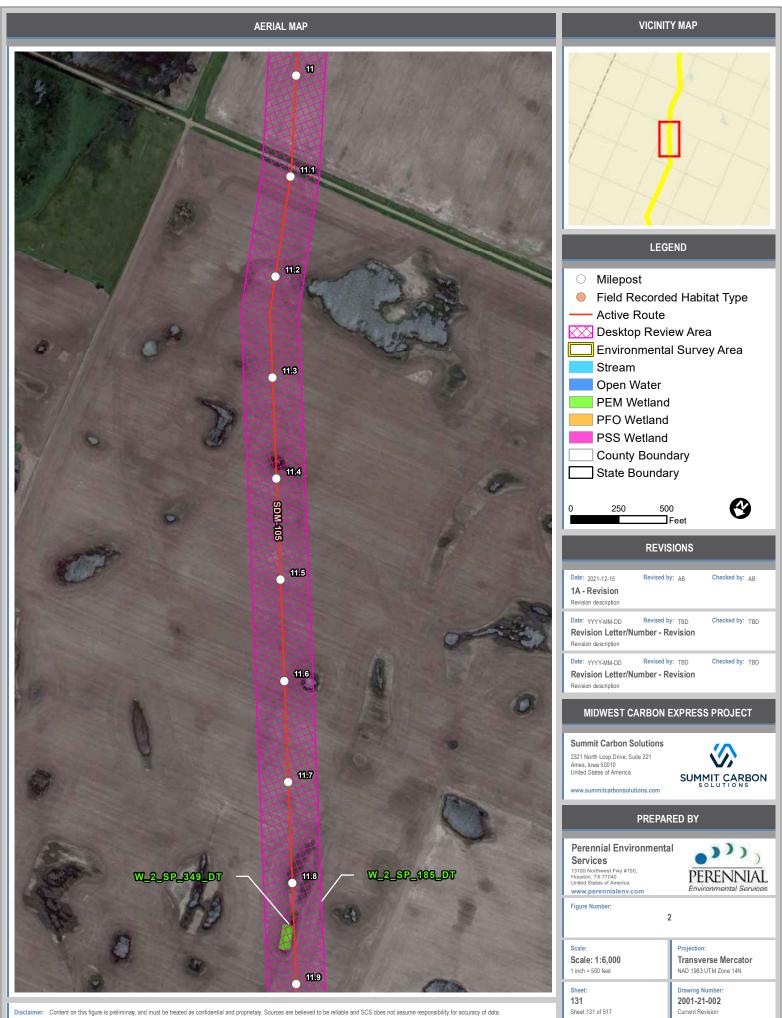


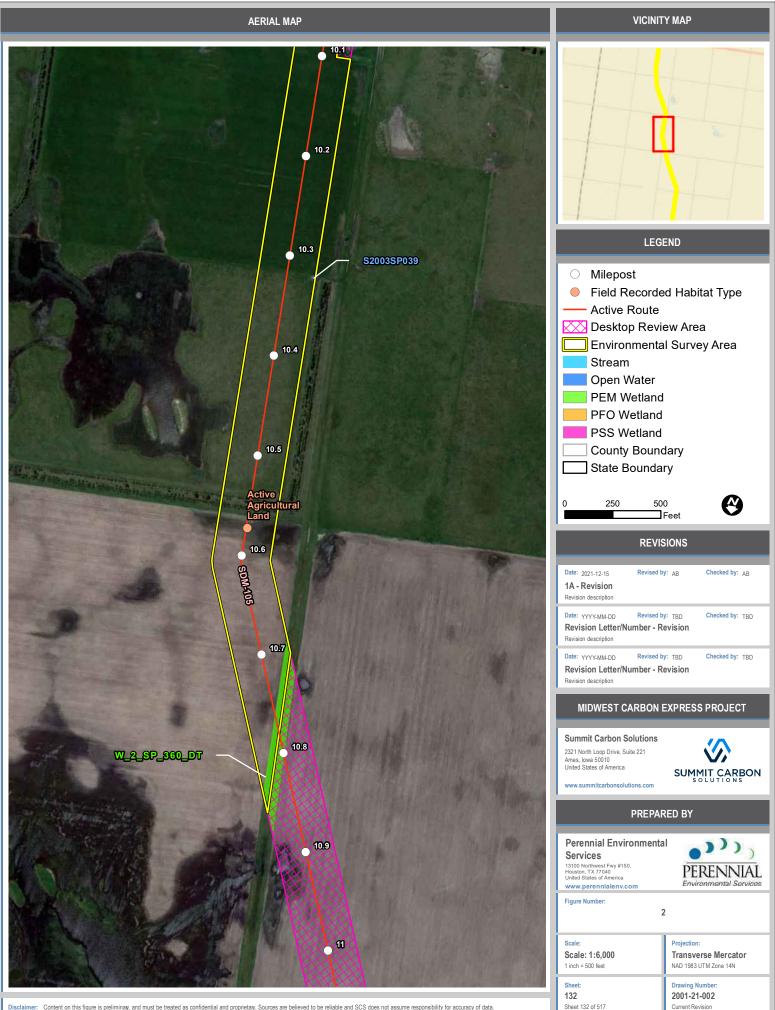


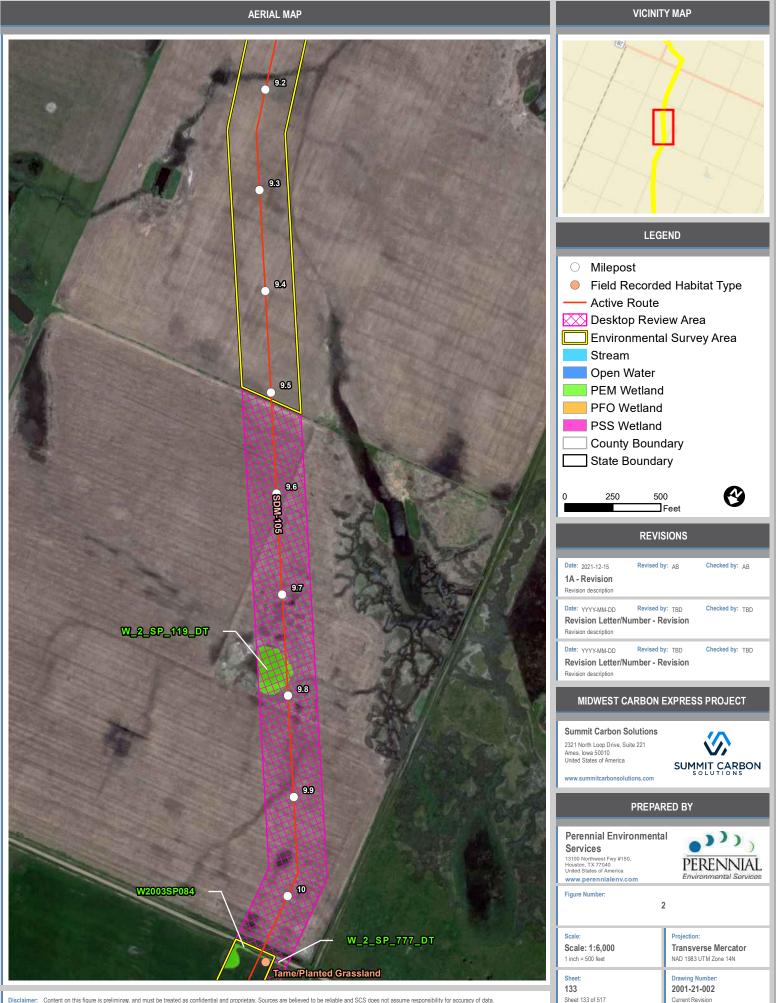




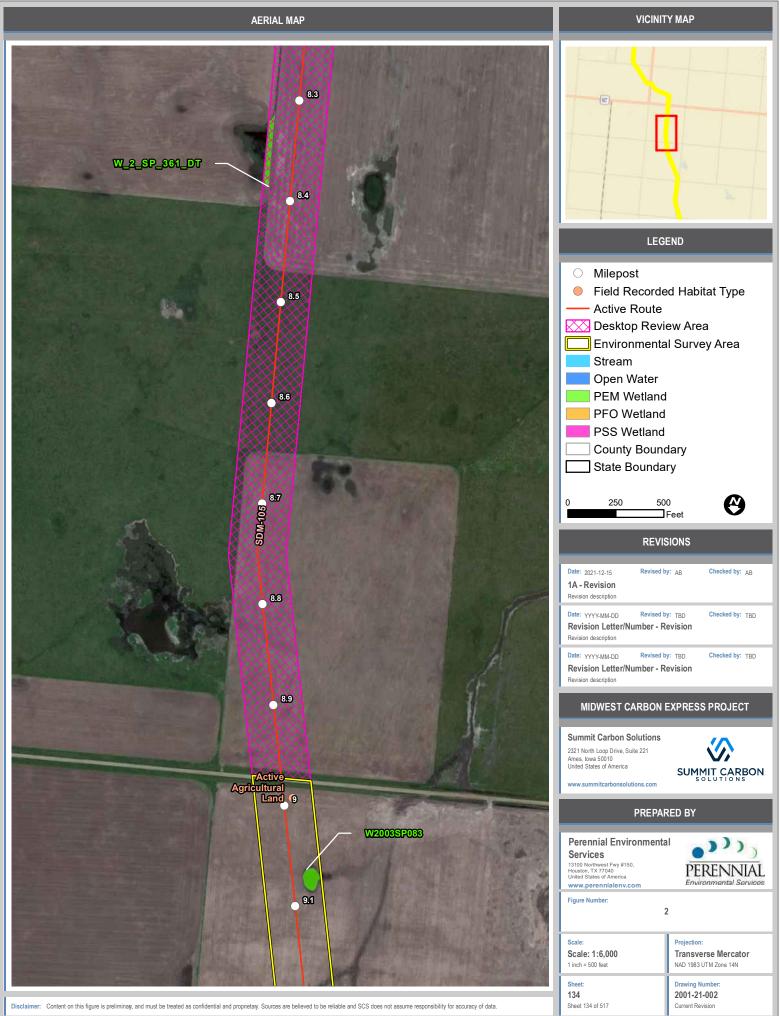


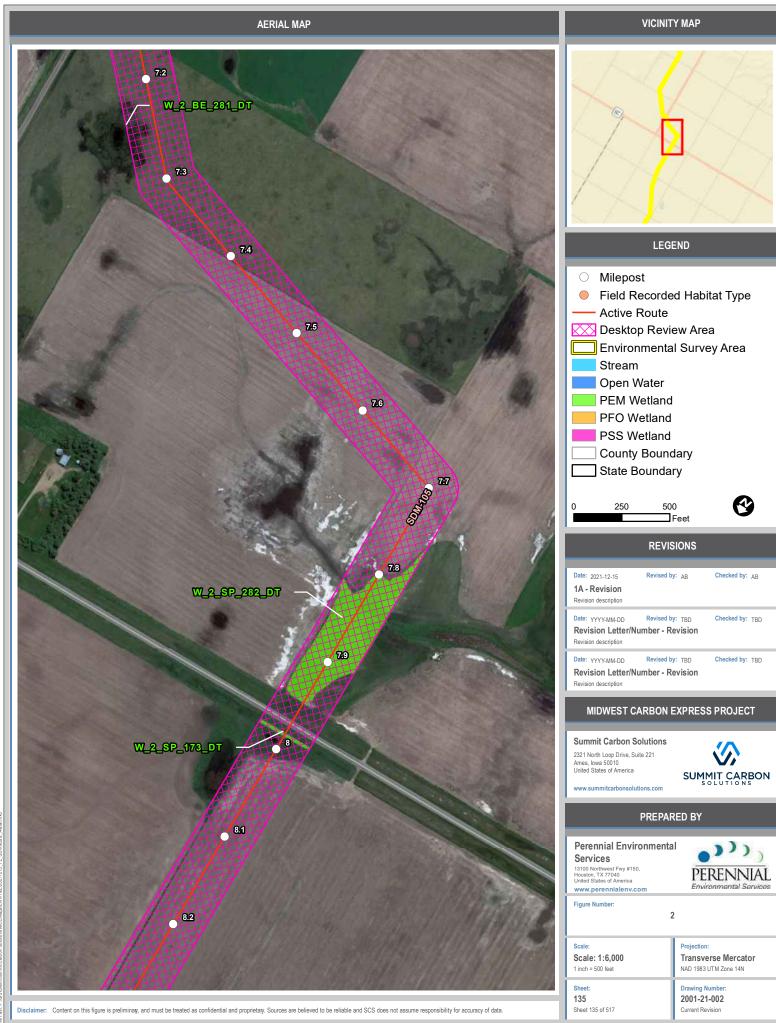


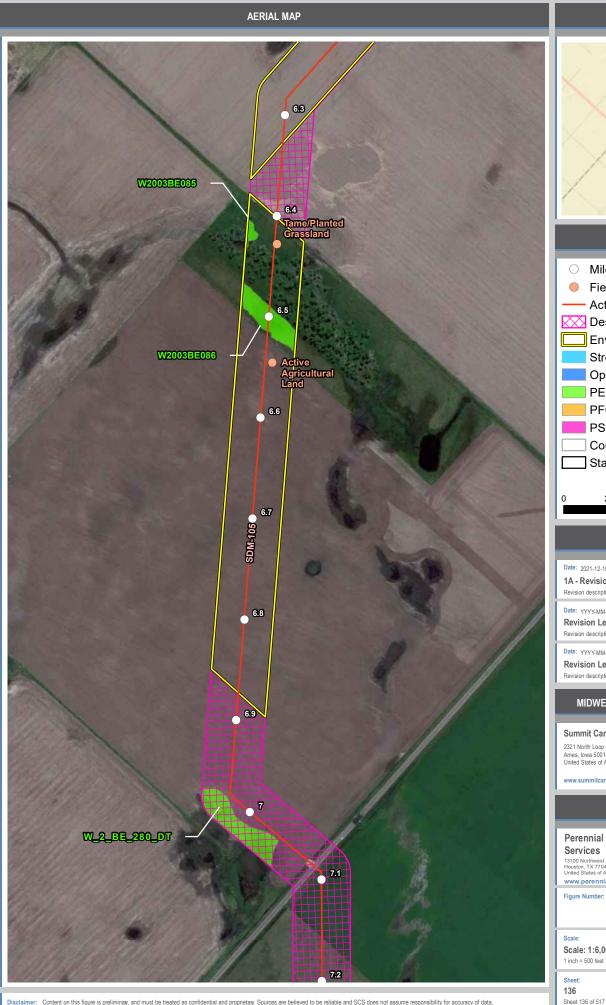


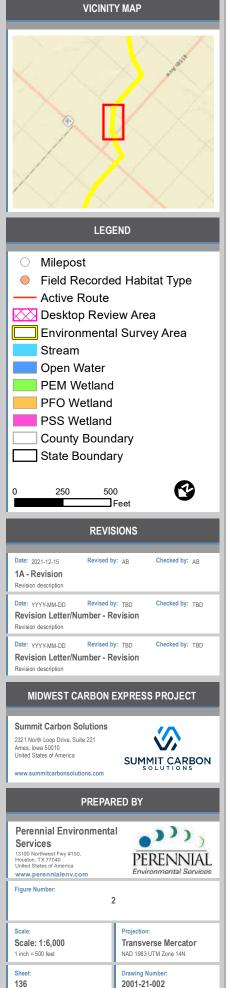


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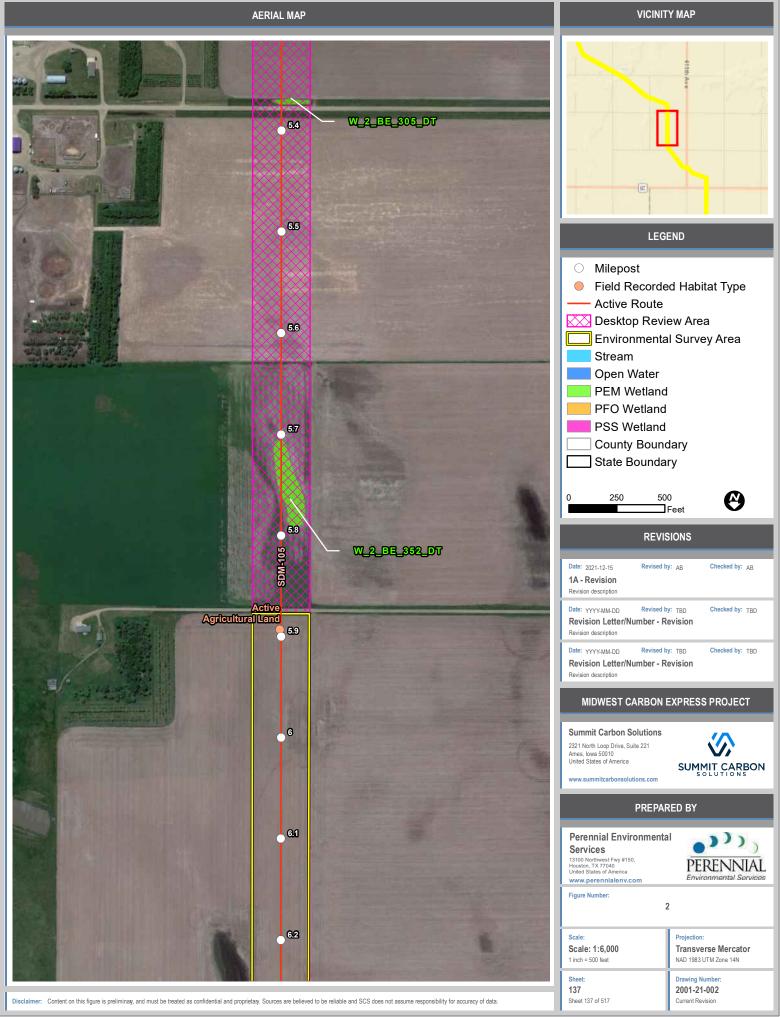


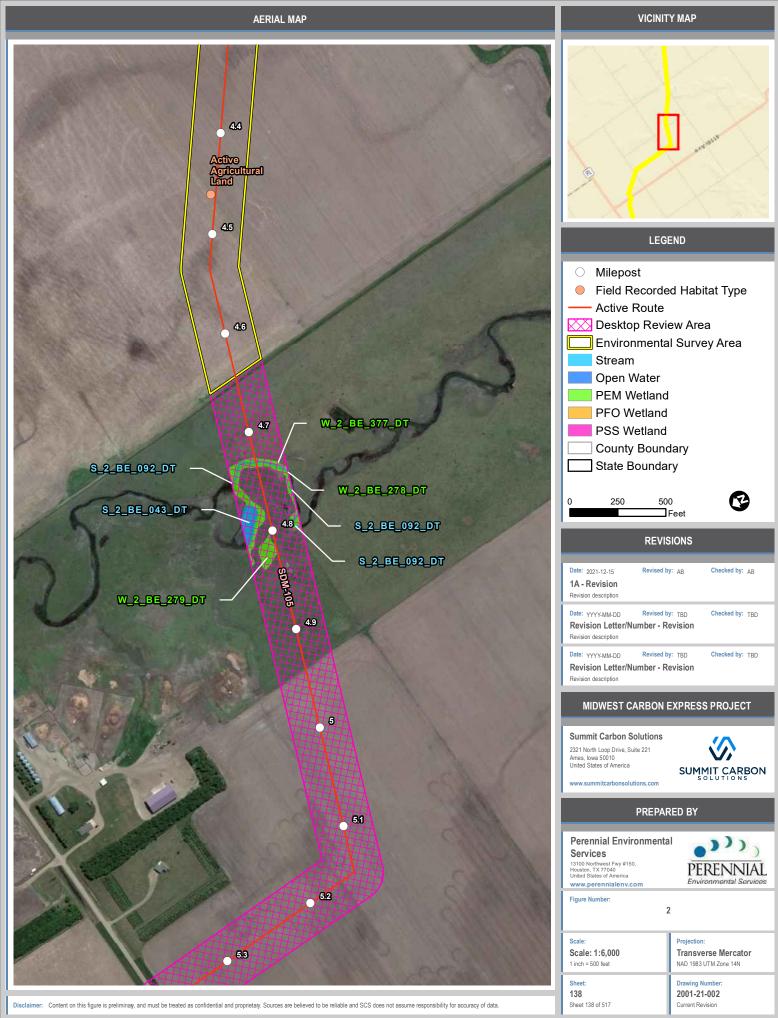


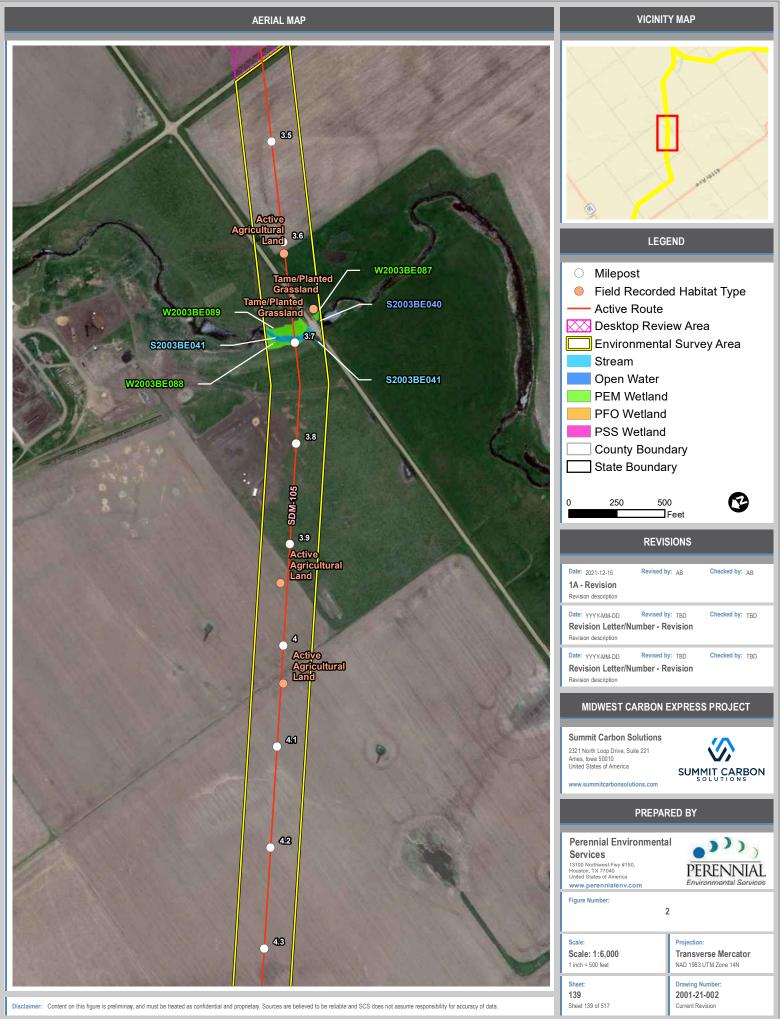




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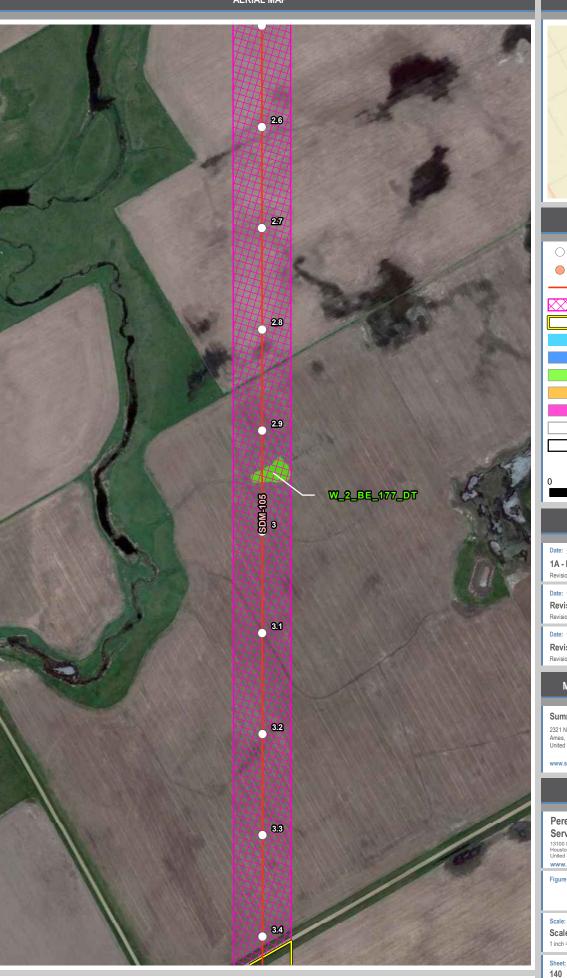


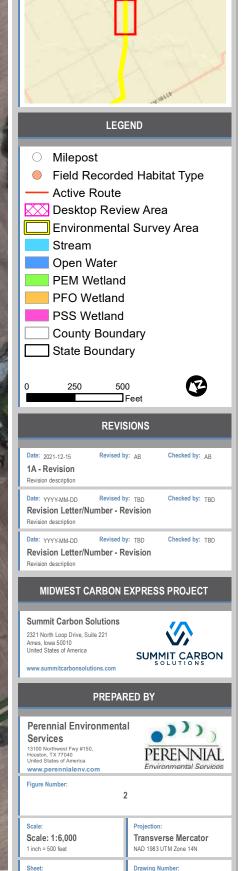




## AERIAL MAP

## VICINITY MAP



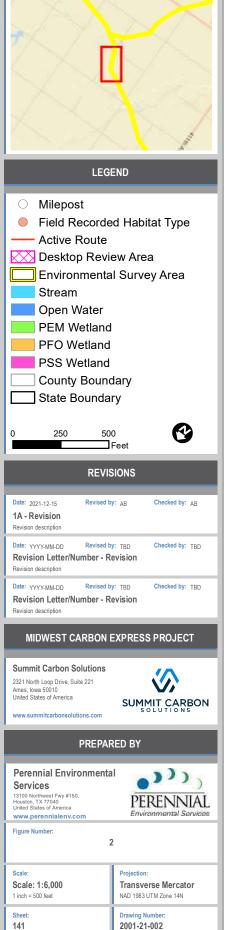


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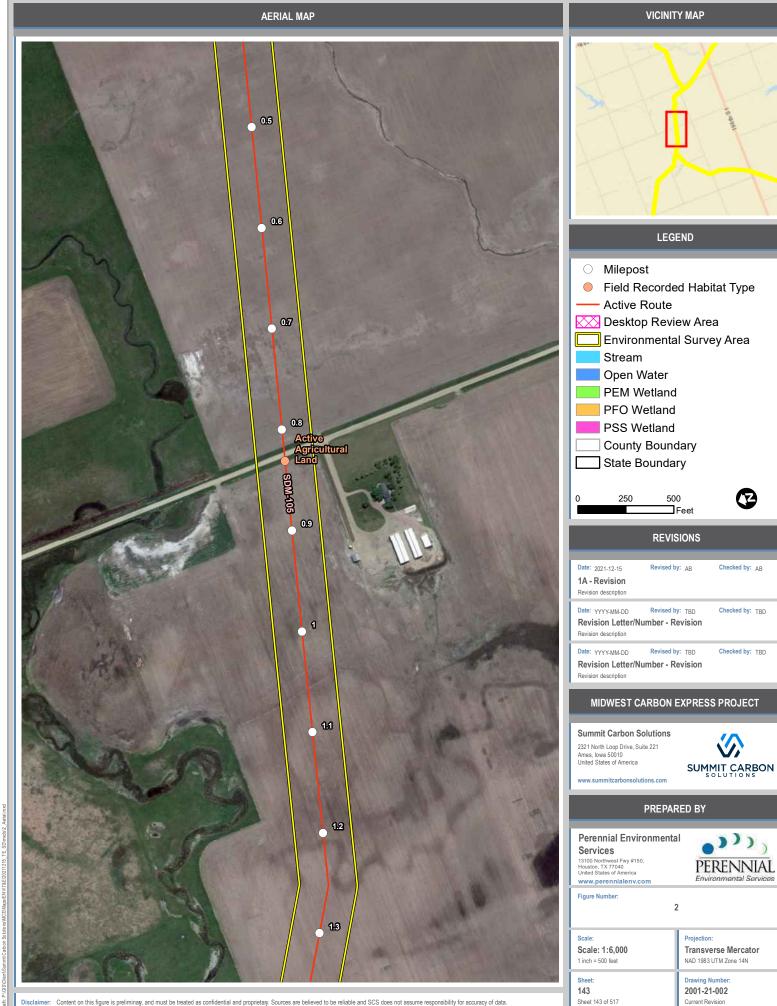
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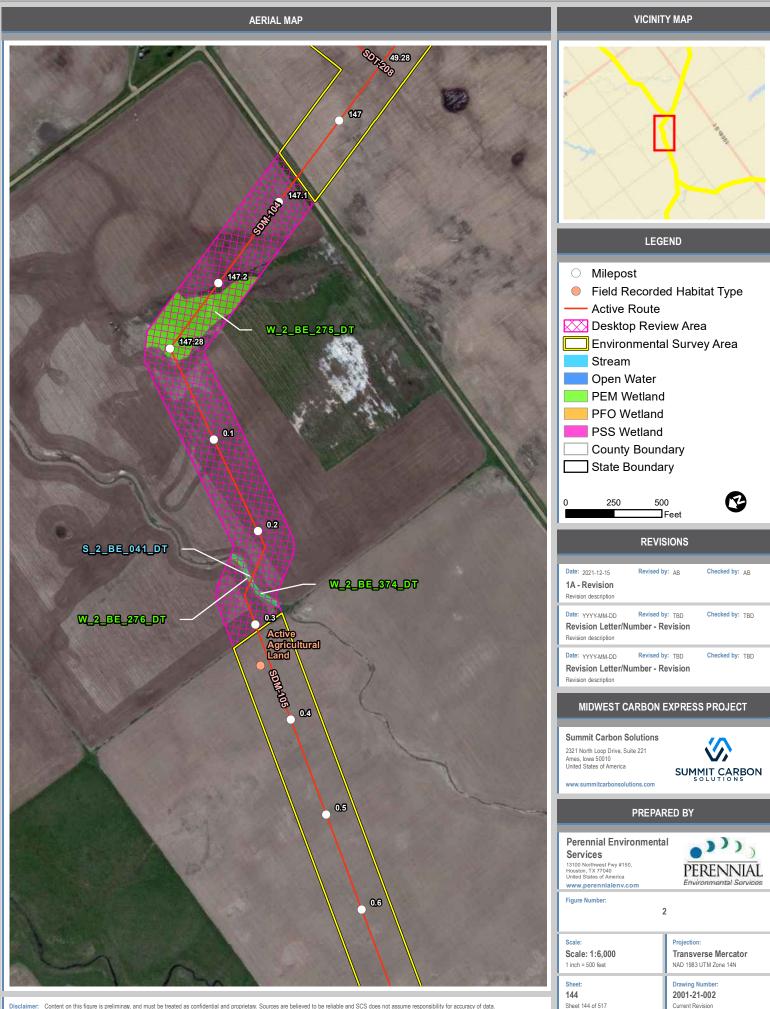
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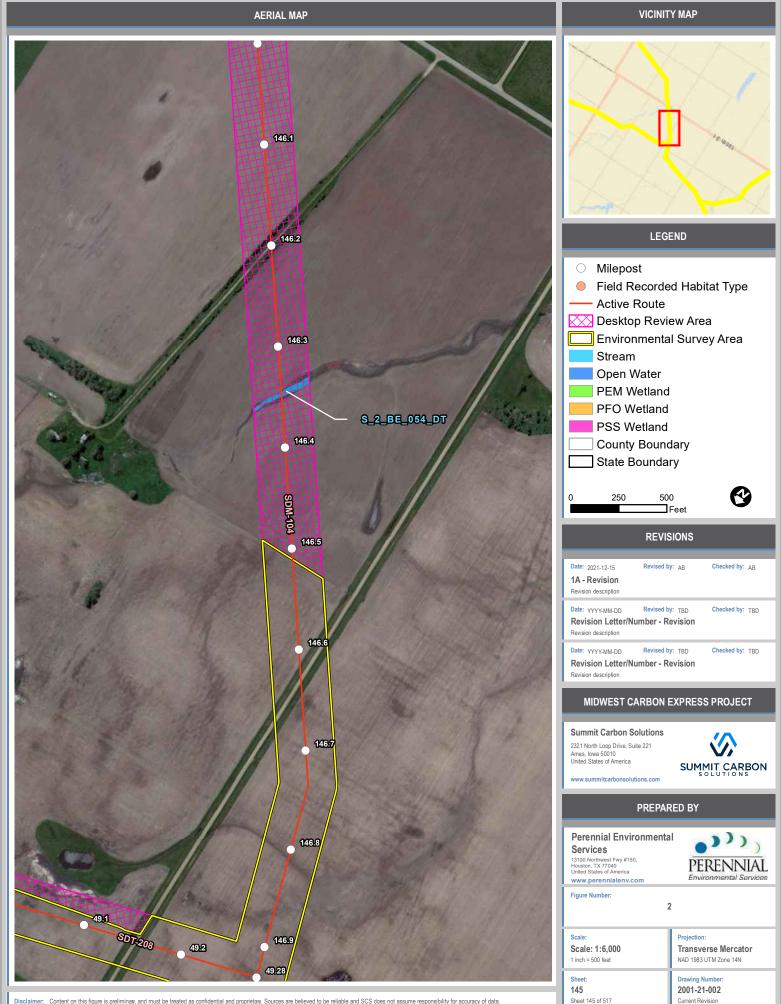
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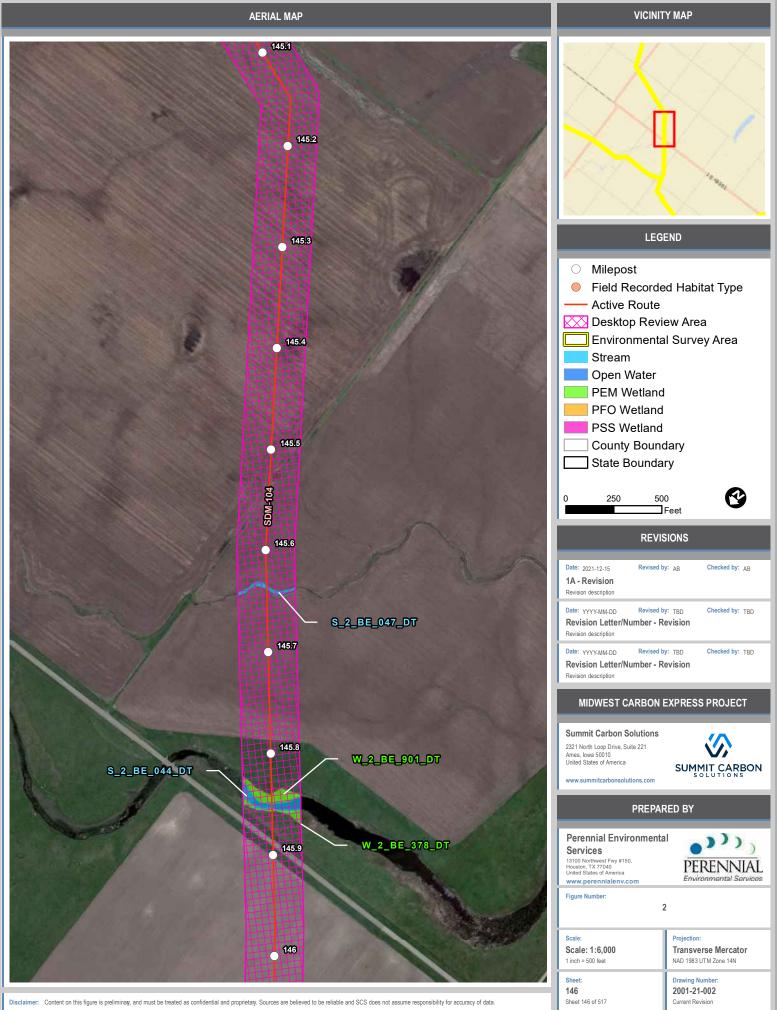
VICINITY MAP



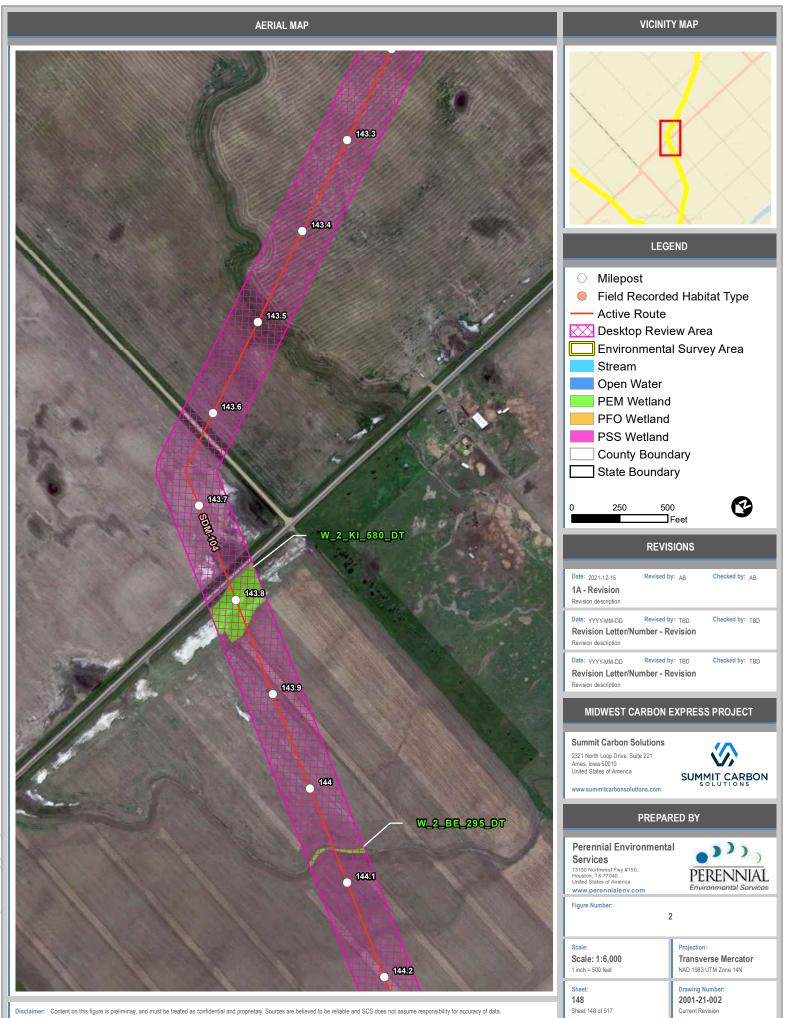


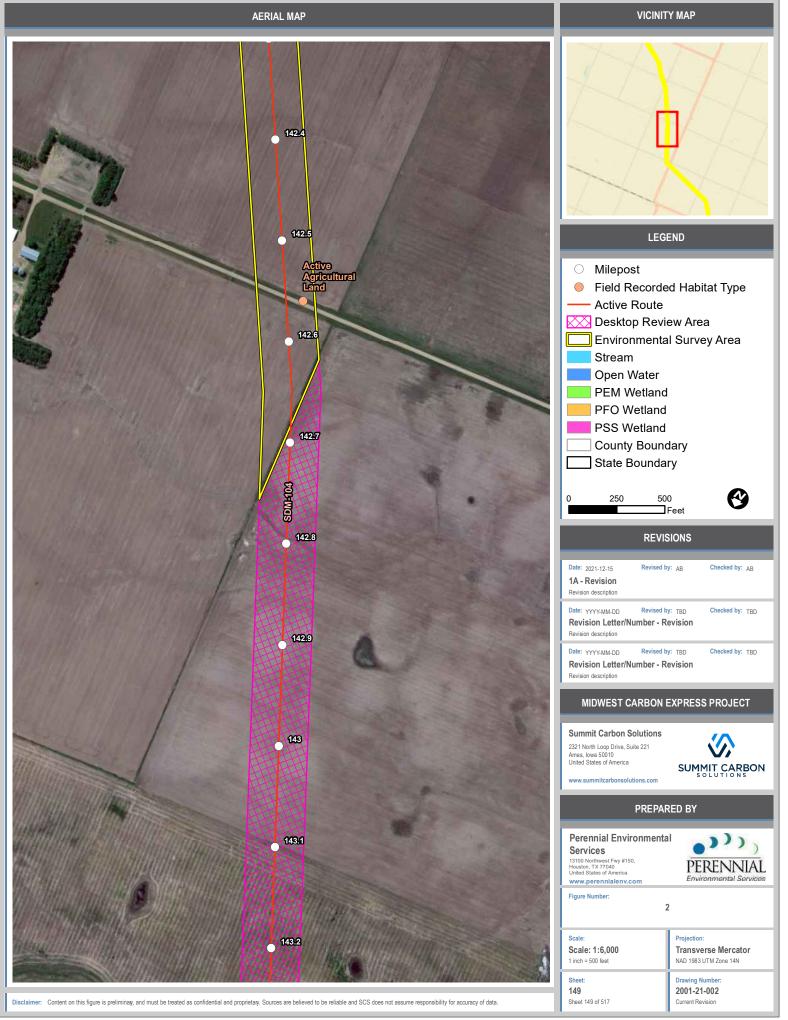


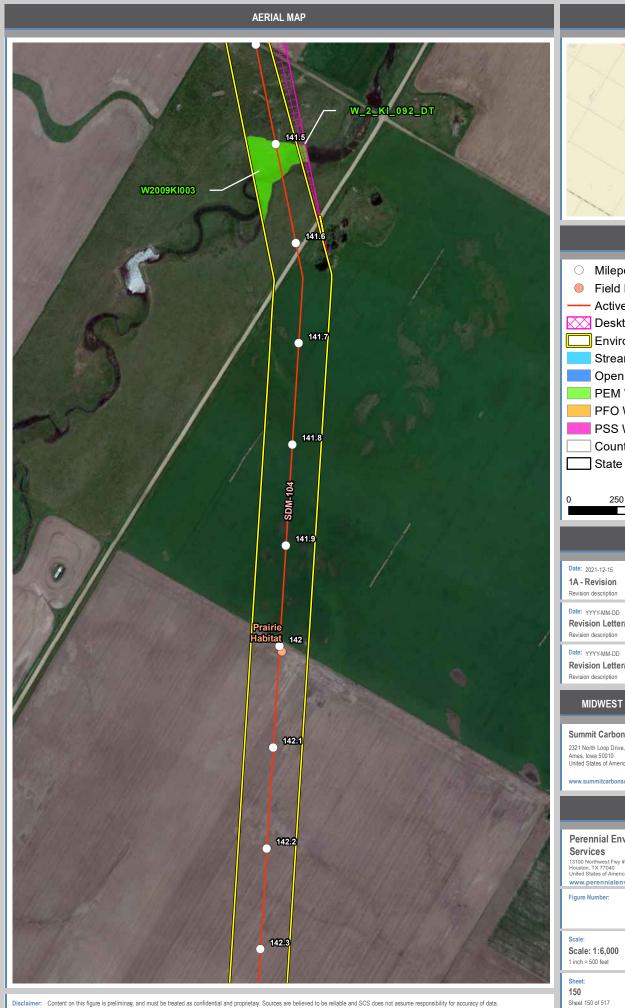


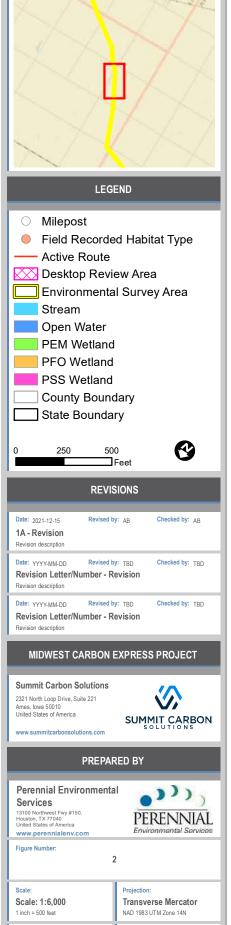










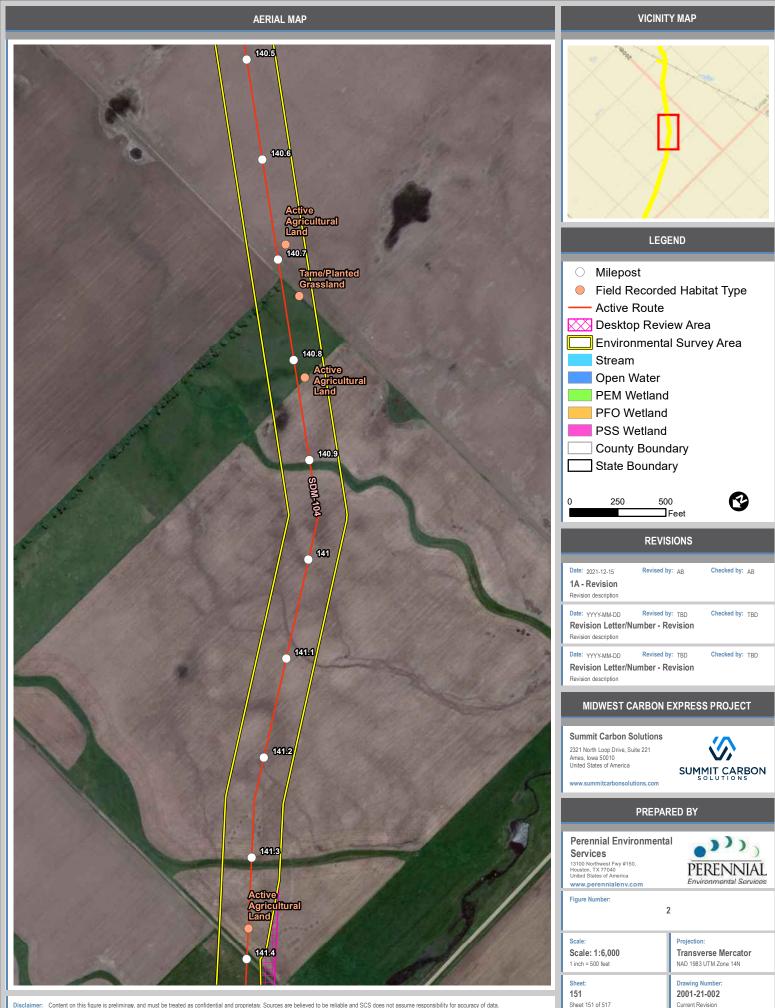


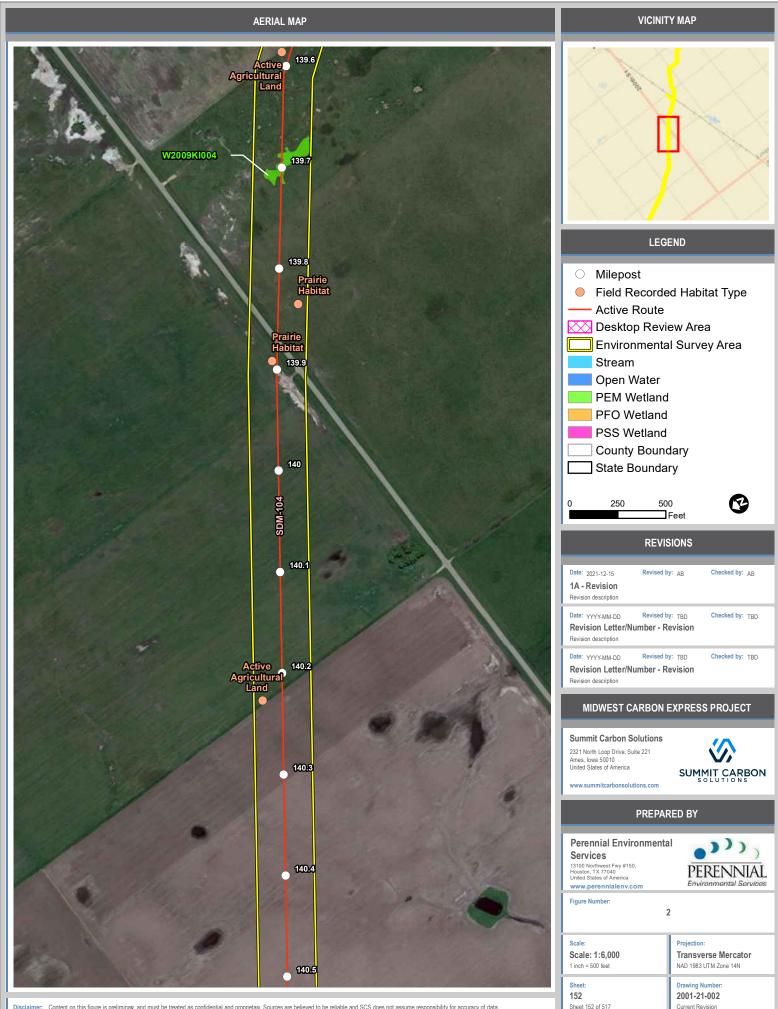
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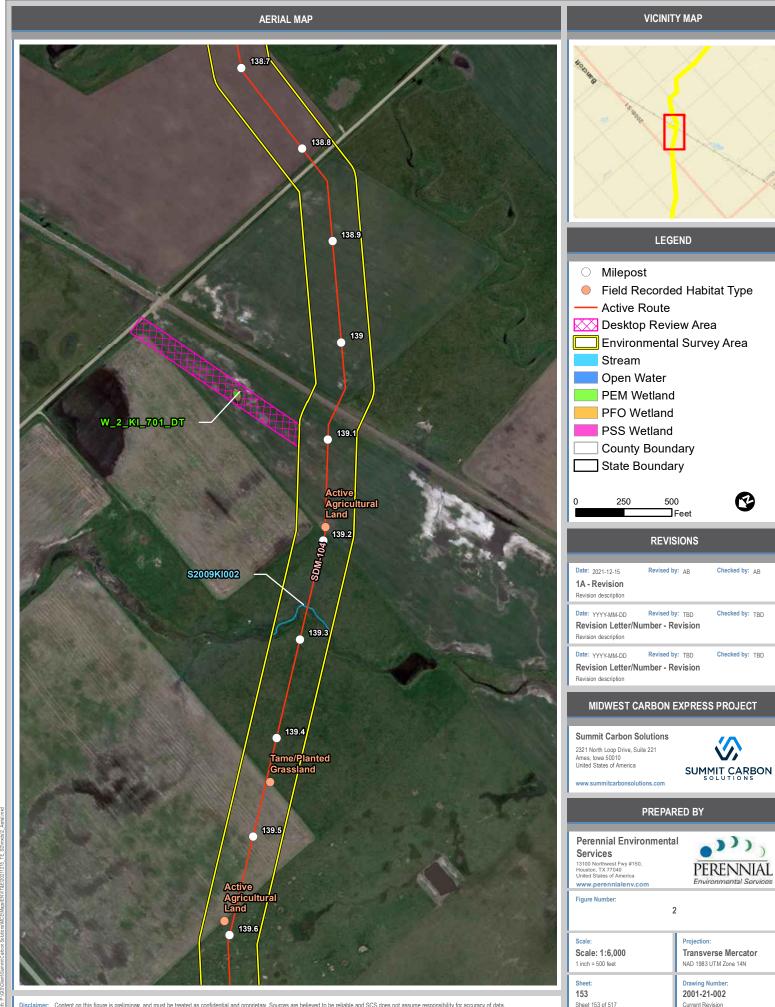
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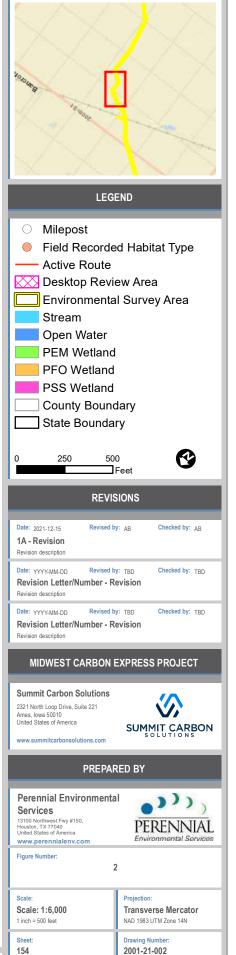






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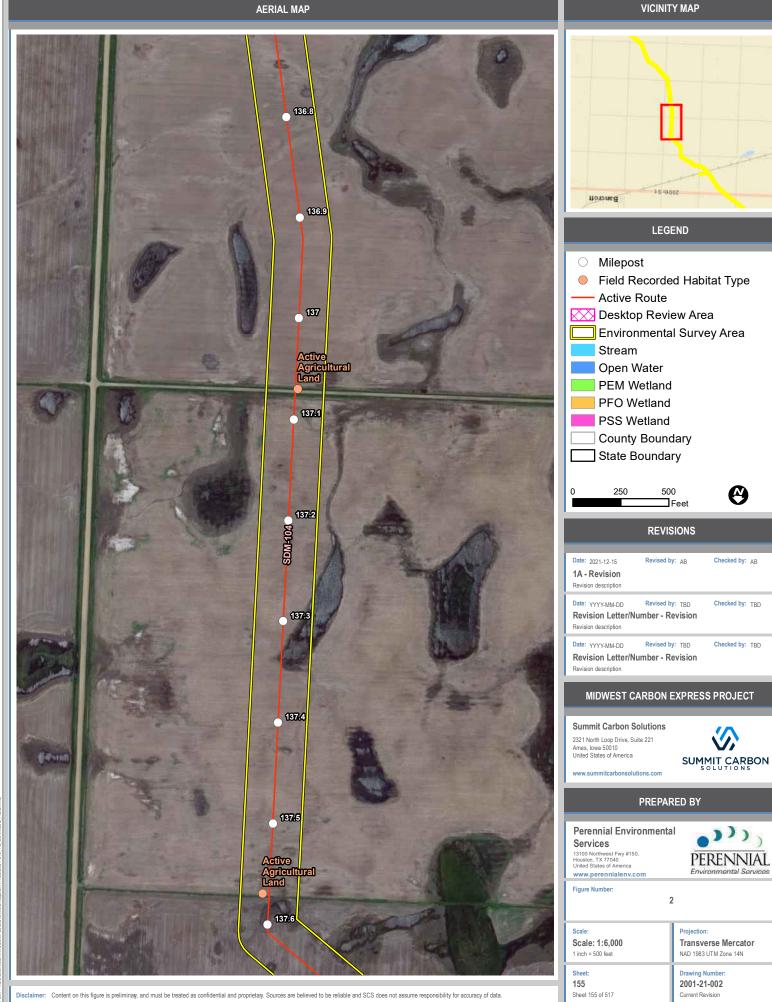




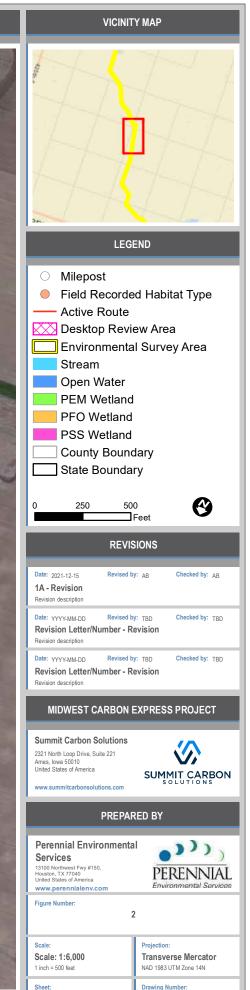
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VICINITY MAP



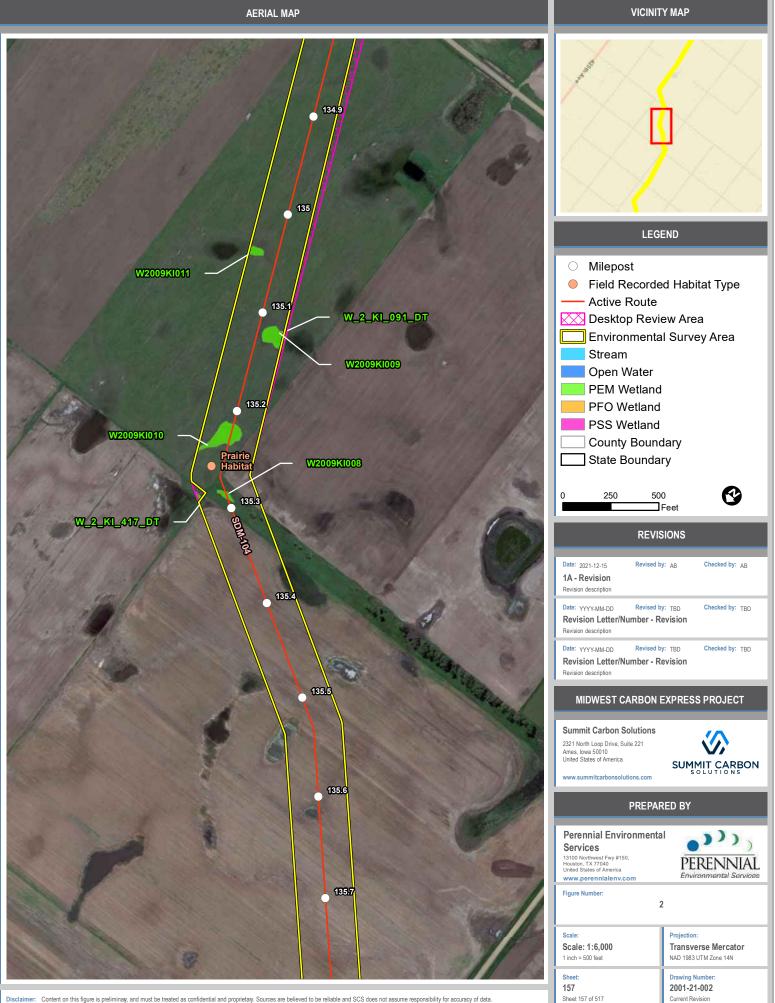


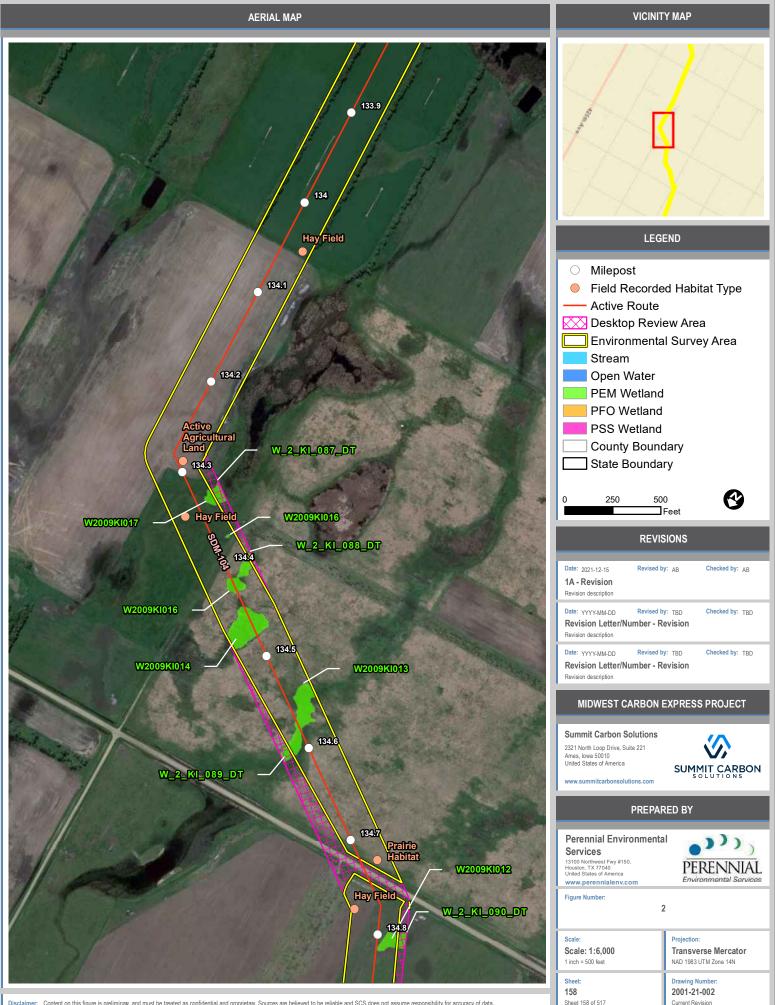


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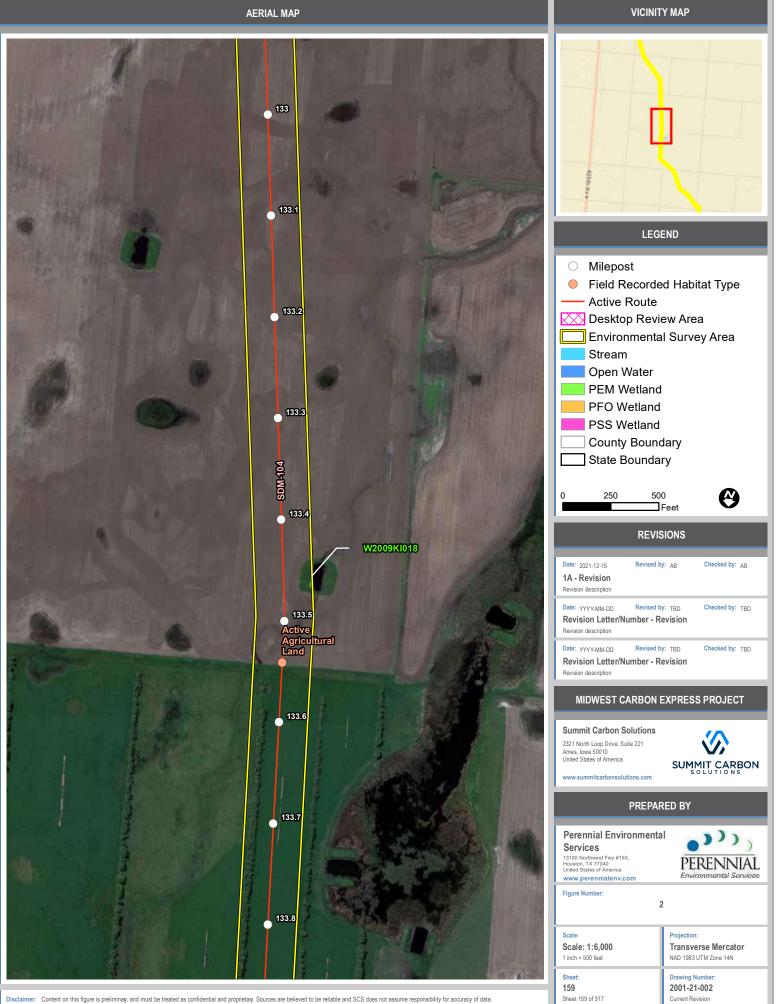
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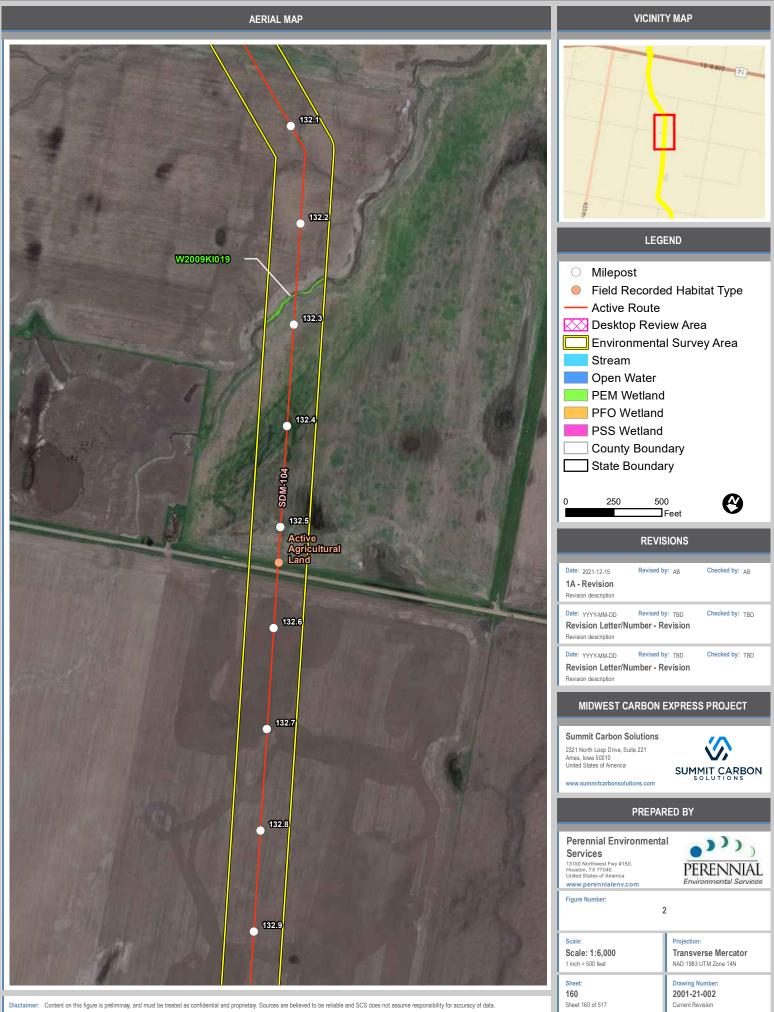
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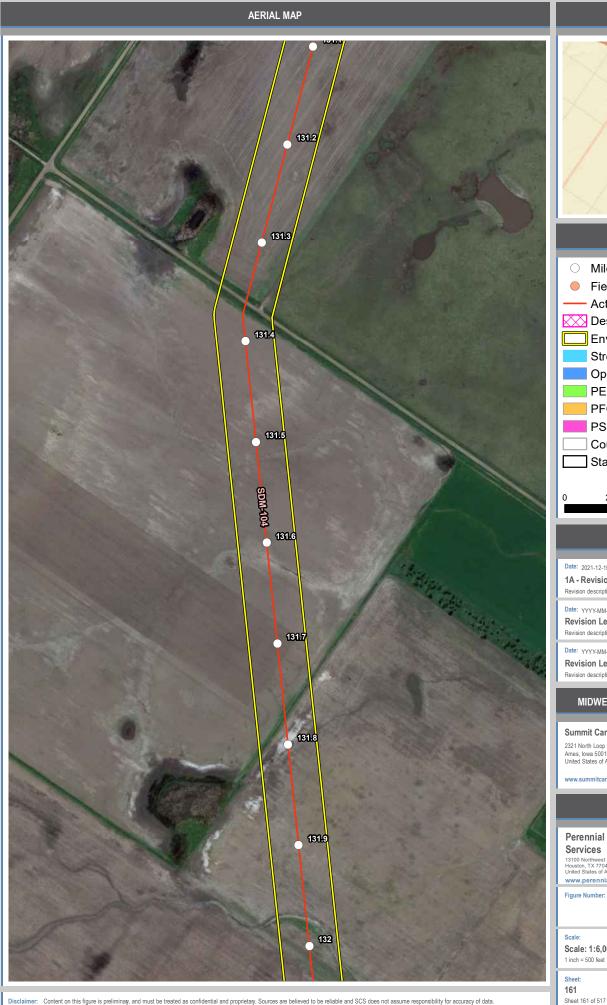


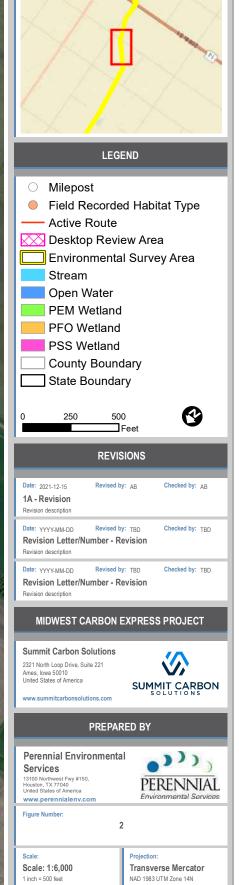


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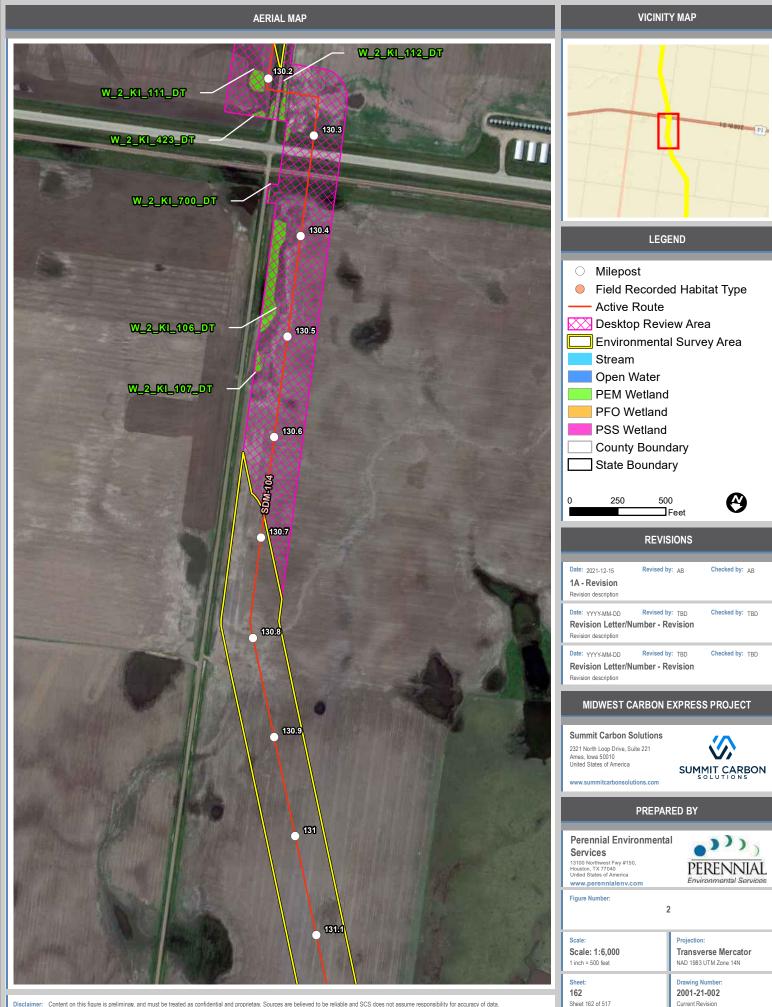




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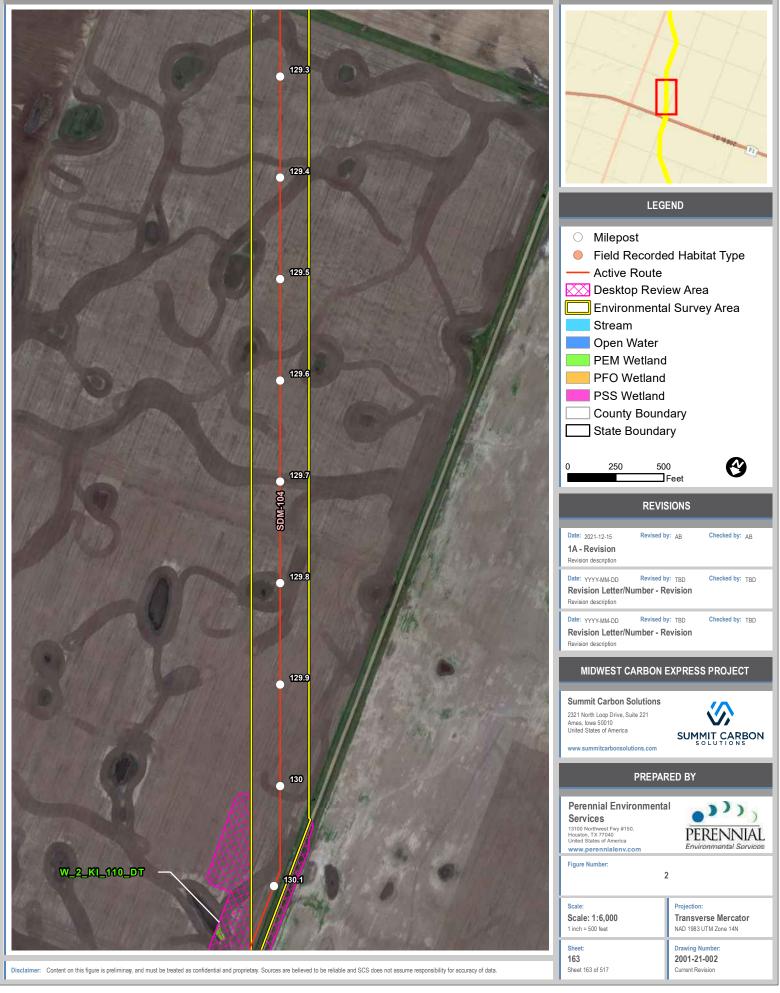


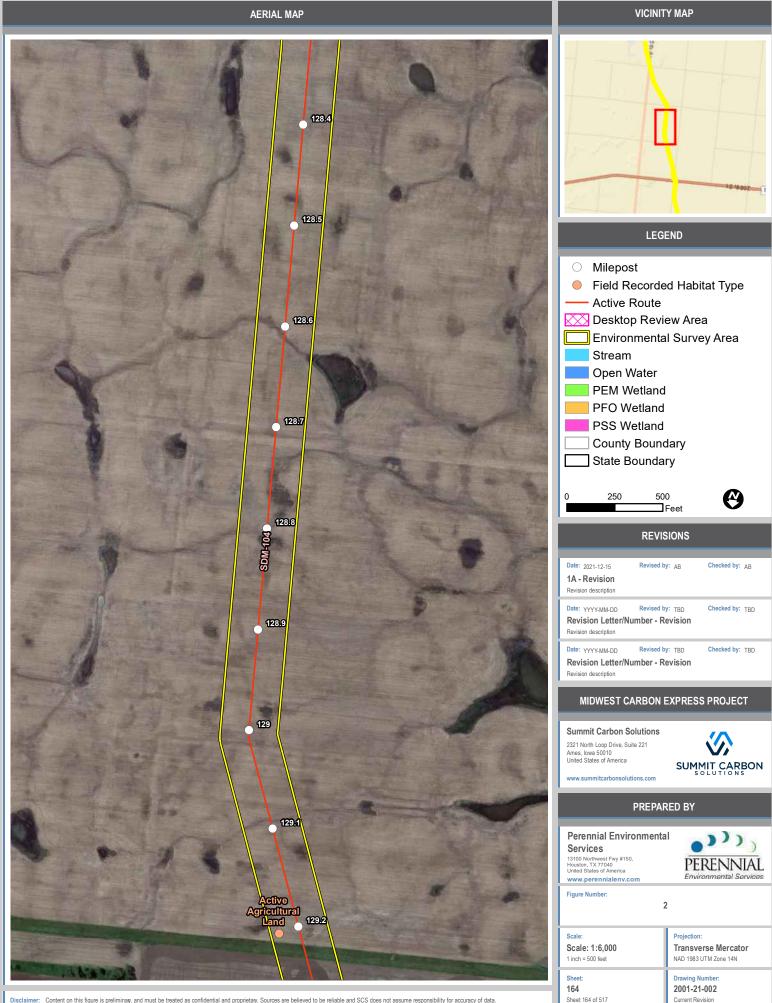
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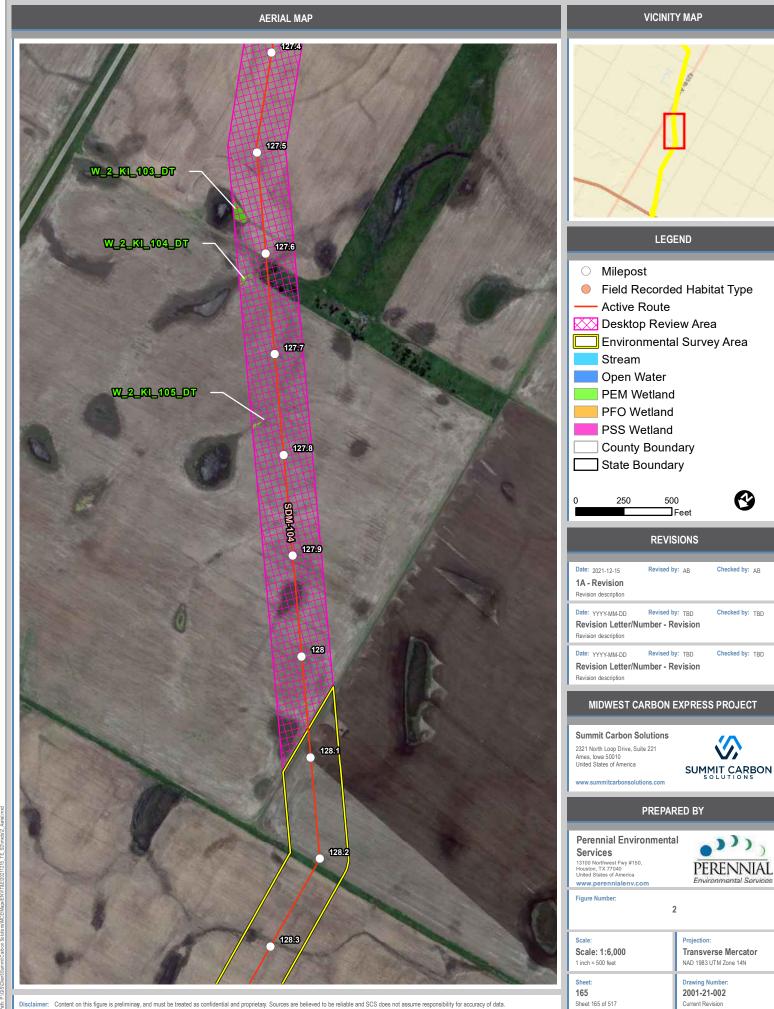
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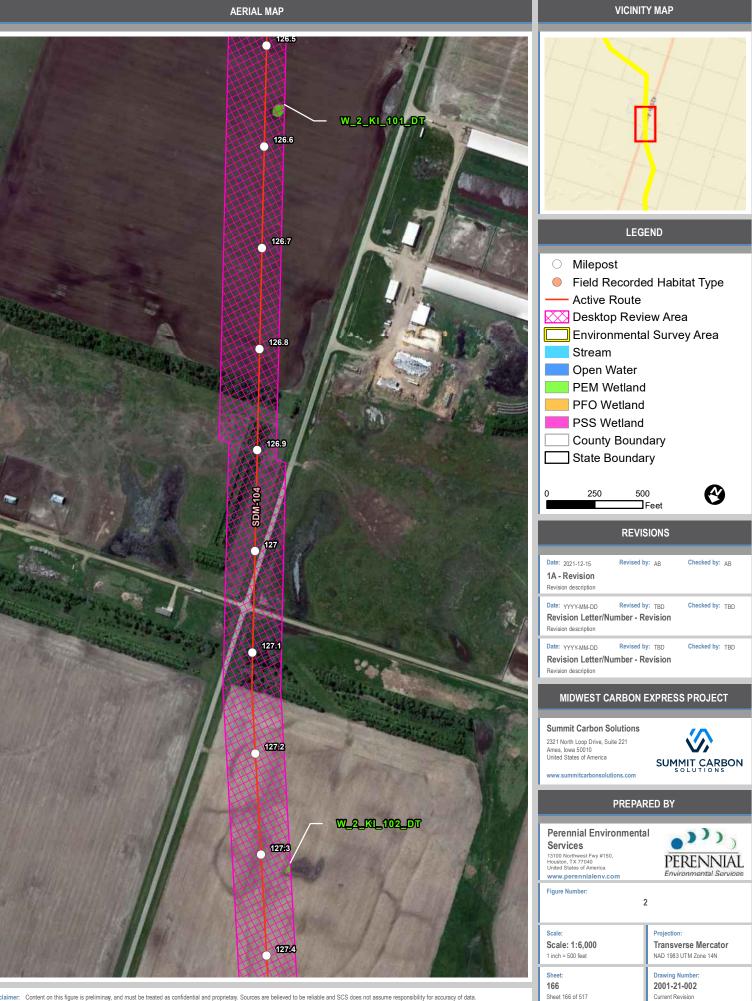


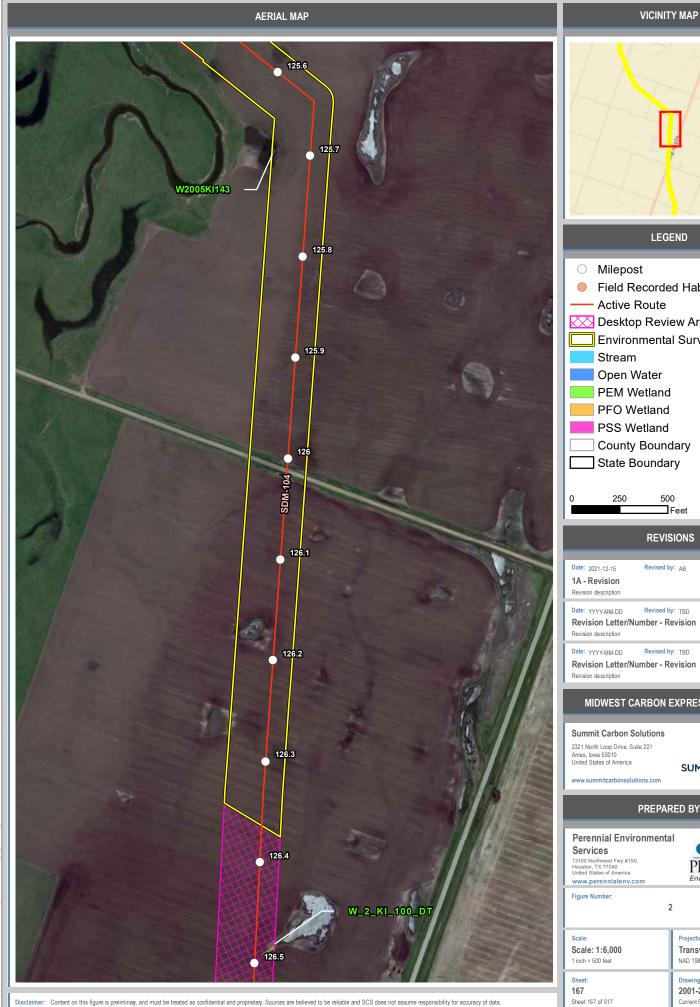


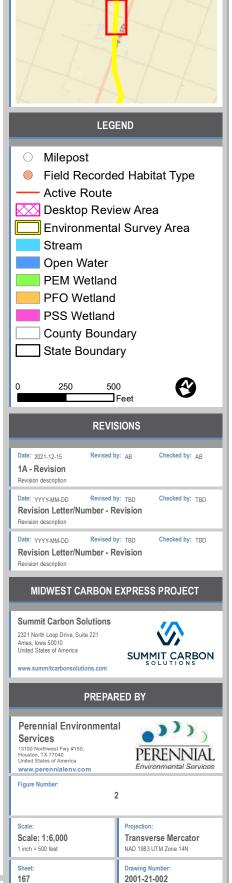


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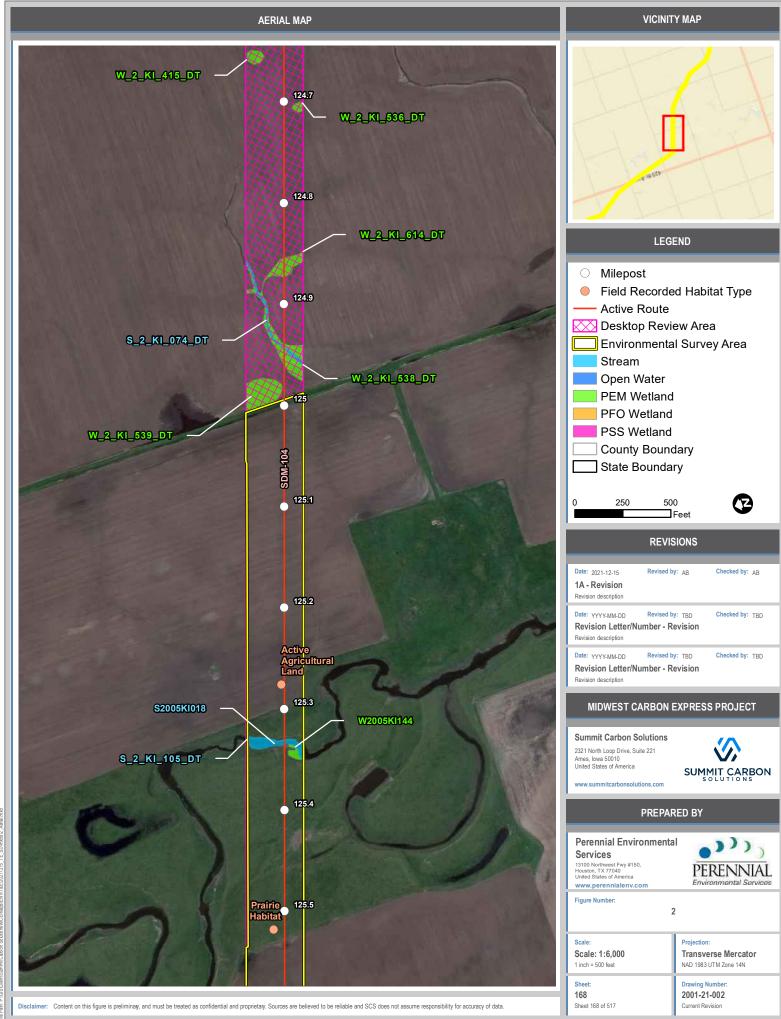
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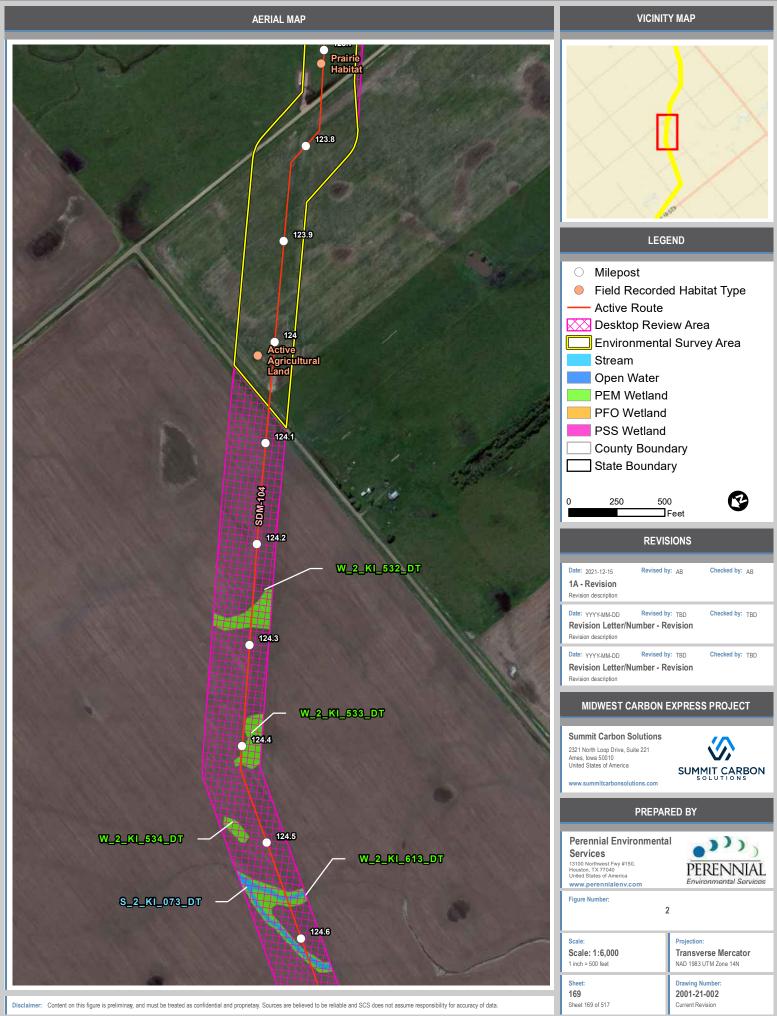


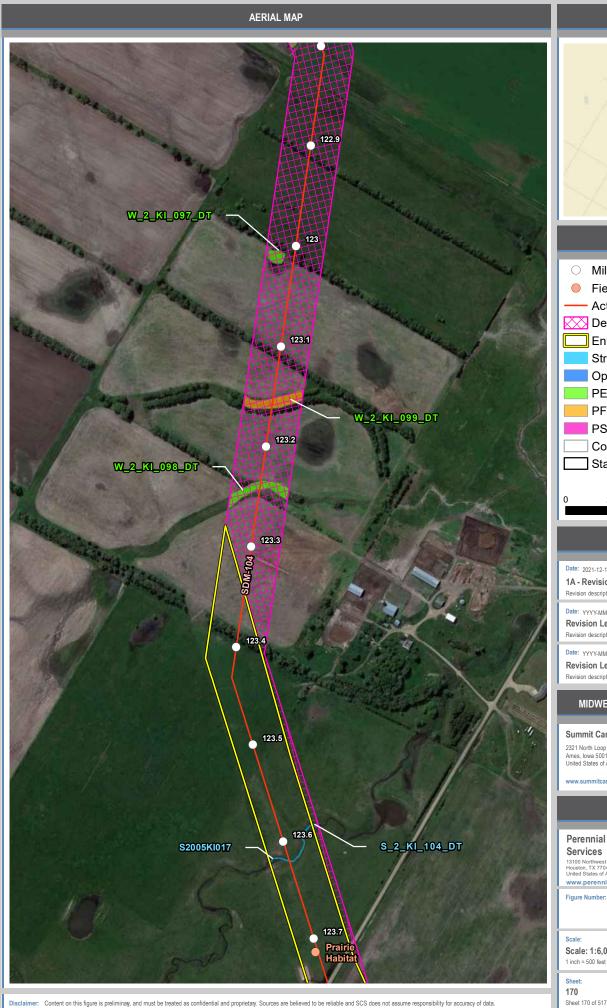


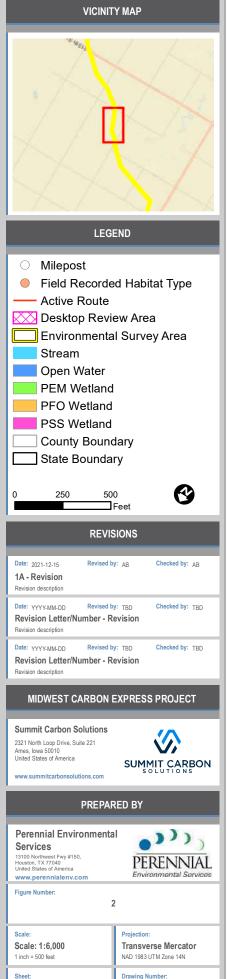


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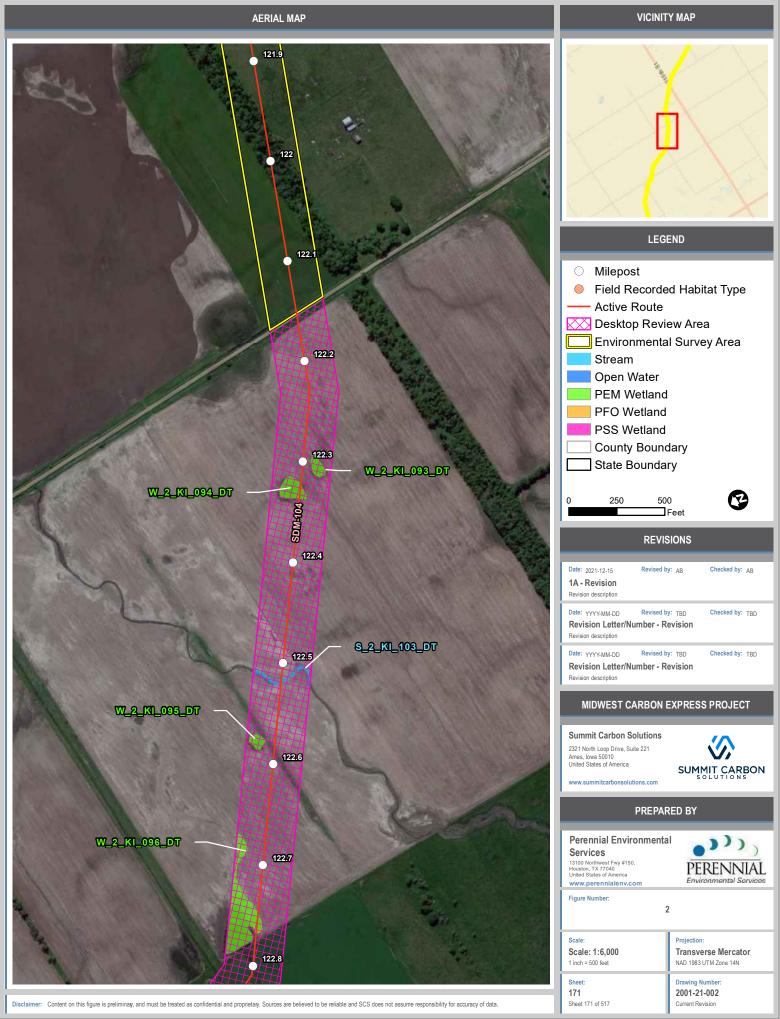


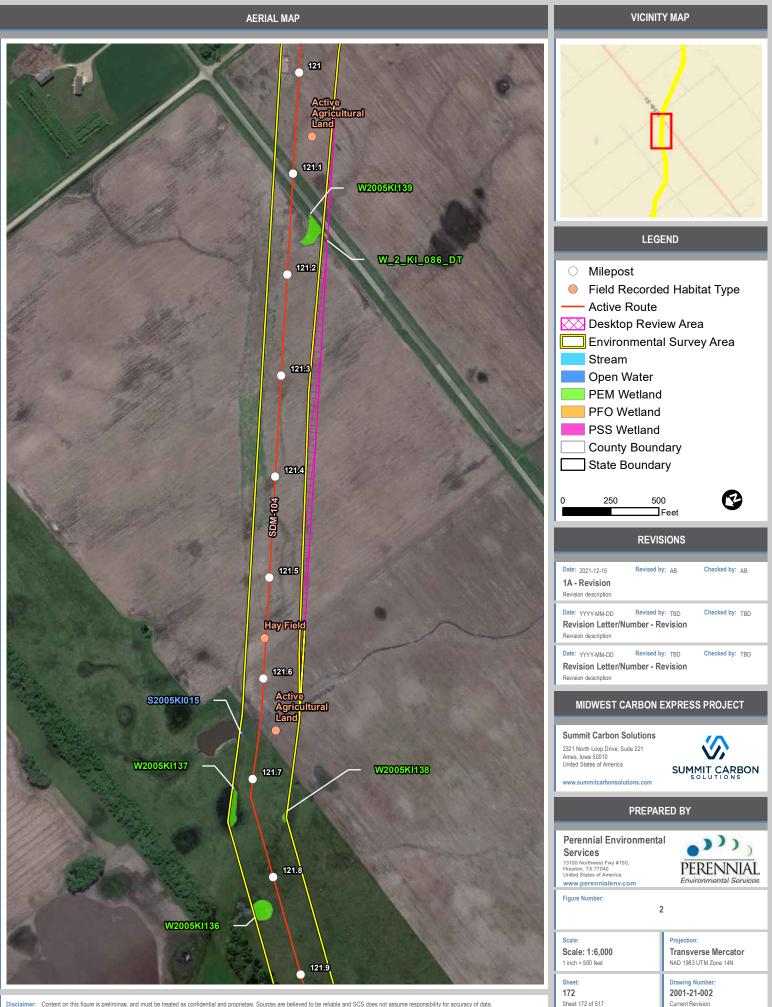


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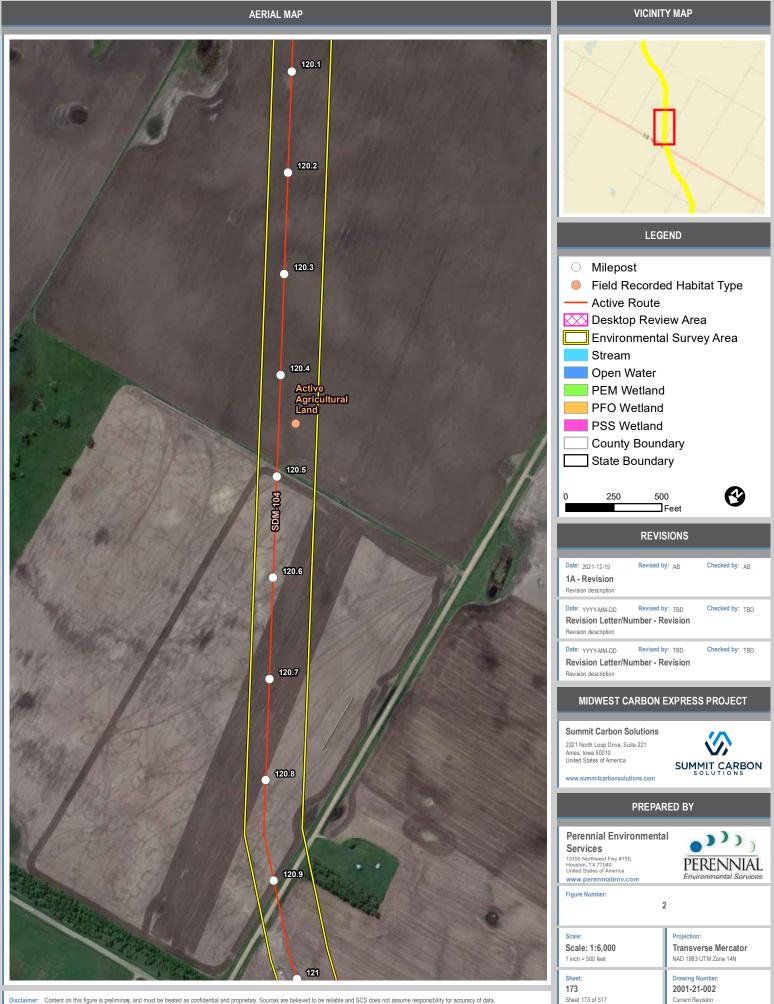
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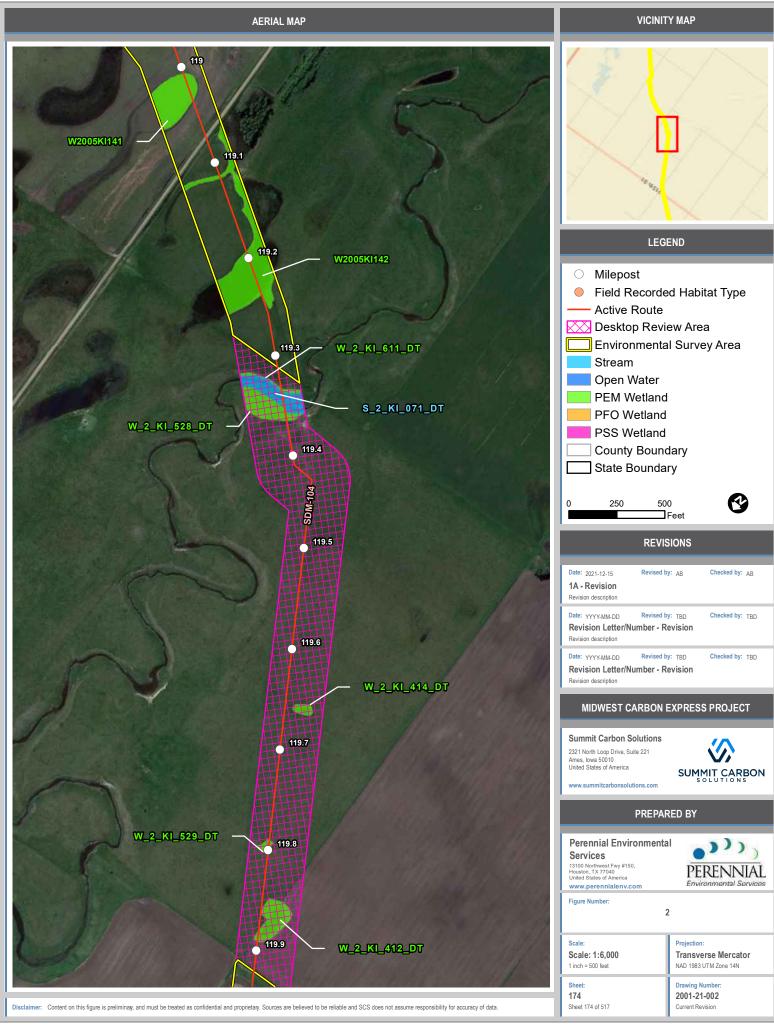
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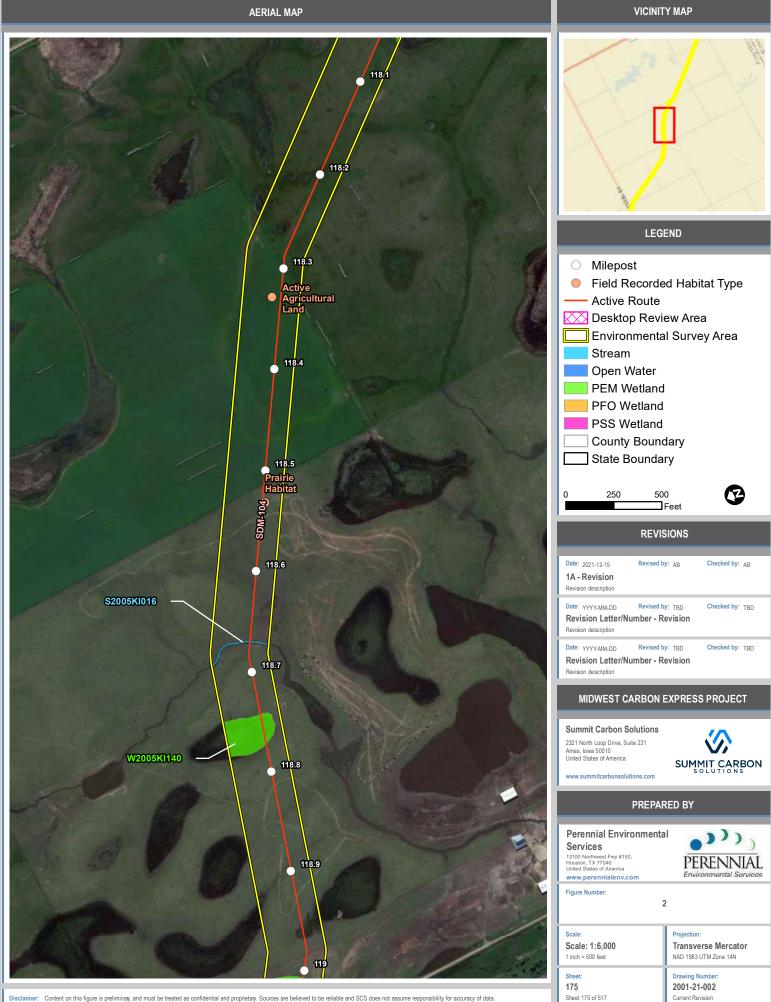


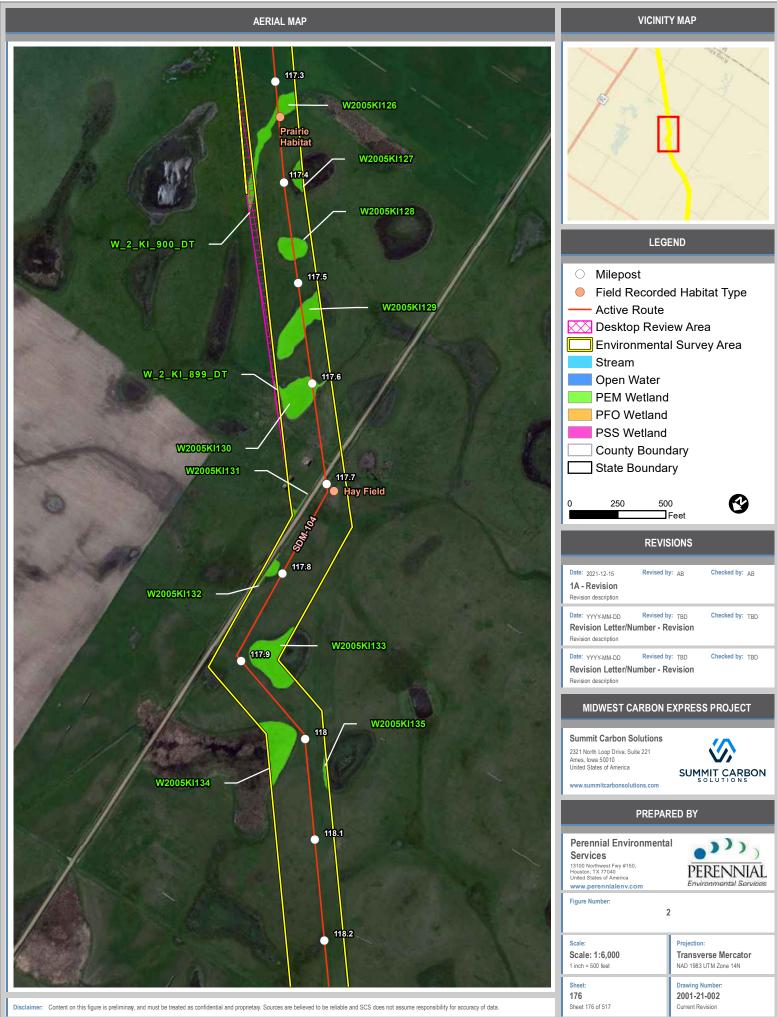


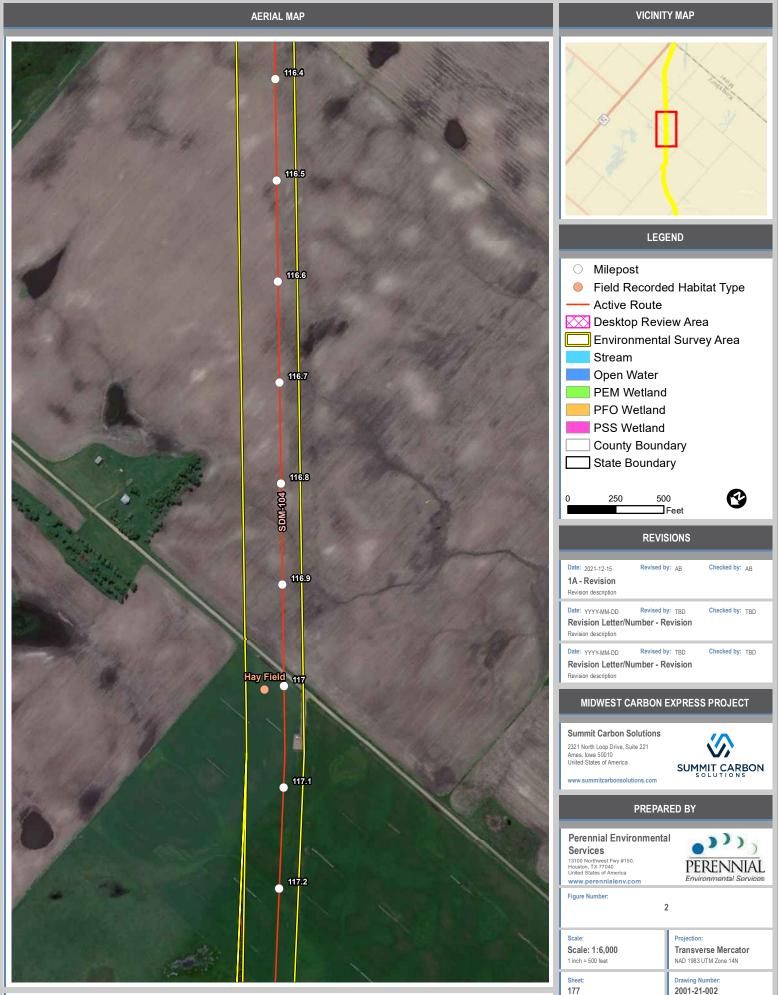
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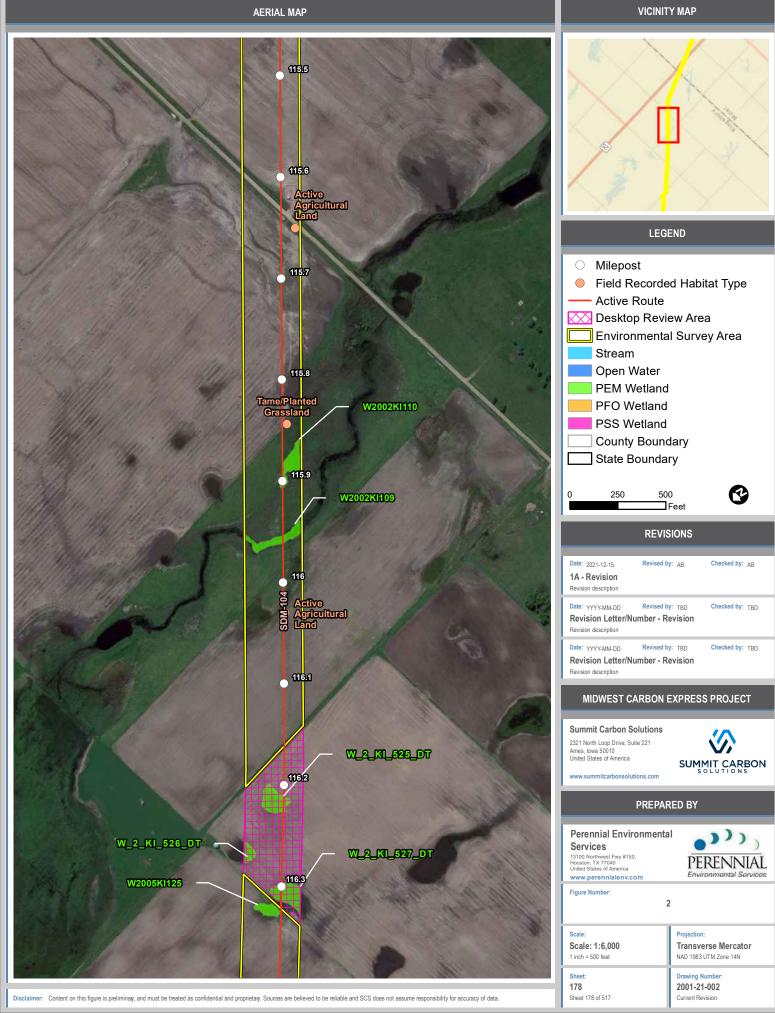


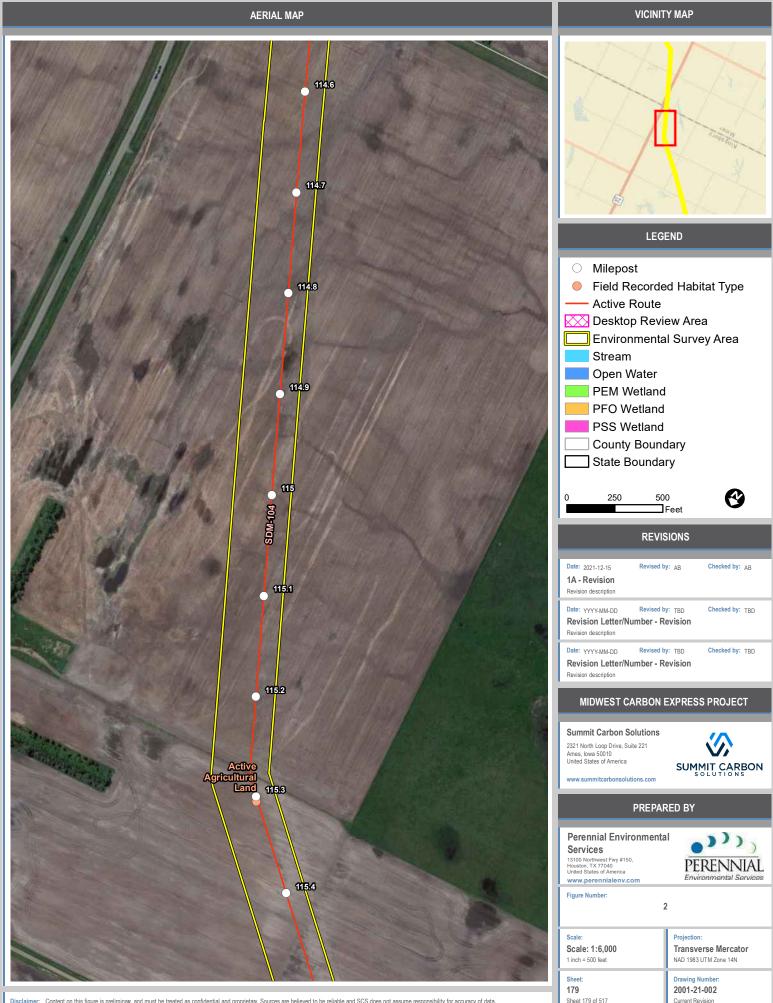




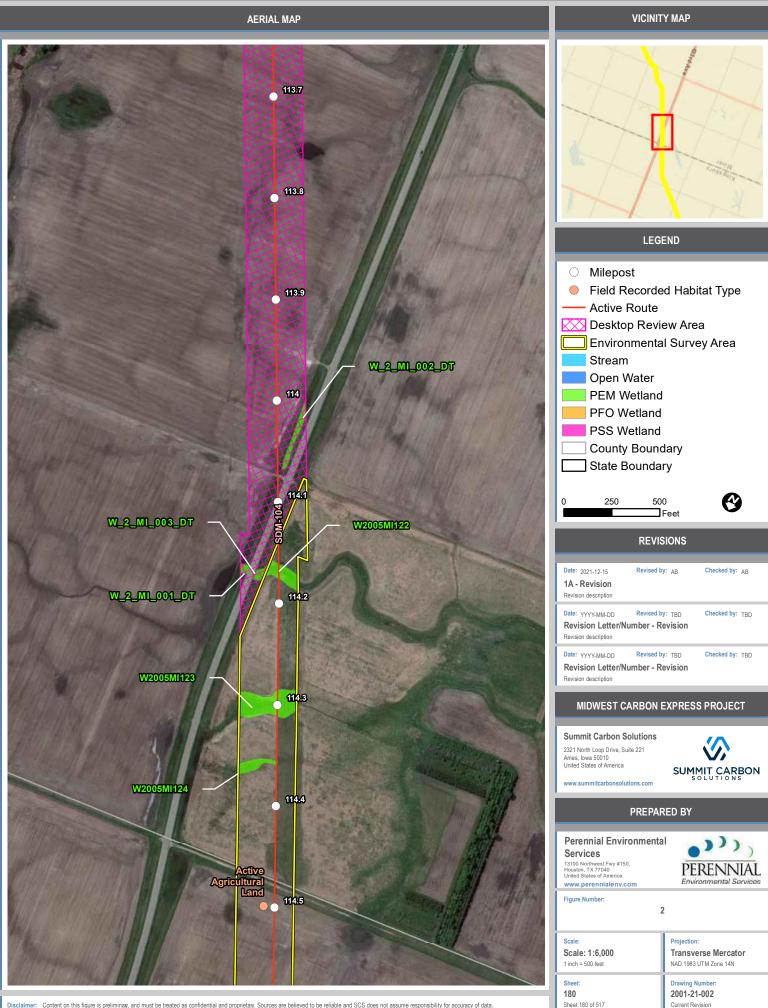
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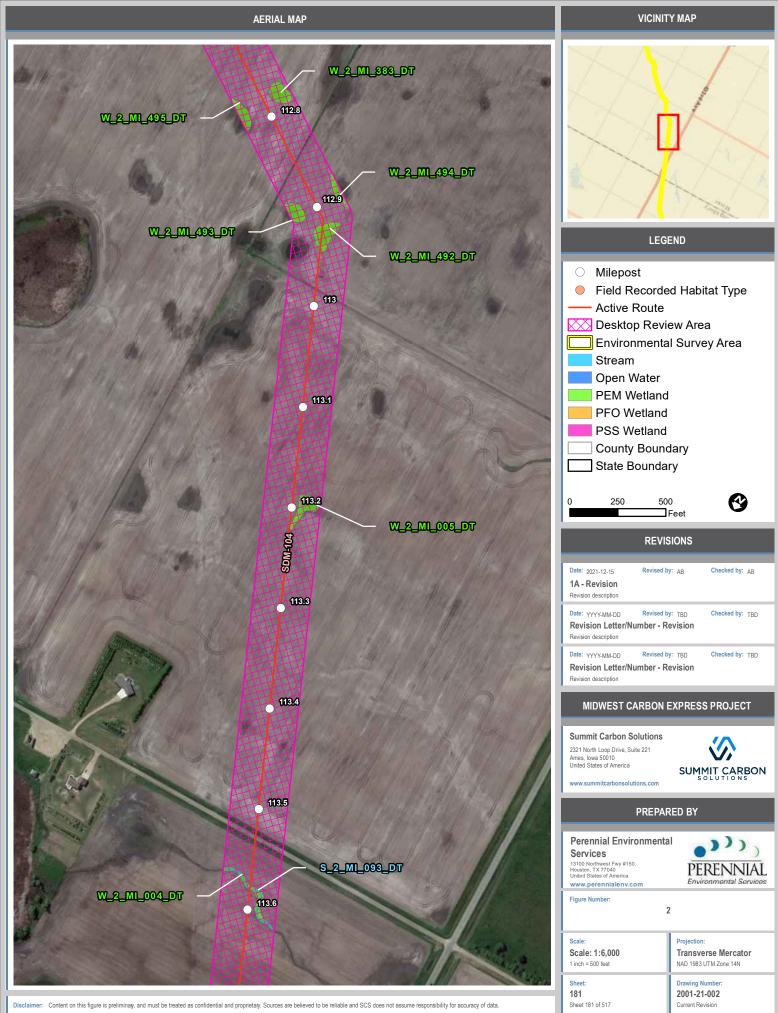
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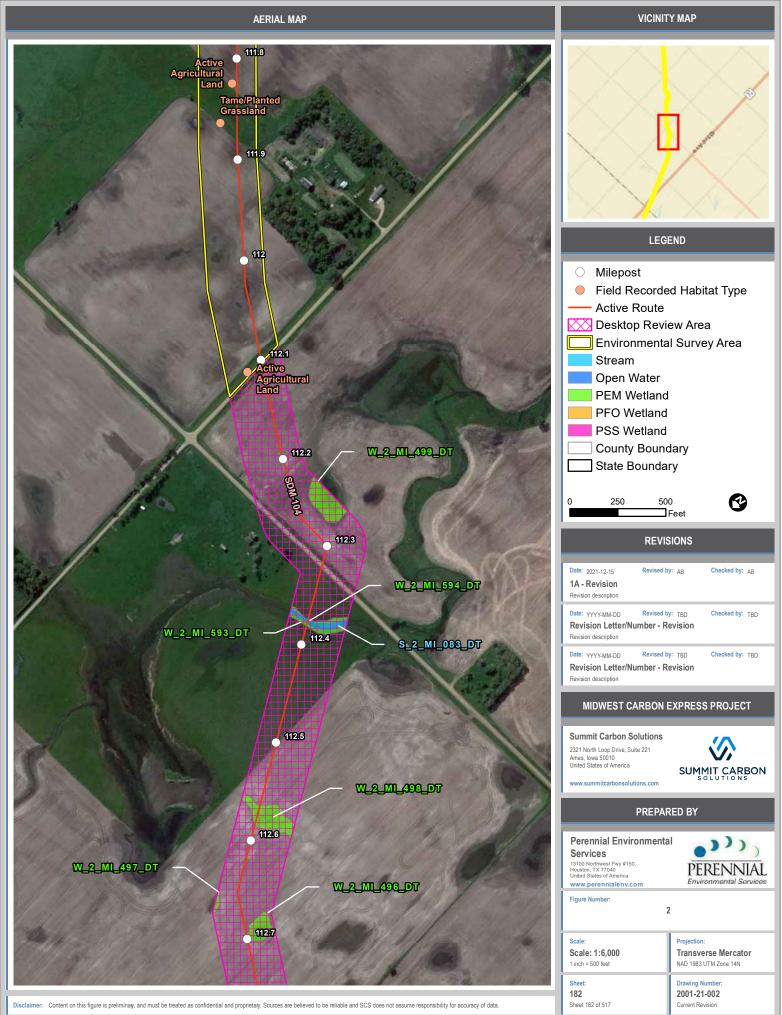


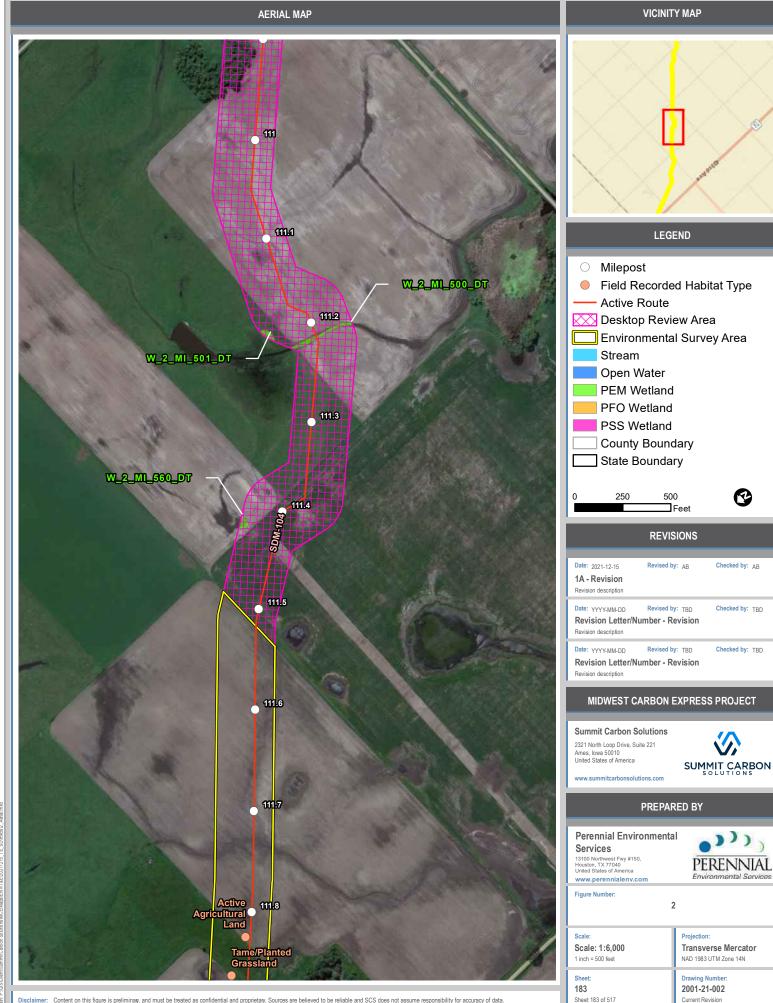


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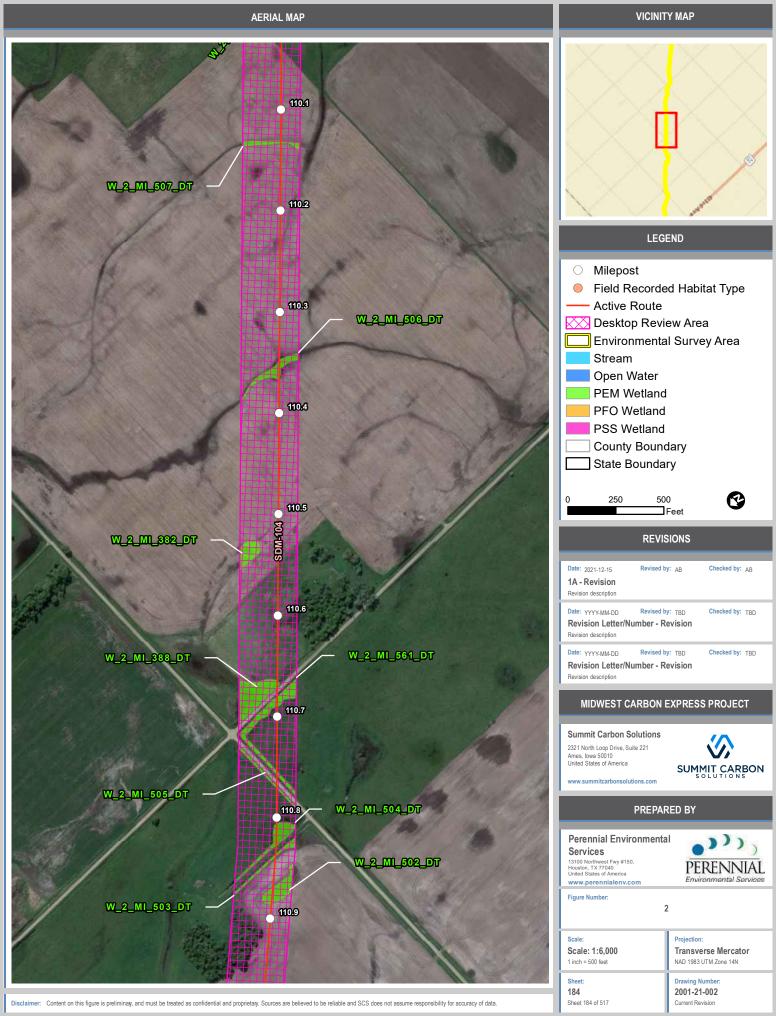
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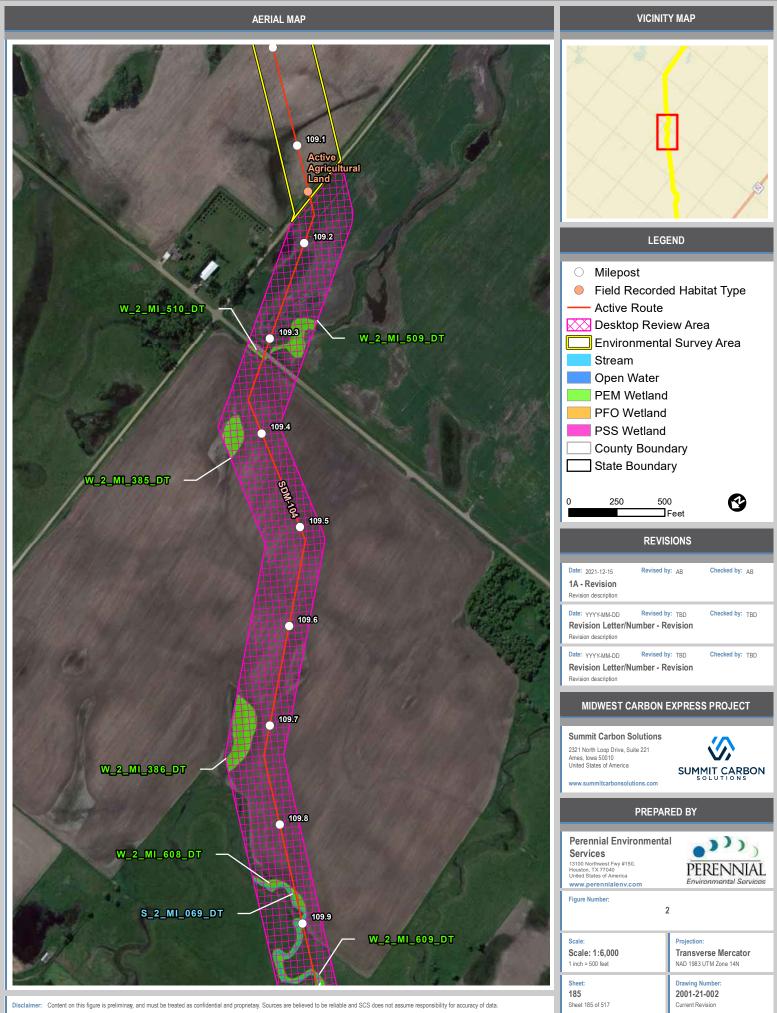
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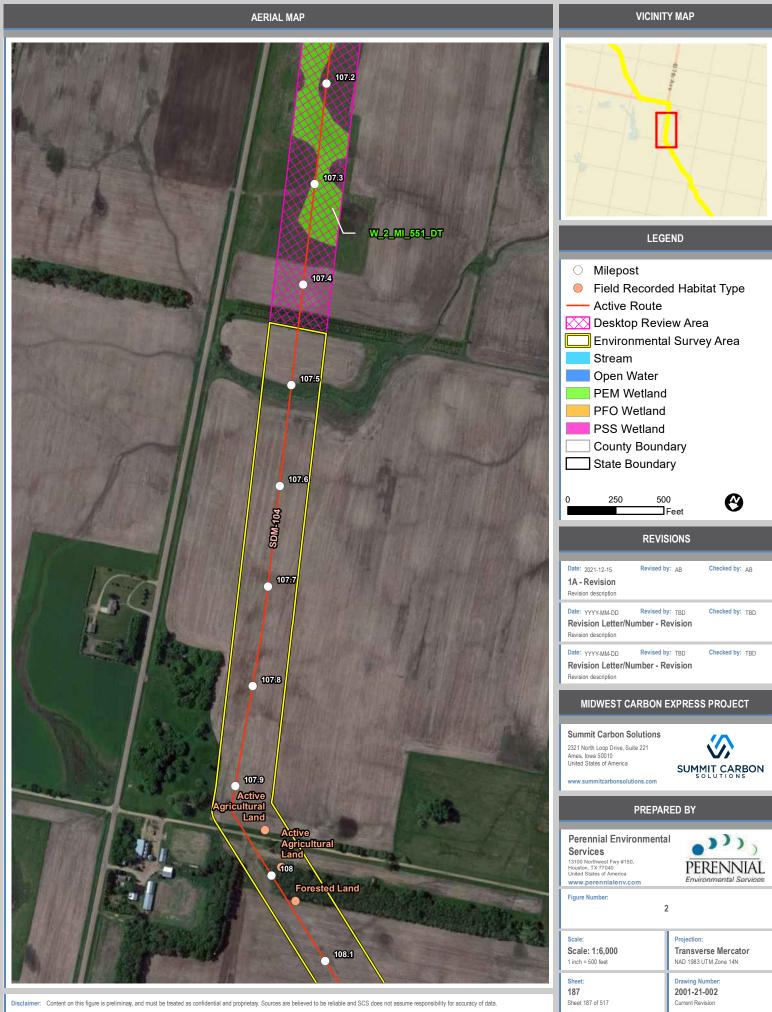
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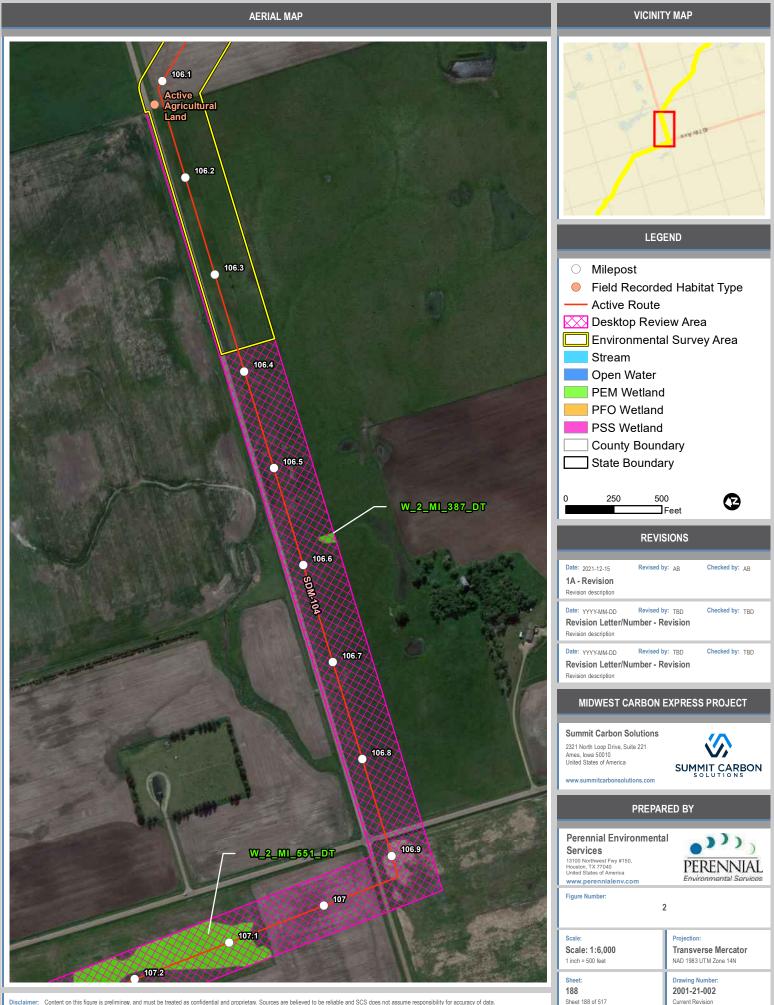
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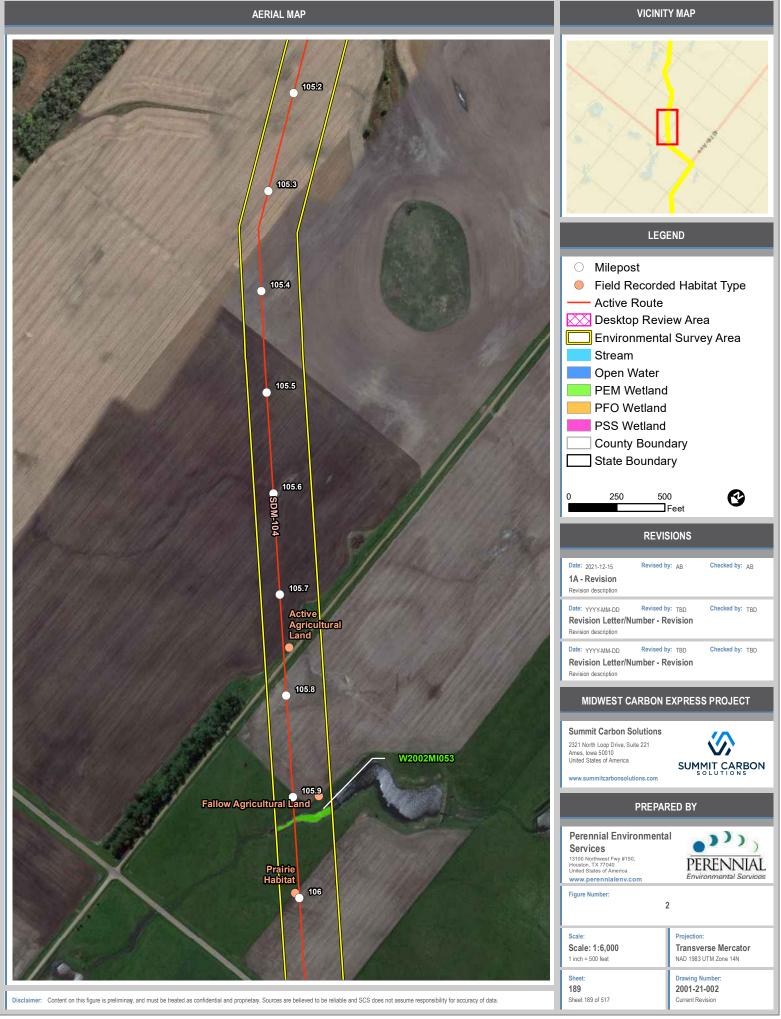


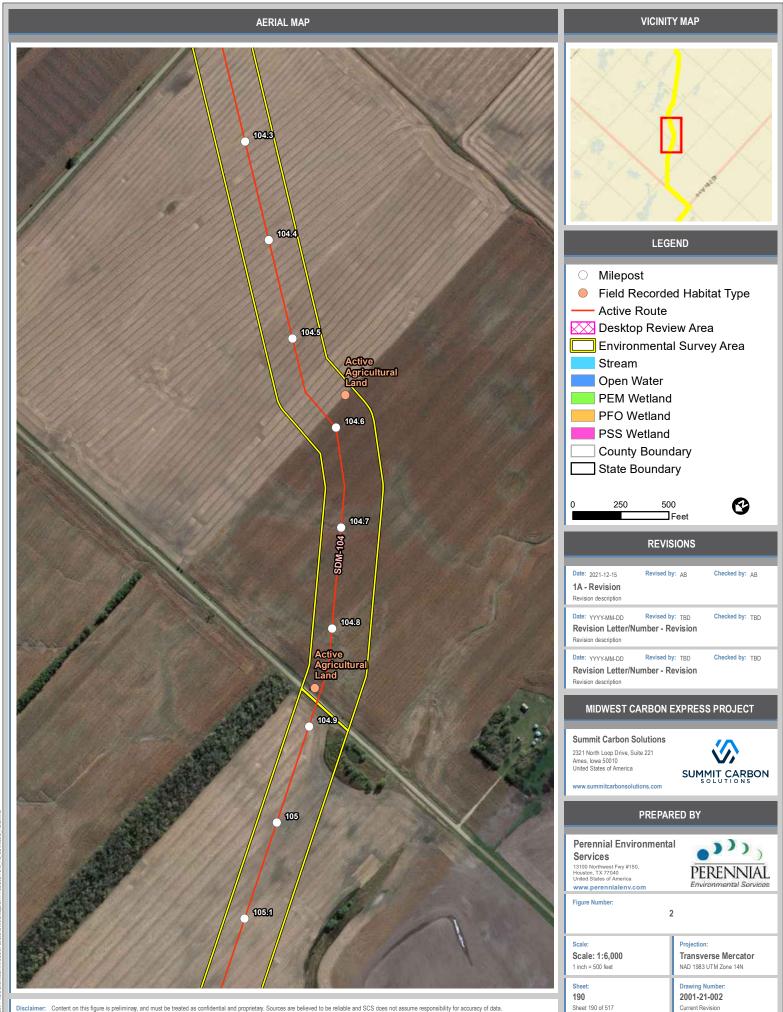


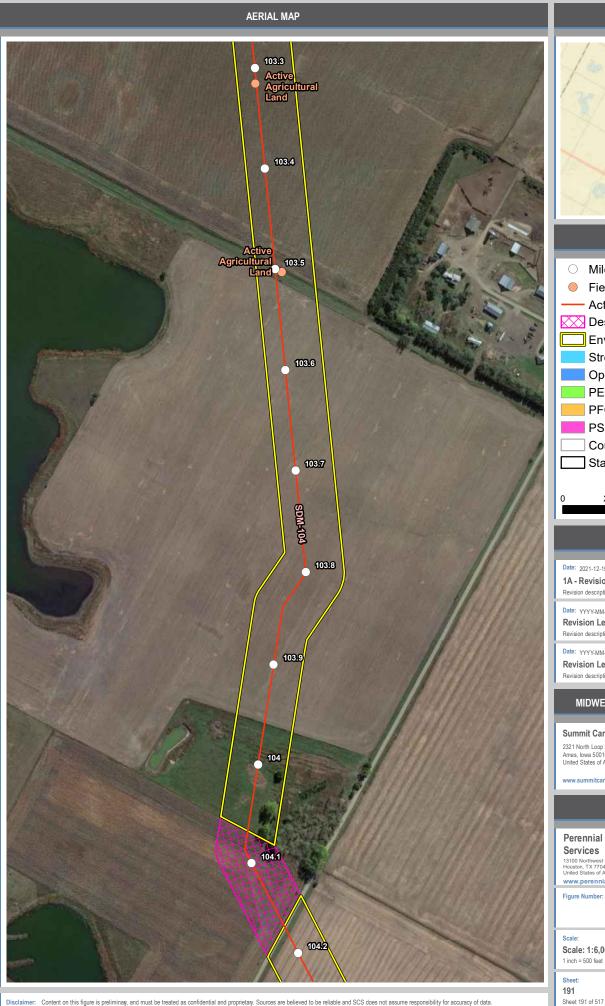


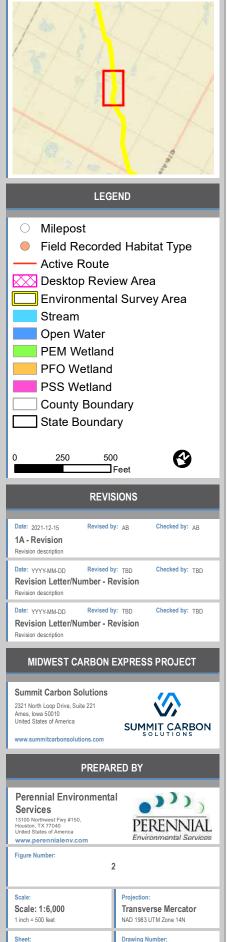








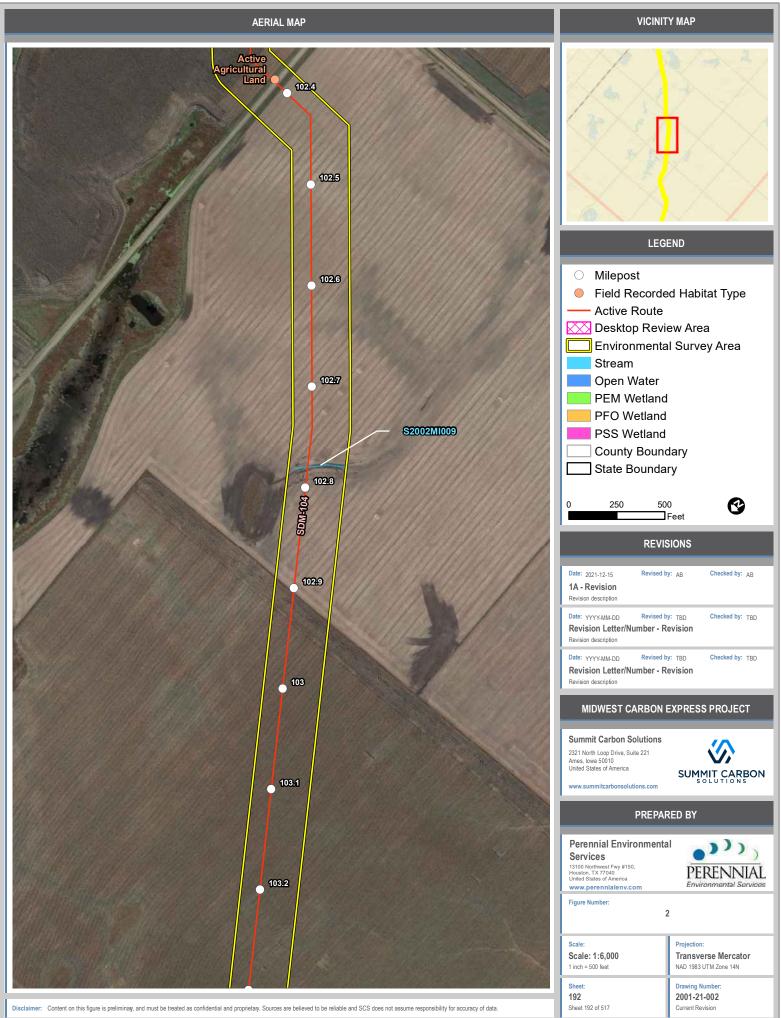


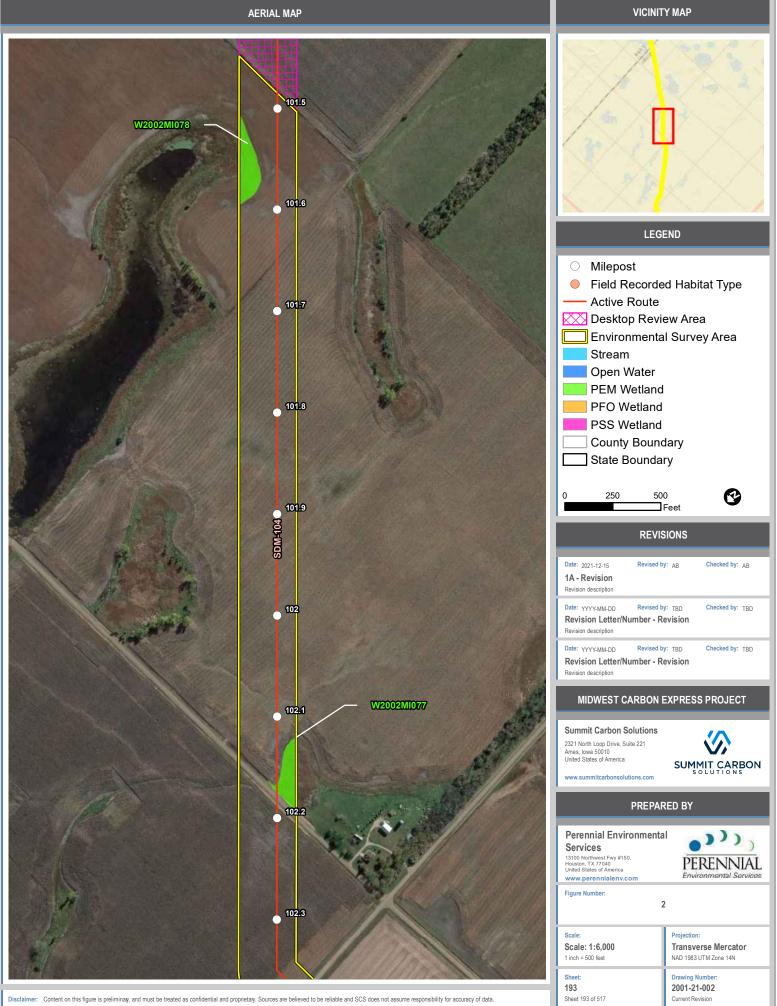


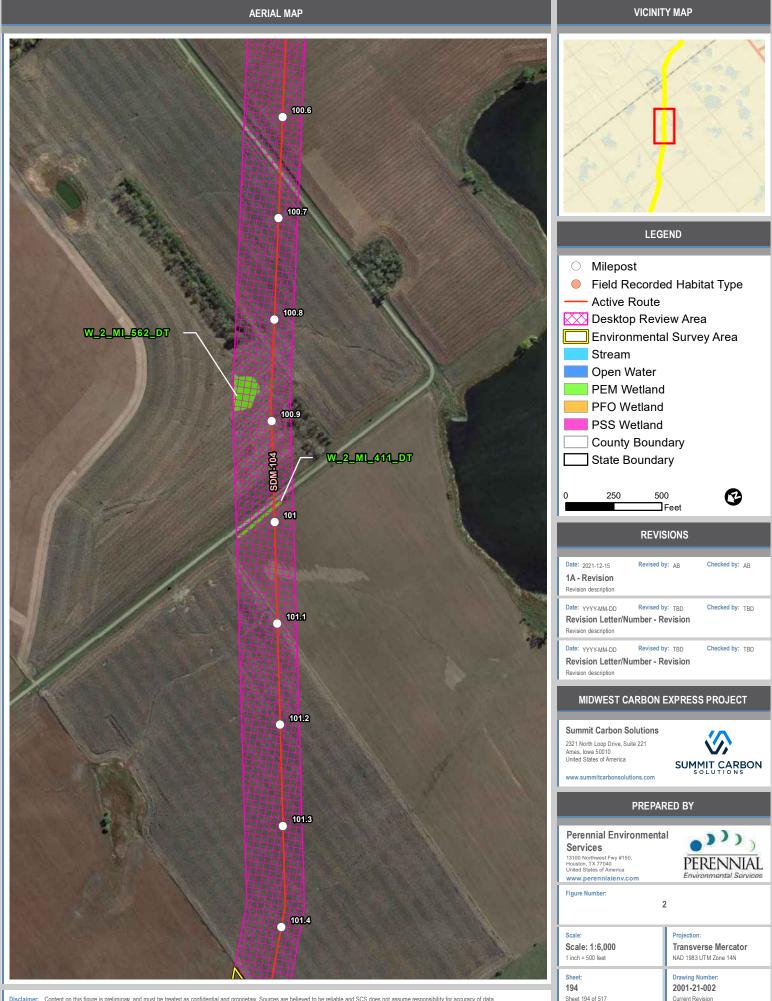
2001-21-002

Current Revision

VICINITY MAP











VICINITY MAP LEGEND Milepost Field Recorded Habitat Type  $\bigcirc$ Active Route Desktop Review Area Environmental Survey Area Stream Open Water

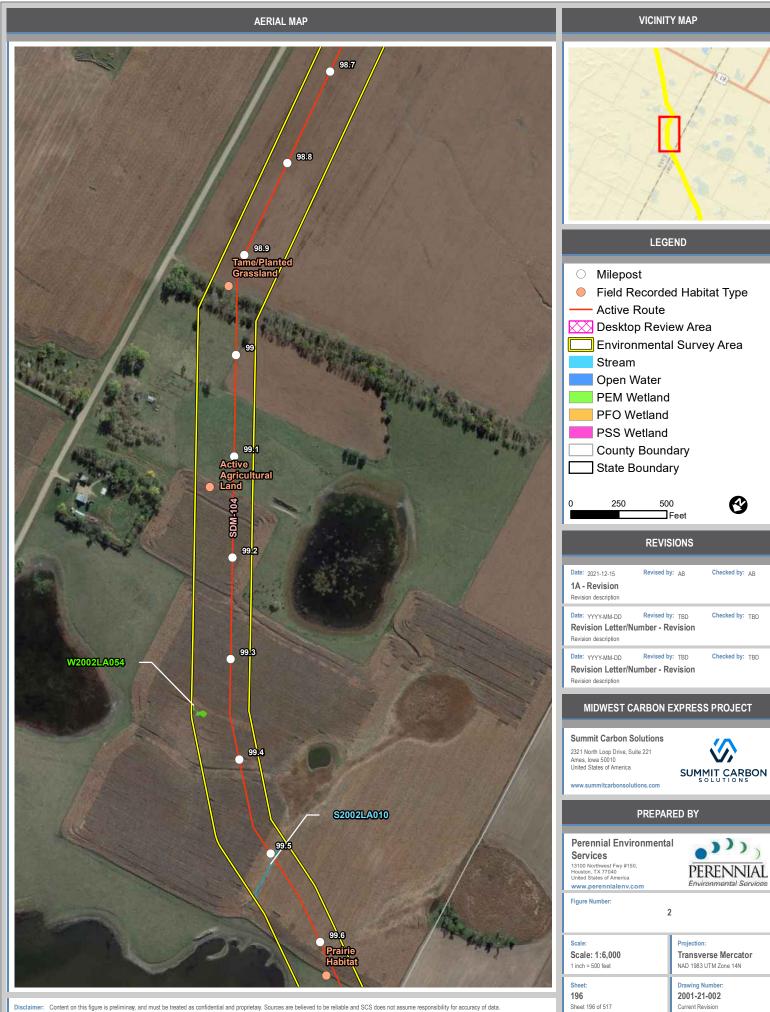
PEM Wetland PFO Wetland PSS Wetland **County Boundary** State Boundary B 250 500 Feet REVISIONS Date: 2021-12-15 Revised by: AB Checked by: AB 1A - Revision Revision description Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Revision description Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** Revision description MIDWEST CARBON EXPRESS PROJECT Summit Carbon Solutions Ś 2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America

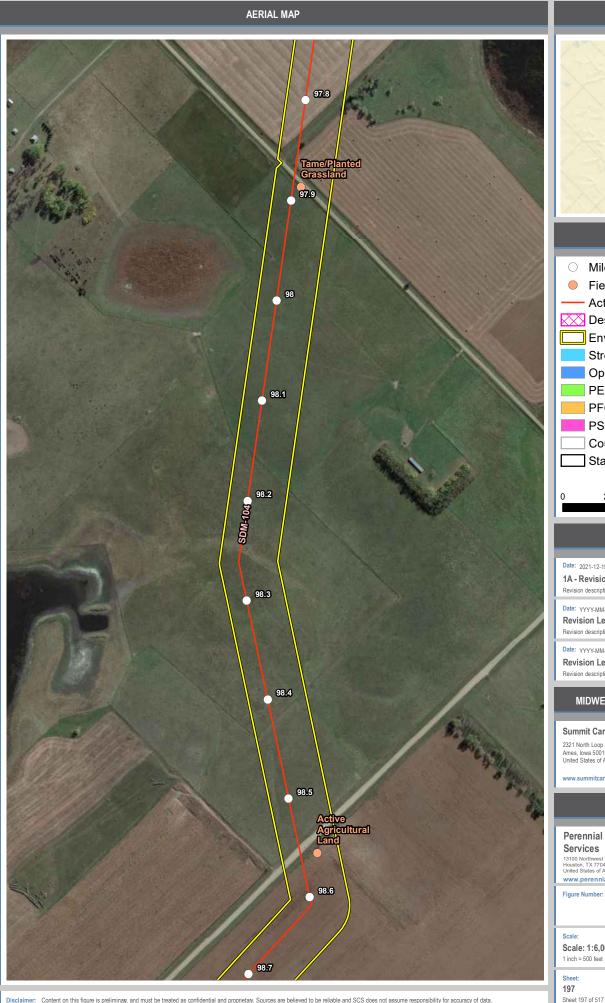


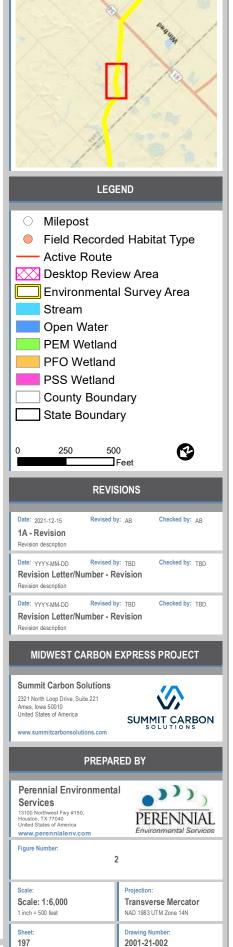
Current Revision

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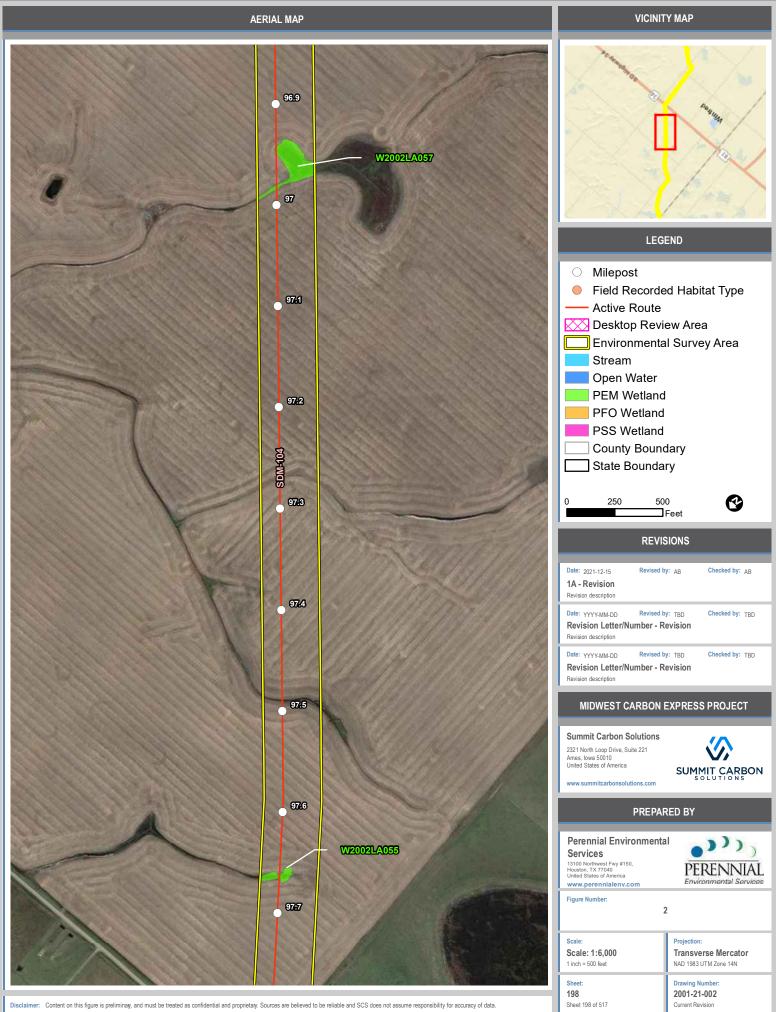


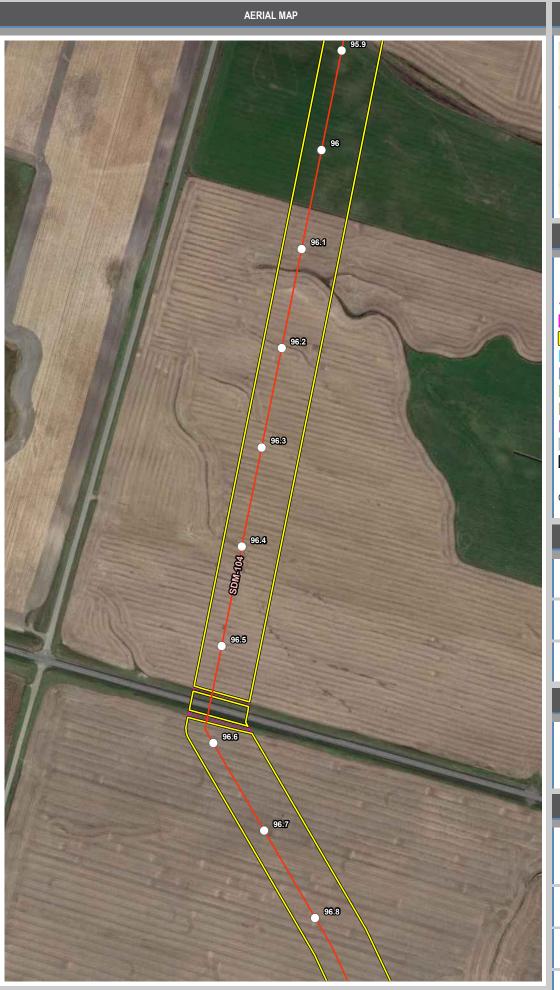


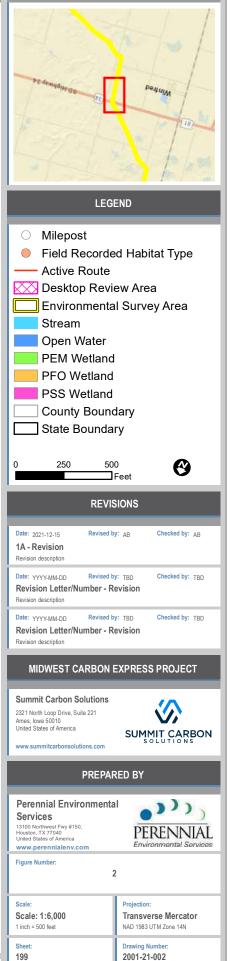


Current Revision

VICINITY MAP



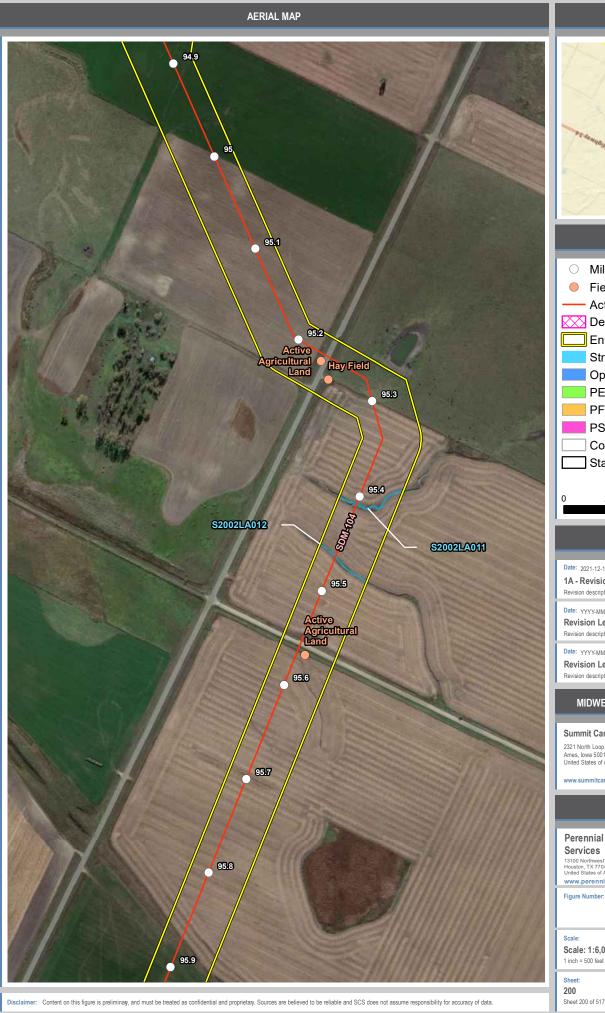


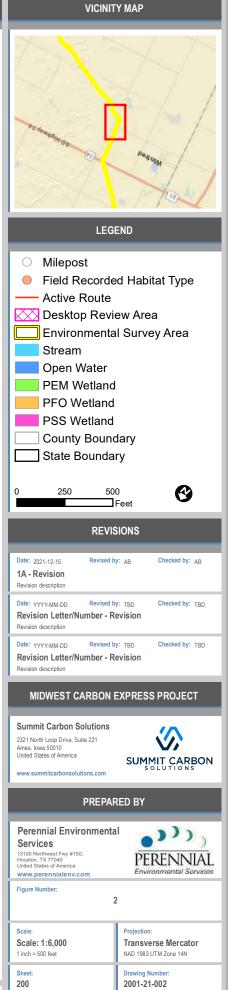


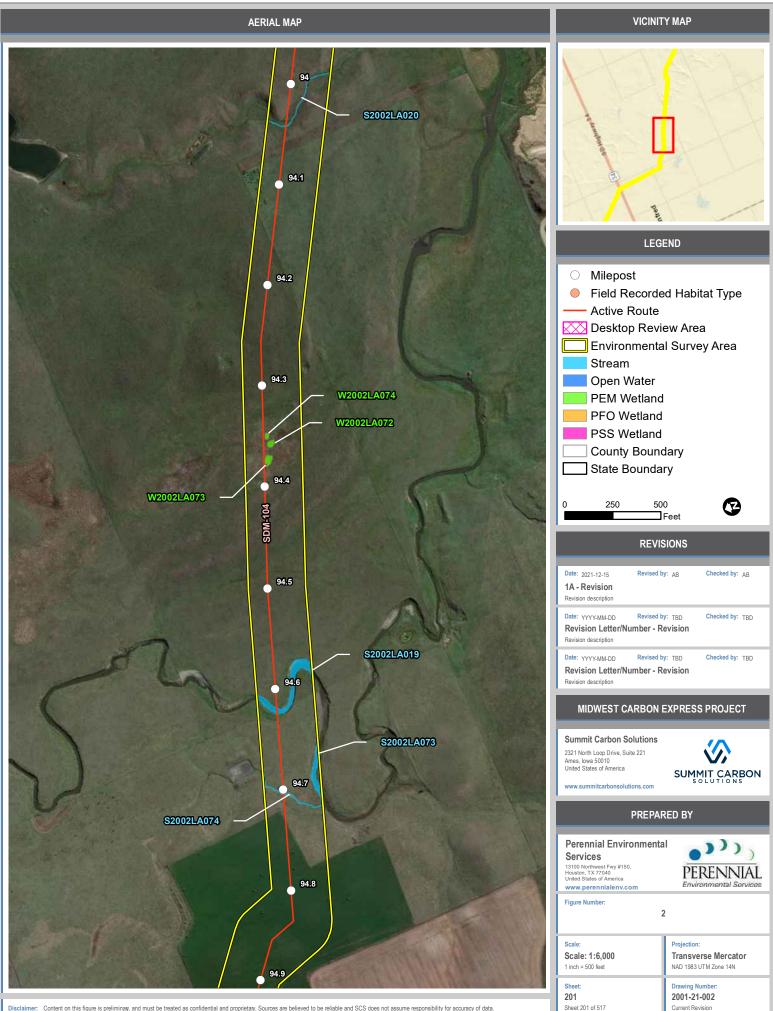
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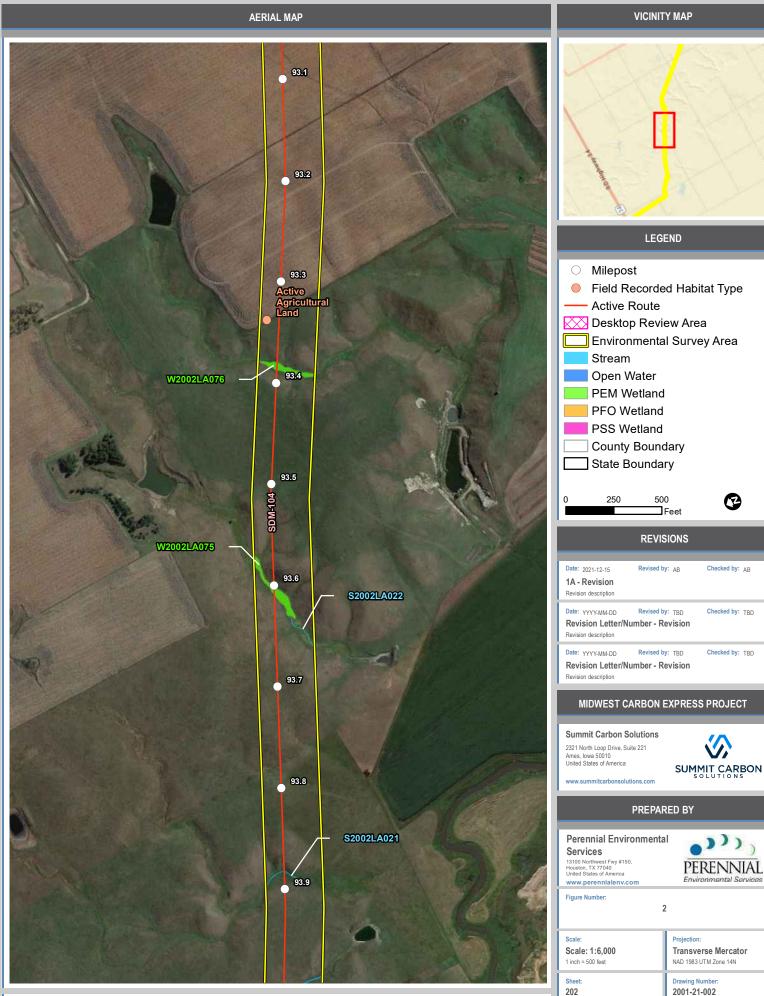
Current Revision

VICINITY MAP









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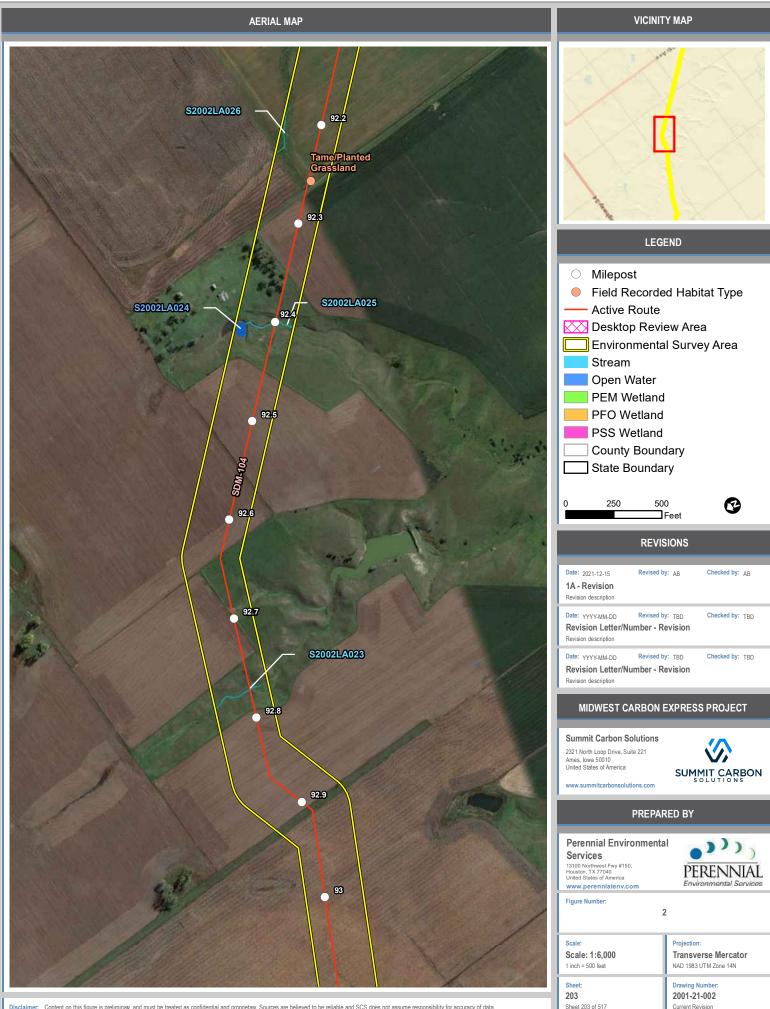
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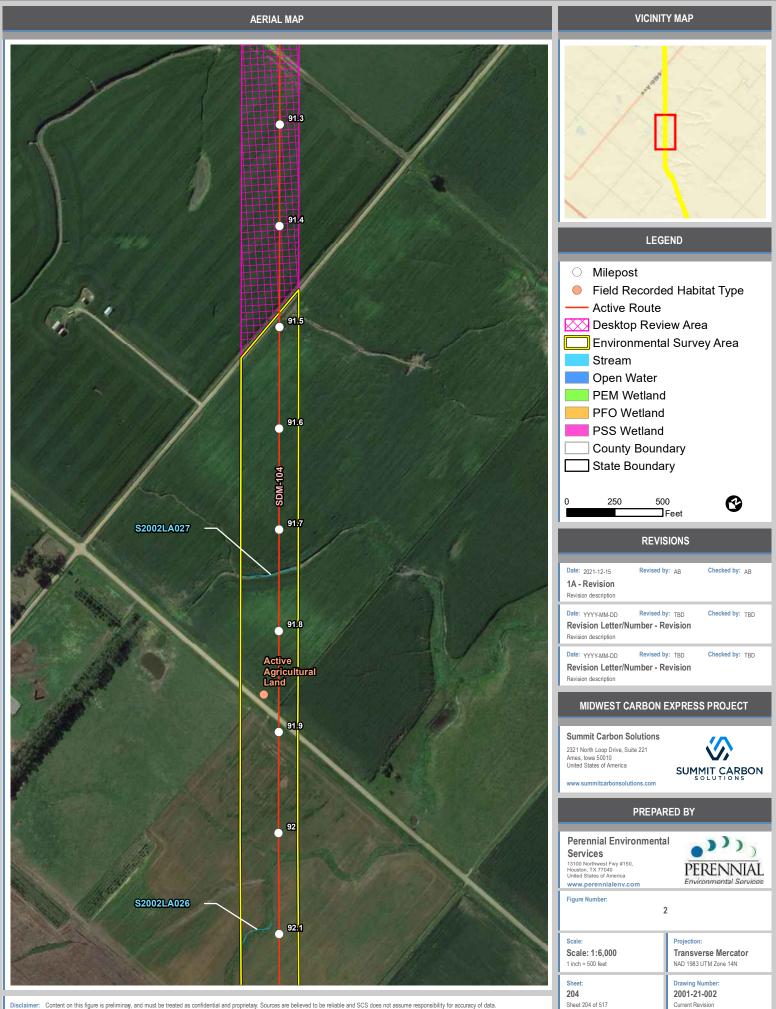
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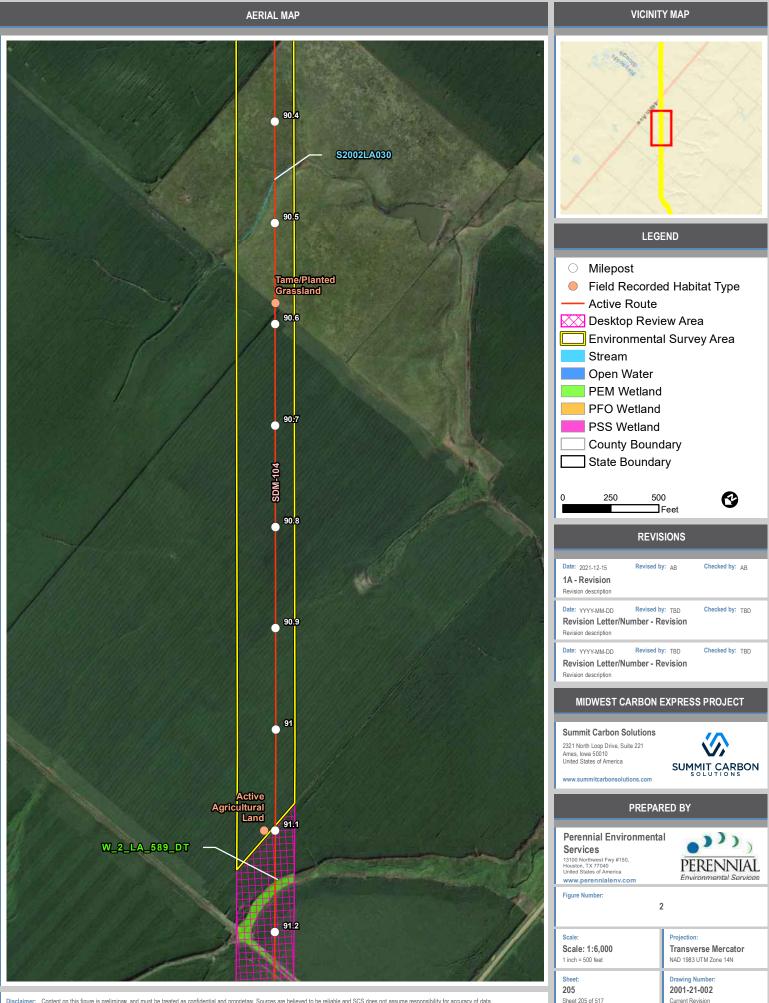
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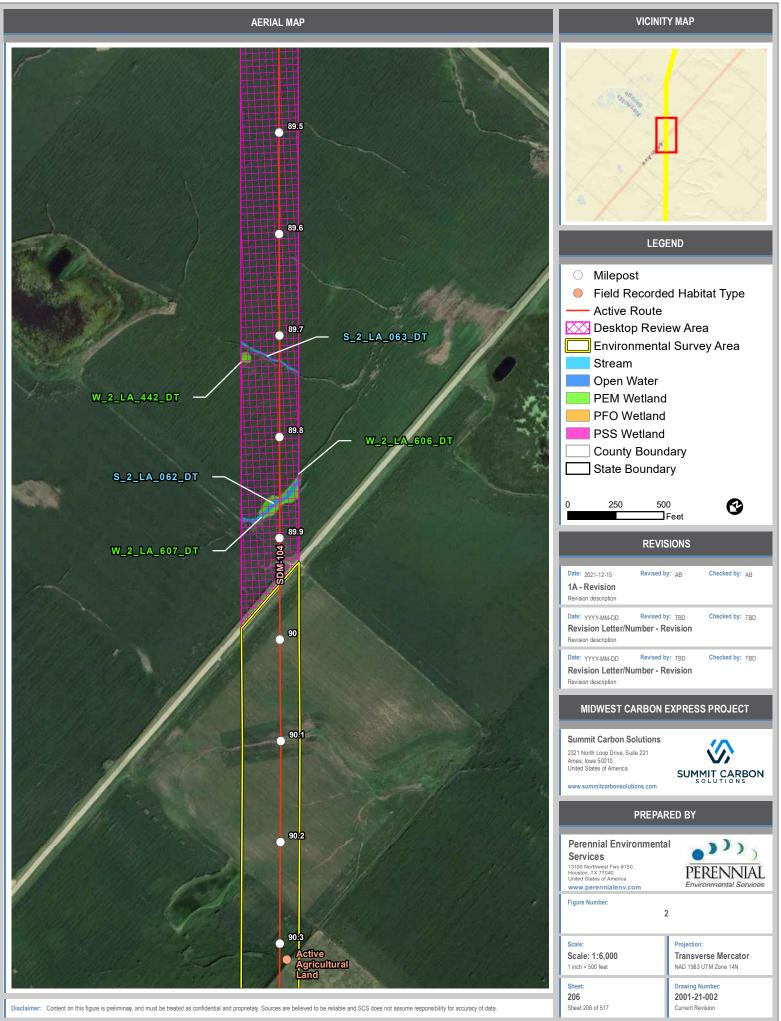
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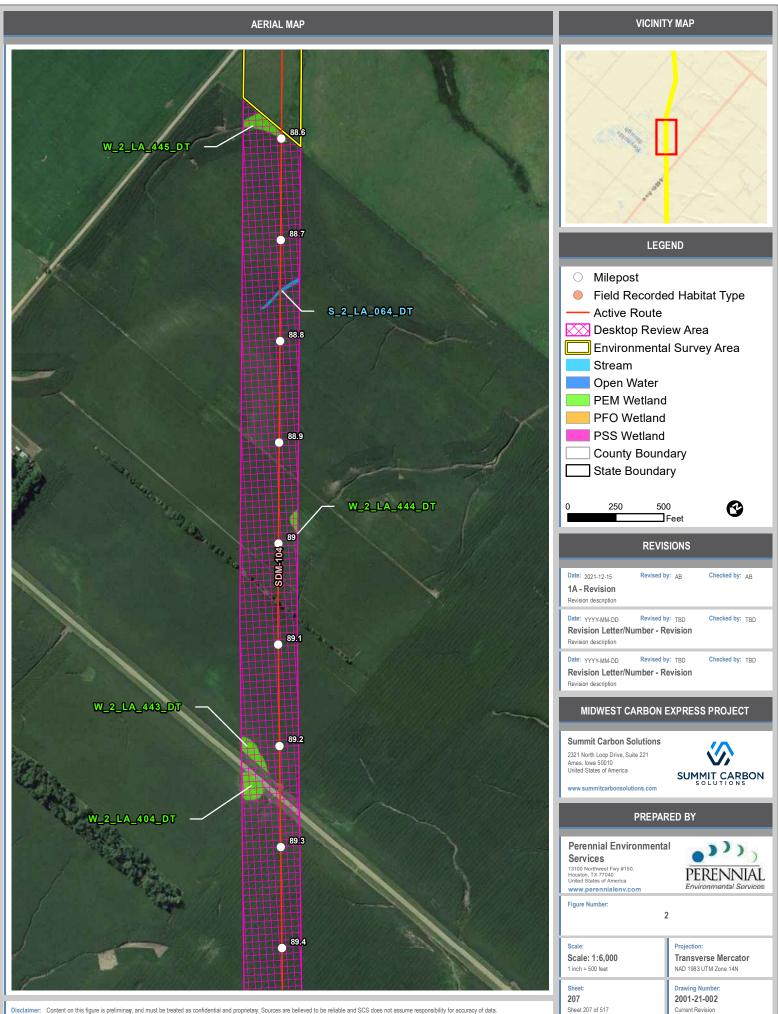
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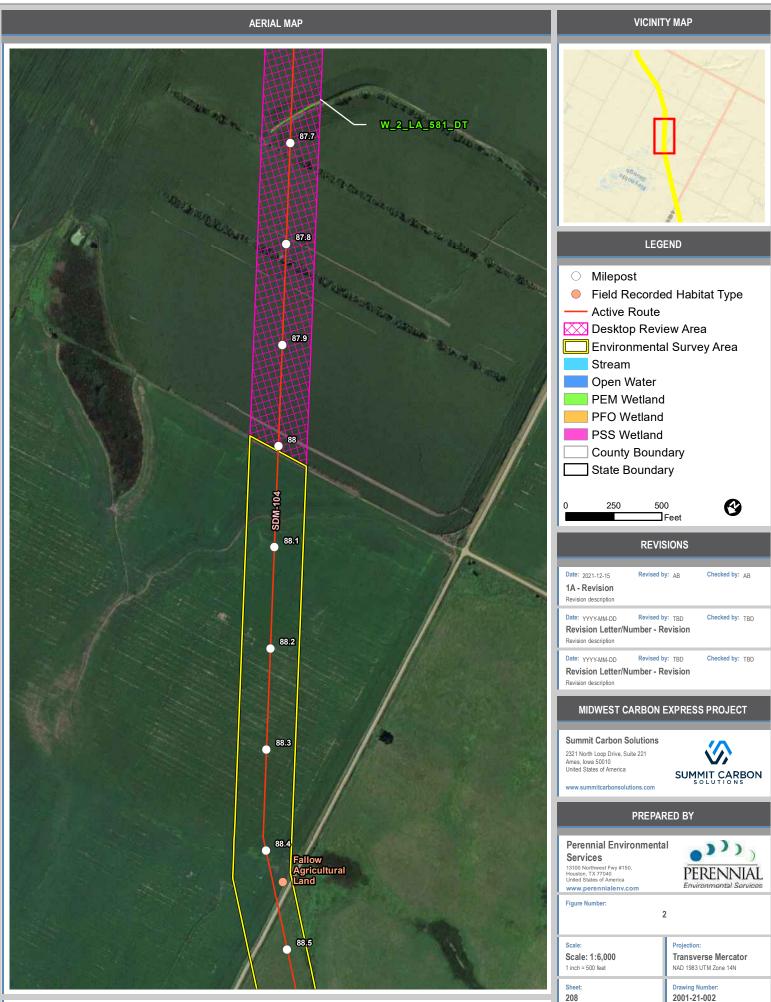








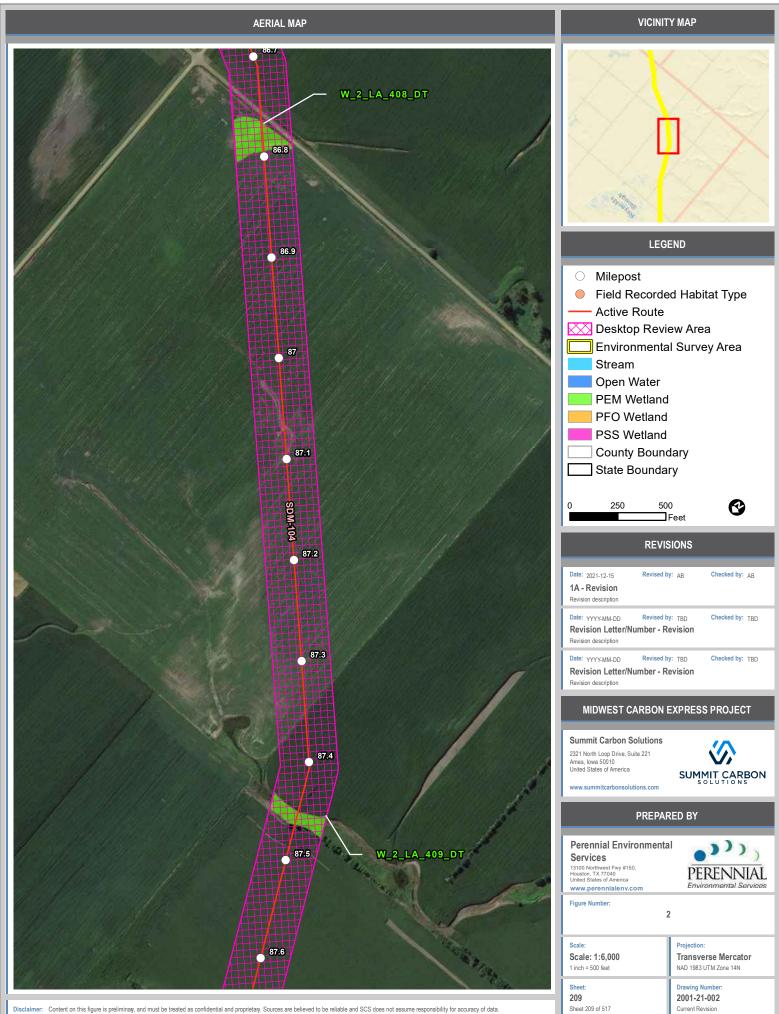




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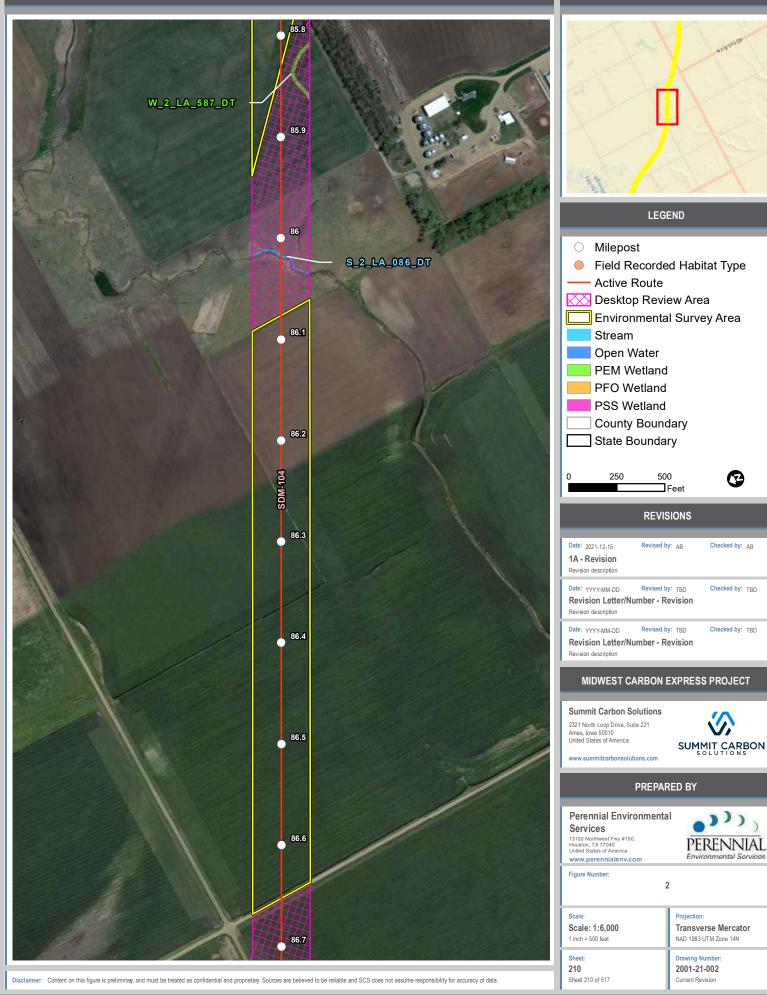
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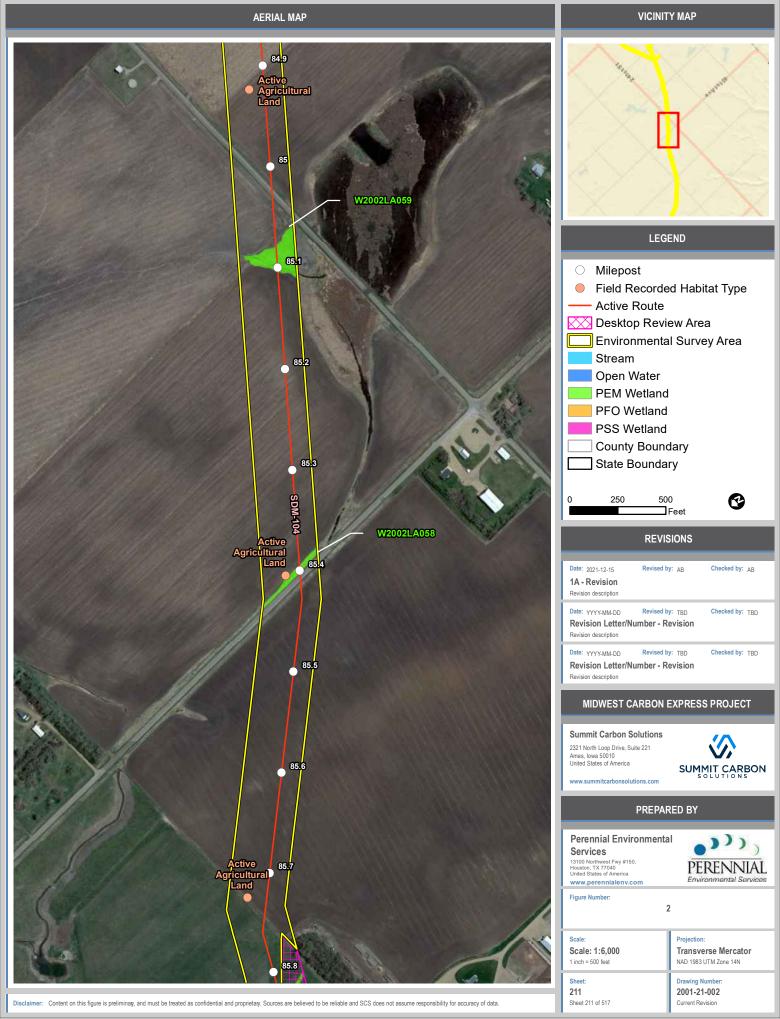
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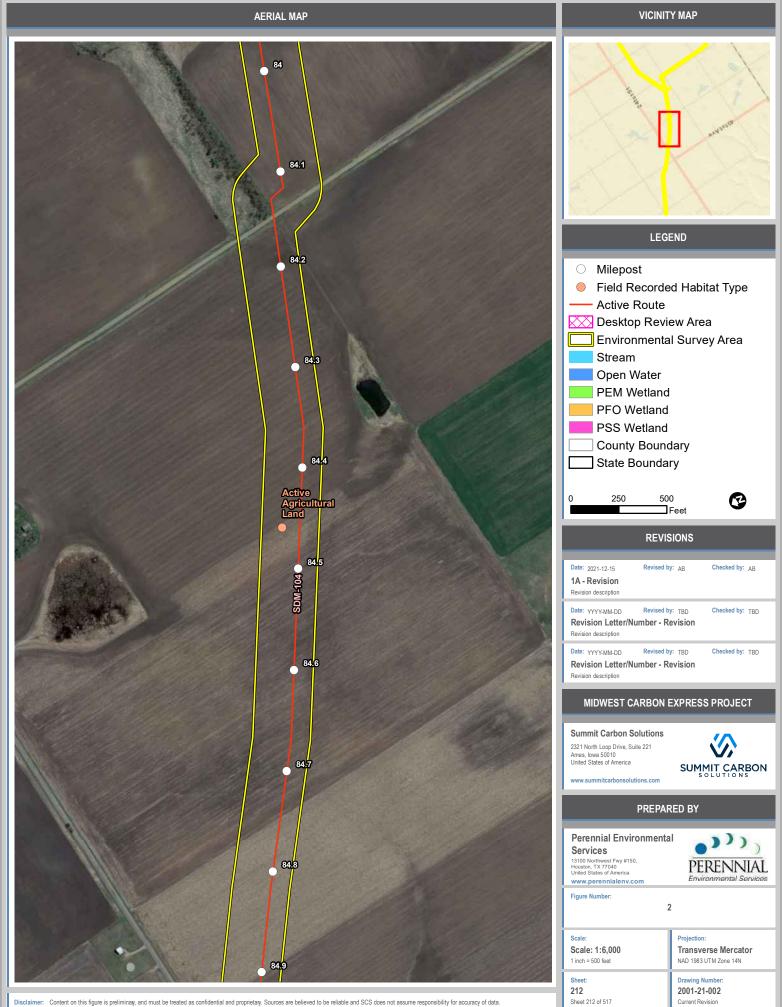


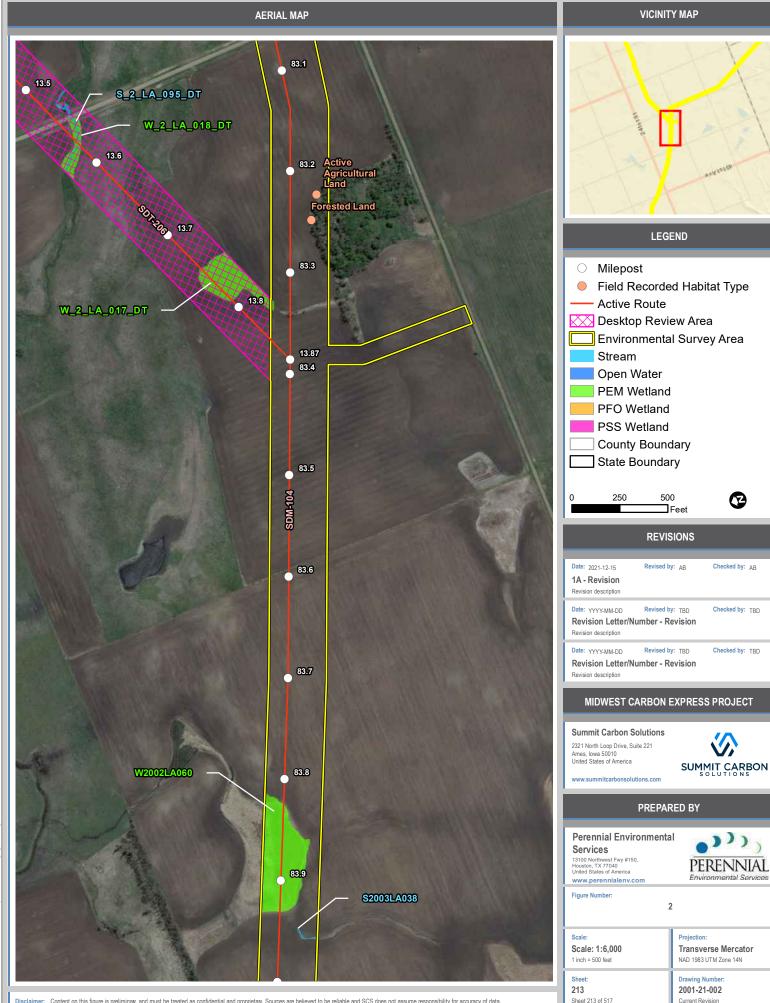
## AERIAL MAP

## VICINITY MAP









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Drawing Number: 2001-21-002 Current Revision

B

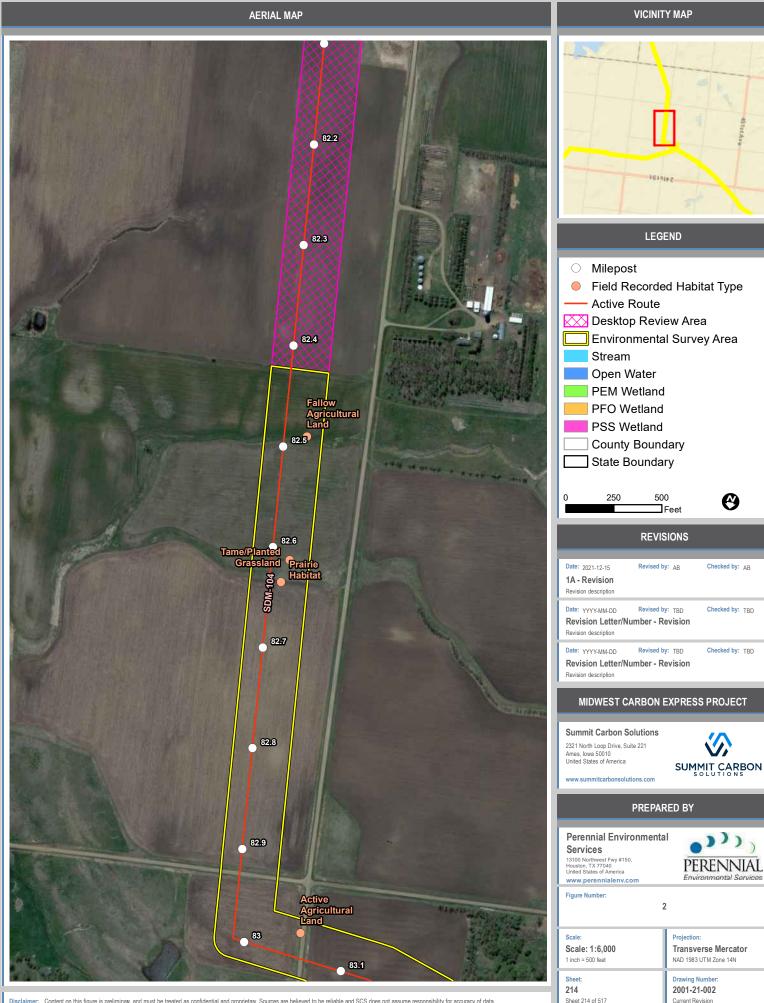
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Checked by: TBD

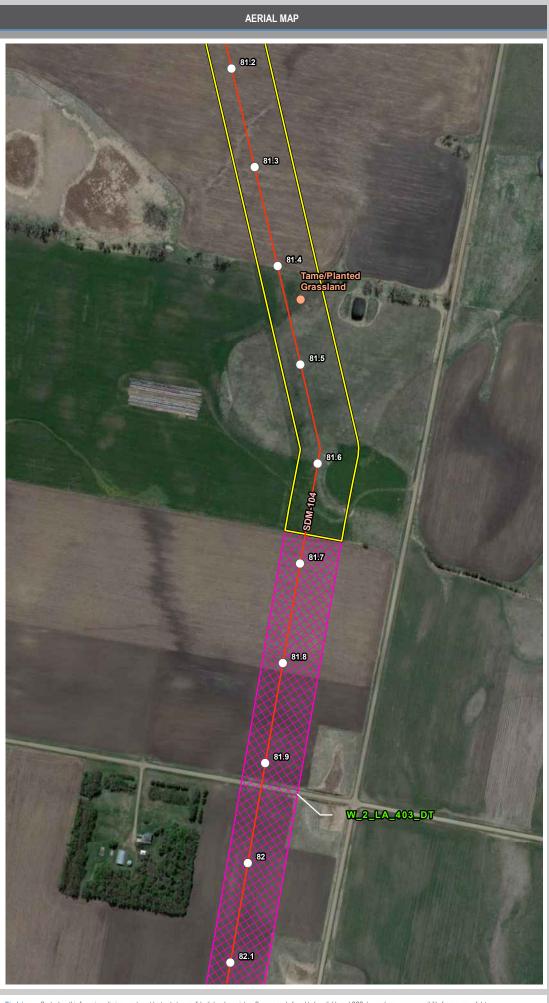
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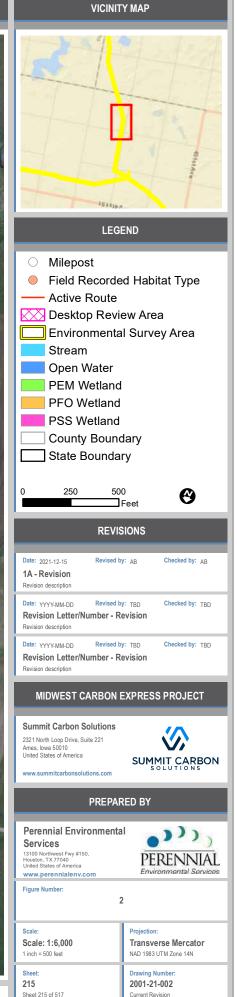
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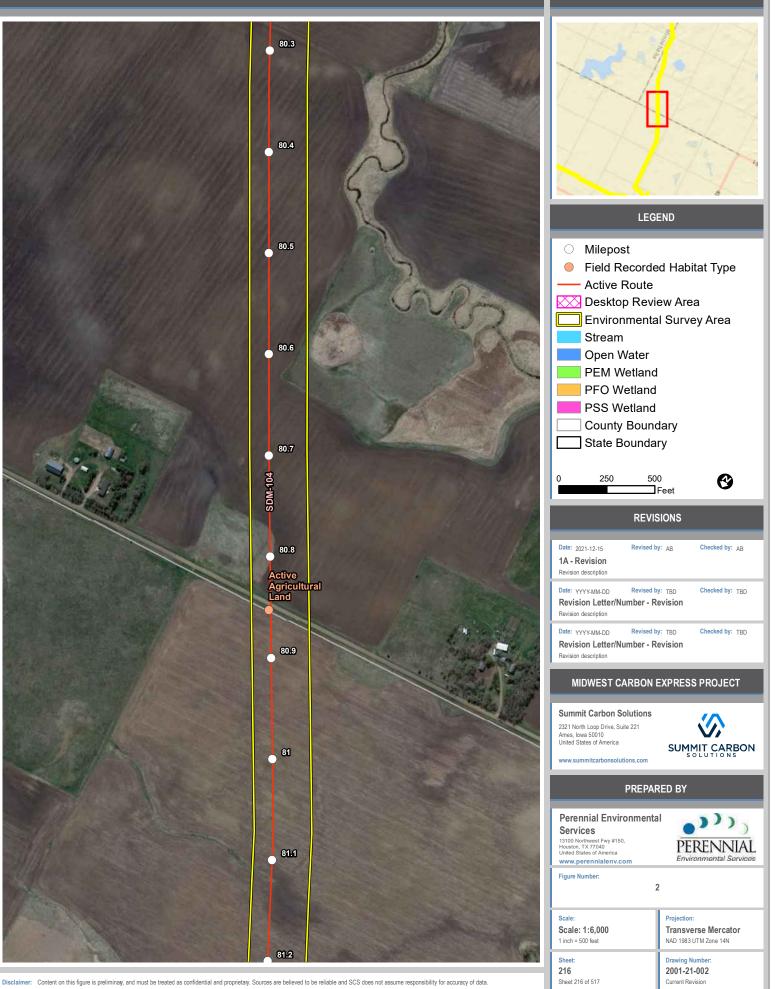


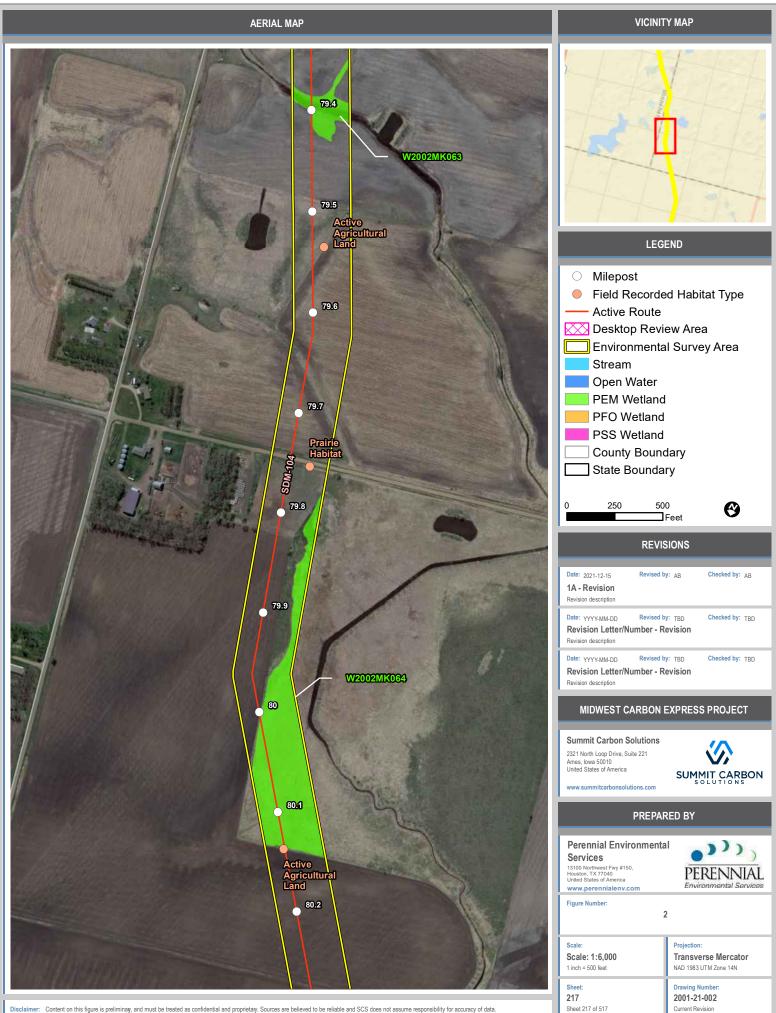


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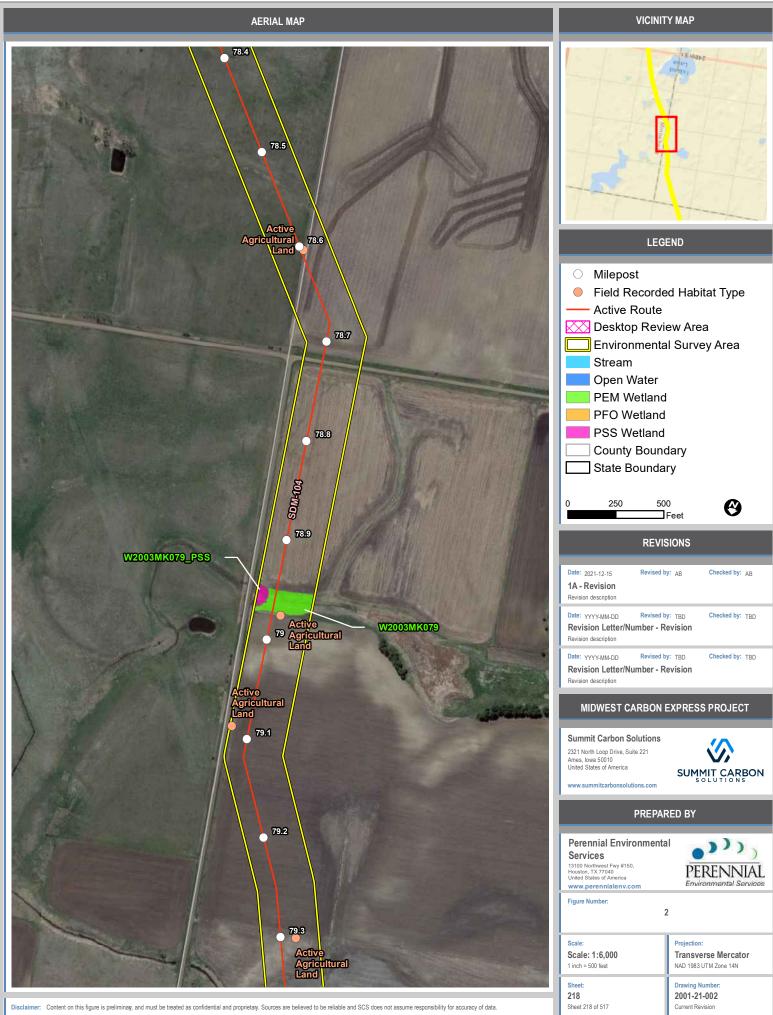
## AERIAL MAP

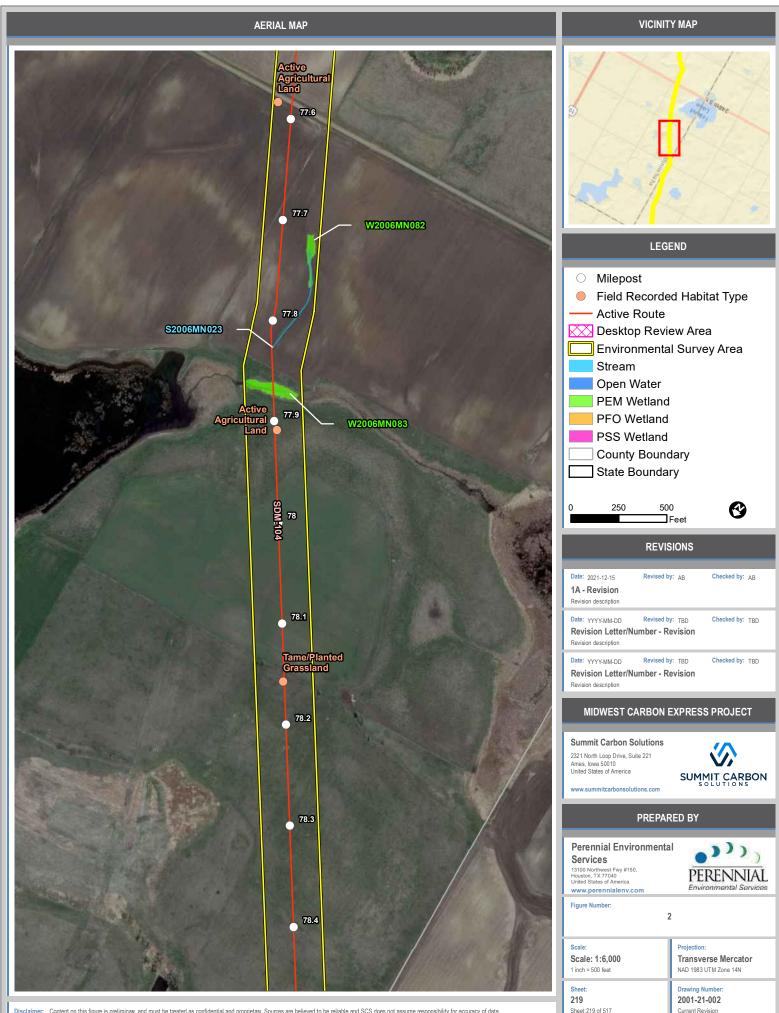
## VICINITY MAP



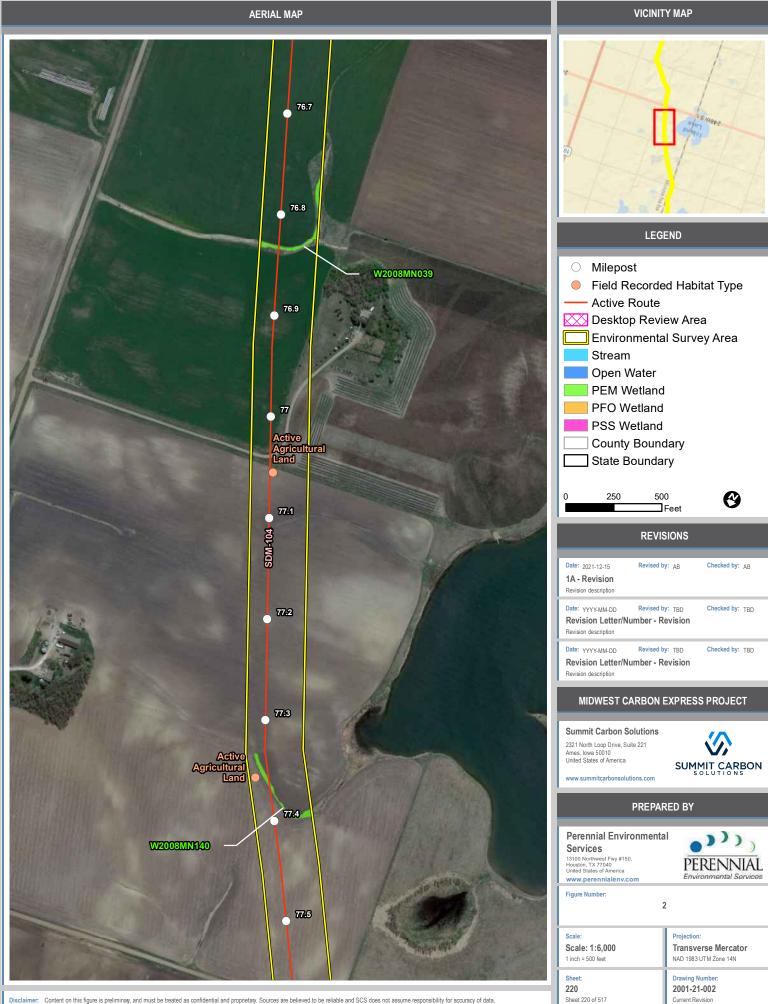


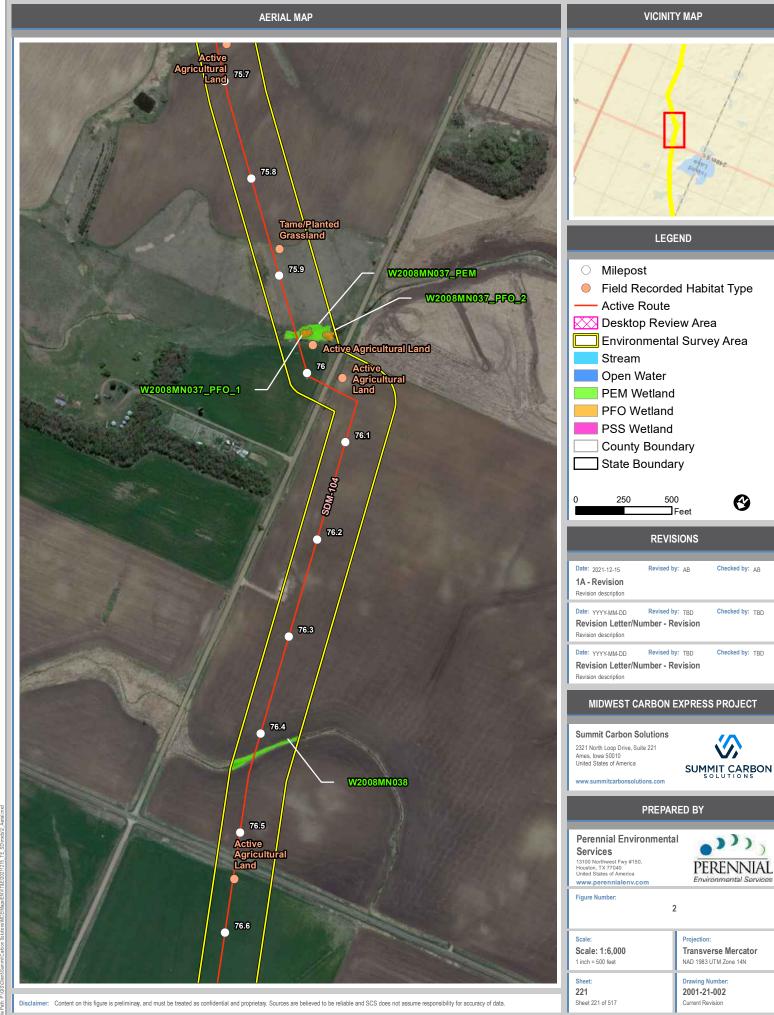
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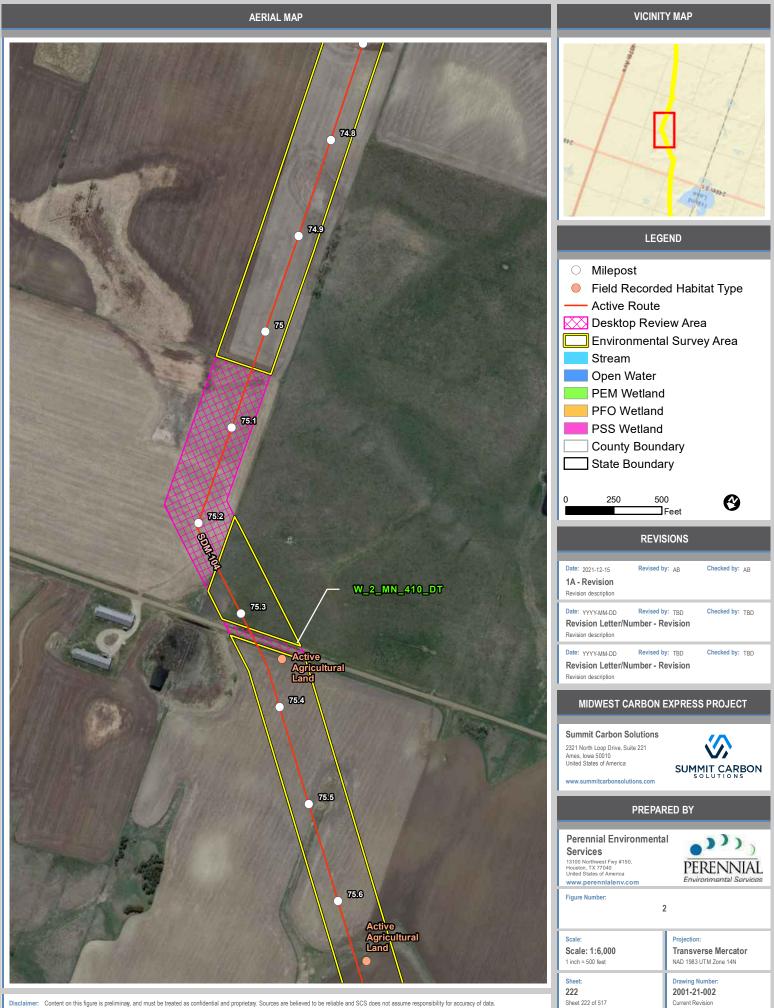


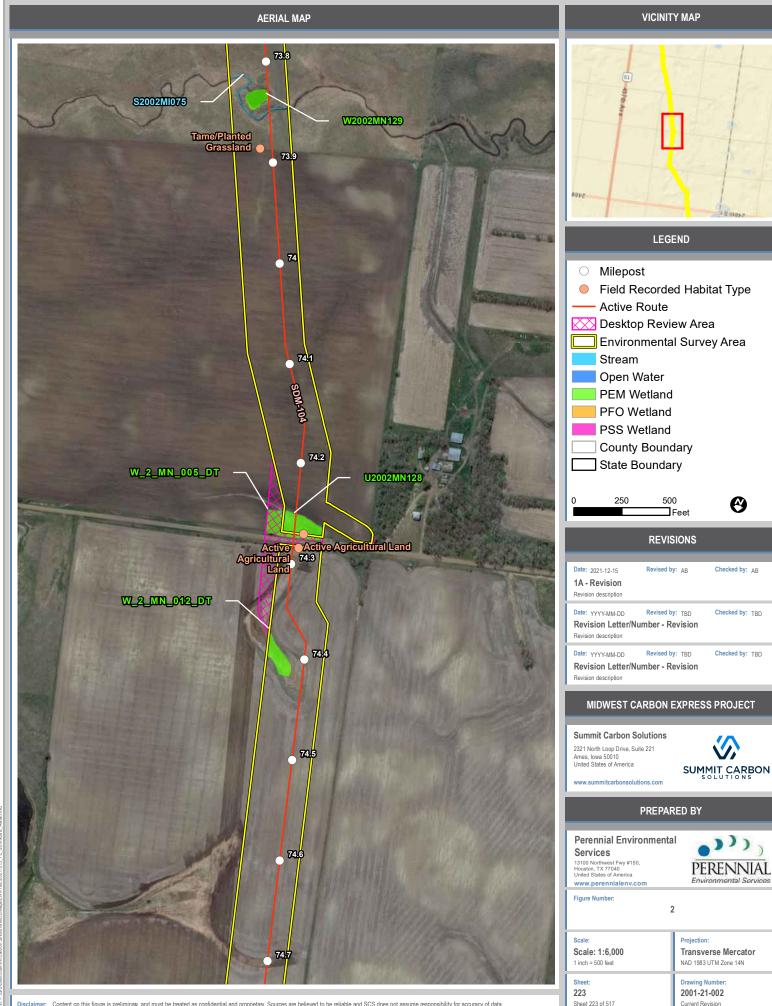


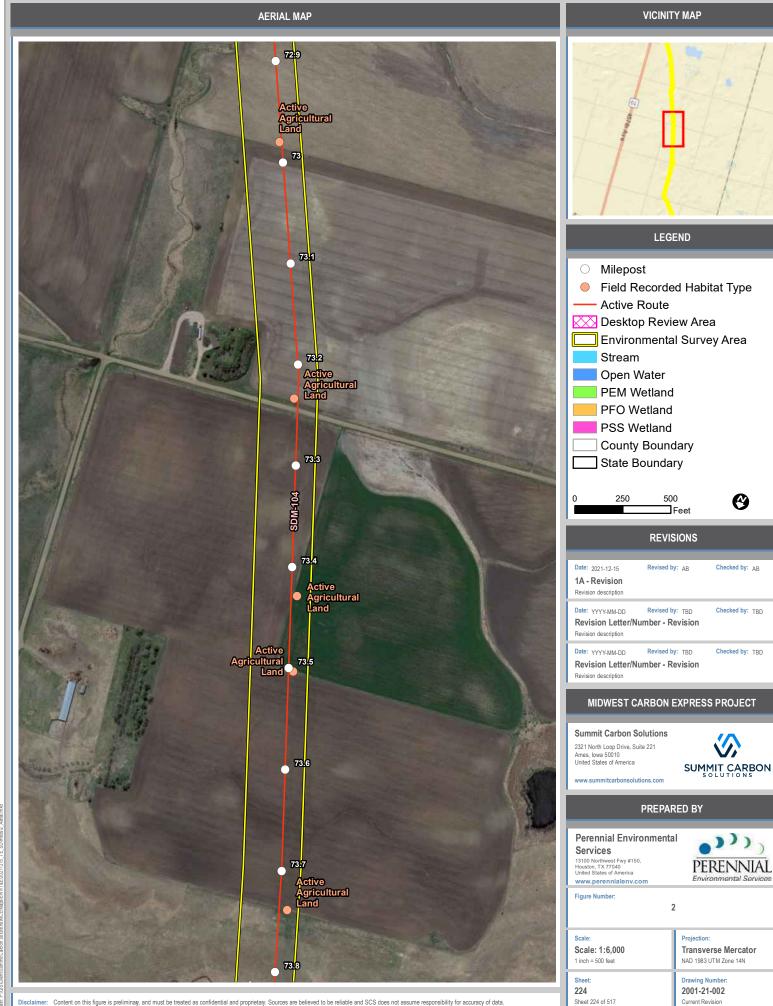
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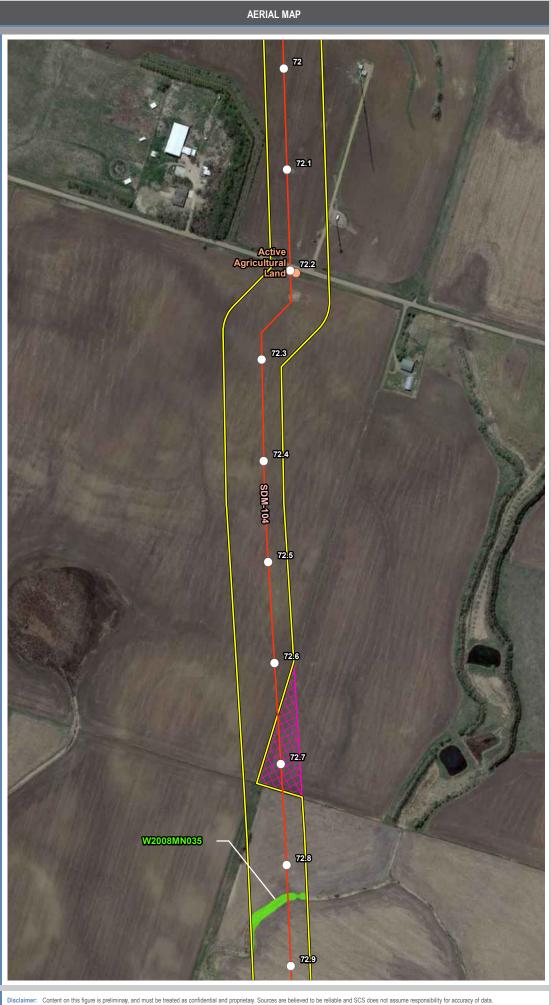
Drawing Number: 2001-21-002 Current Revision

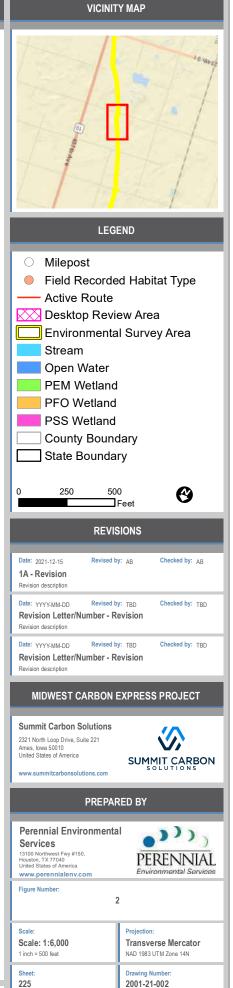
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Checked by: AB

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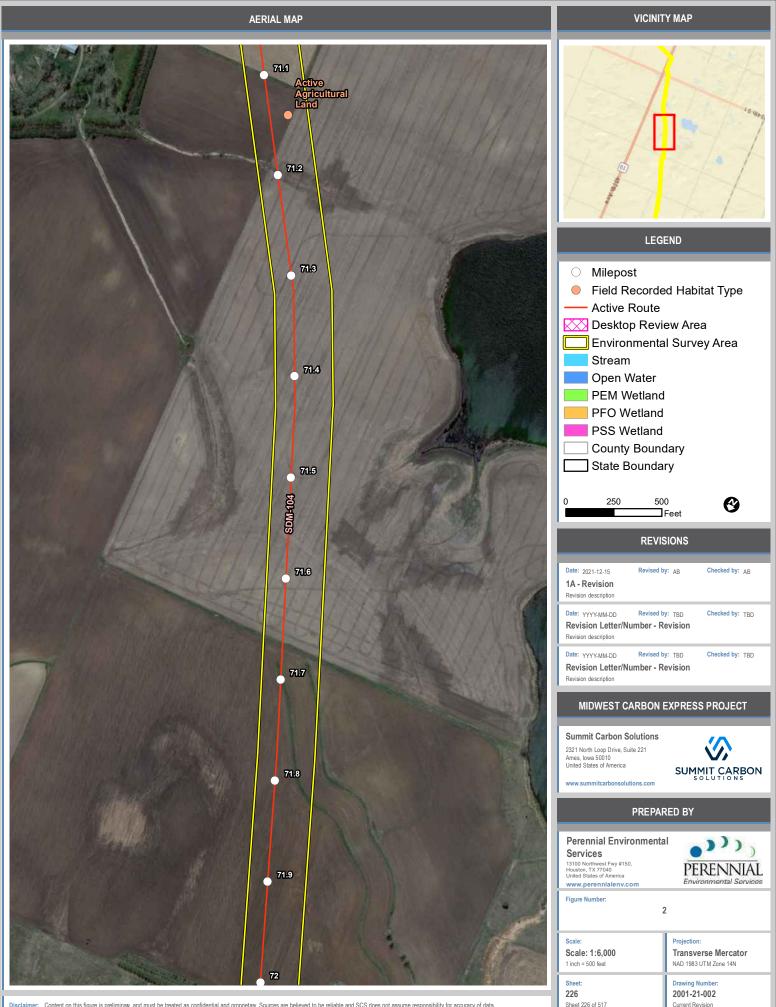




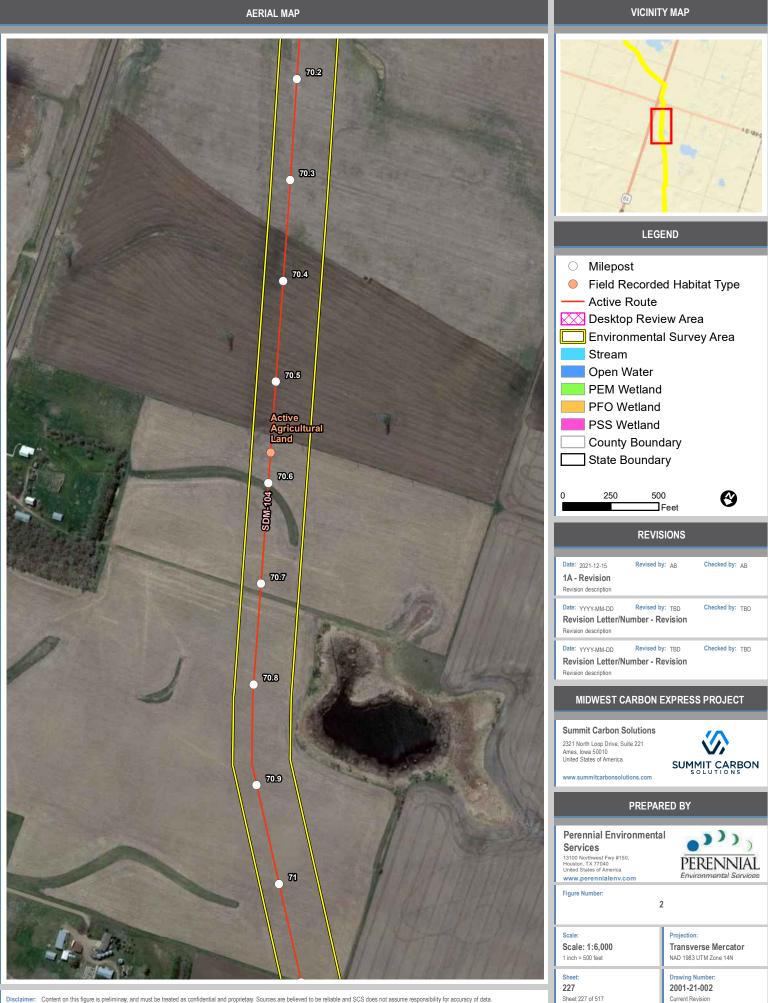
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Current Revision

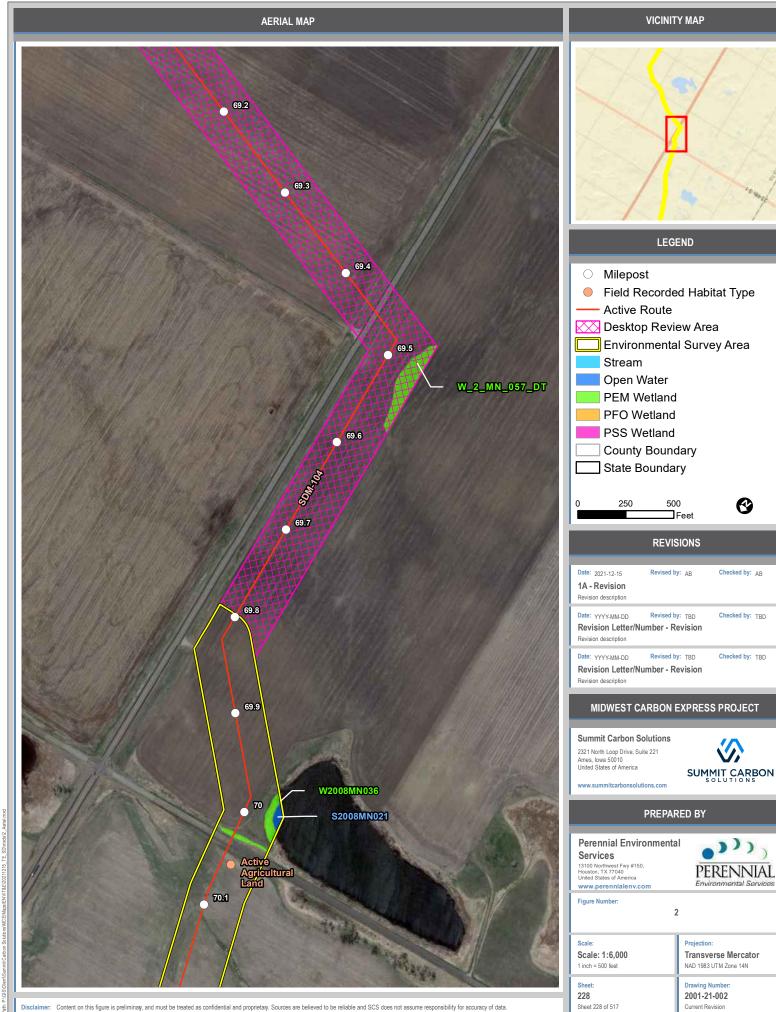
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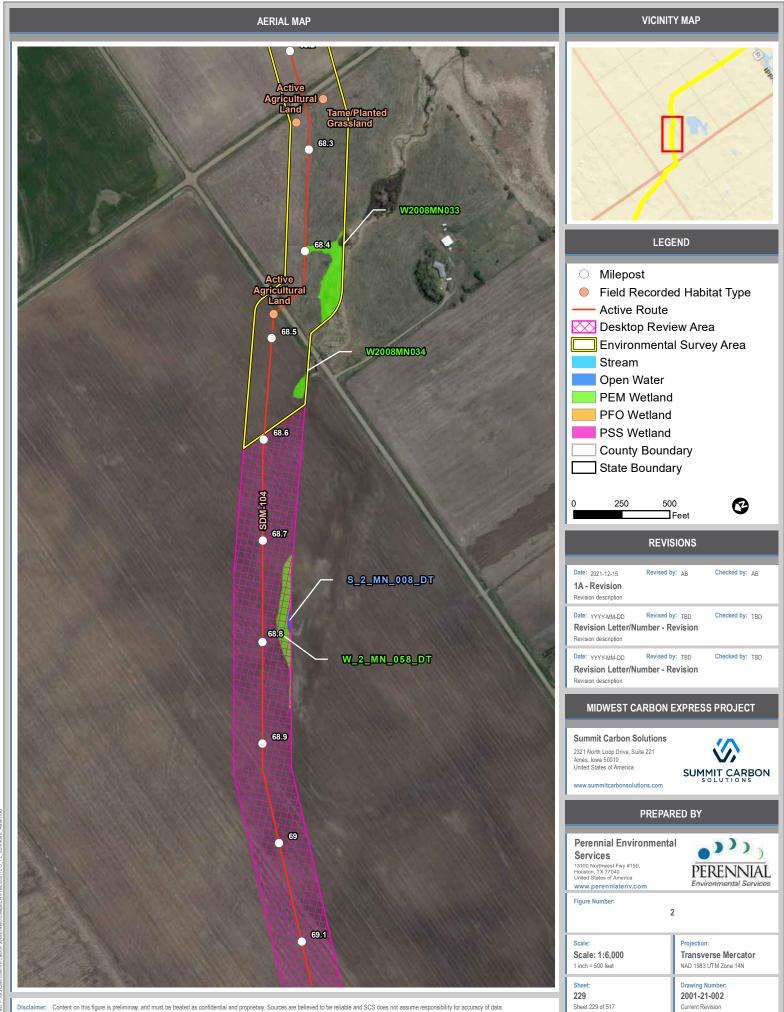


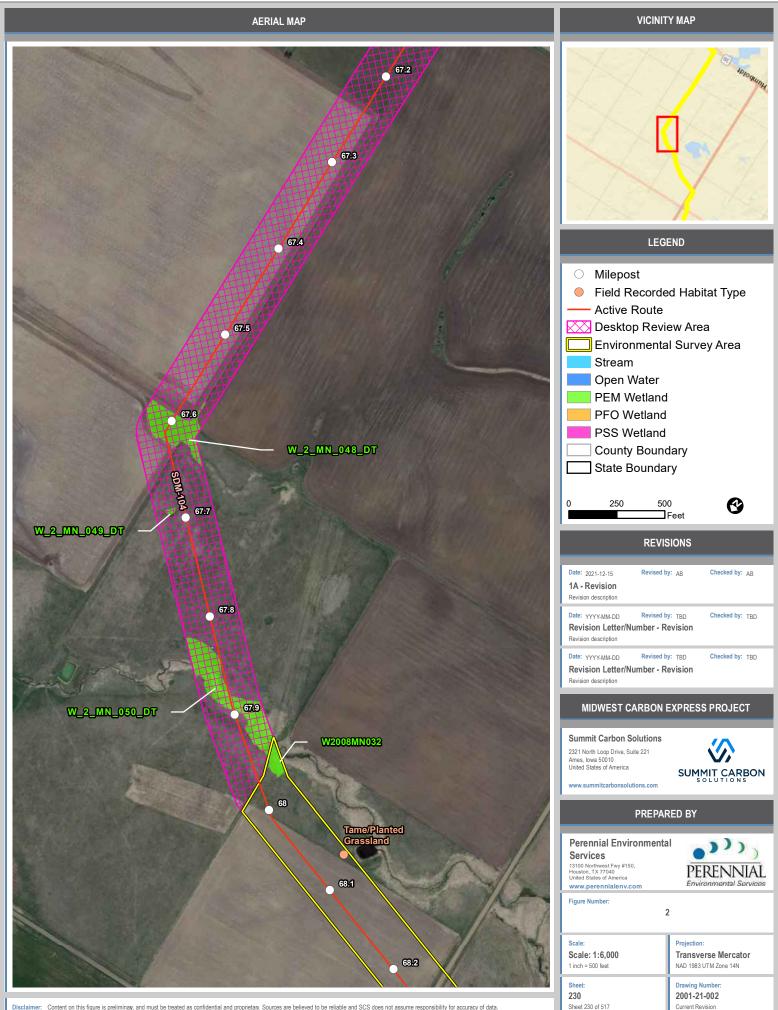
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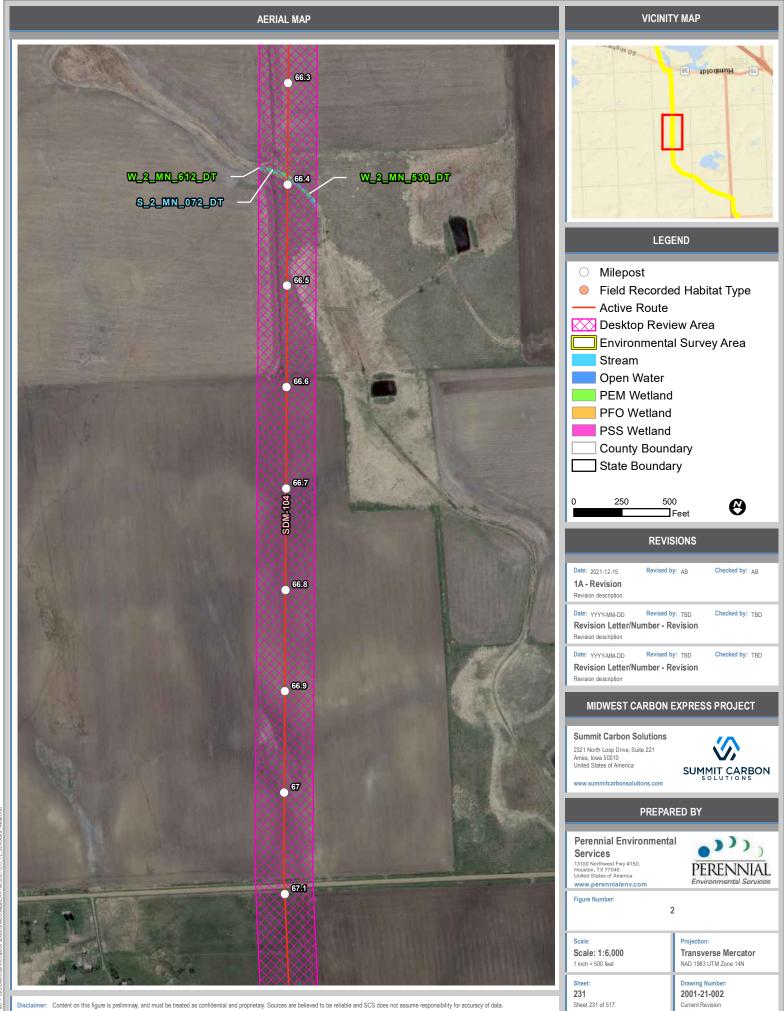


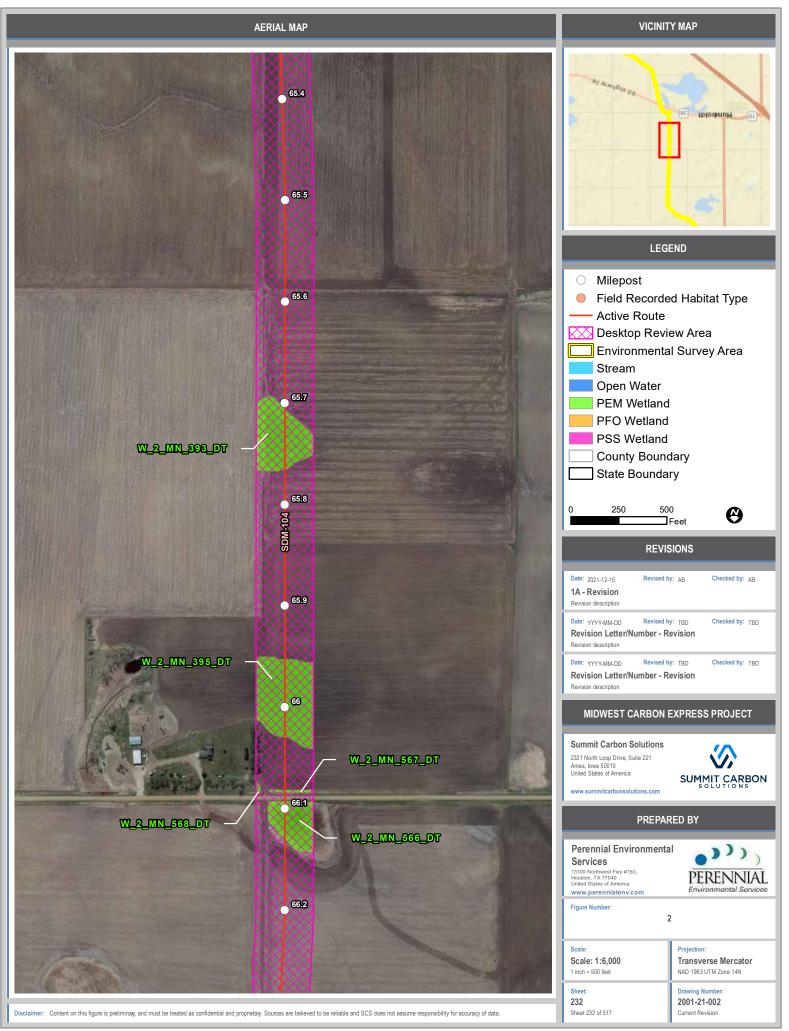
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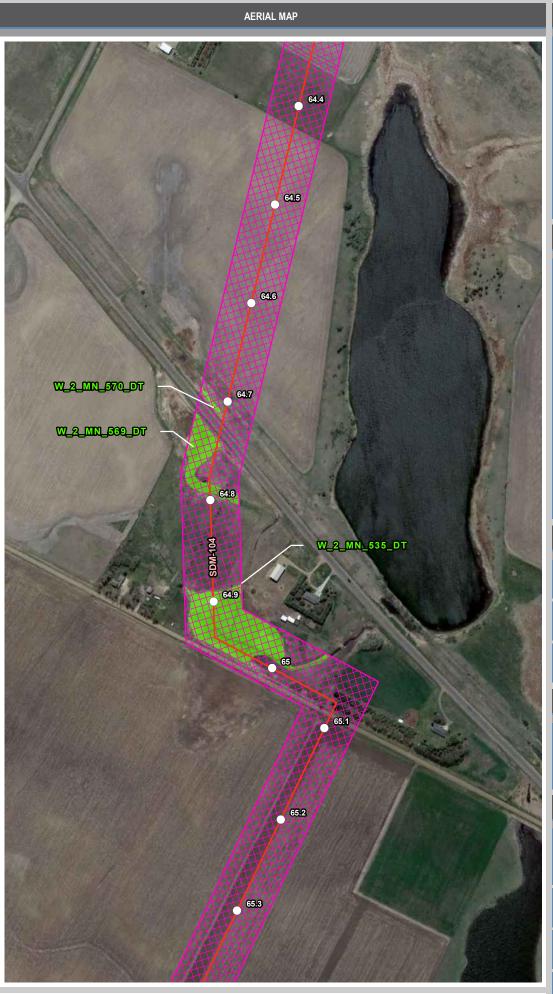






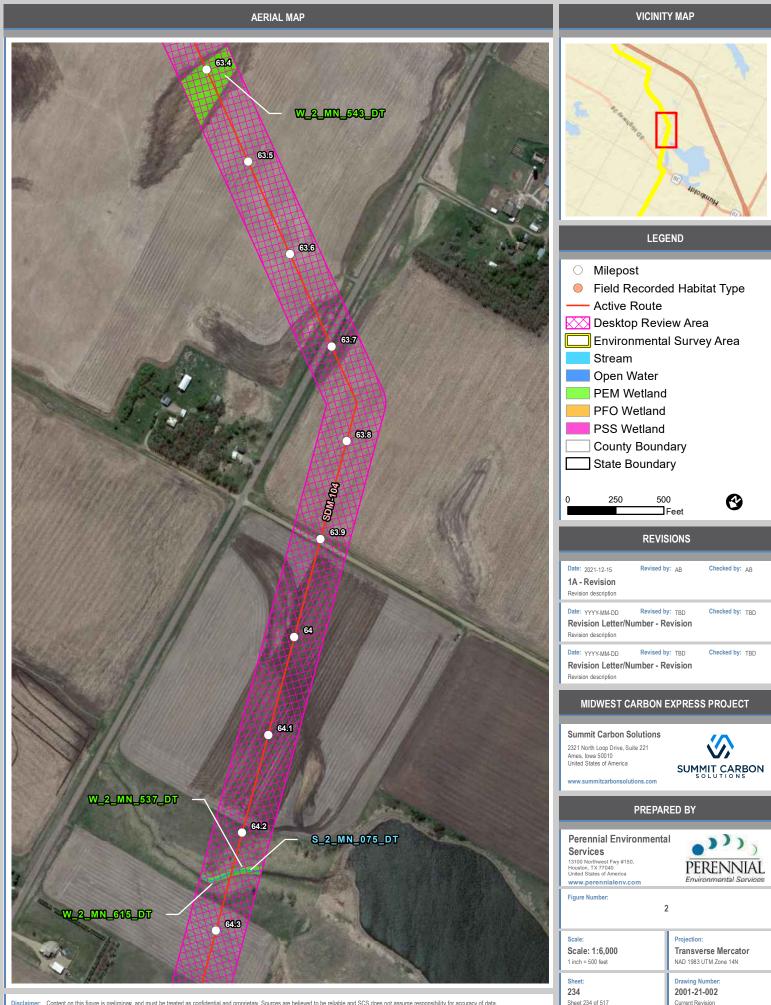


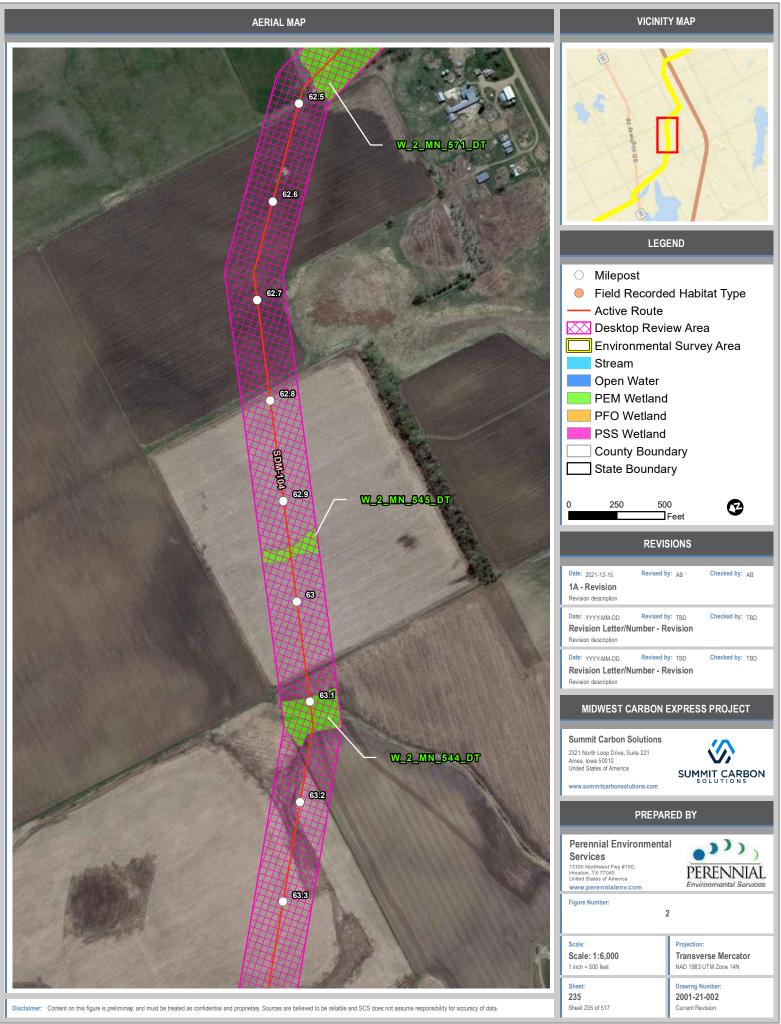


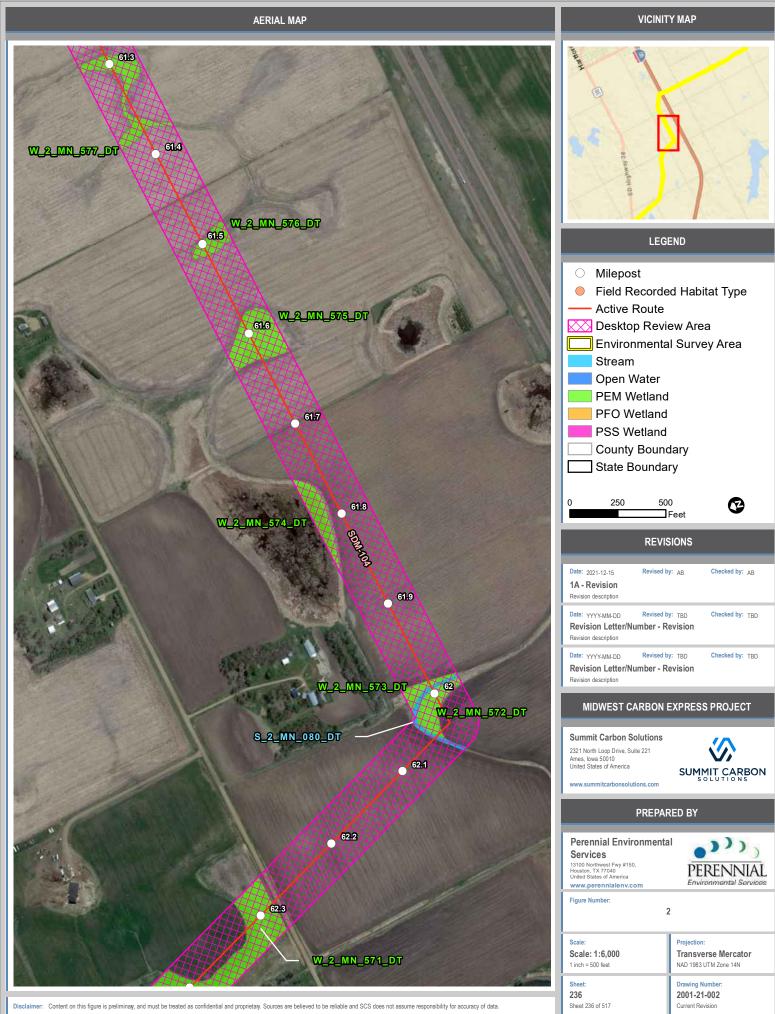


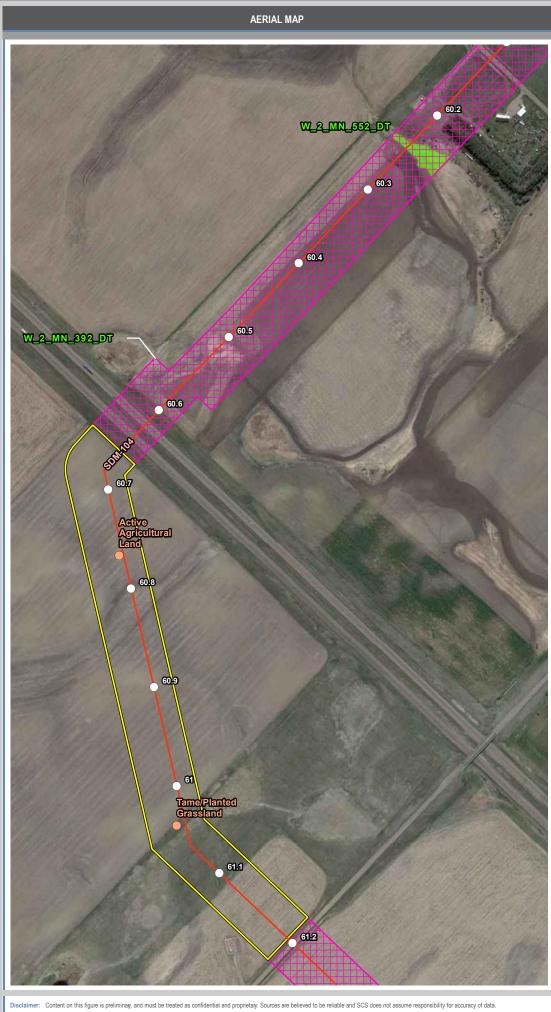
 Milepost Field Recorded Habitat Type  $\bigcirc$ Active Route Desktop Review Area Environmental Survey Area Stream Open Water PEM Wetland PFO Wetland PSS Wetland **County Boundary** State Boundary 250 500 G ٥ Feet REVISIONS Revised by: AB Checked by: AB Date: 2021-12-15 1A - Revision Revision description Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Revision description Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** Revision description MIDWEST CARBON EXPRESS PROJECT Summit Carbon Solutions 2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America SUMMIT CARBON summitcarbonsolutions.com PREPARED BY ,,,,, **Perennial Environmental** Services 13100 Northwest Fwy #150, Houston, TX 77040 United States of America PERENNIAL www.perennialenv.com Figure Number: 2 Projection: Scale: Scale: 1:6,000 **Transverse Mercator** 1 inch = 500 feet NAD 1983 UTM Zone 14N Sheet: Drawing Number: 2001-21-002 233 Sheet 233 of 517 Current Revision

LEGEND

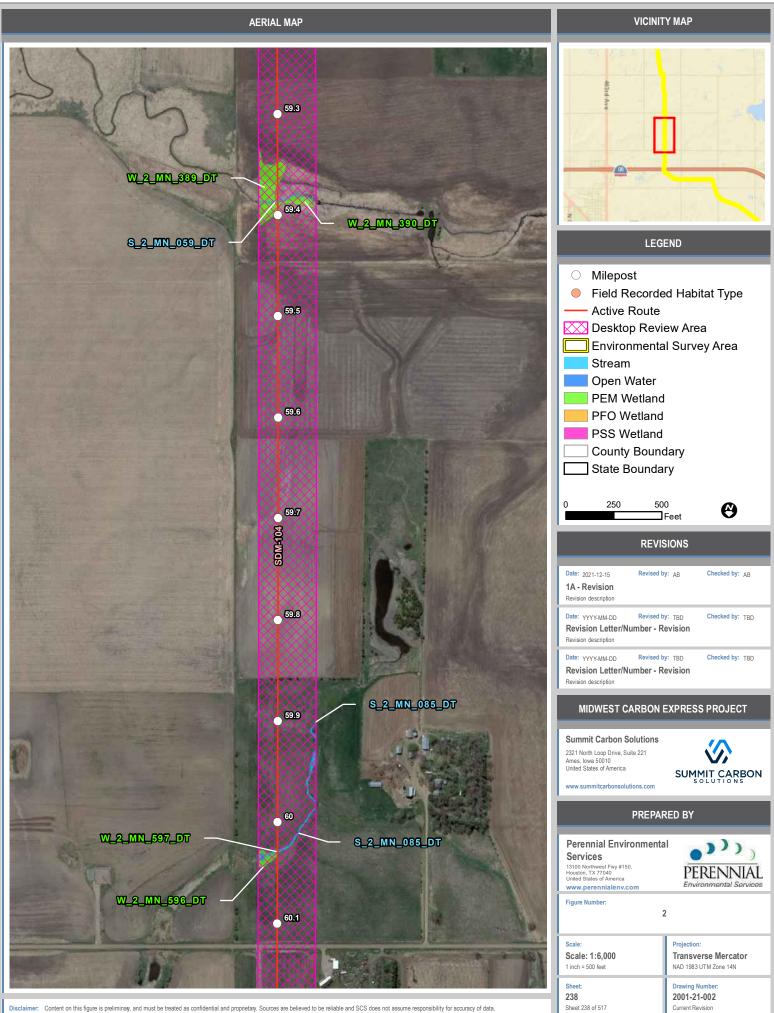


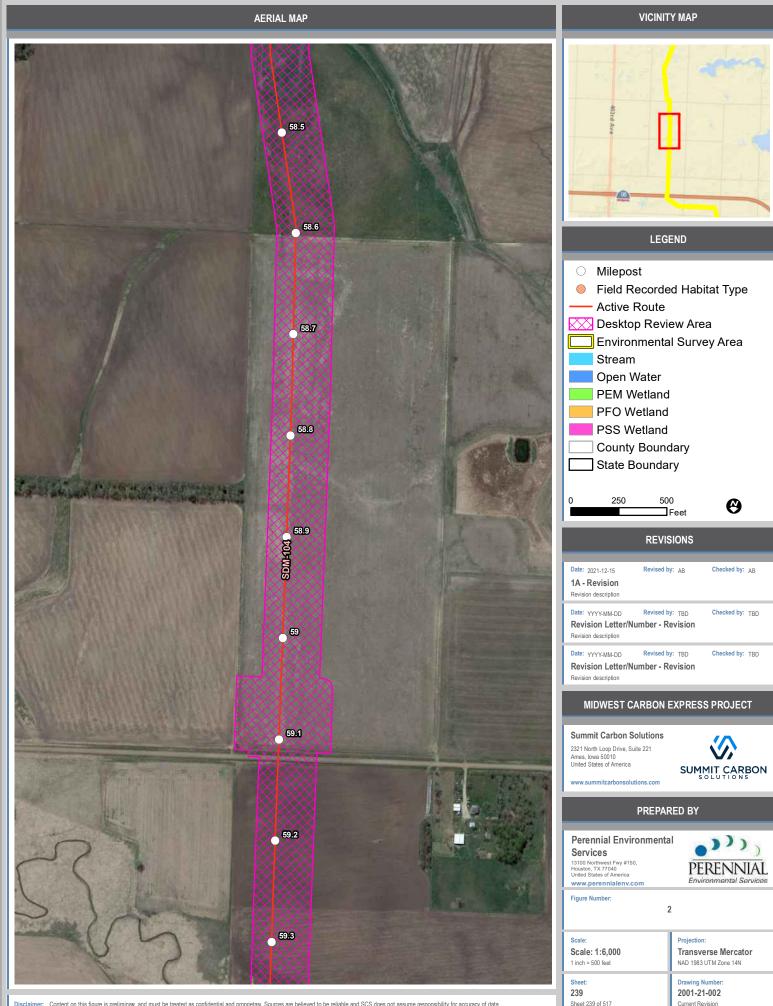




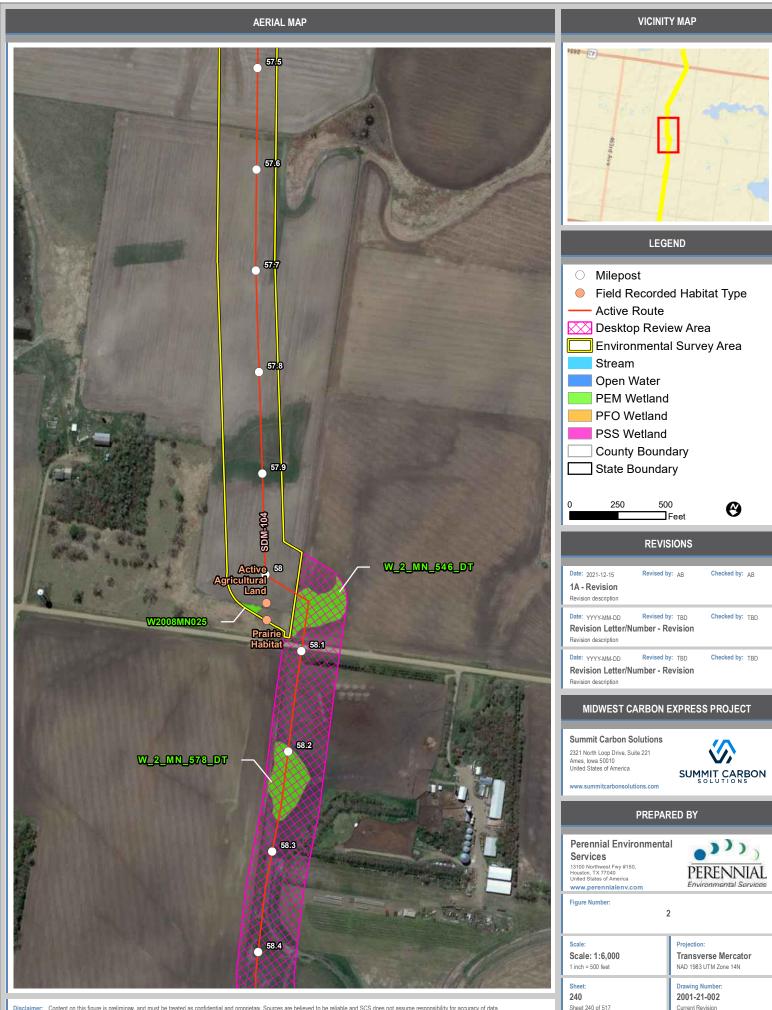




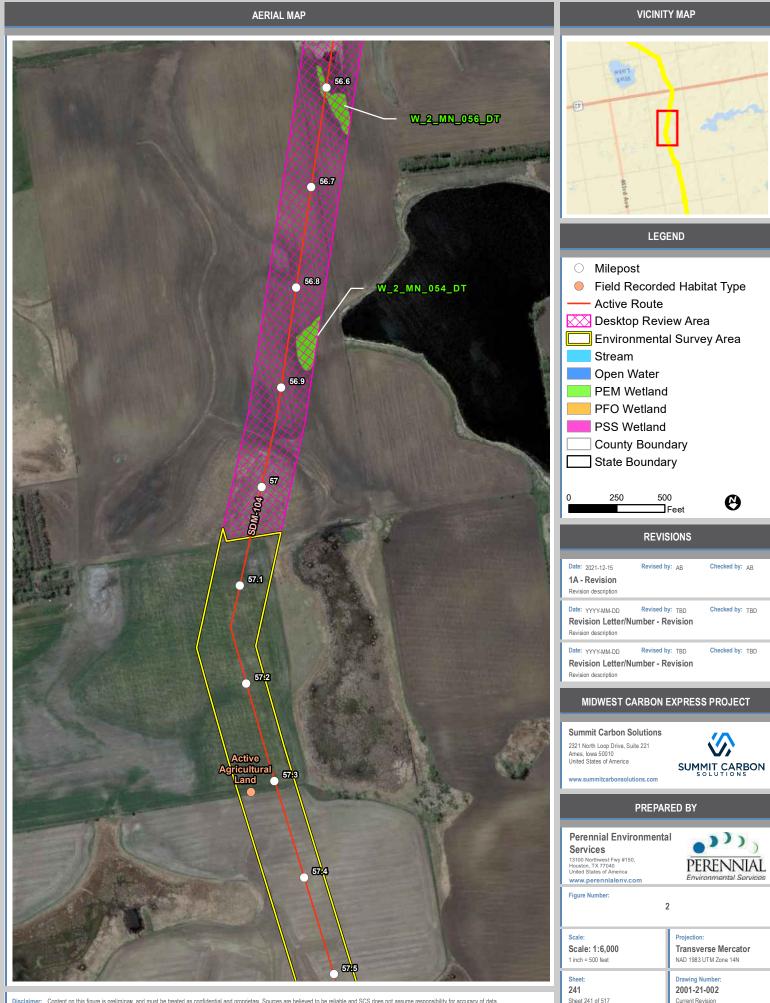




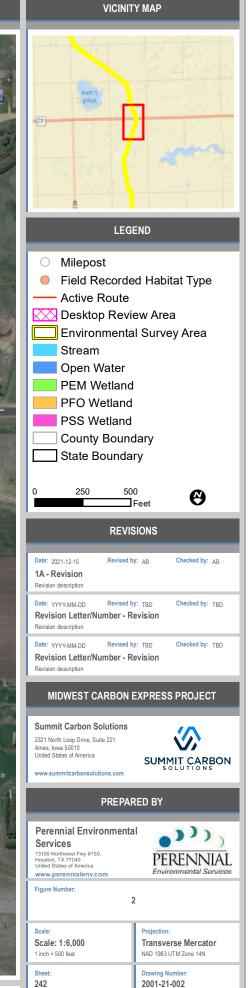
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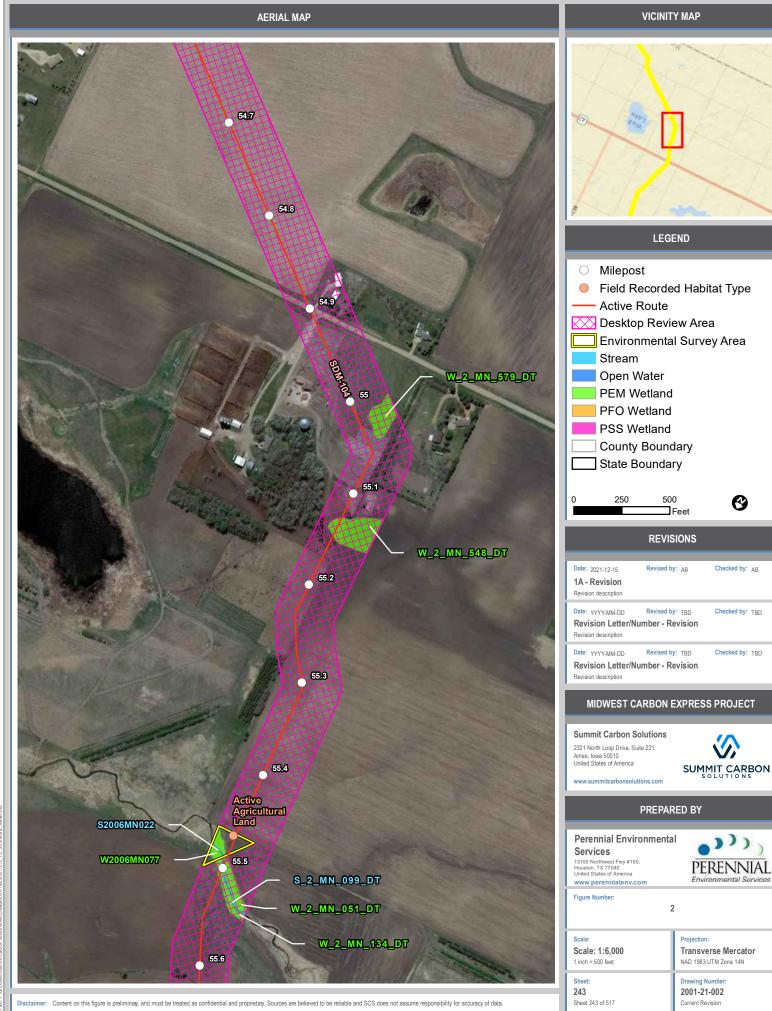




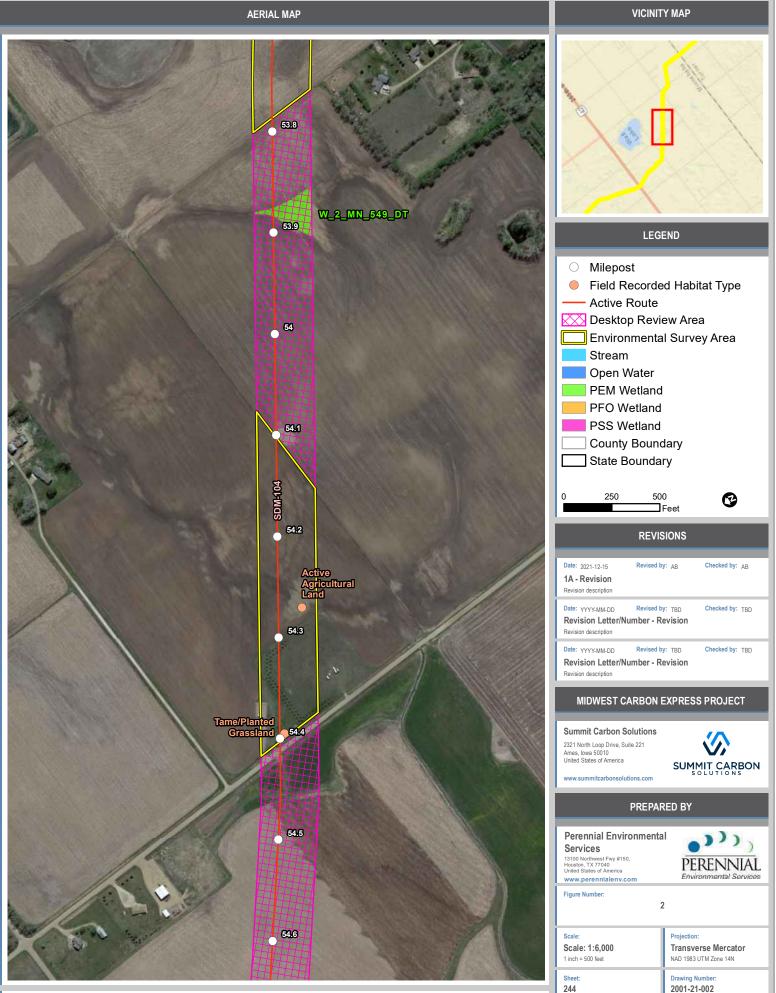


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Current Revision



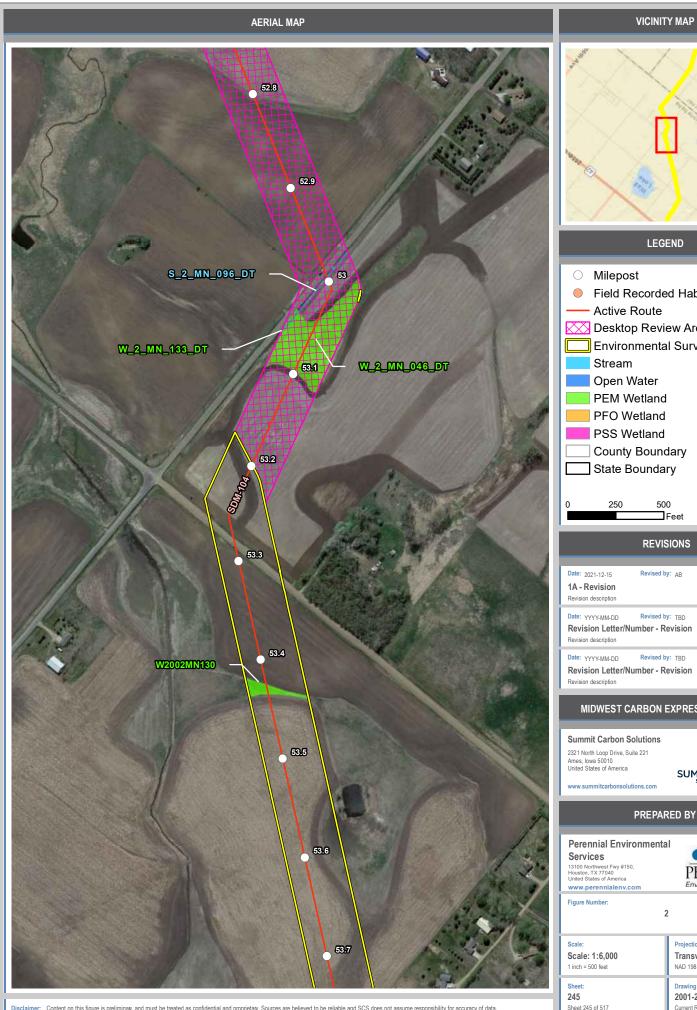
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Current Revision



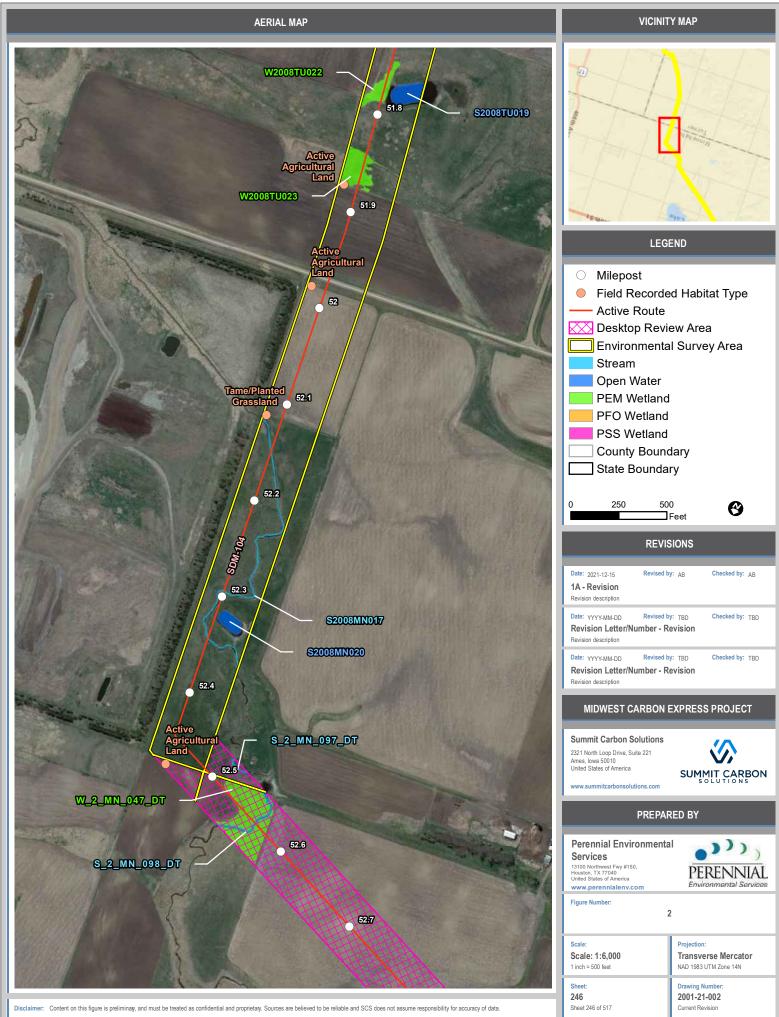
VICINITY MAP

Field Recorded Habitat Type Desktop Review Area Environmental Survey Area **County Boundary** State Boundary C Feet REVISIONS Revised by: AB Checked by: AB Revised by: TRD Checked by: TBD Revision Letter/Number - Revision Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** MIDWEST CARBON EXPRESS PROJECT

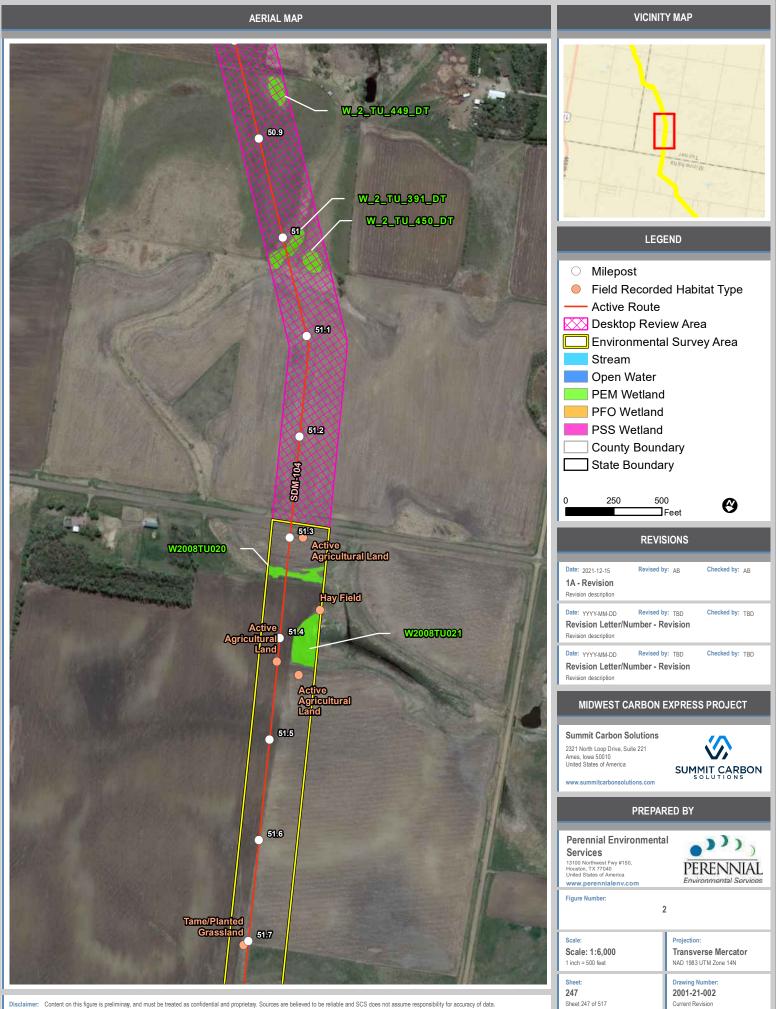
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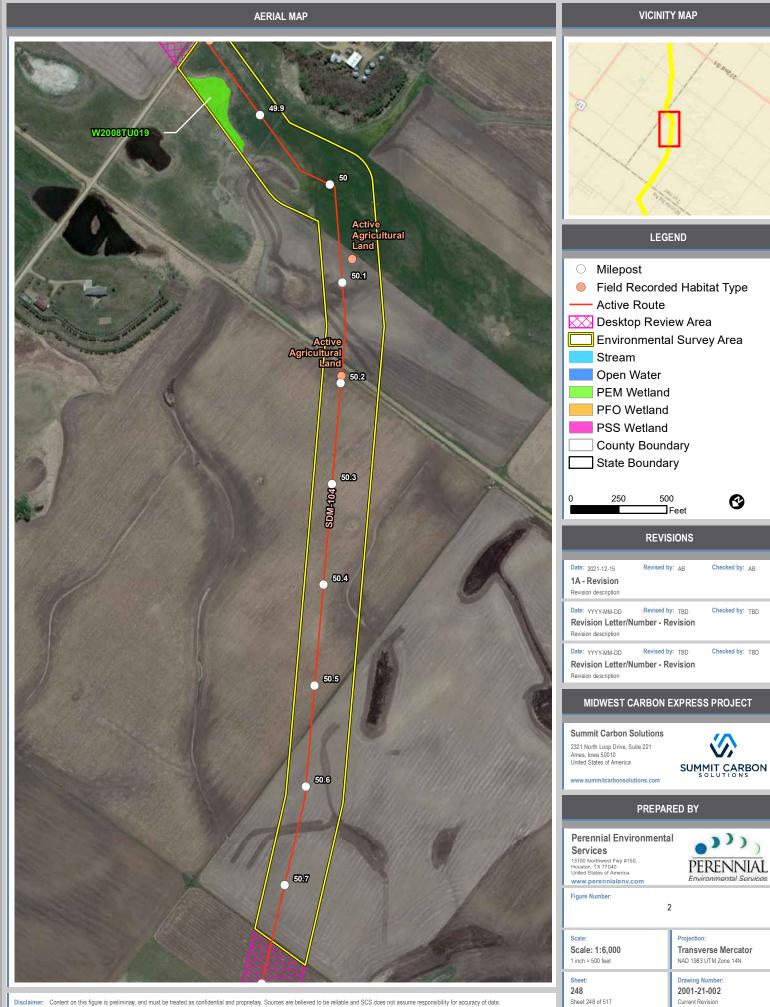
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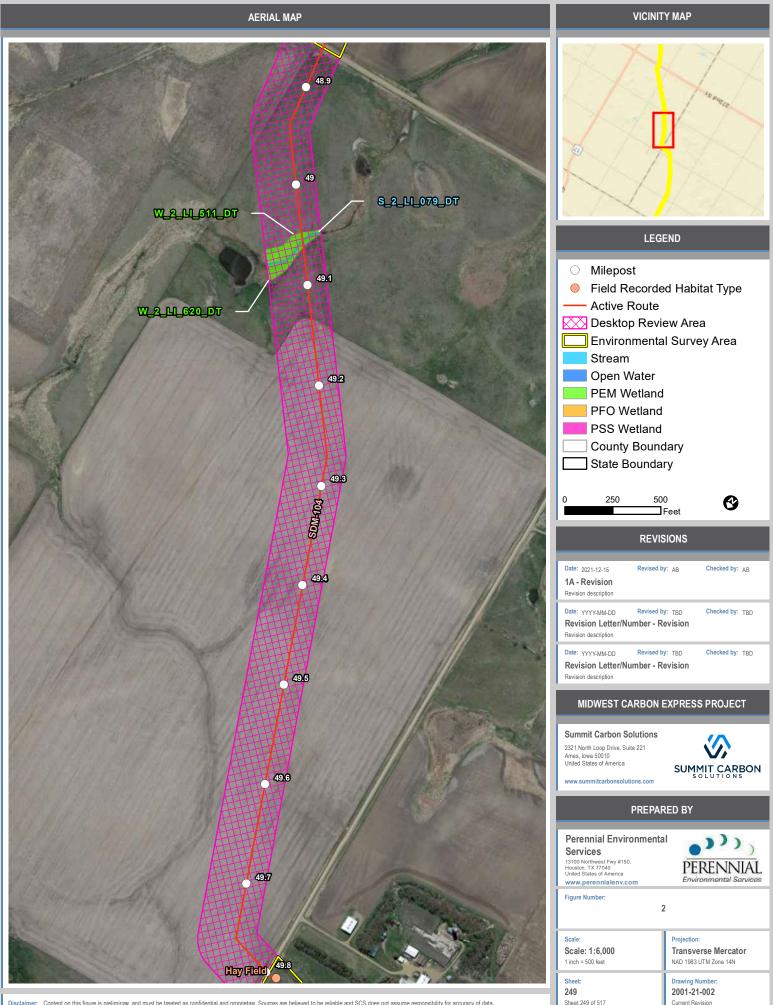
Projection: **Transverse Mercator** NAD 1983 UTM Zone 14N Drawing Number: 2001-21-002 Current Revision



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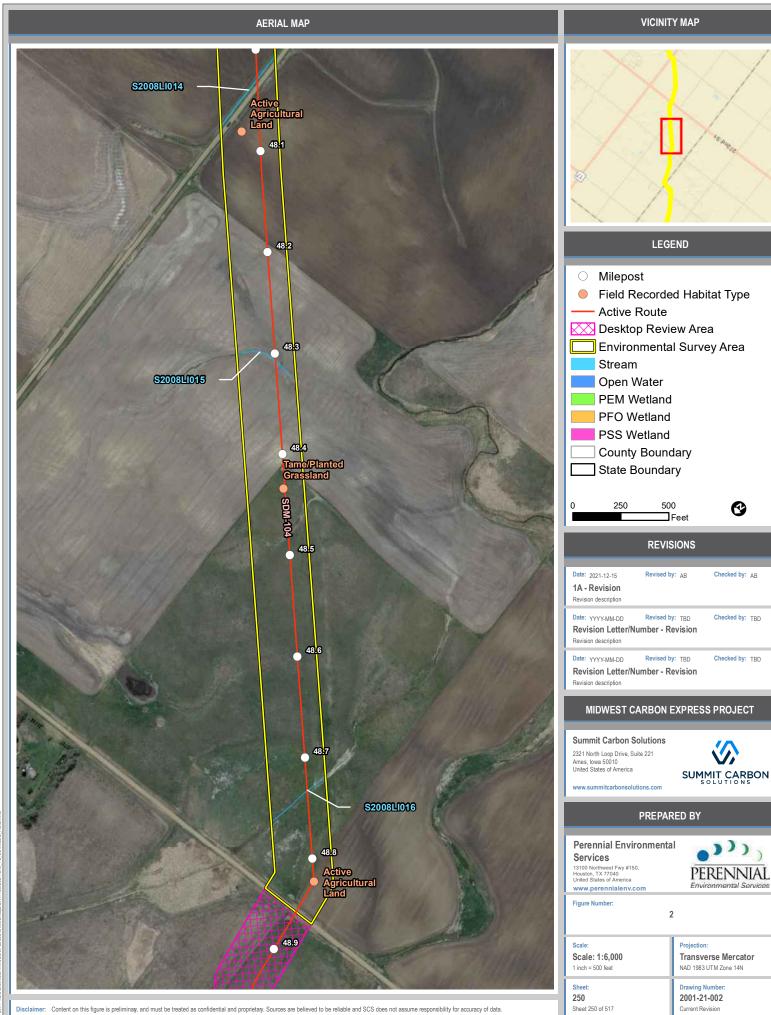


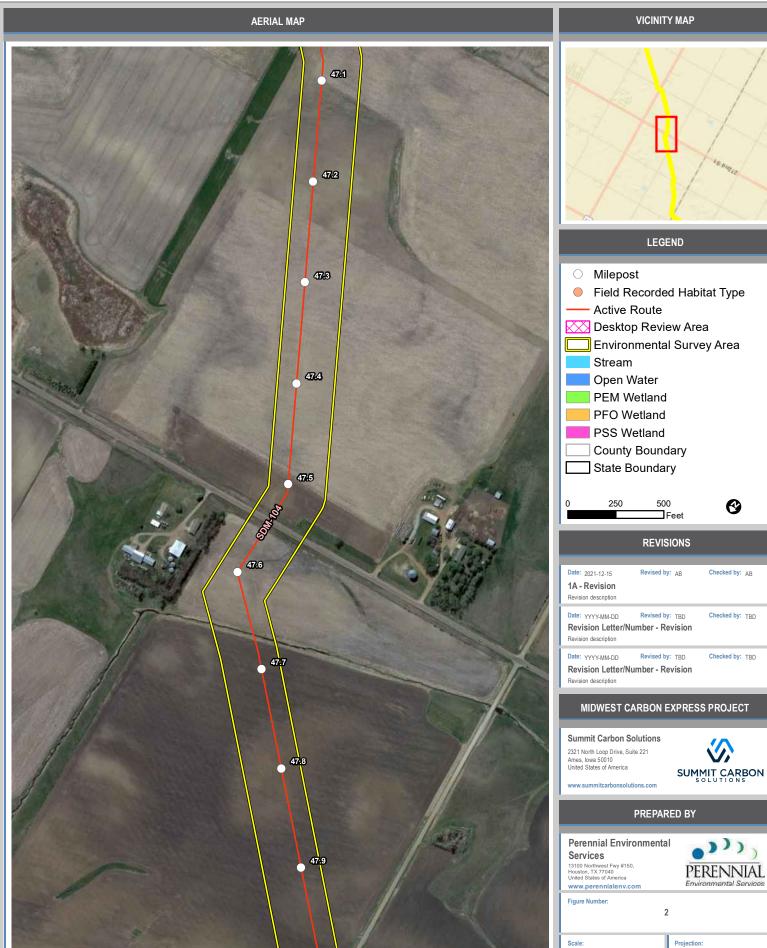




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Current Revision





Disclaimer: Content on this figure is preliminay, and must be treated as confidential and proprietay. Sources are believed to be reliable and SCS does not assume responsibility for accuracy of data.

NAD 1983 UTM Zone 14N
Drawing Number:
2001-21-002
Current Revision

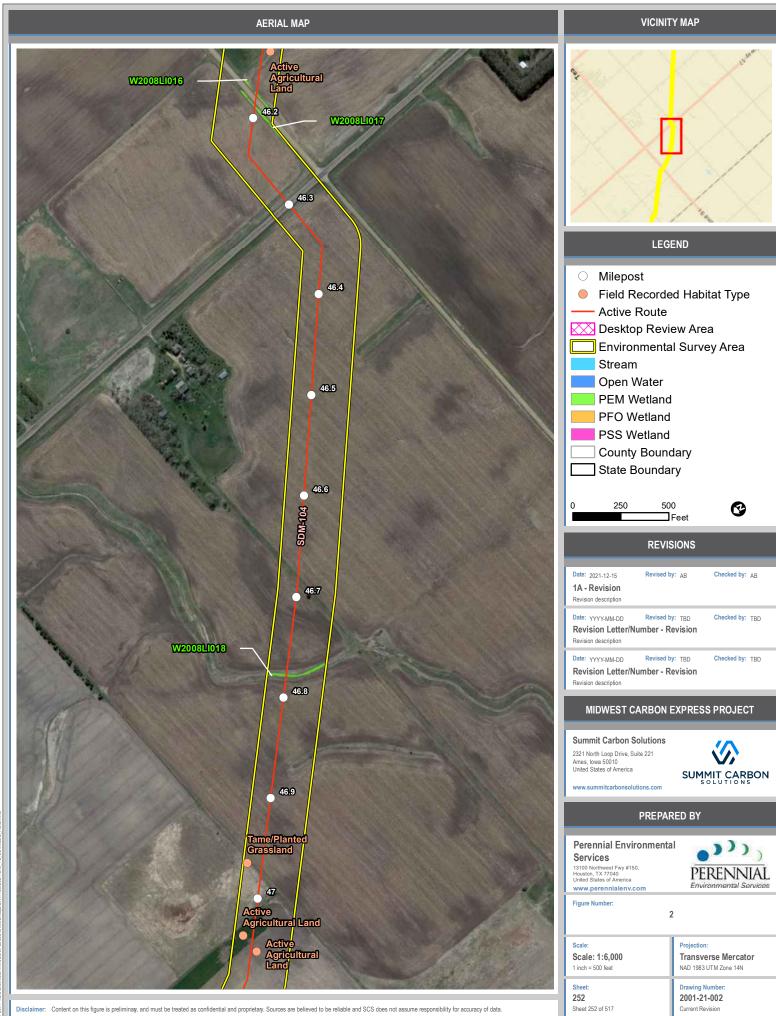
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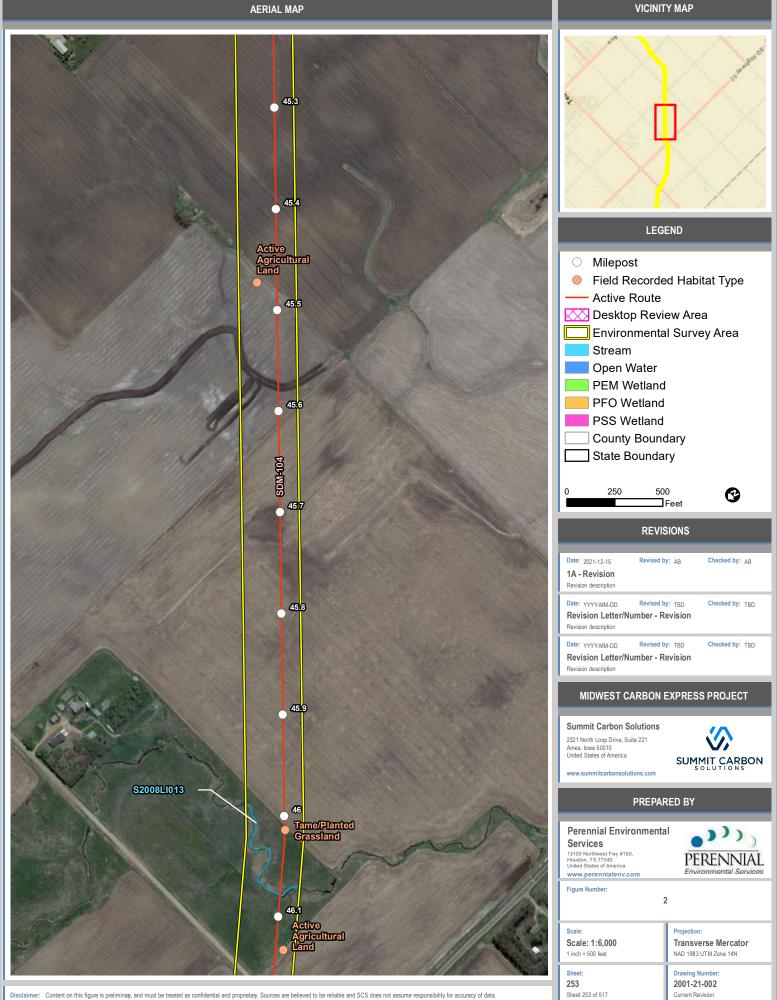
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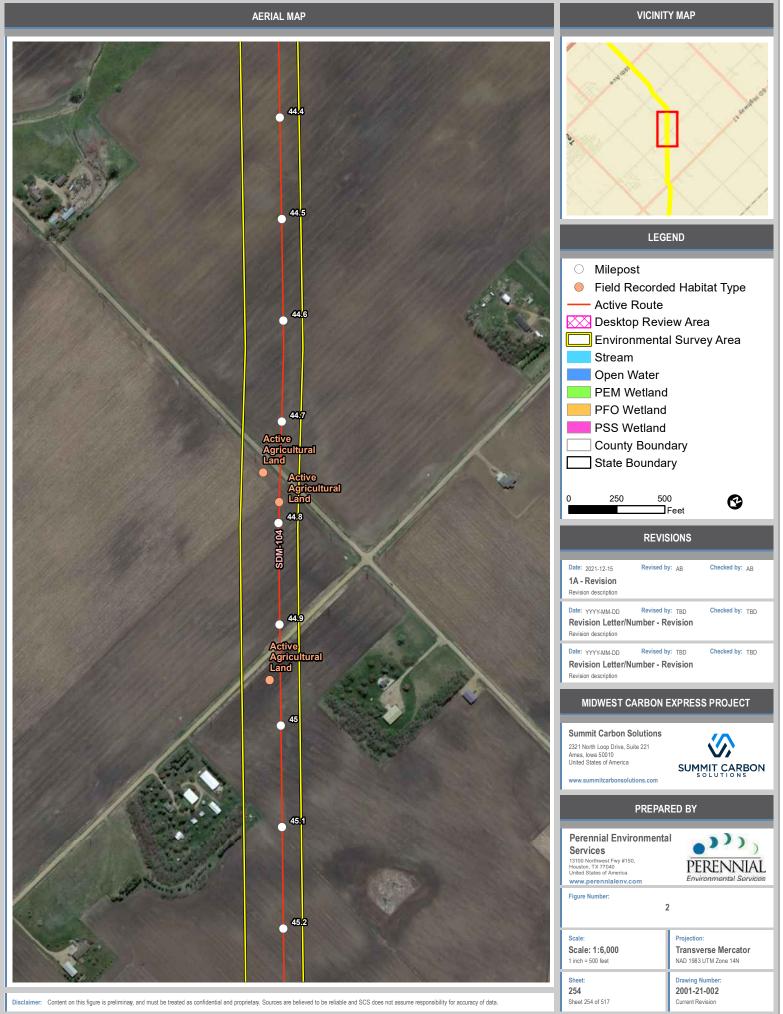
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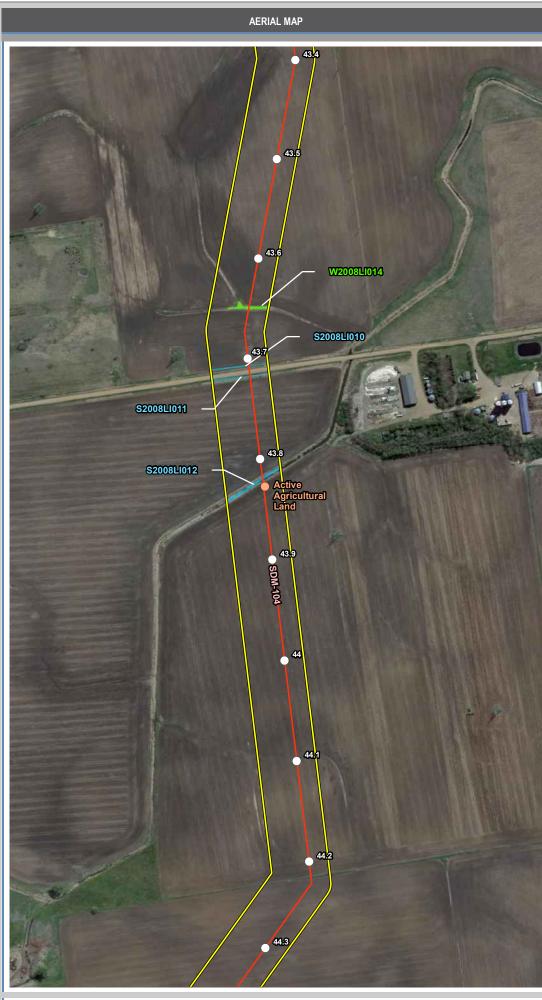
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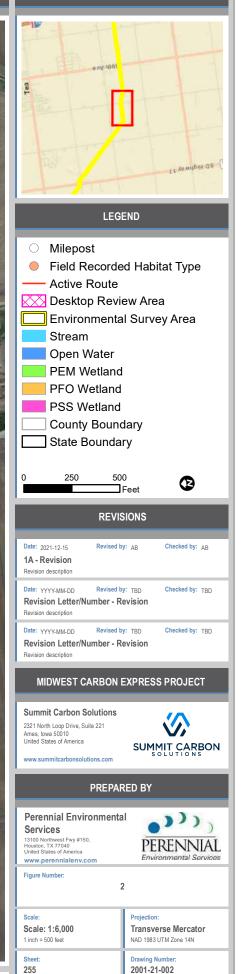






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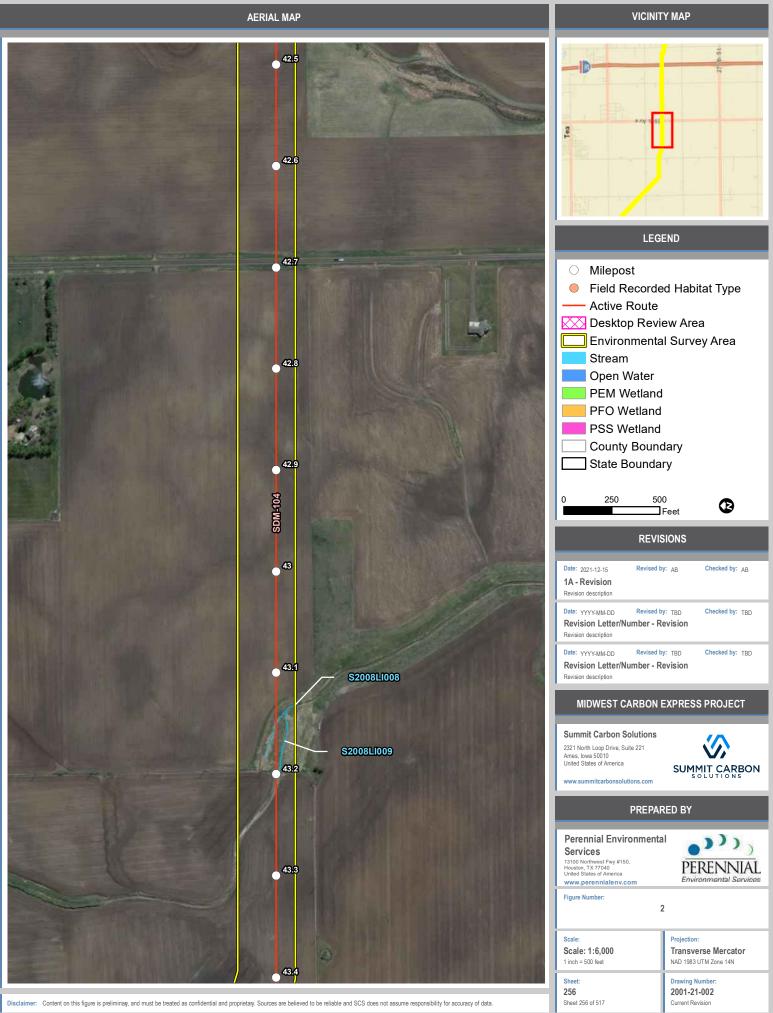


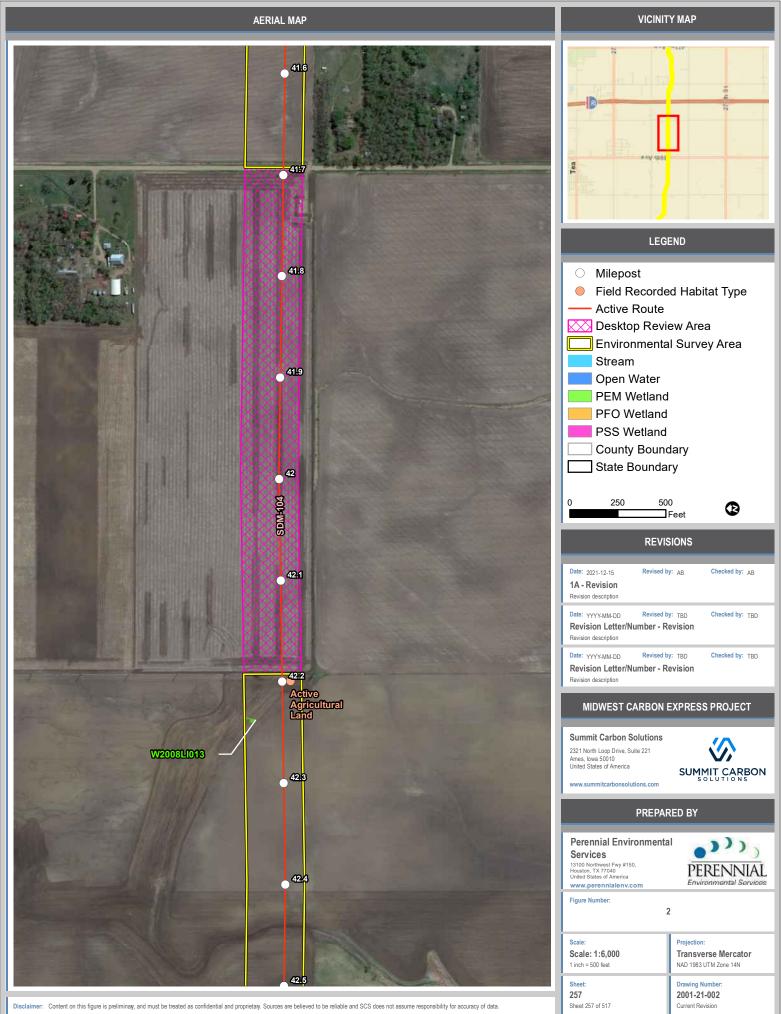


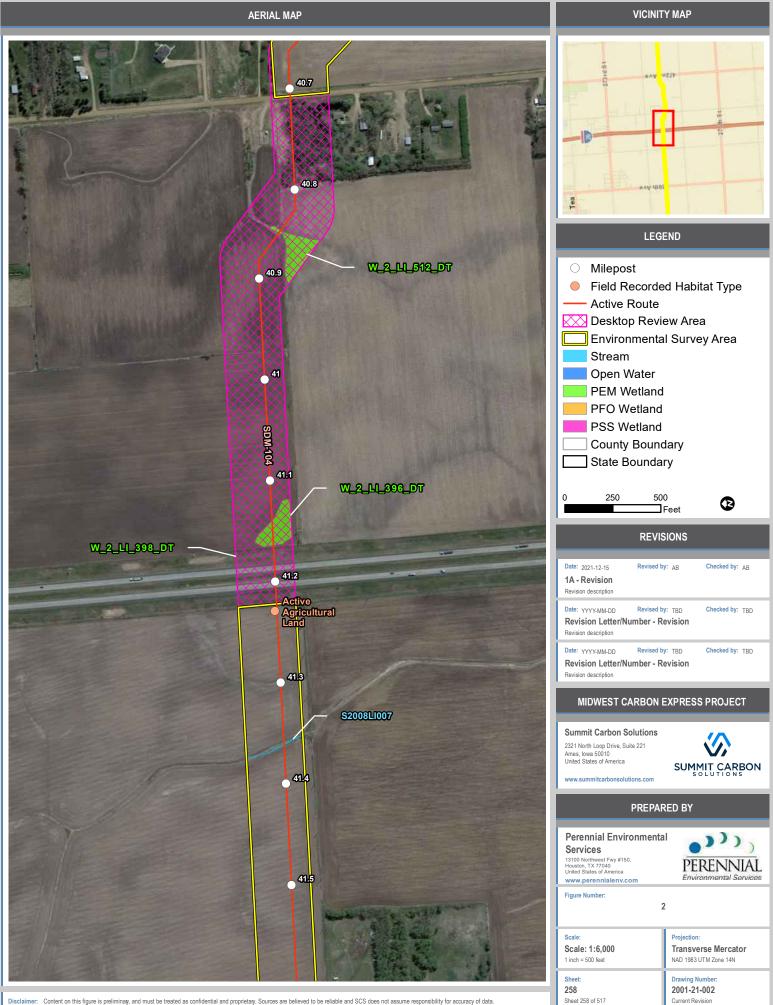
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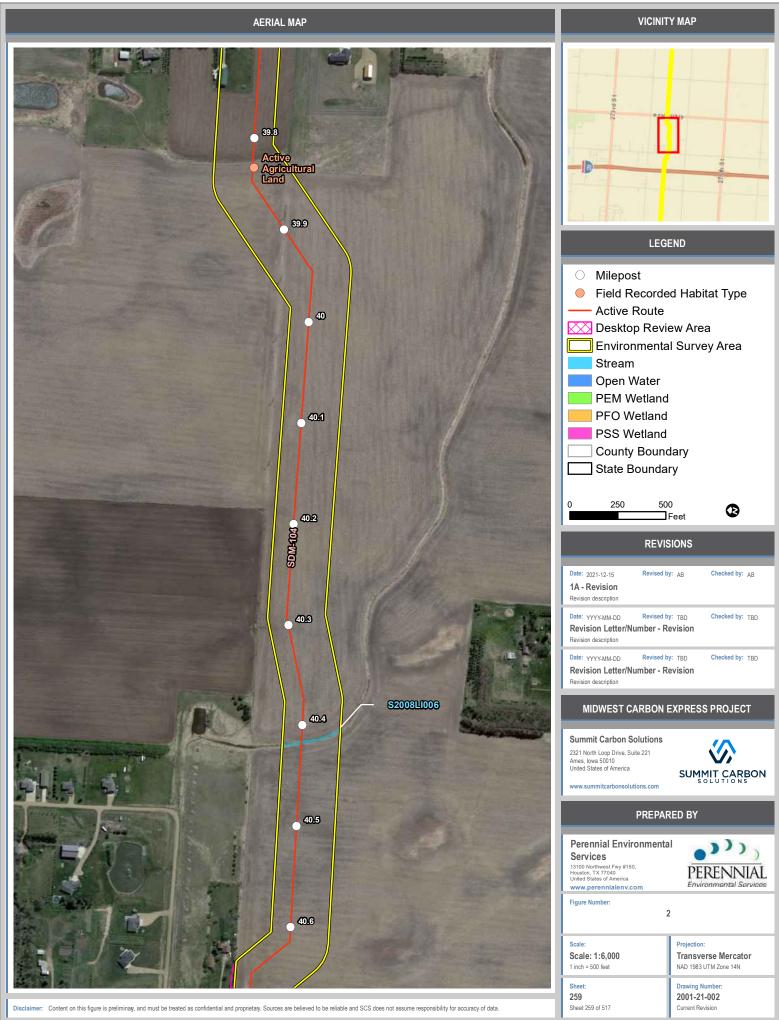
Current Revision

VICINITY MAP

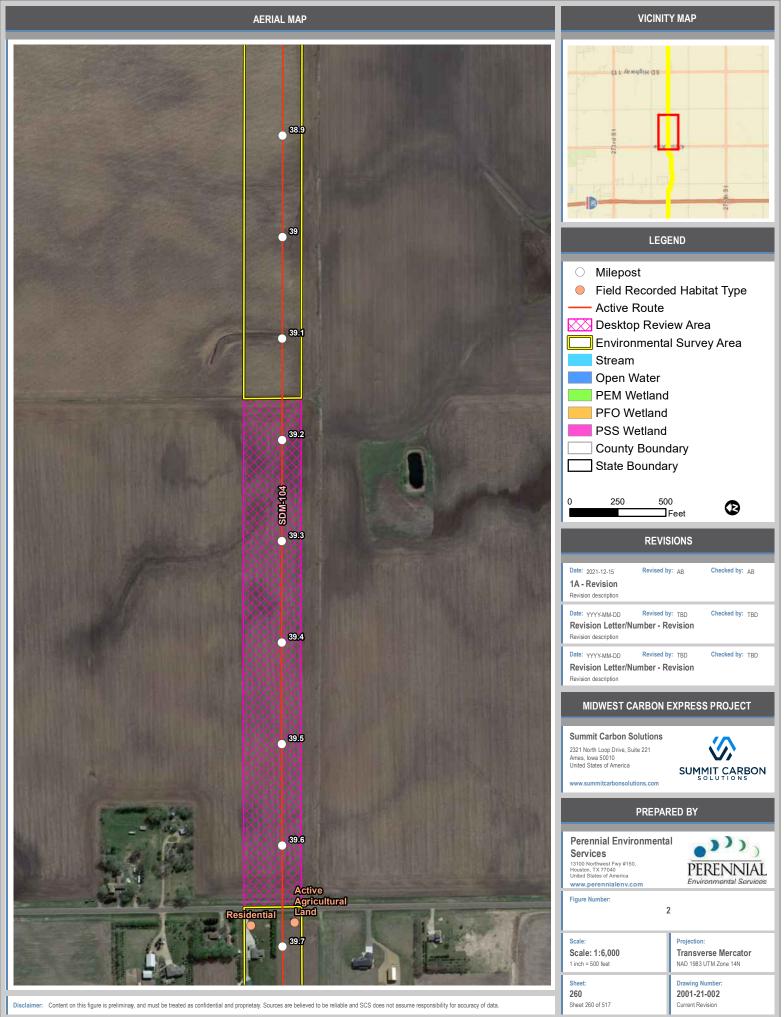


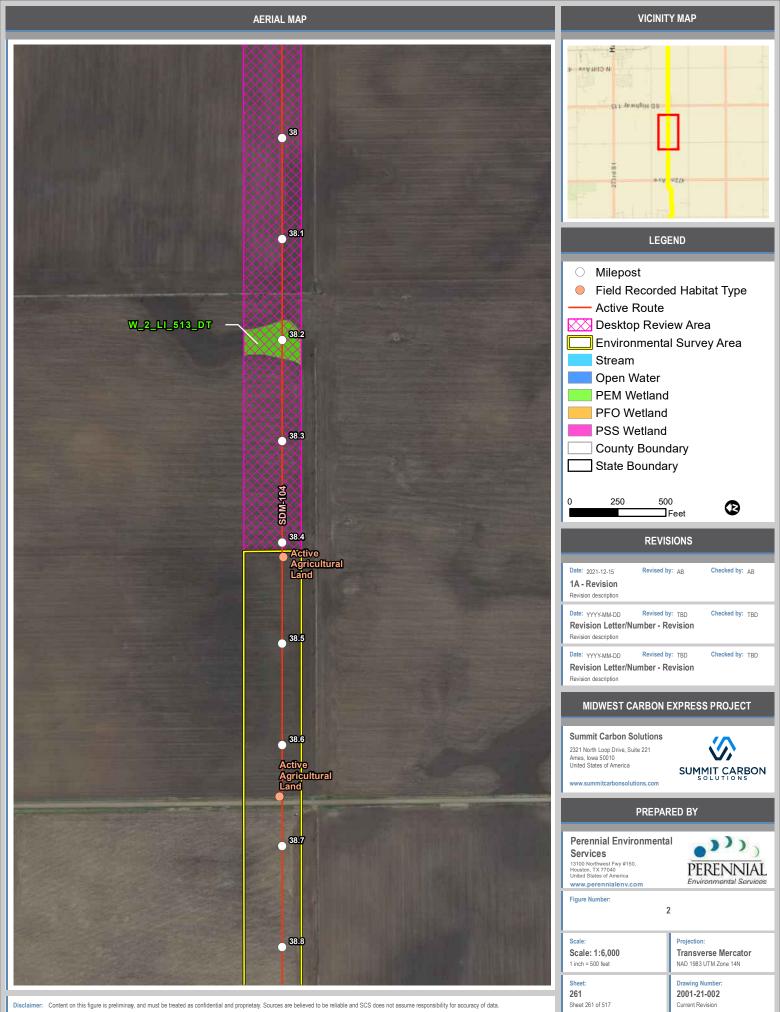


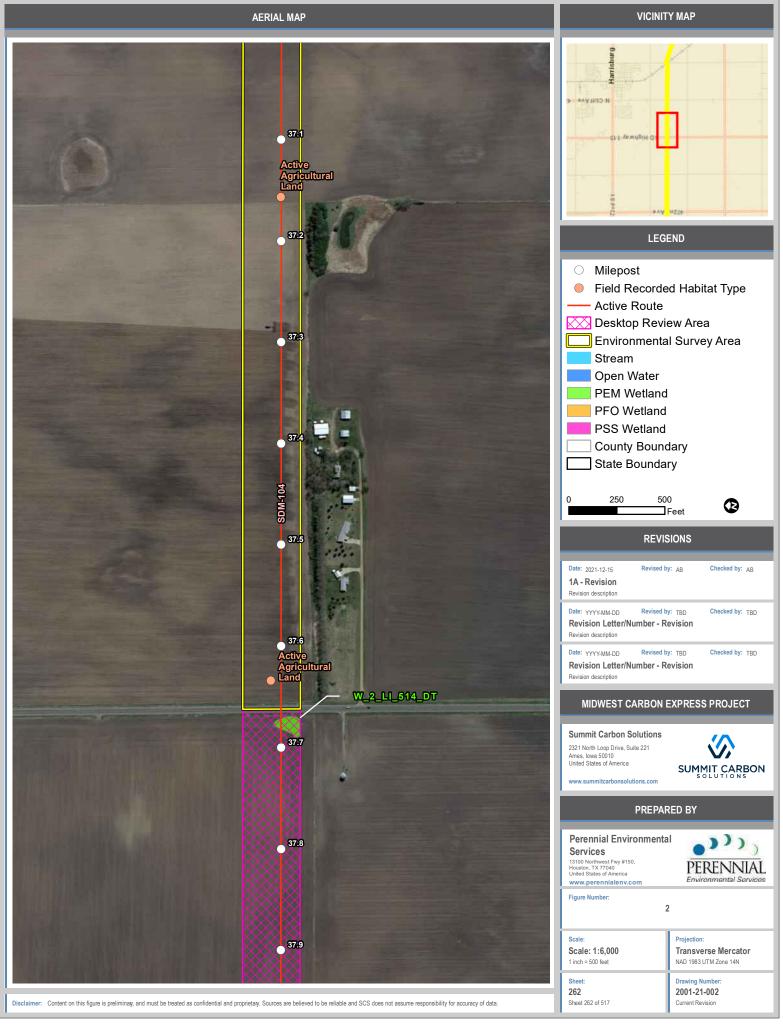


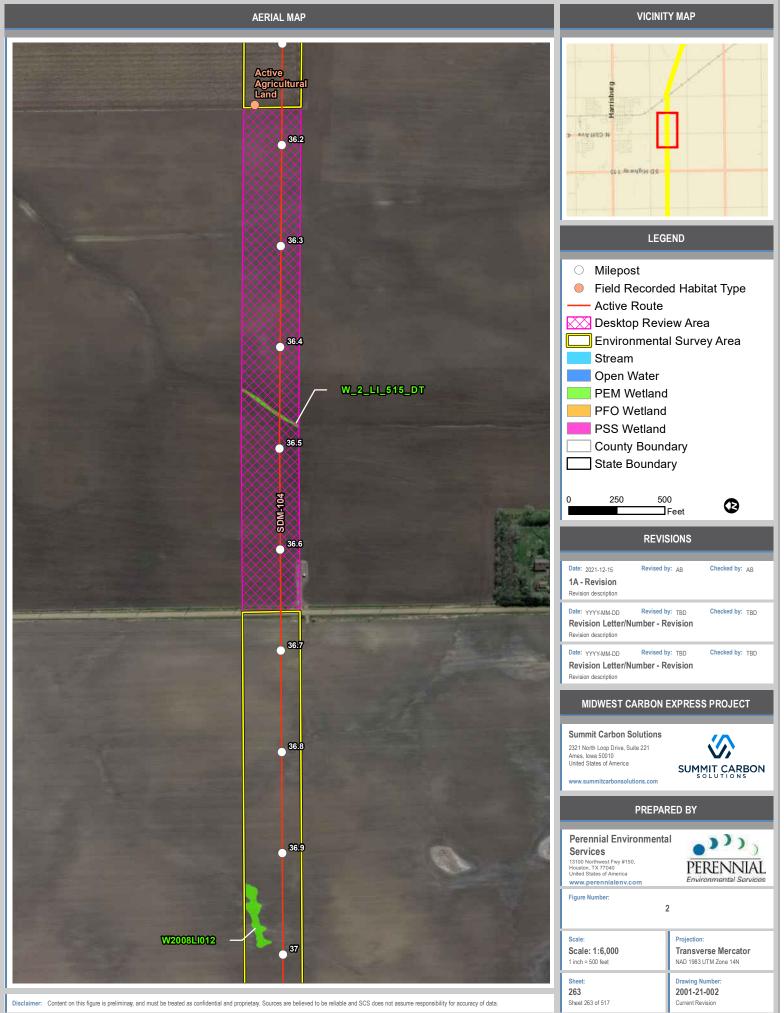


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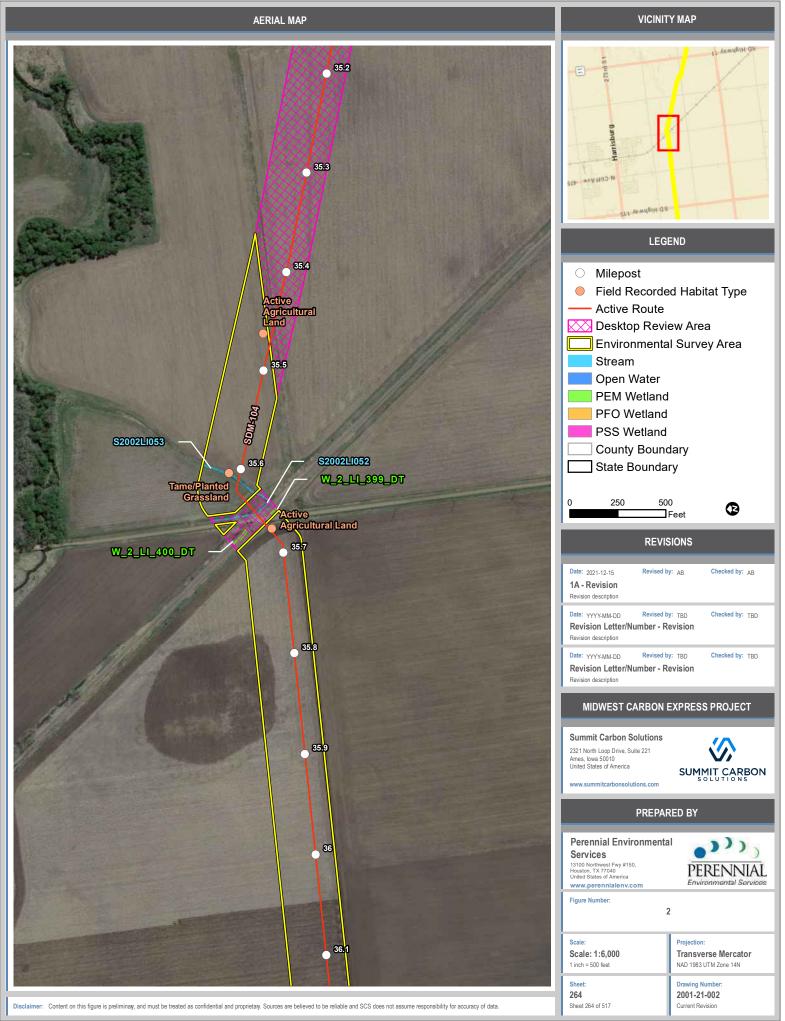




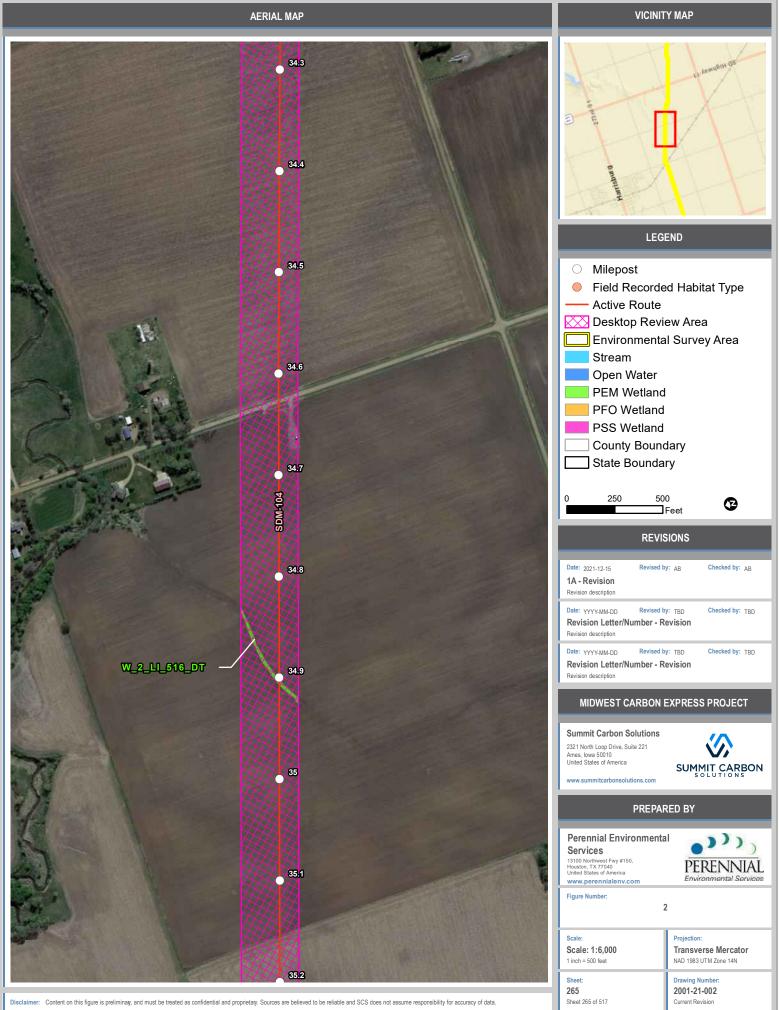




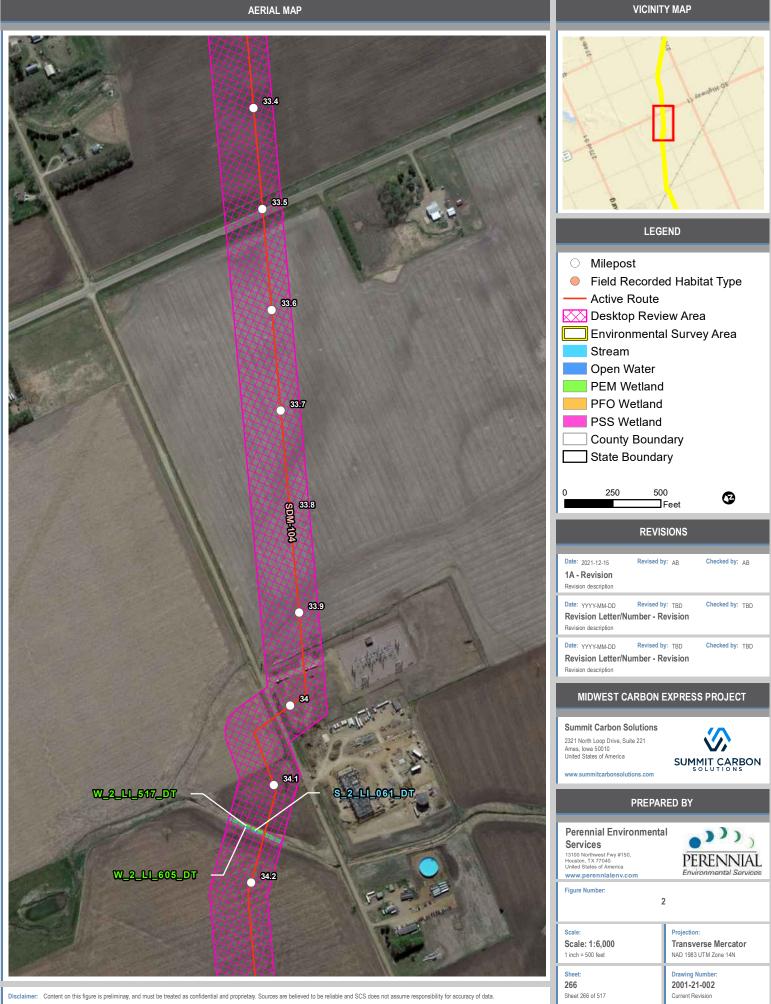
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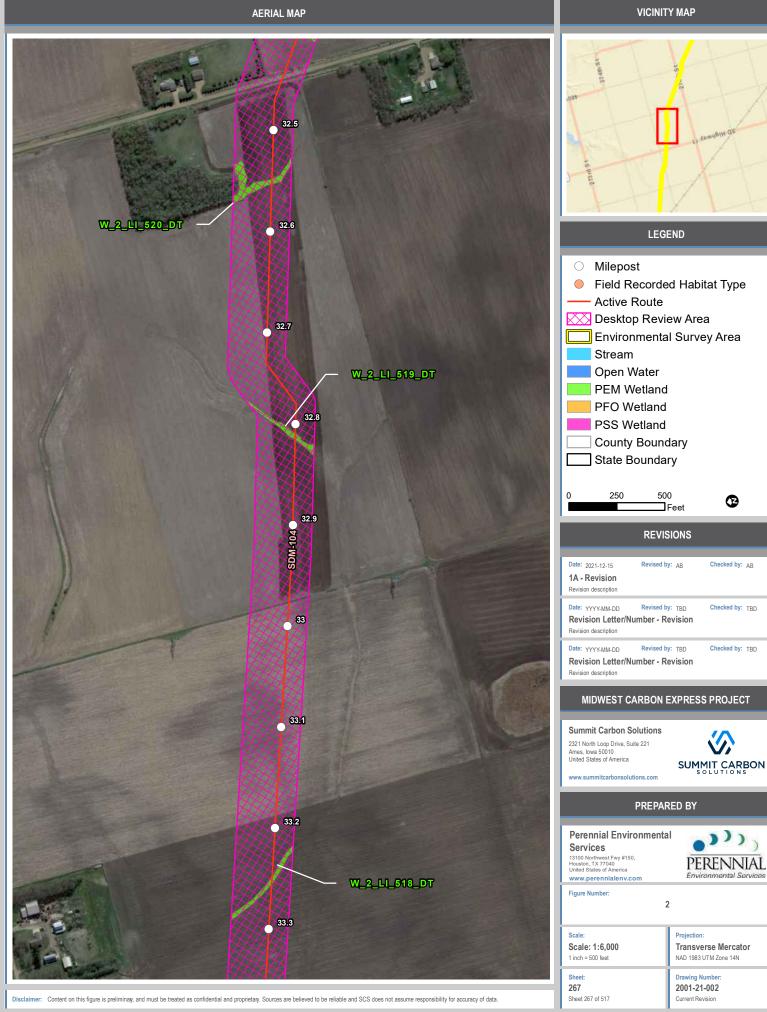


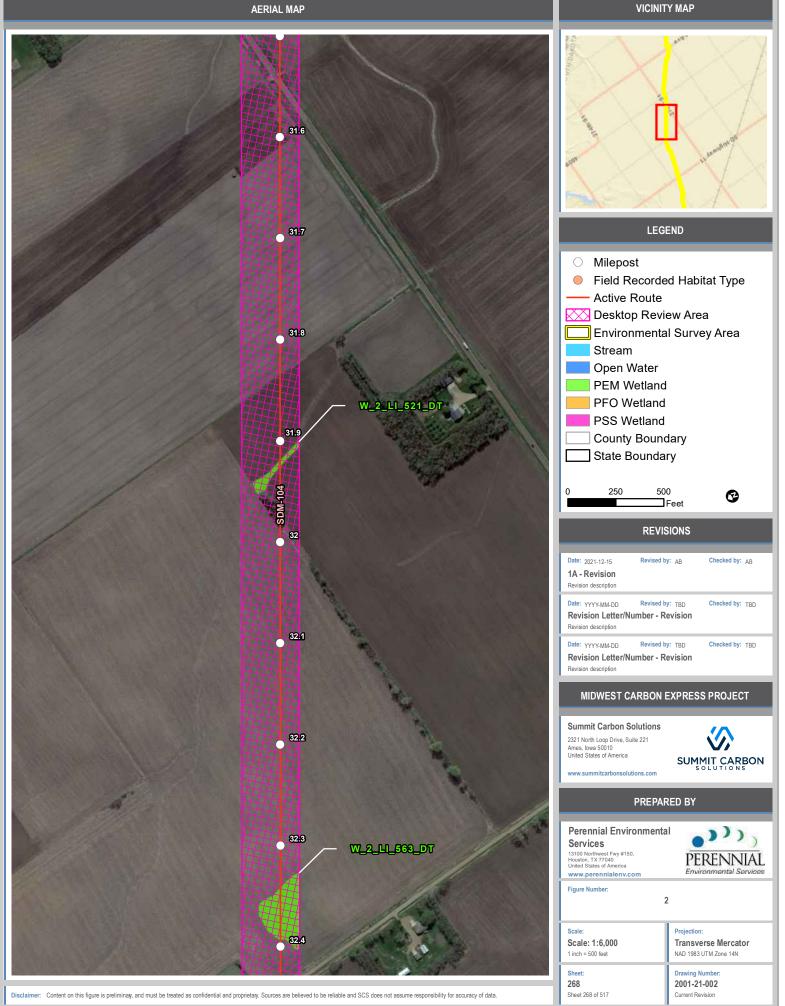
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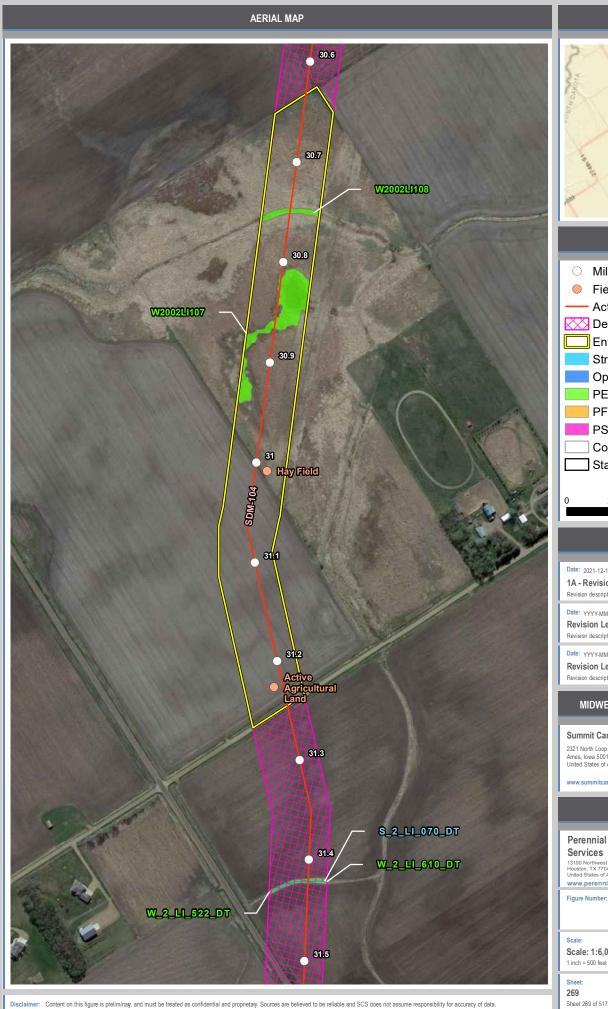


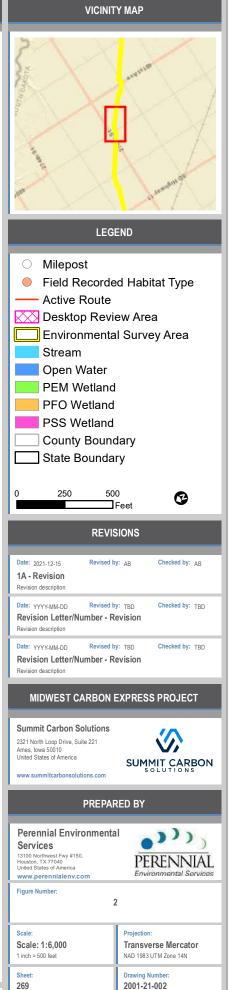
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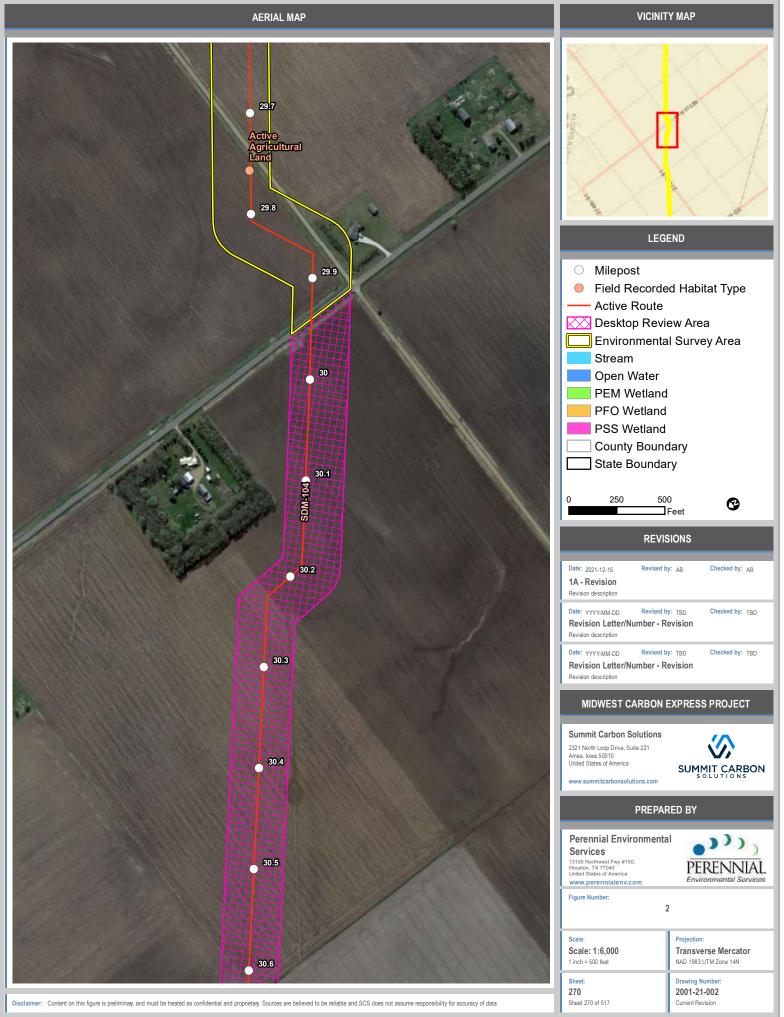


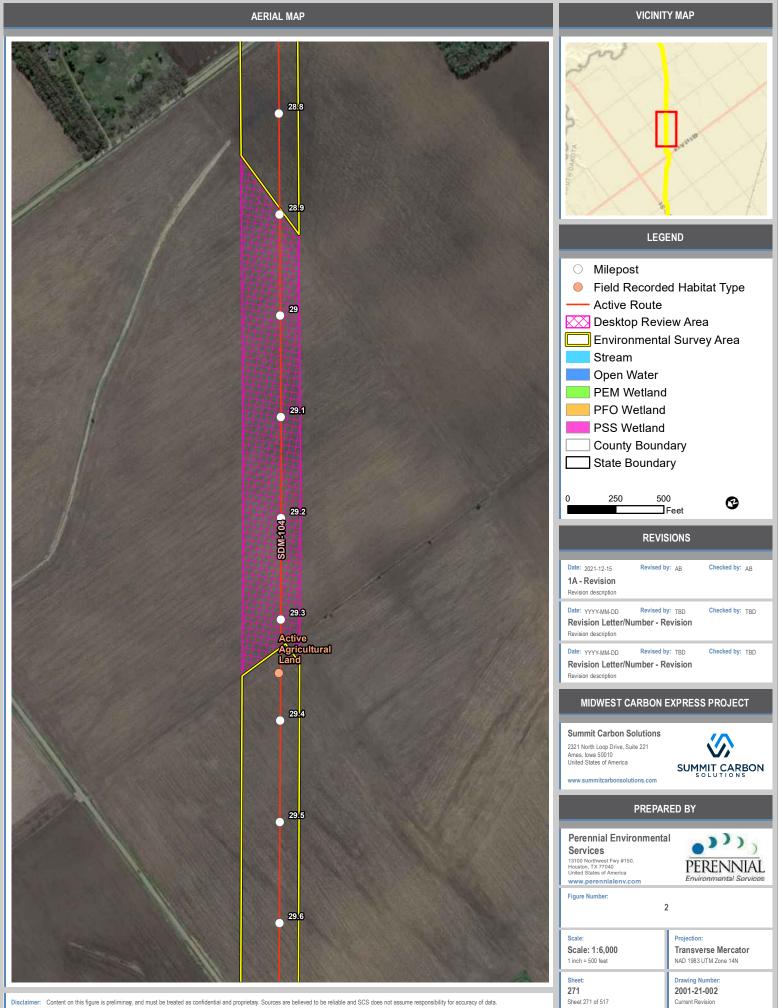


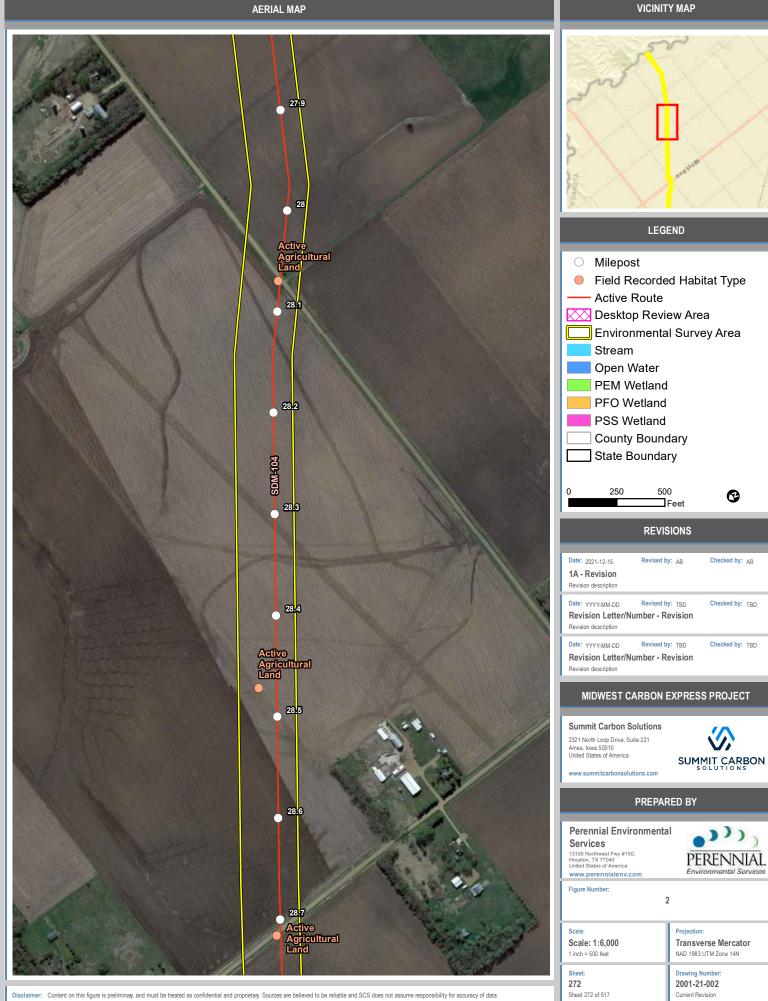


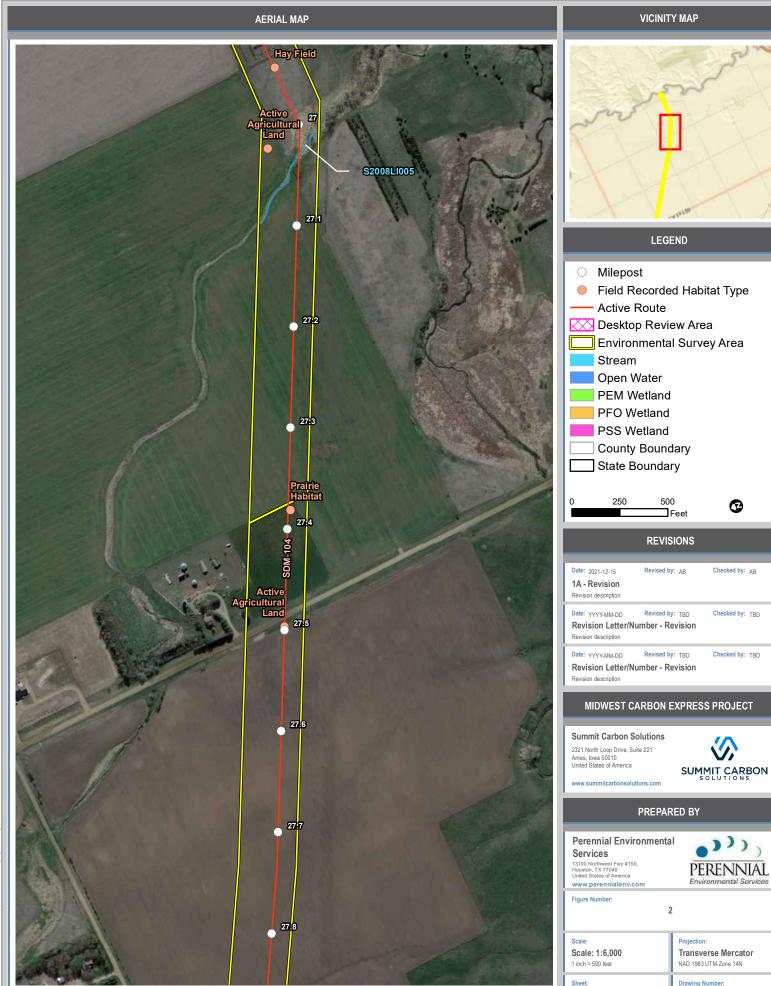


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Checked by: AB

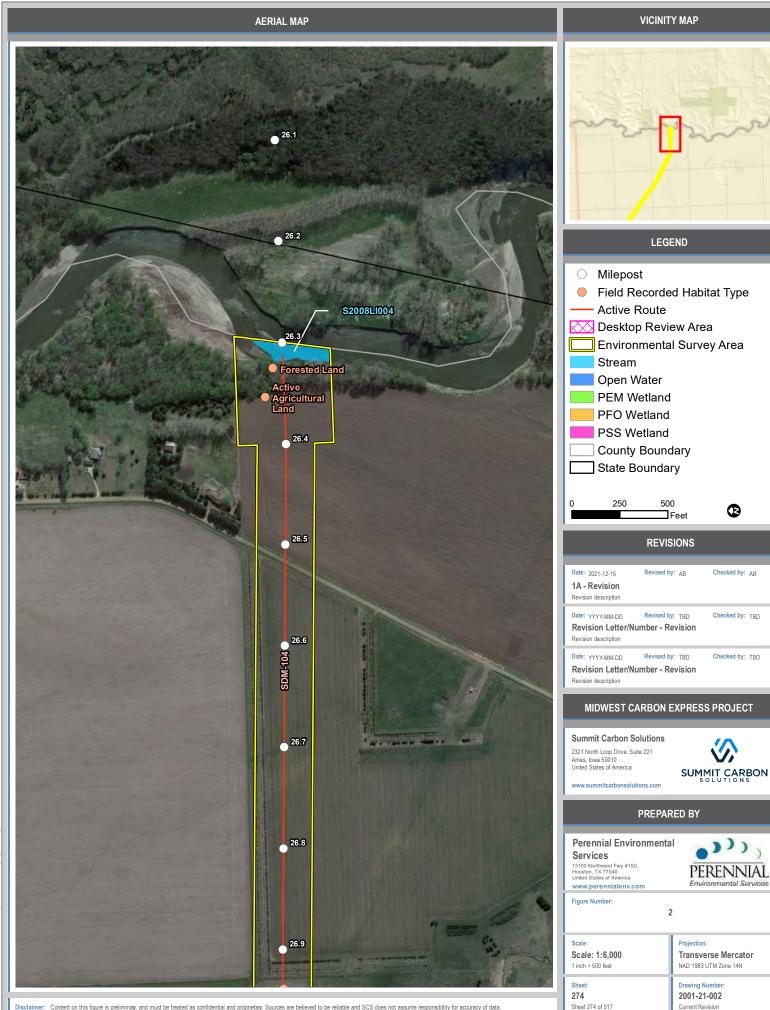
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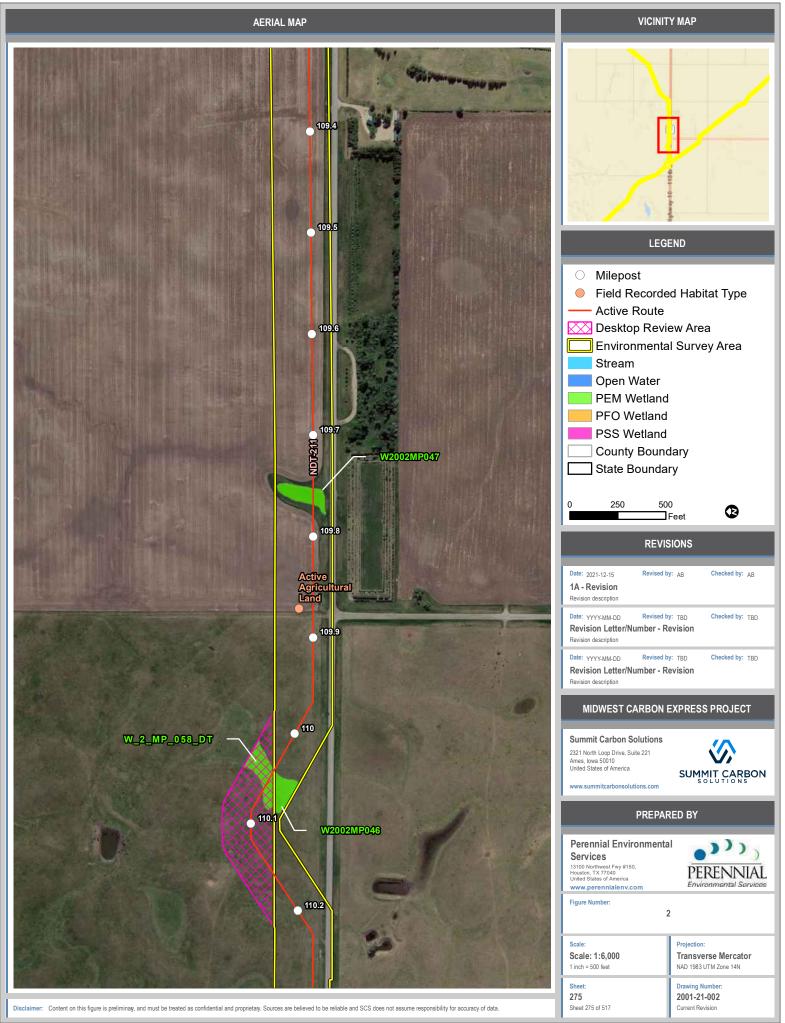
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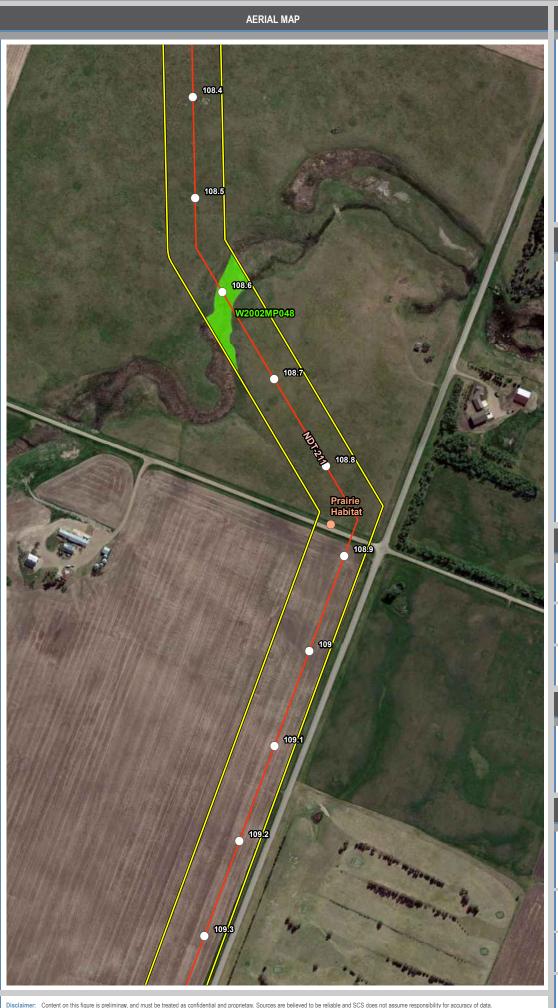
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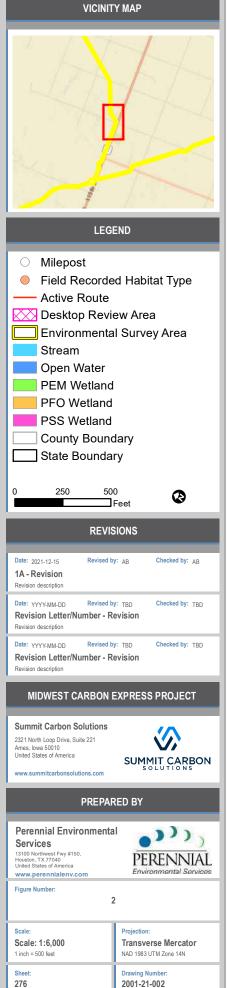
Current Revision

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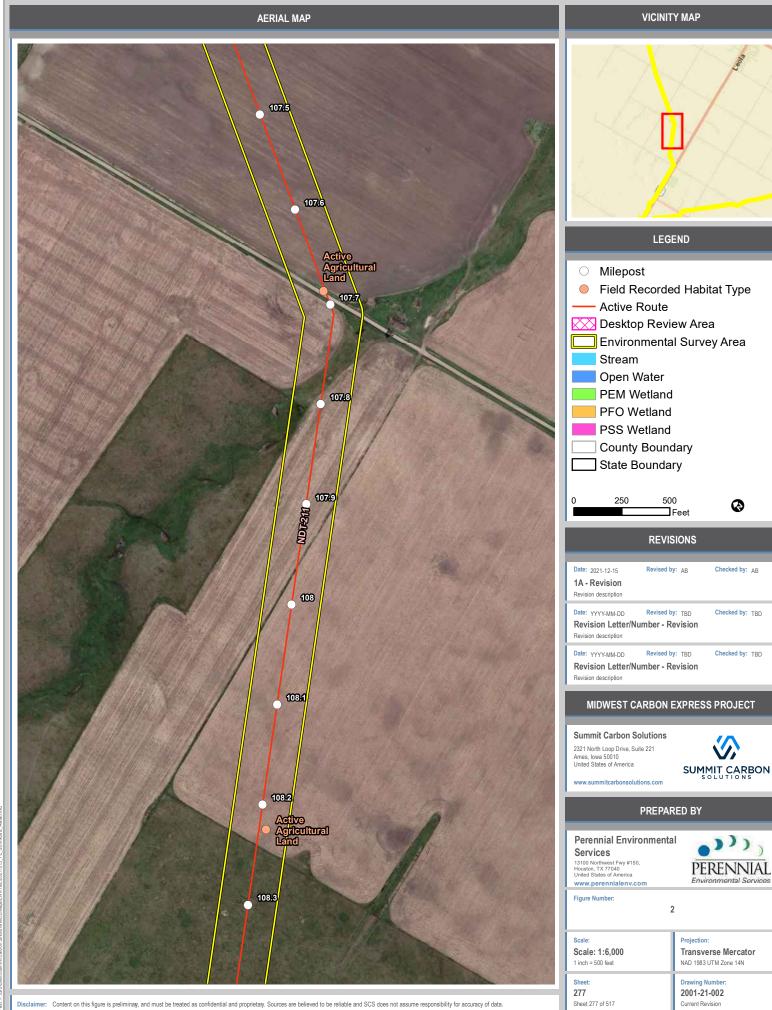






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NAD 1983 UTM Zone 14N Drawing Number: 2001-21-002

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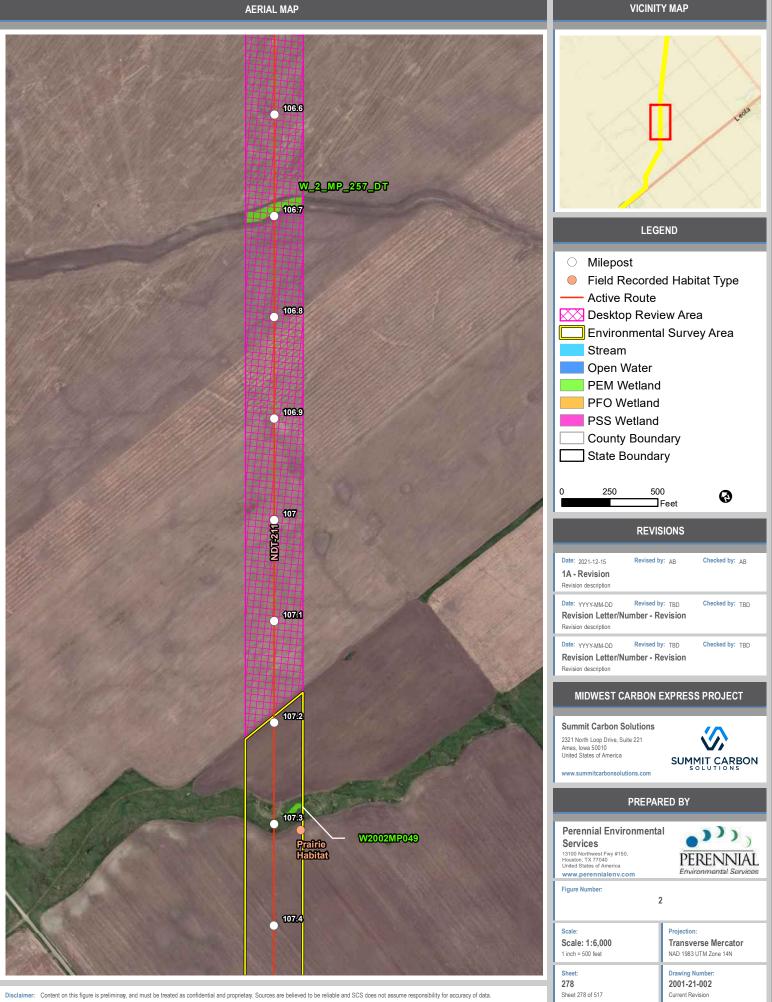
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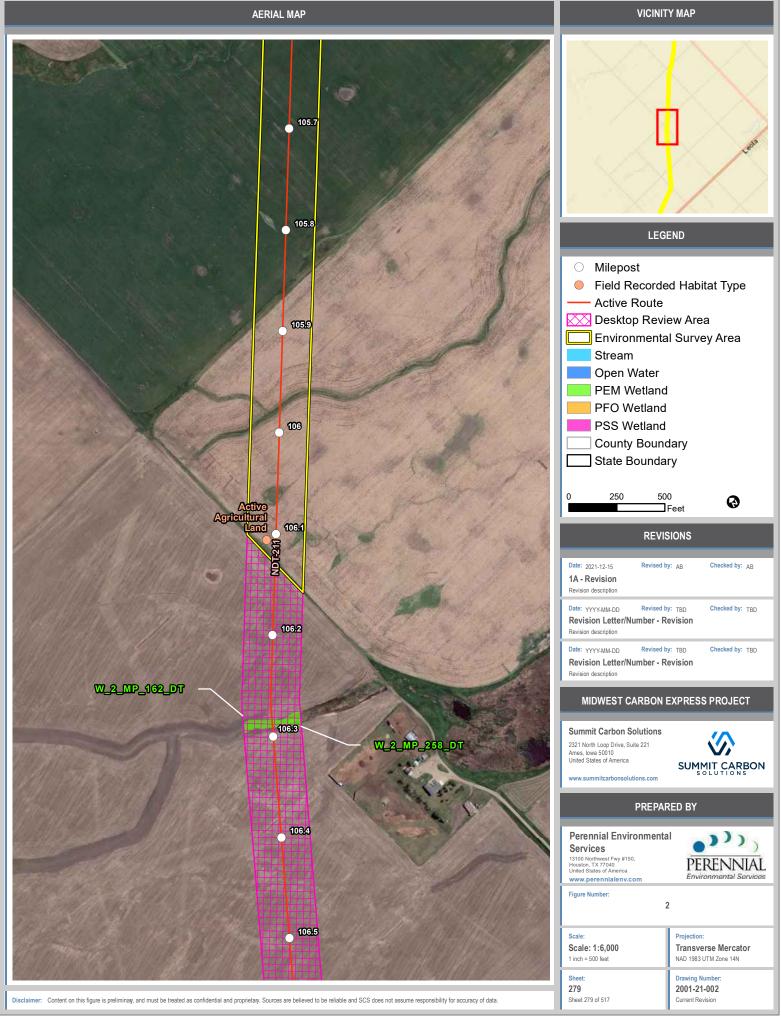
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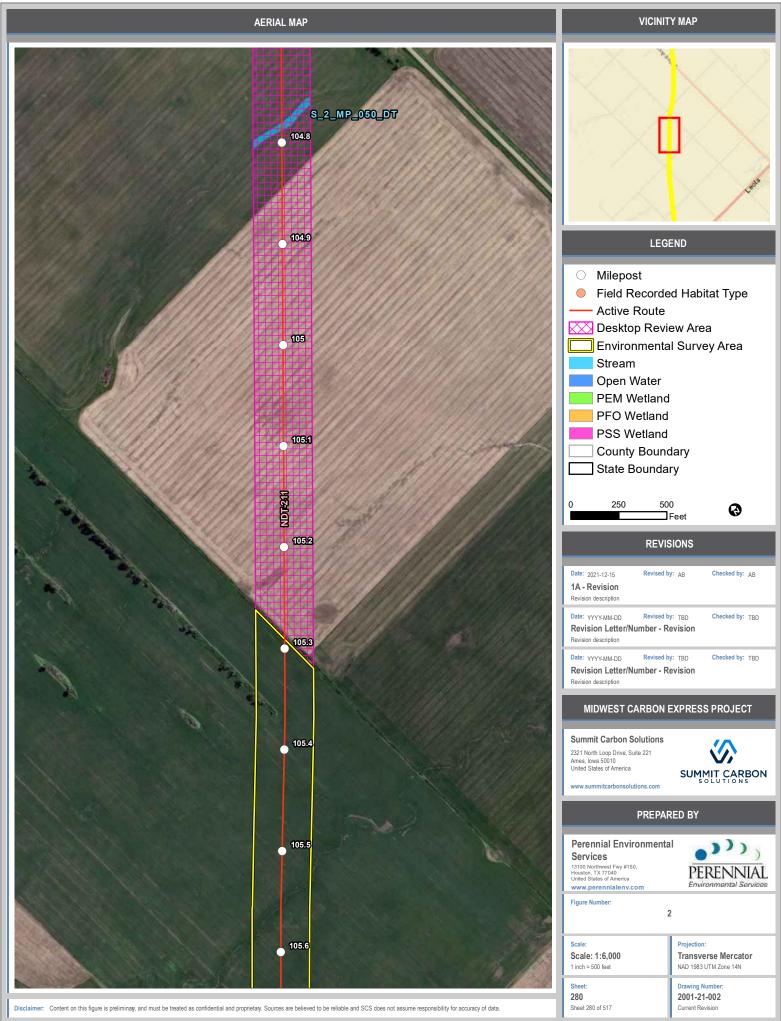
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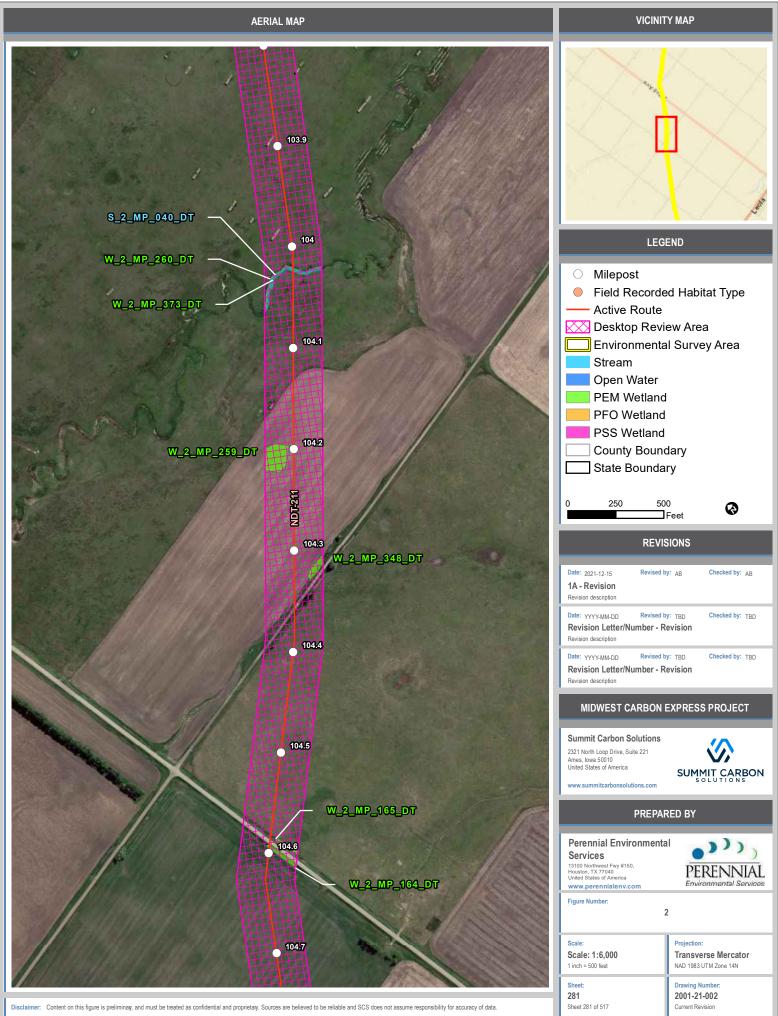
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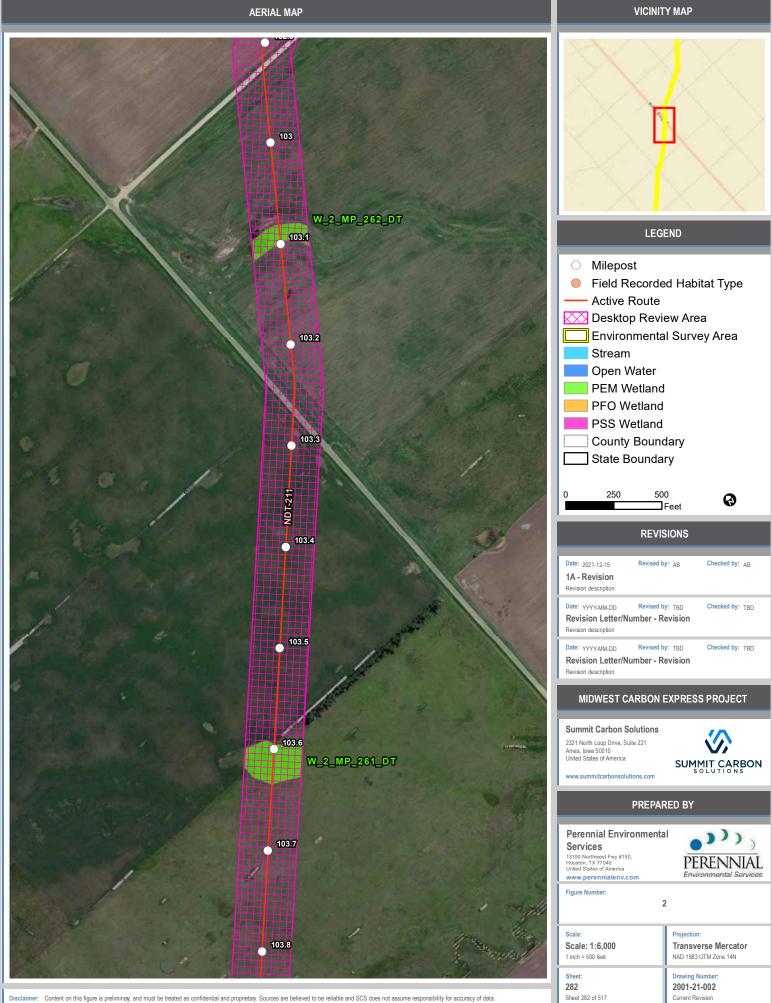
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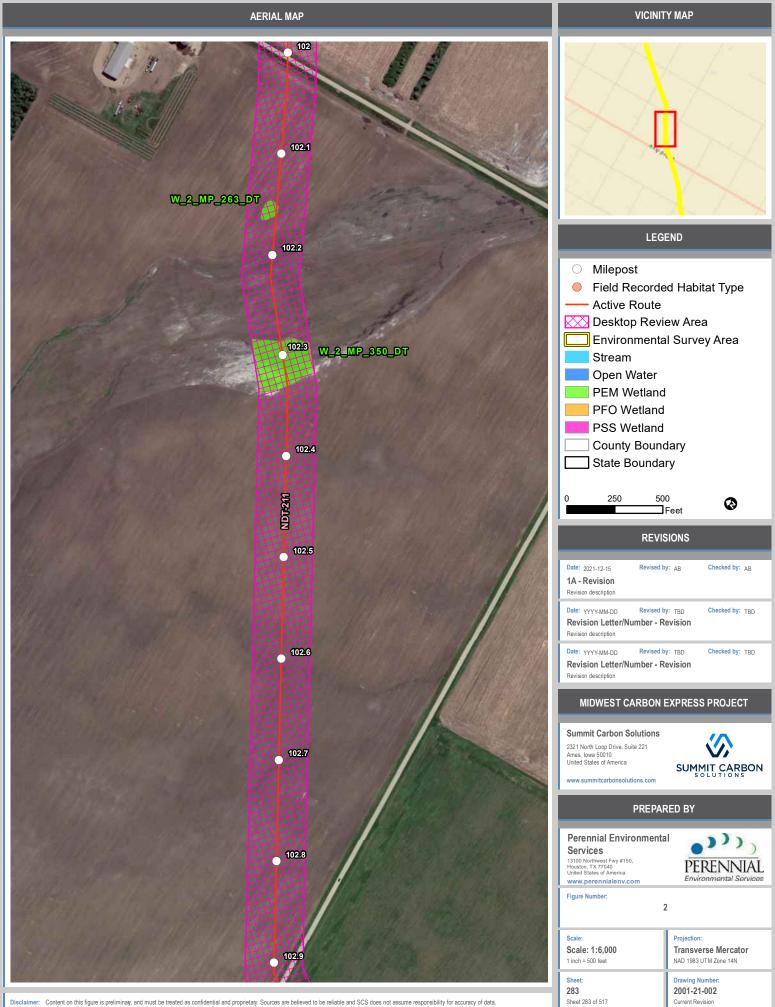


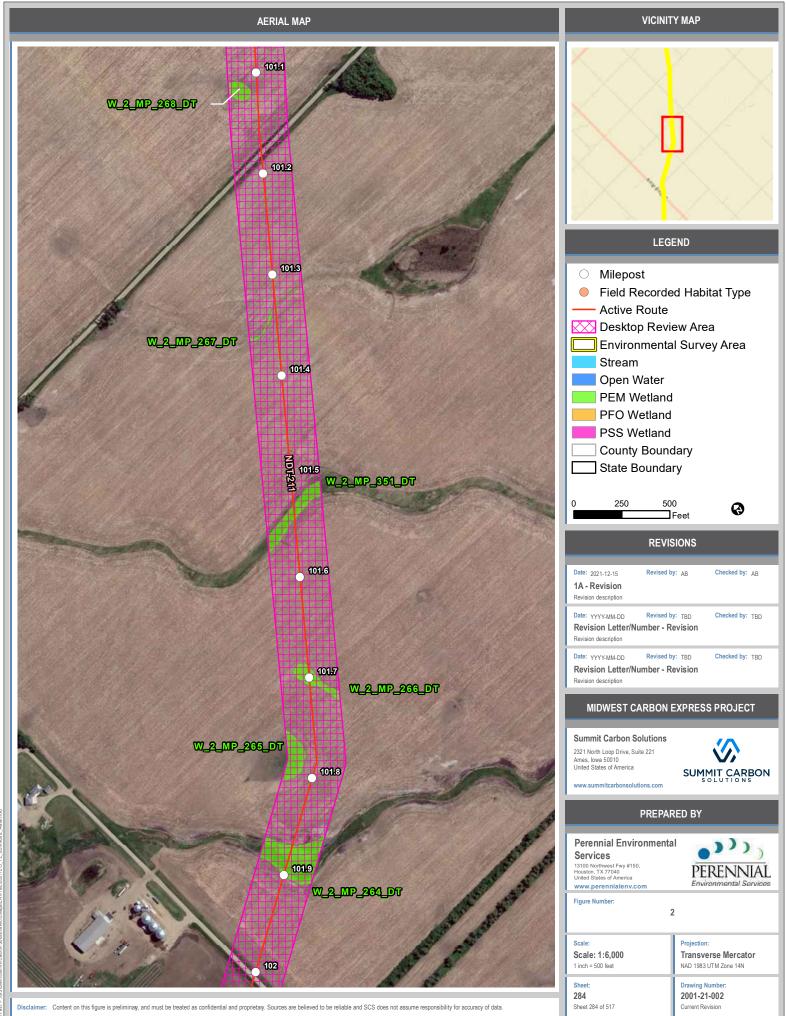


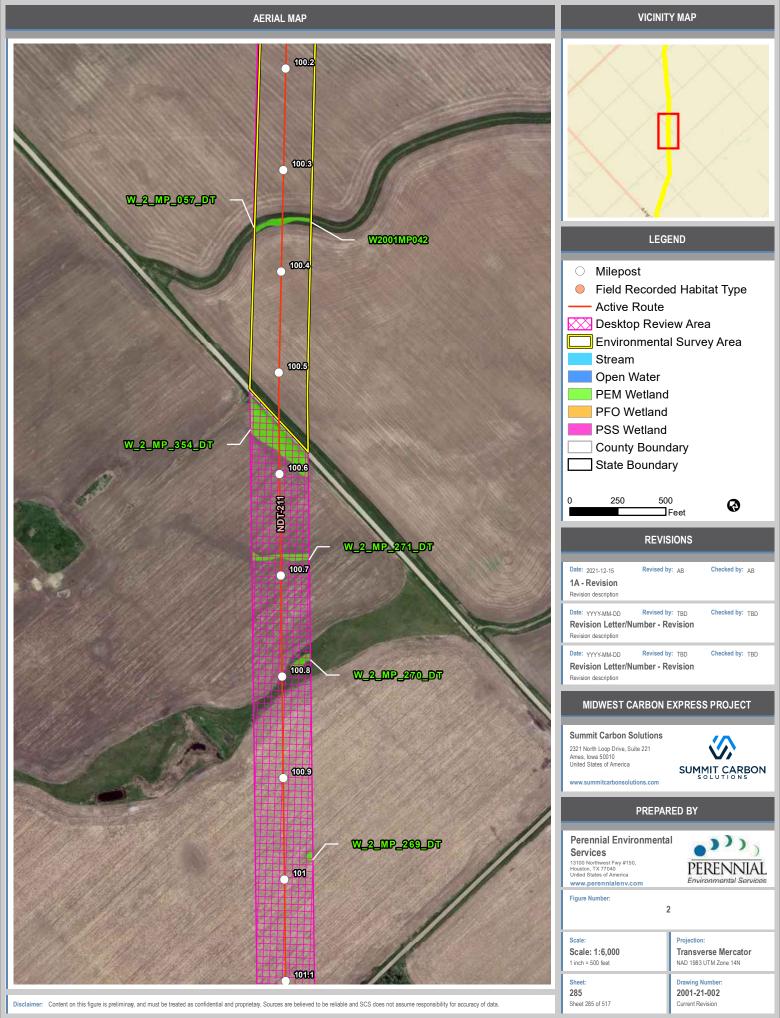


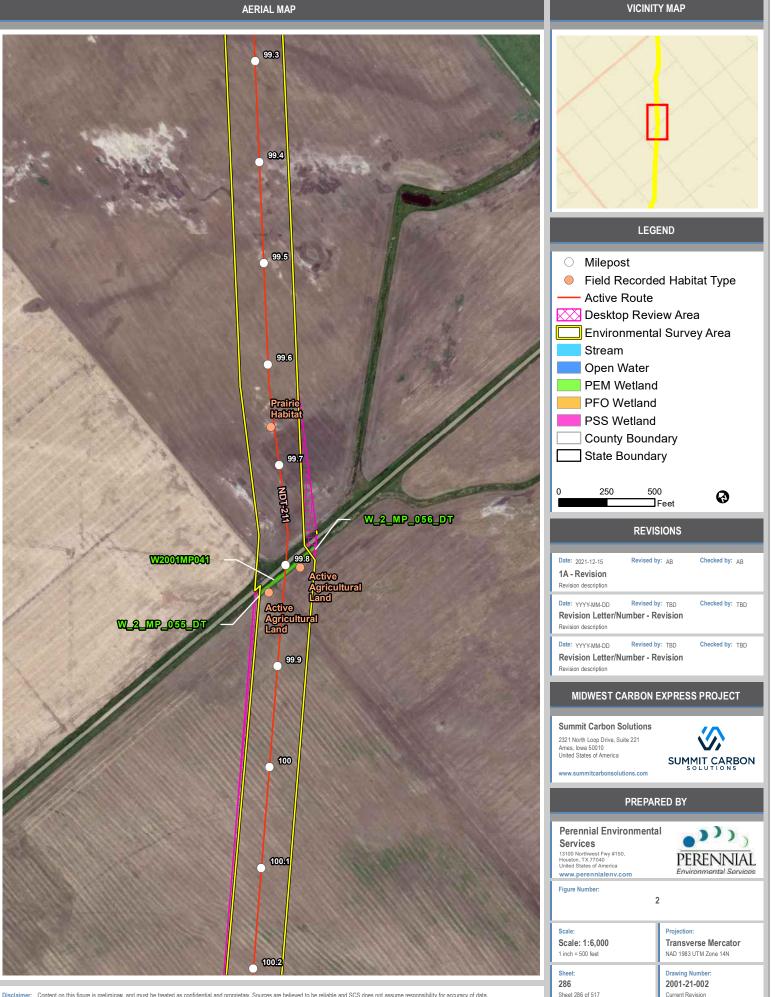


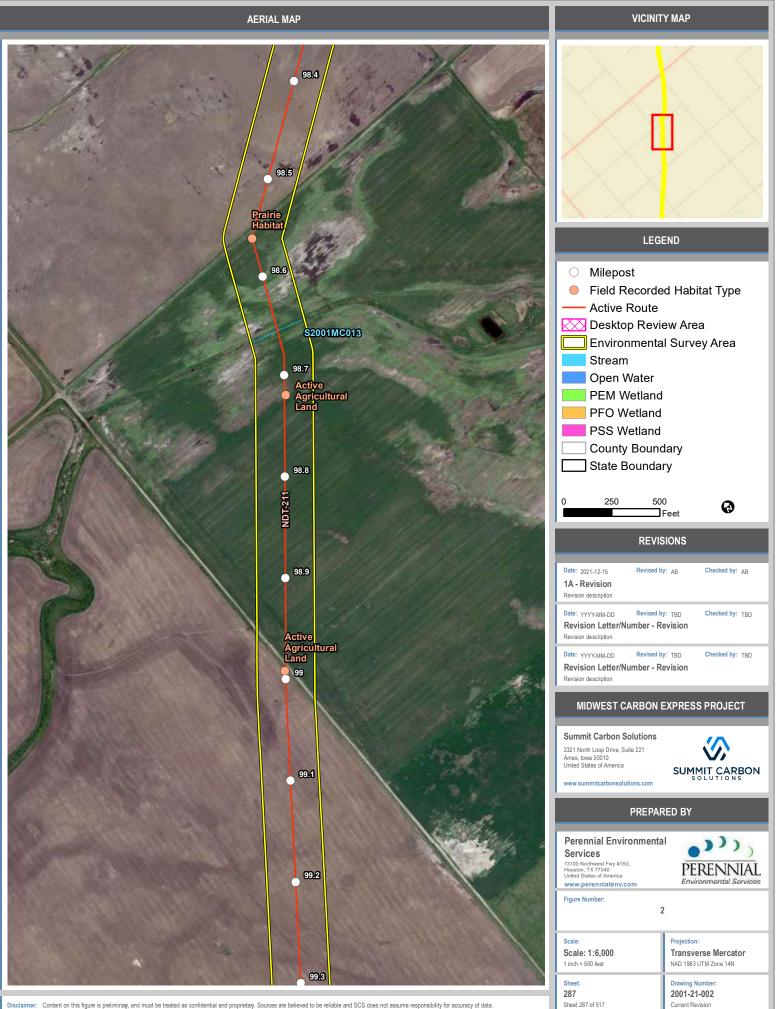


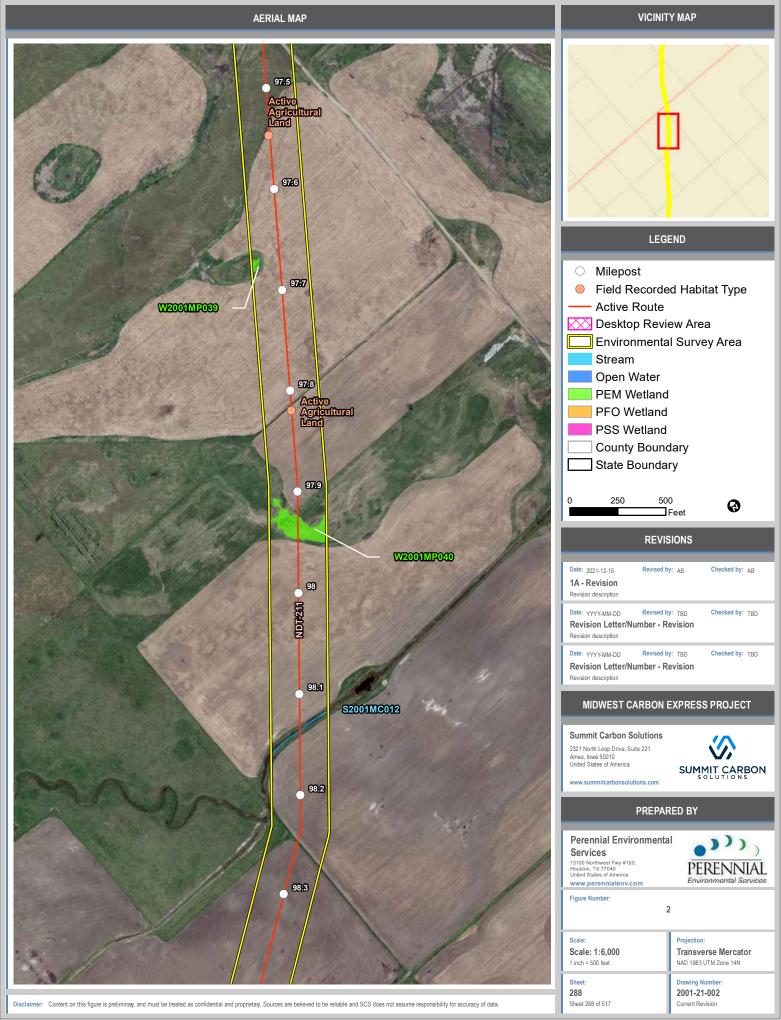


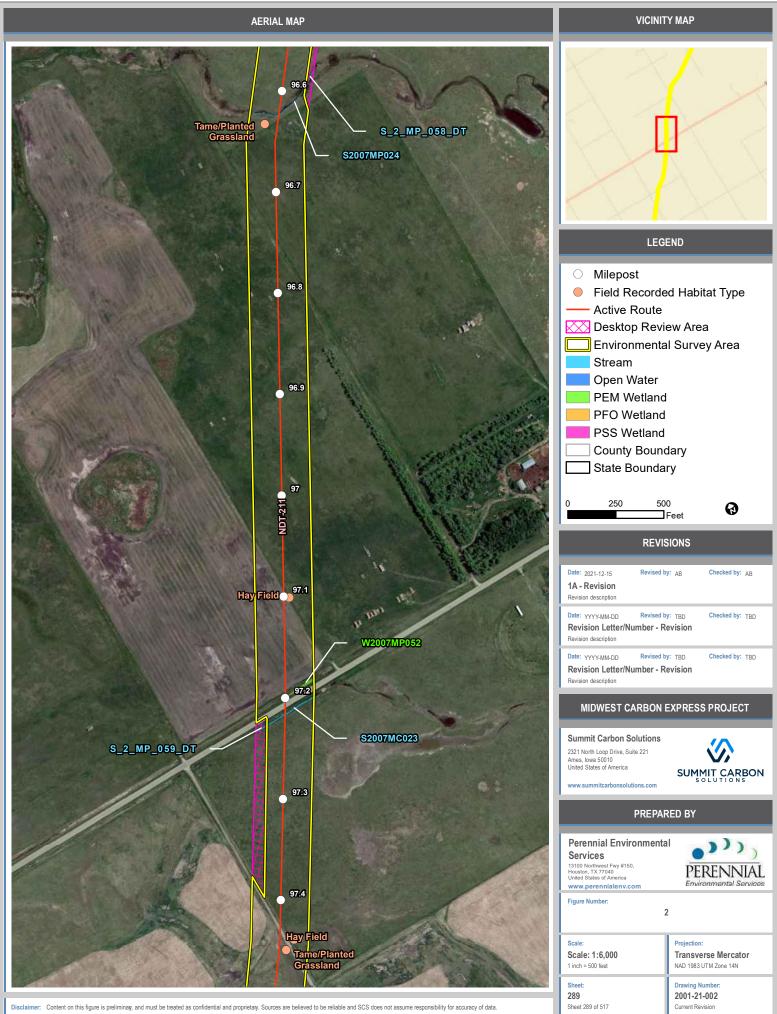


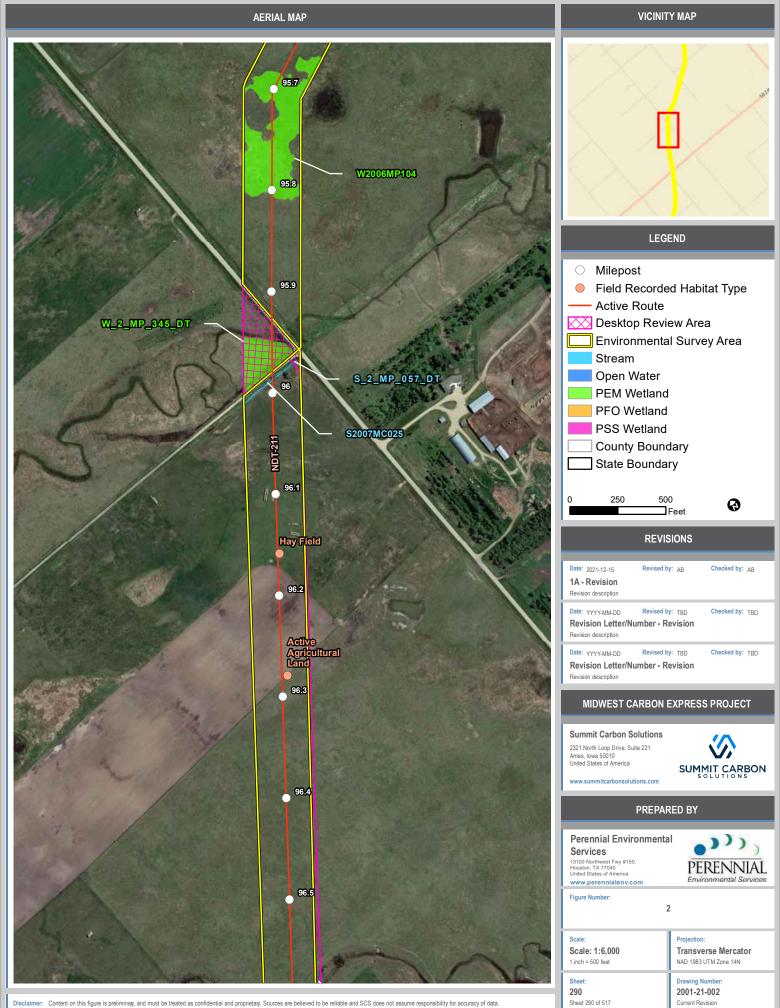




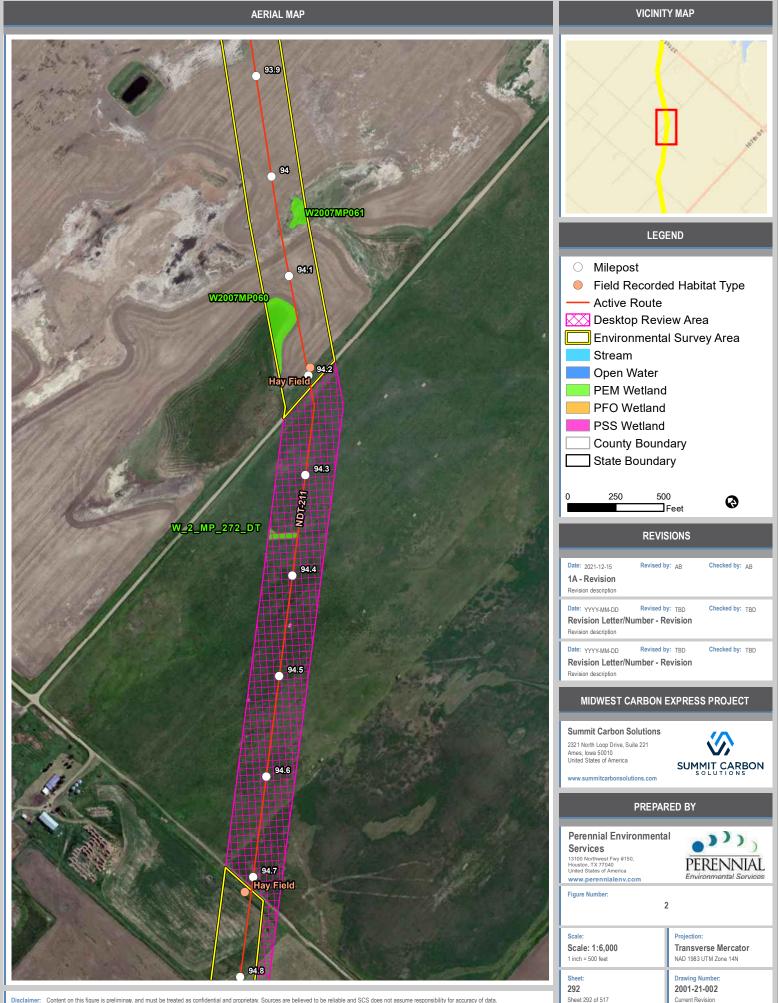








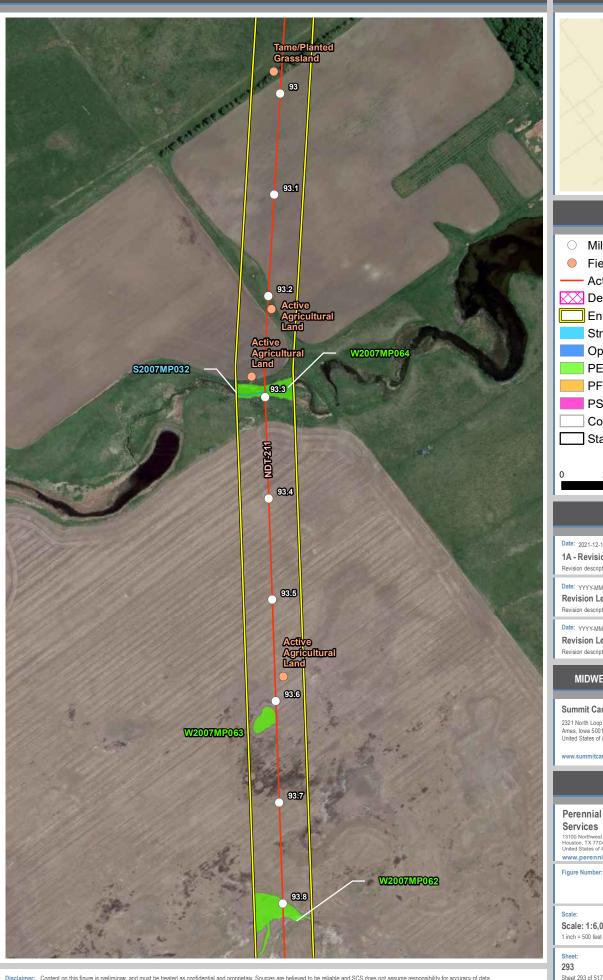


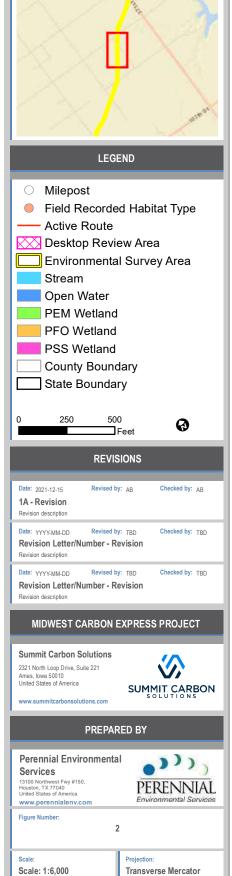


Current Revision

## AERIAL MAP

## VICINITY MAP



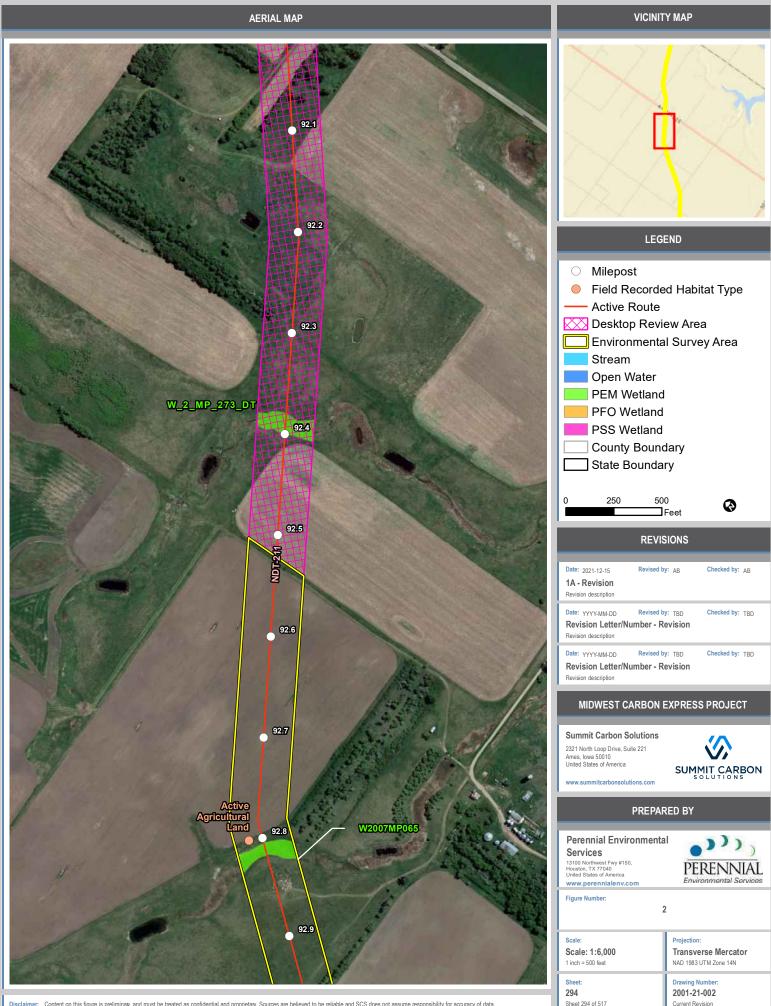


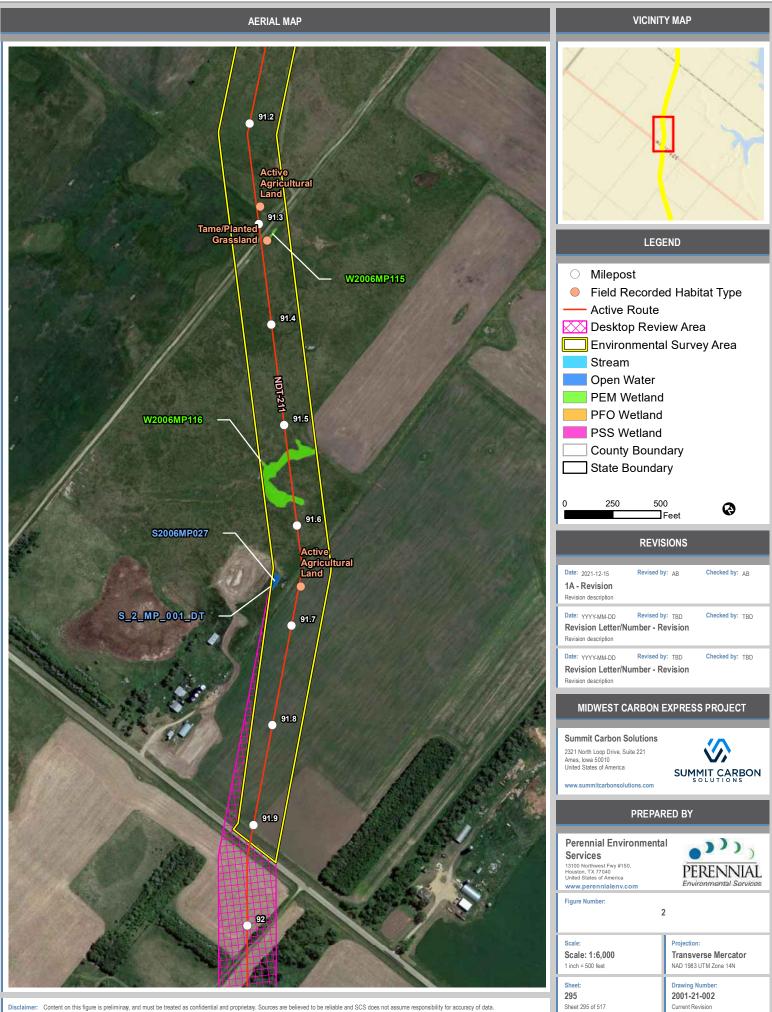
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Drawing Number:

2001-21-002

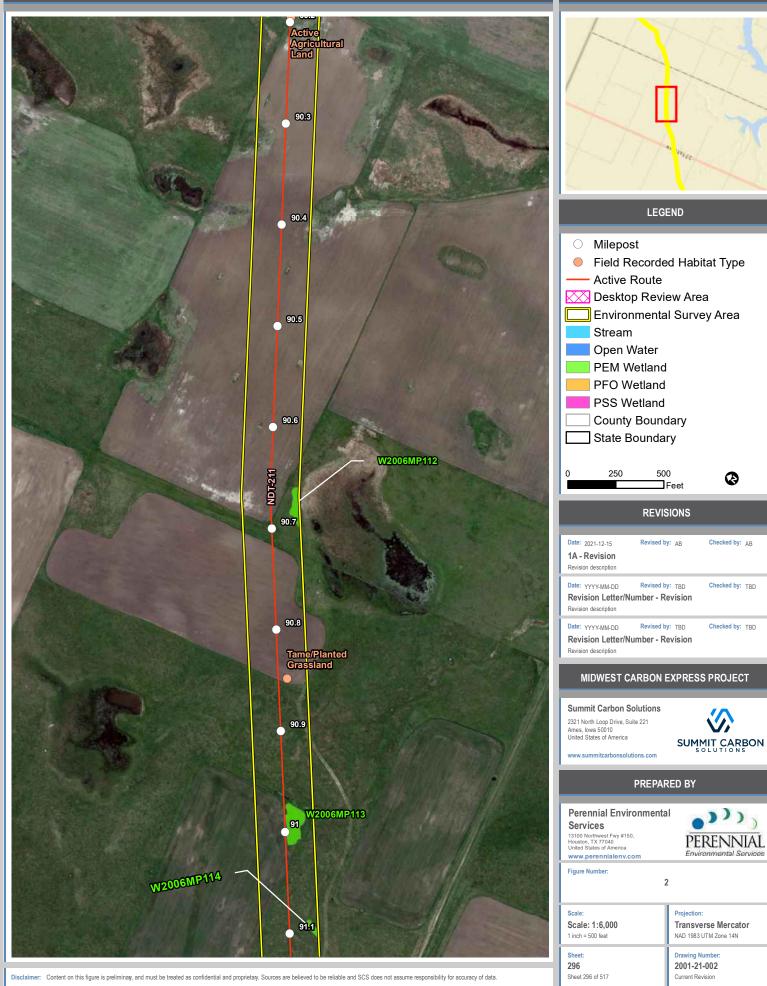
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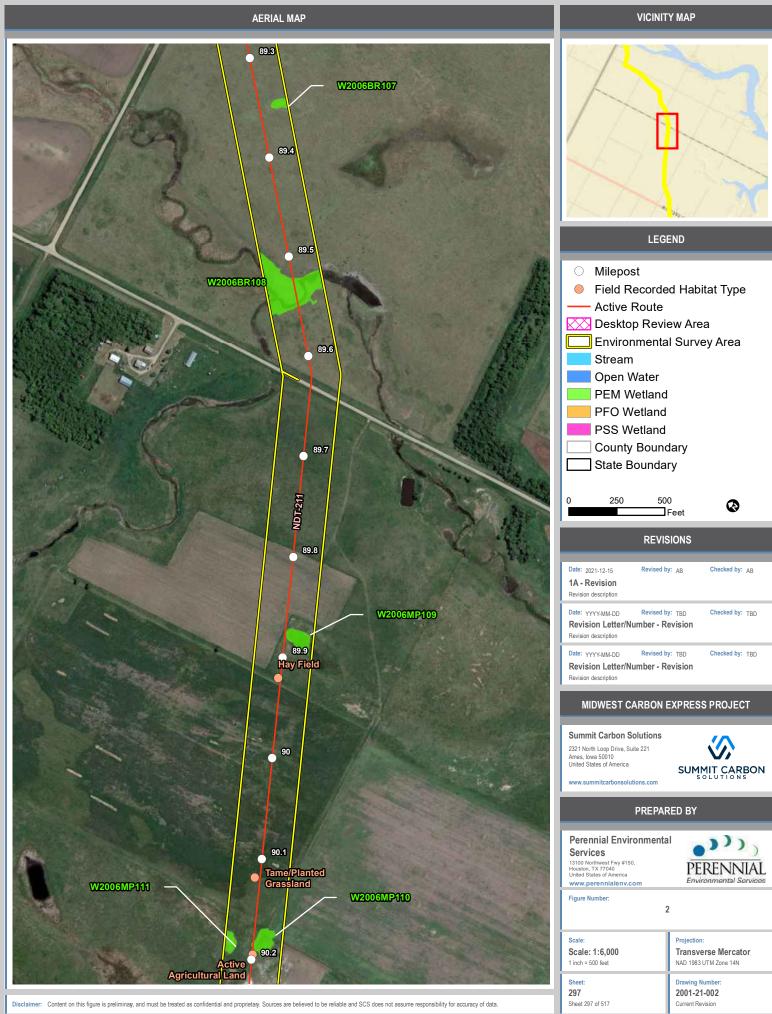


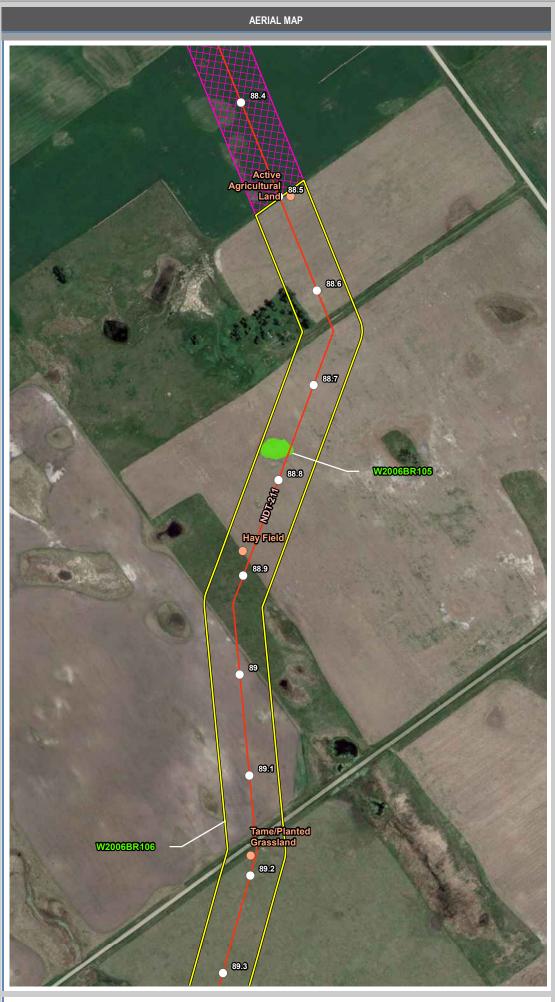


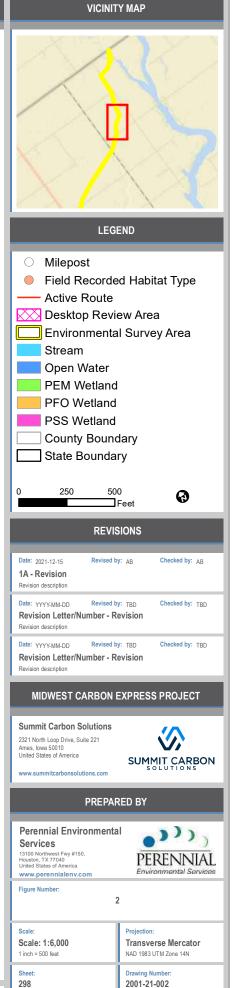
## AERIAL MAP

## VICINITY MAP





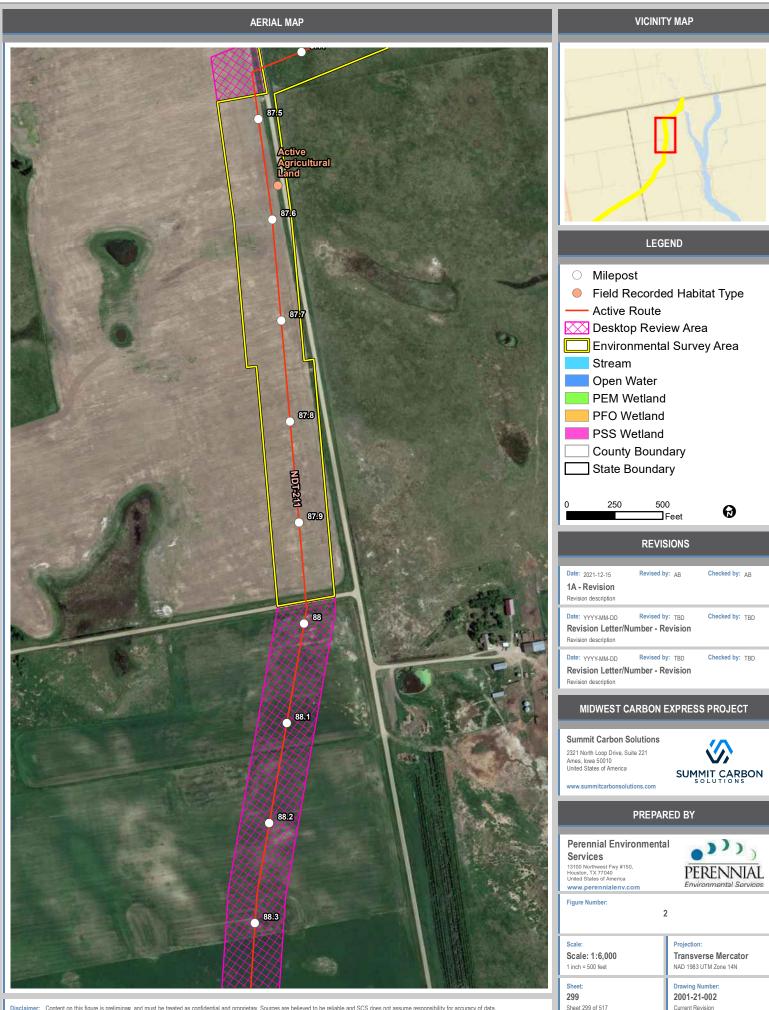


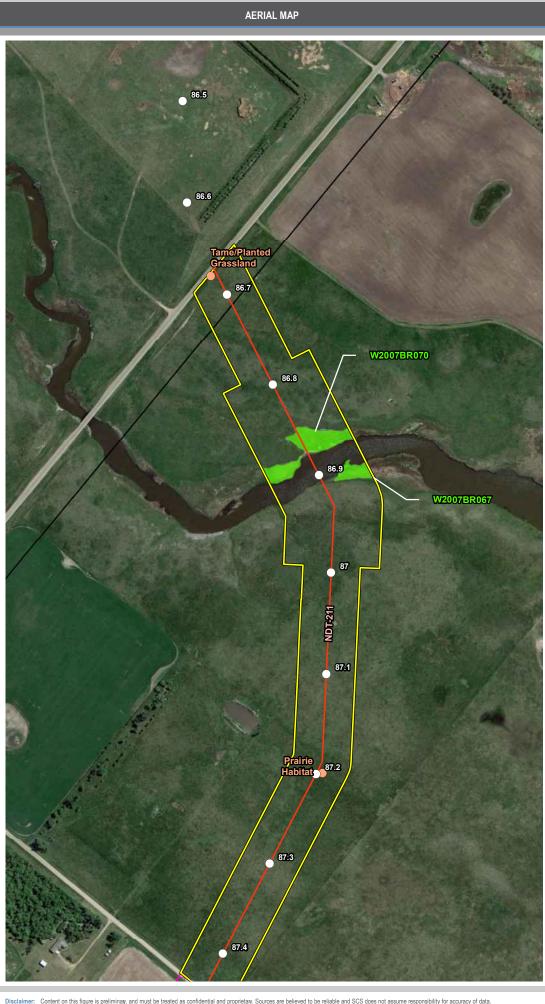


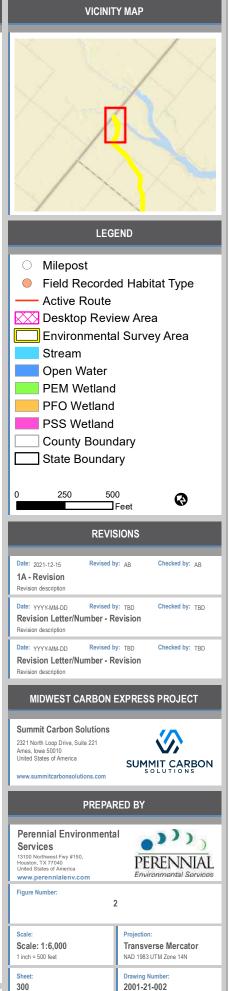
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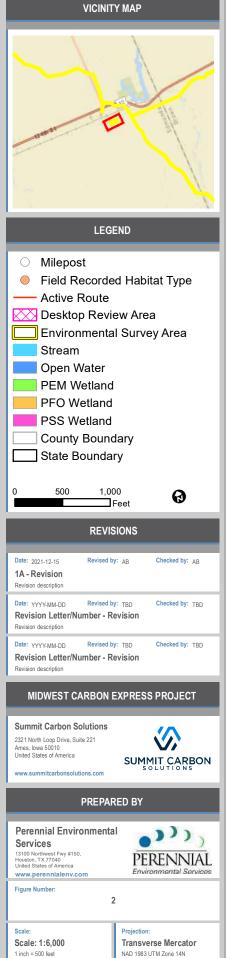




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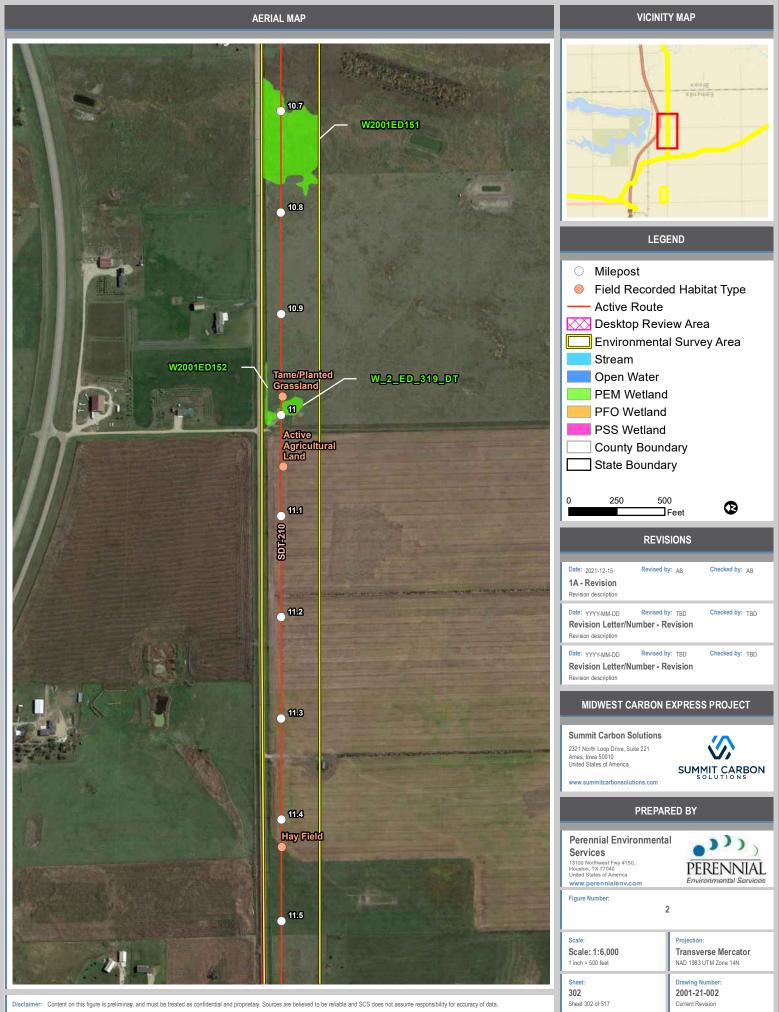


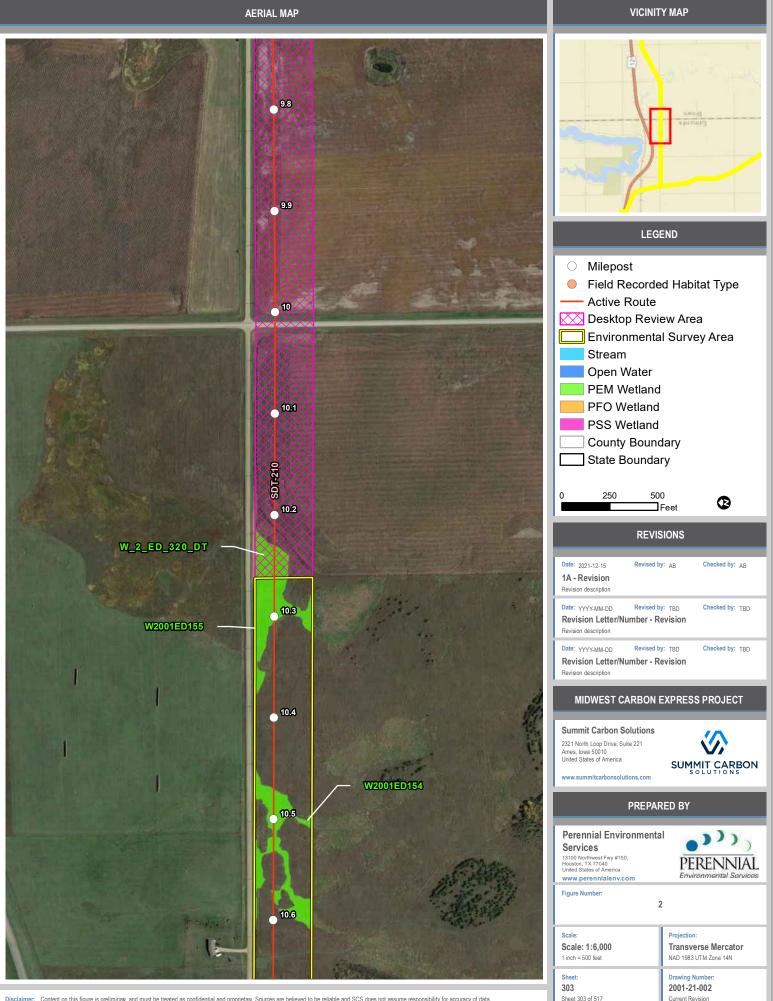


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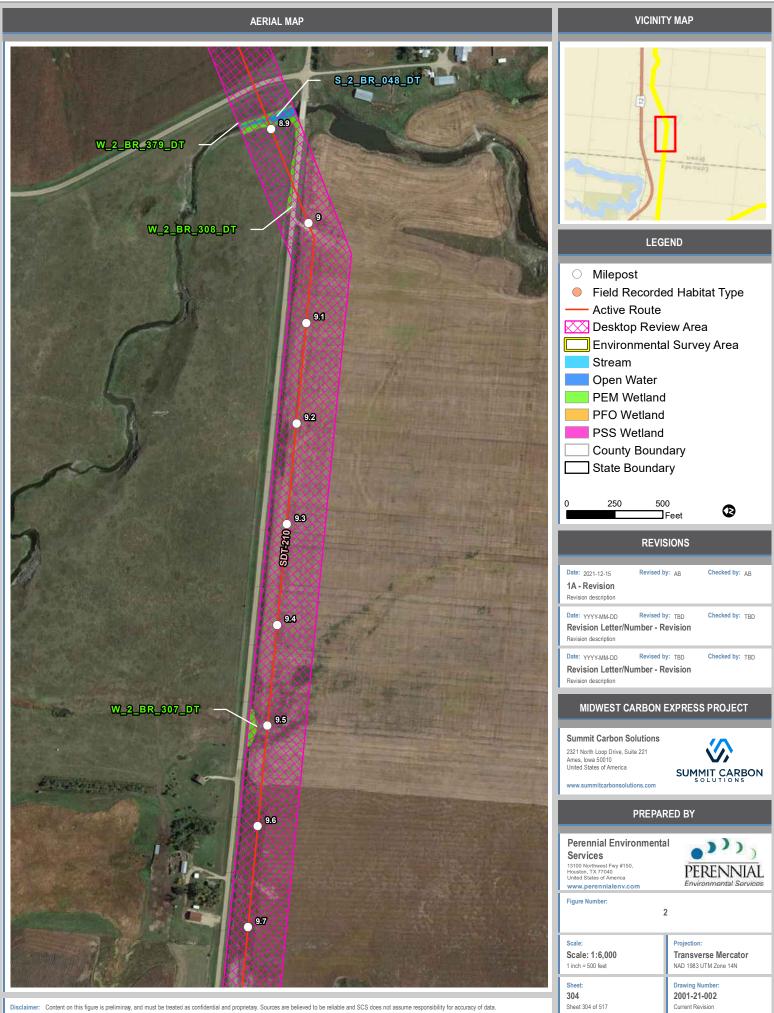
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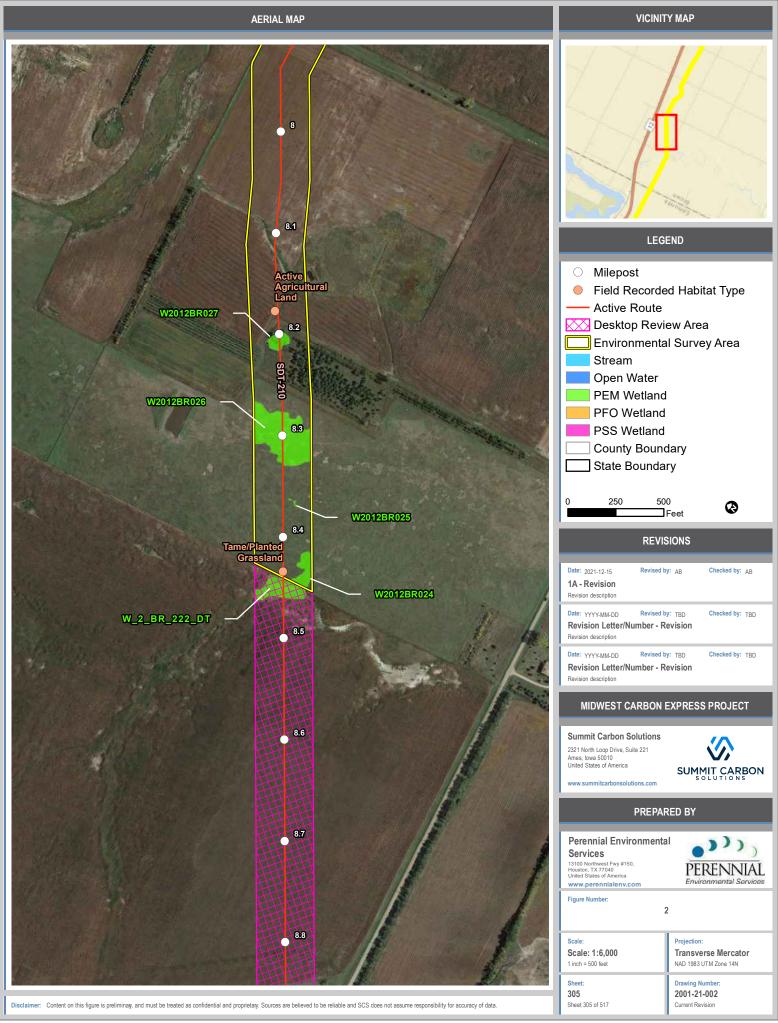
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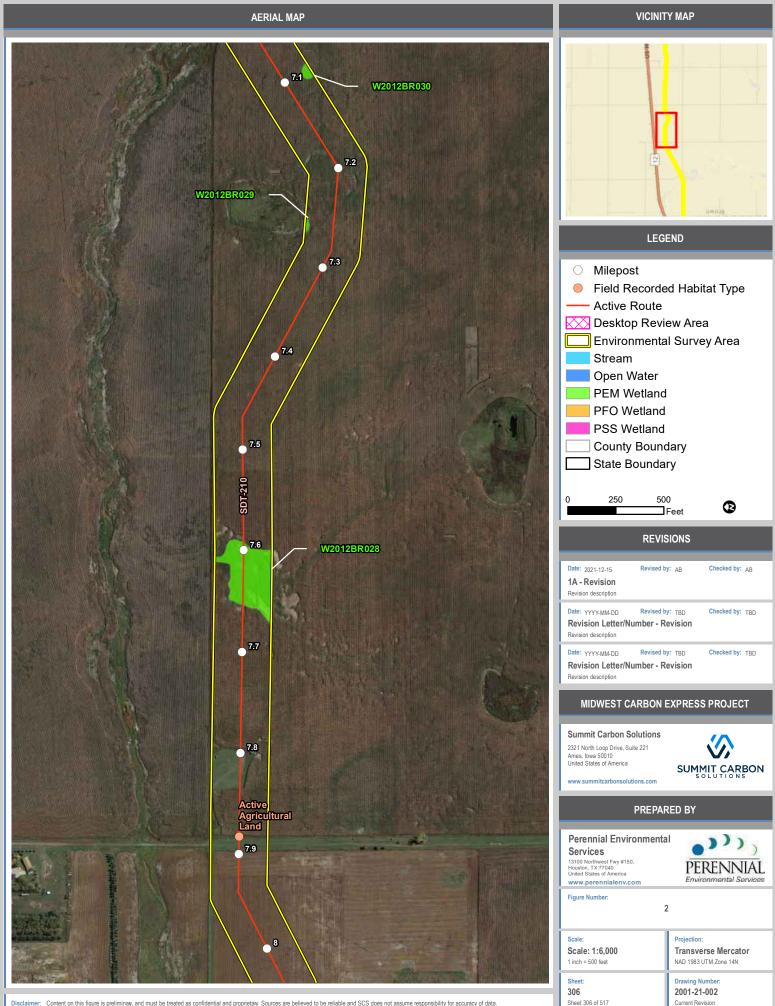


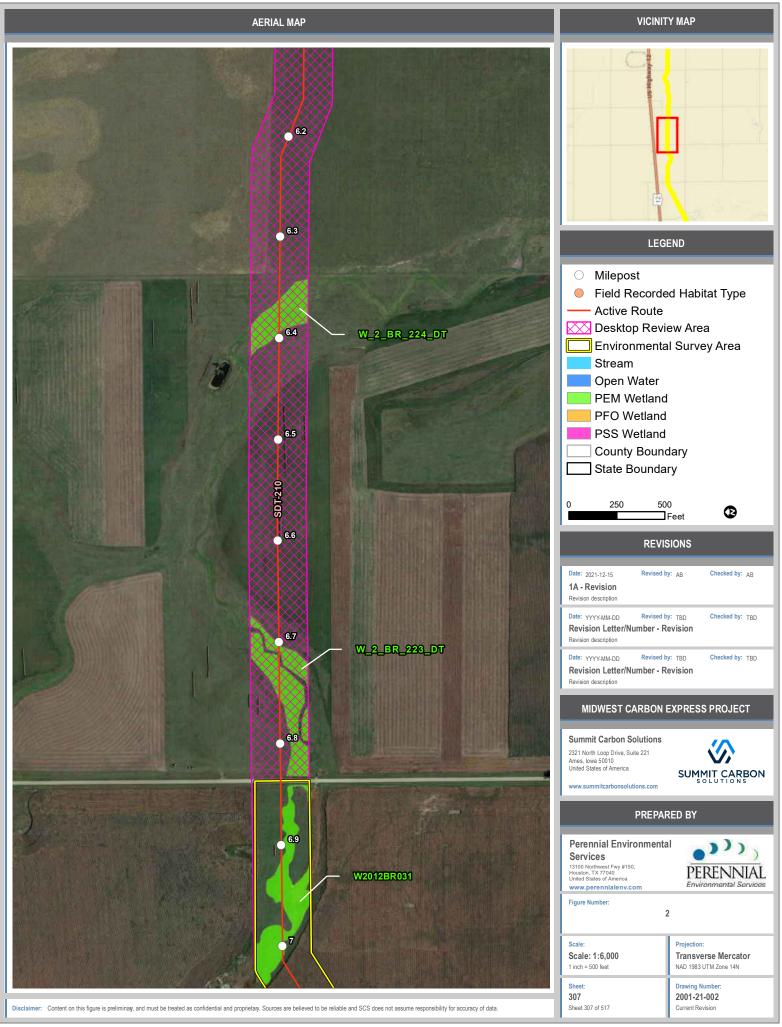


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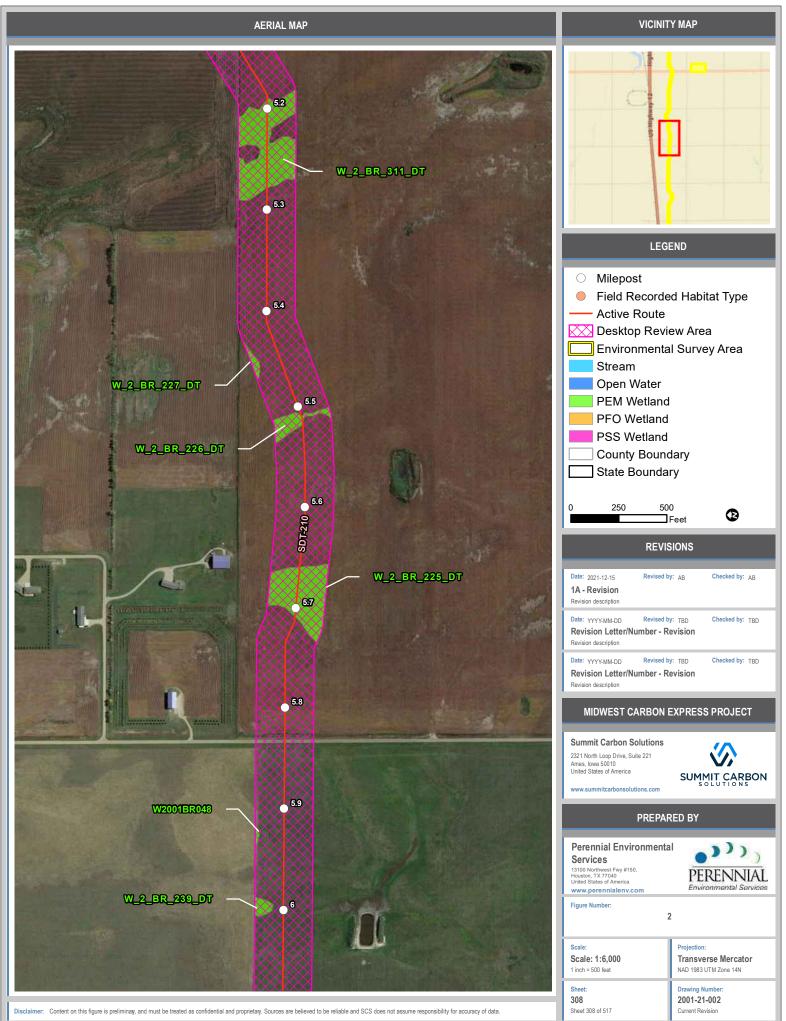




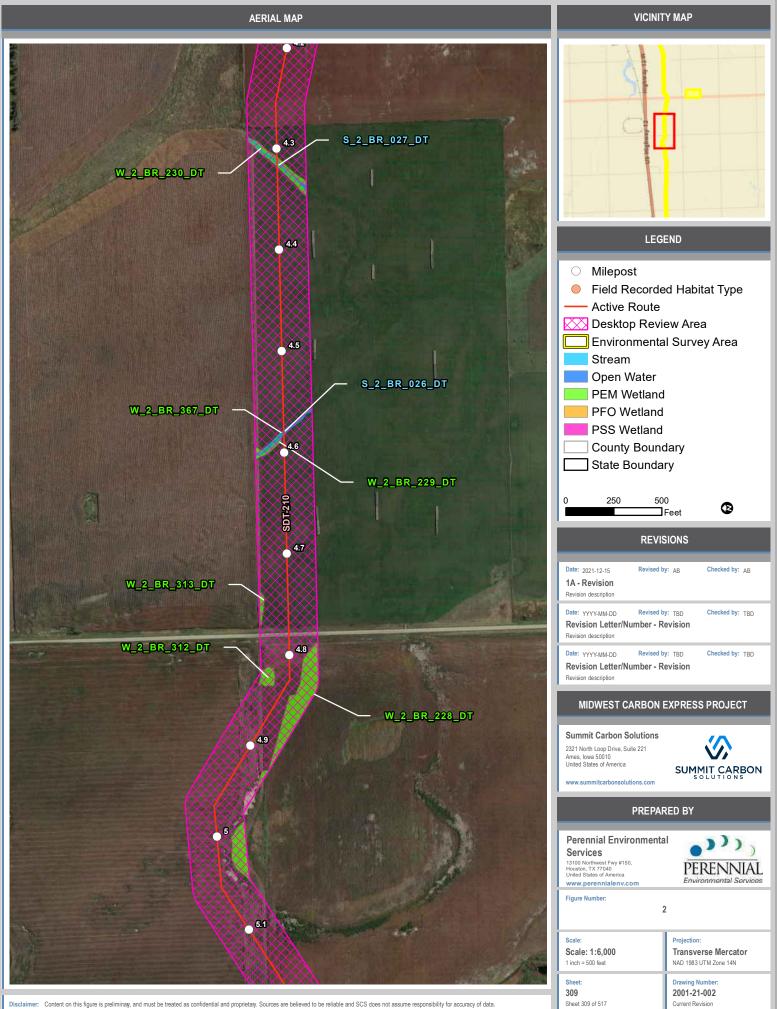


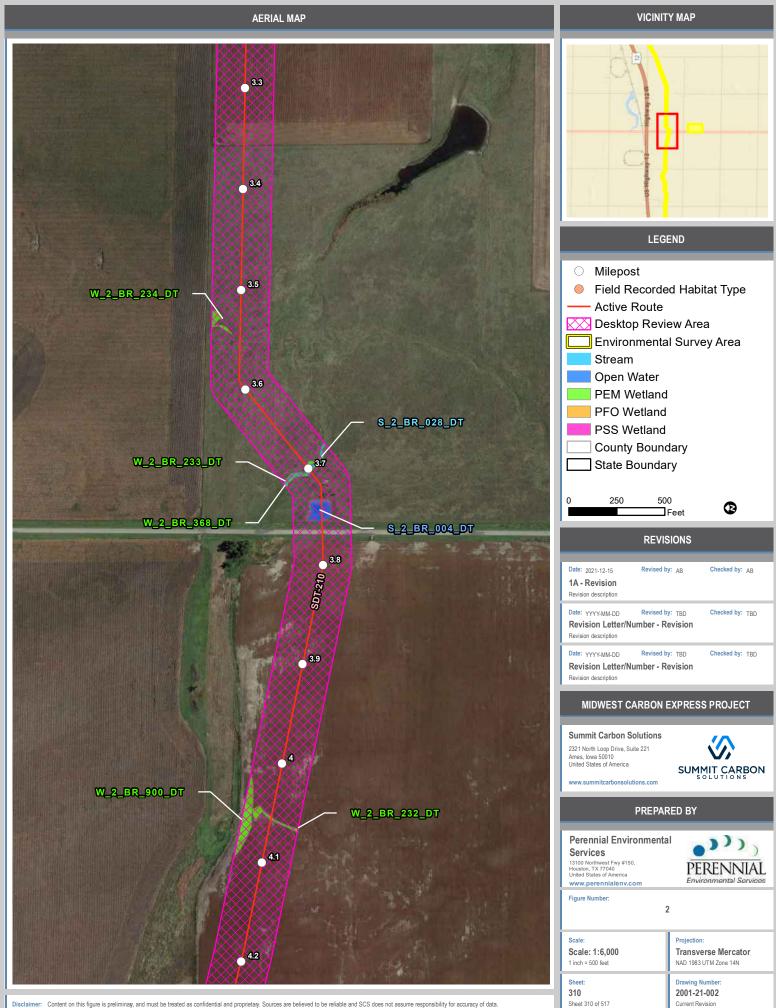


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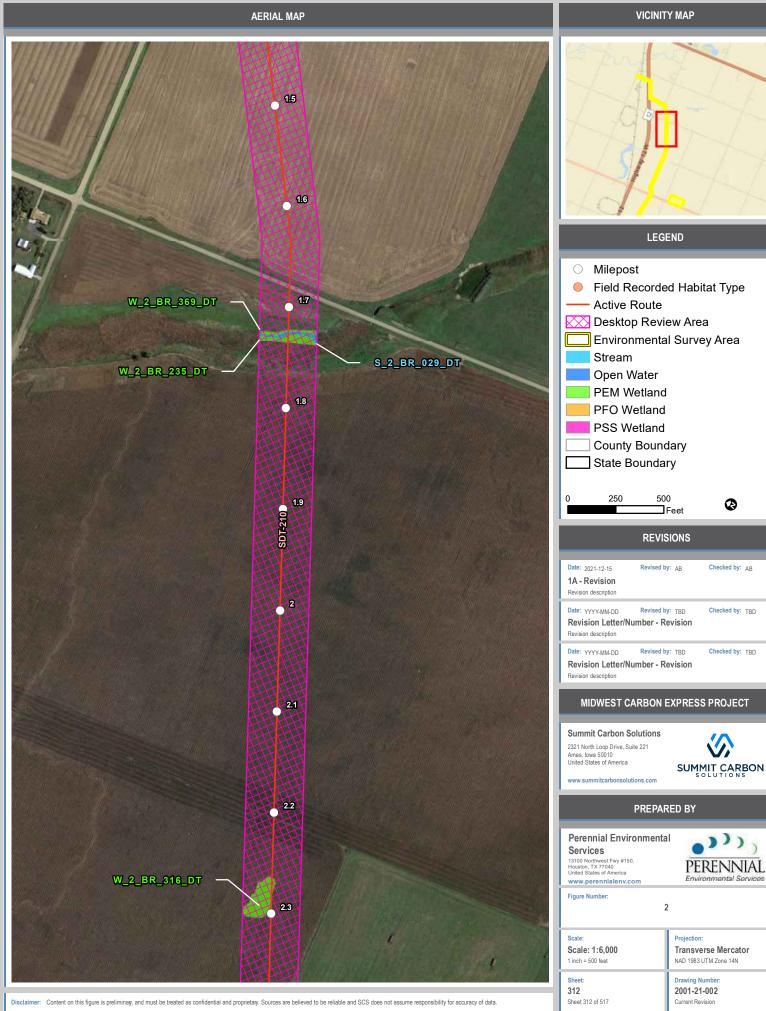


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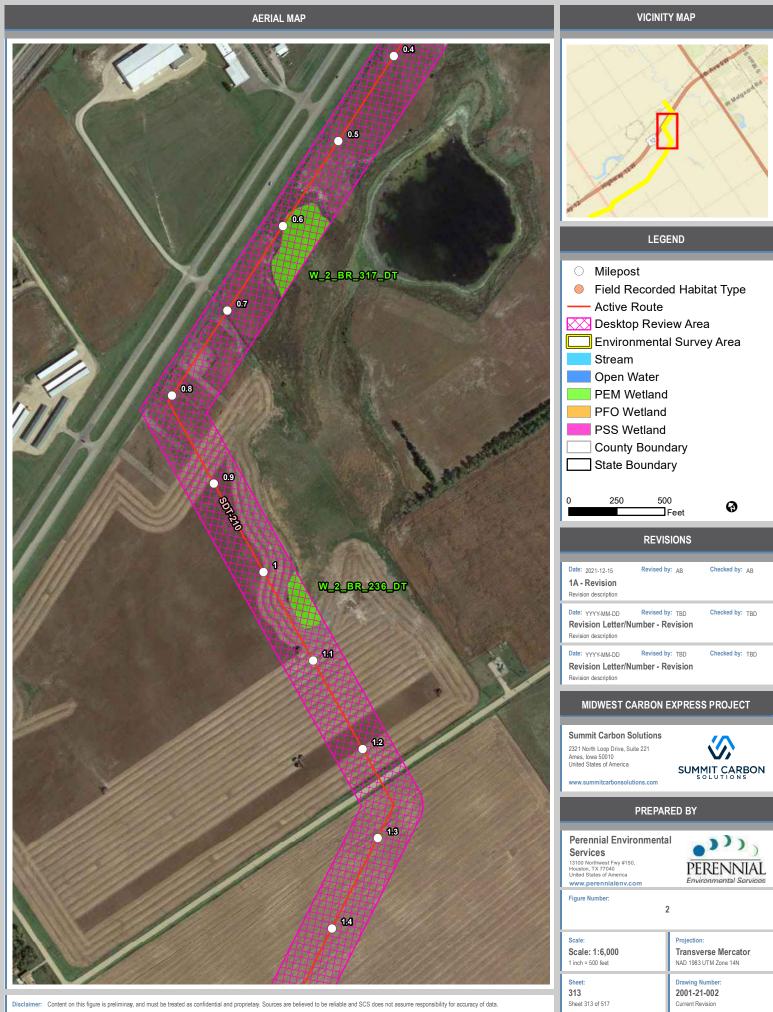




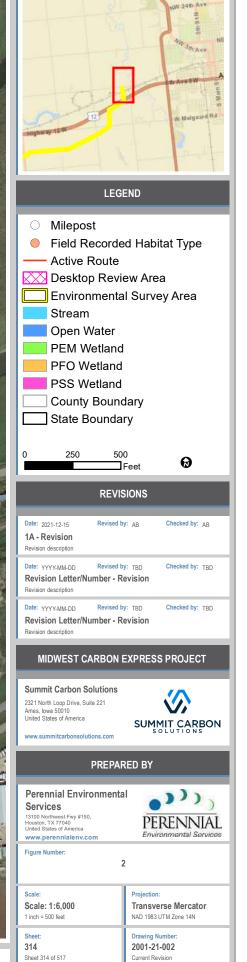




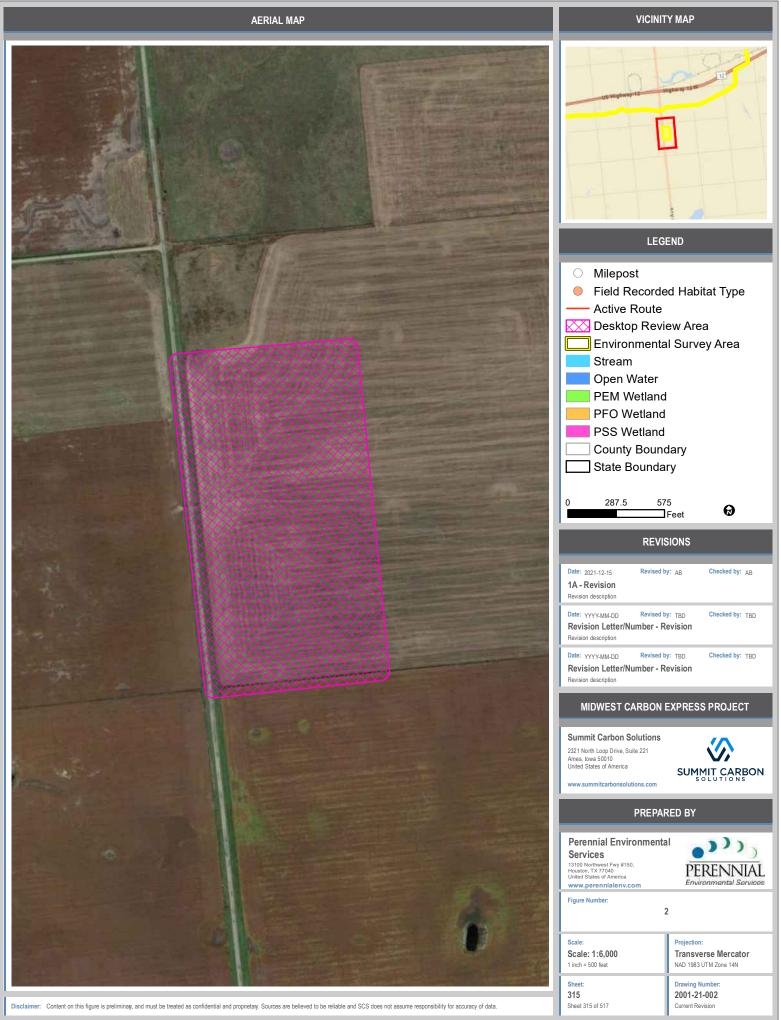
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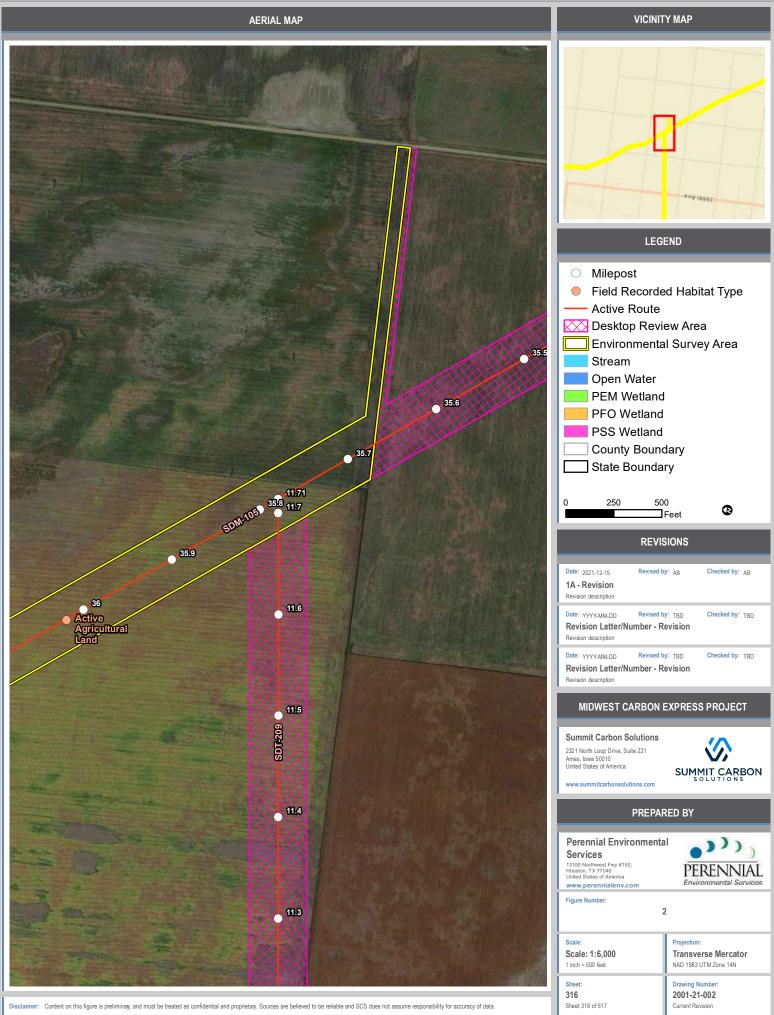






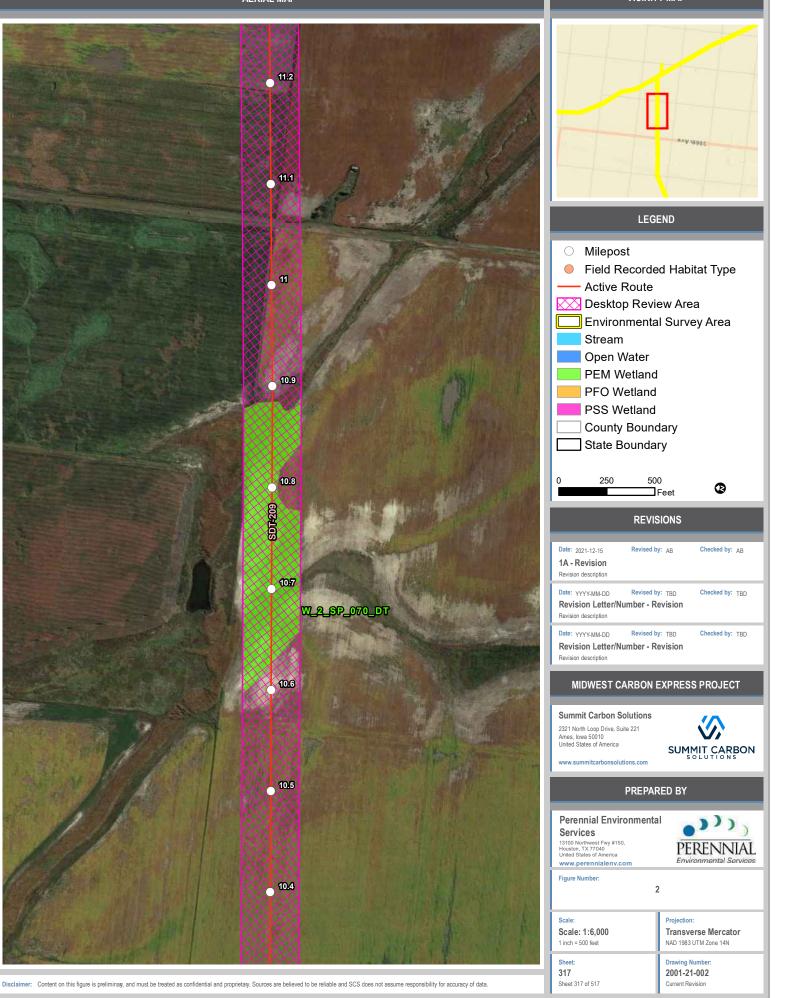
VICINITY MAP

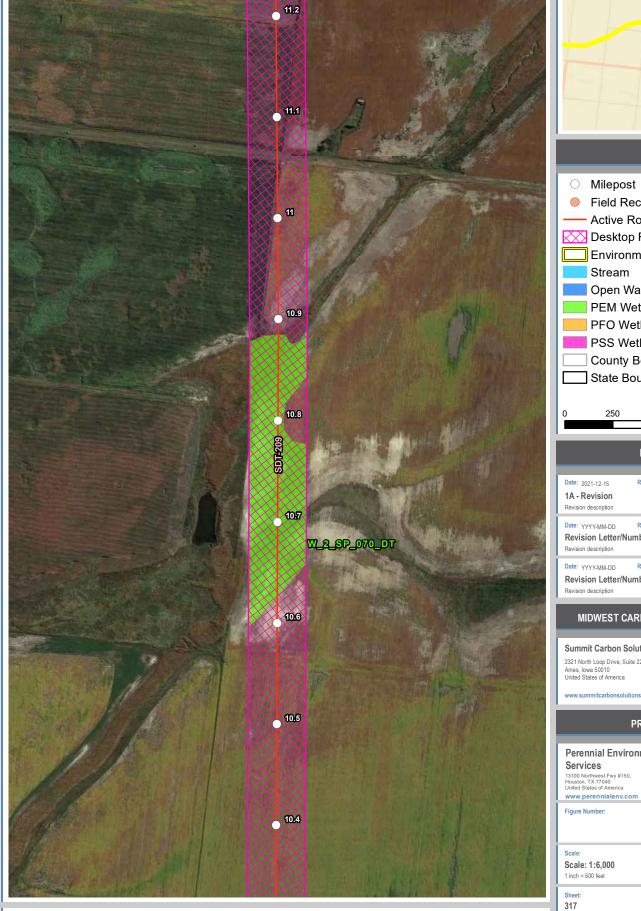


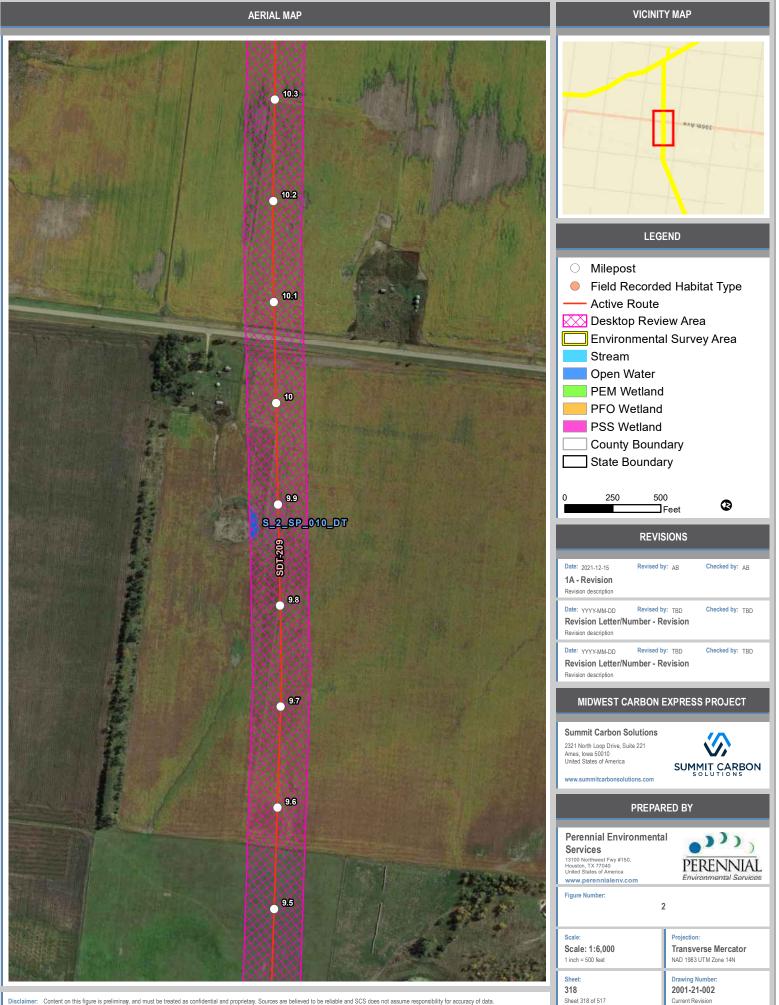


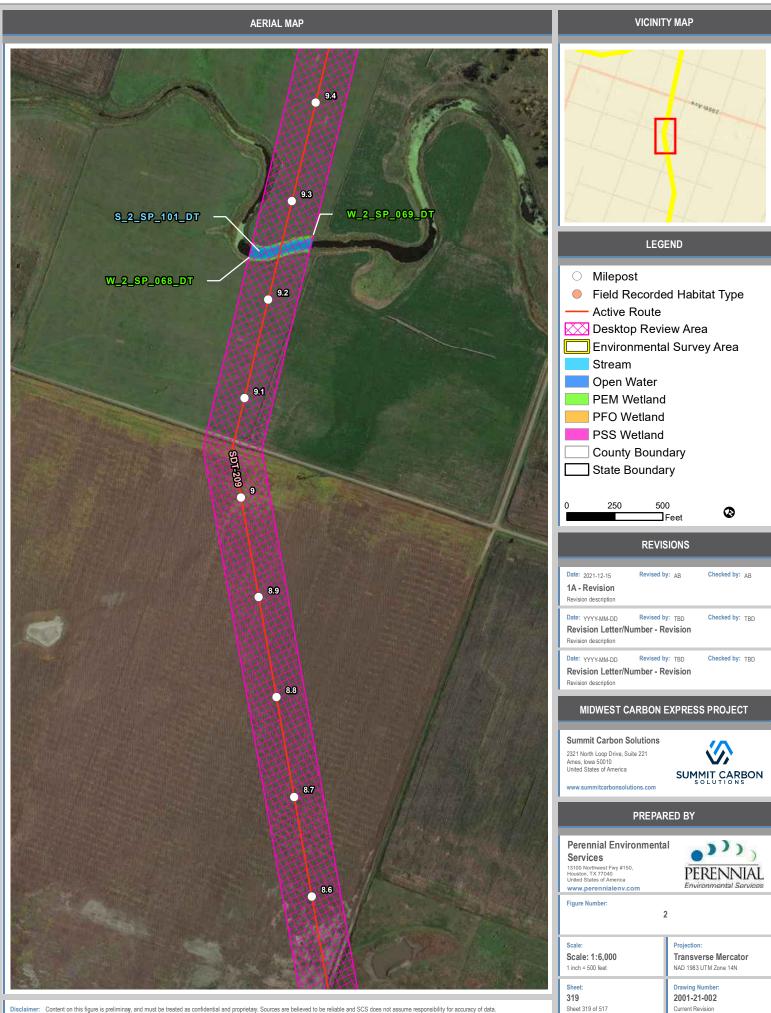


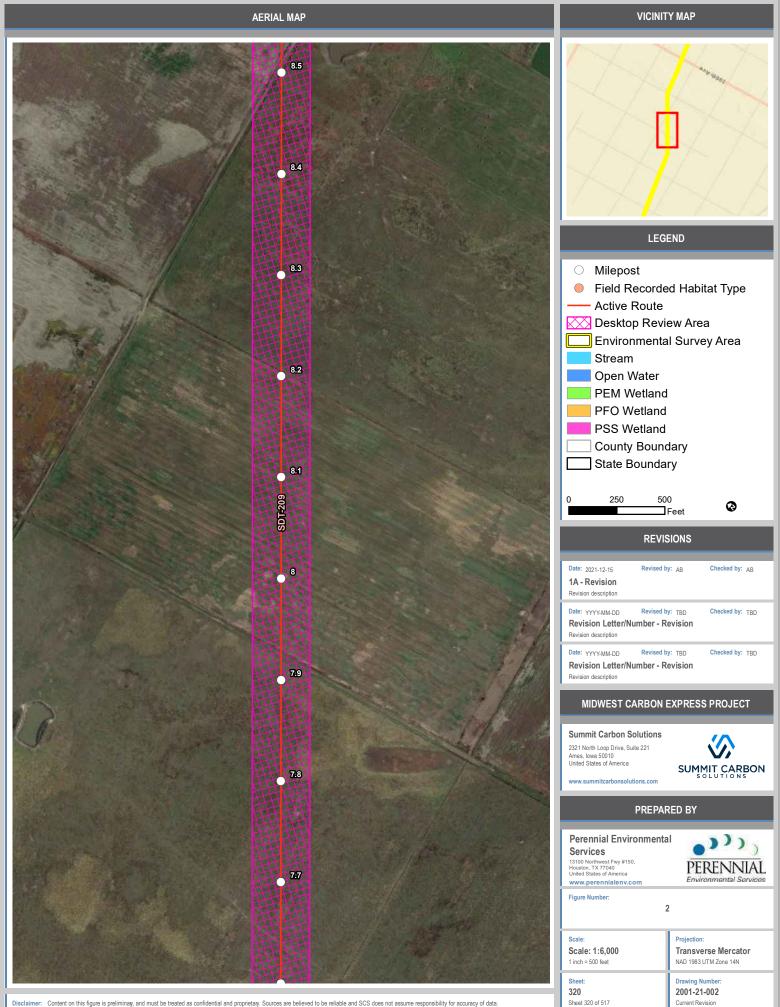




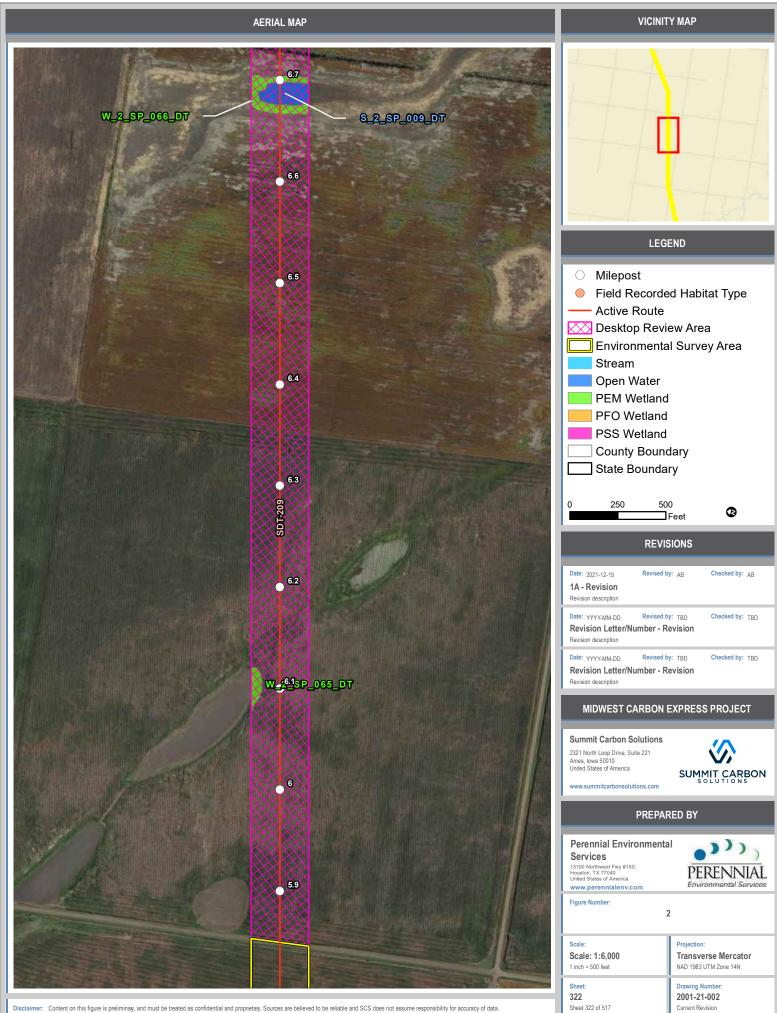




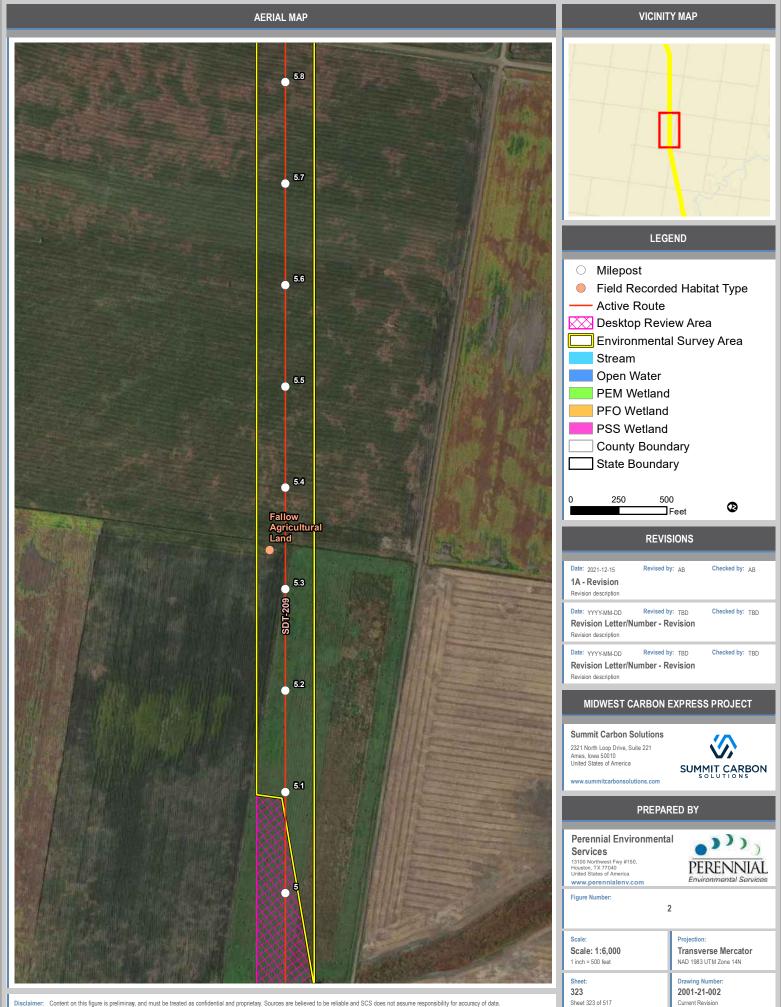


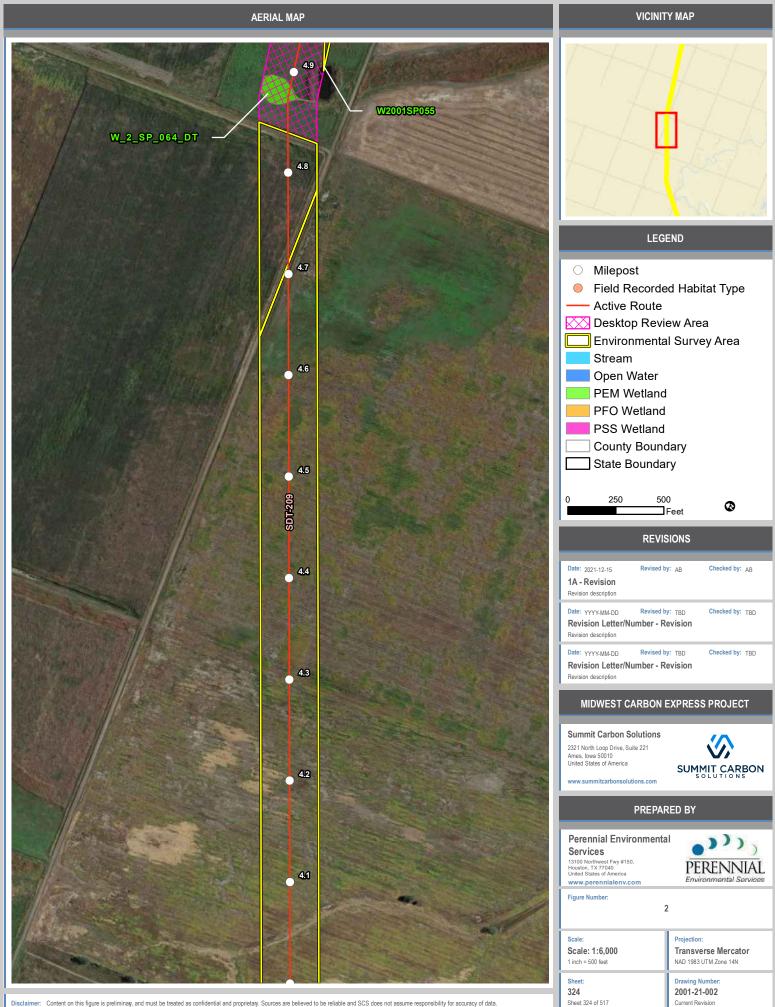


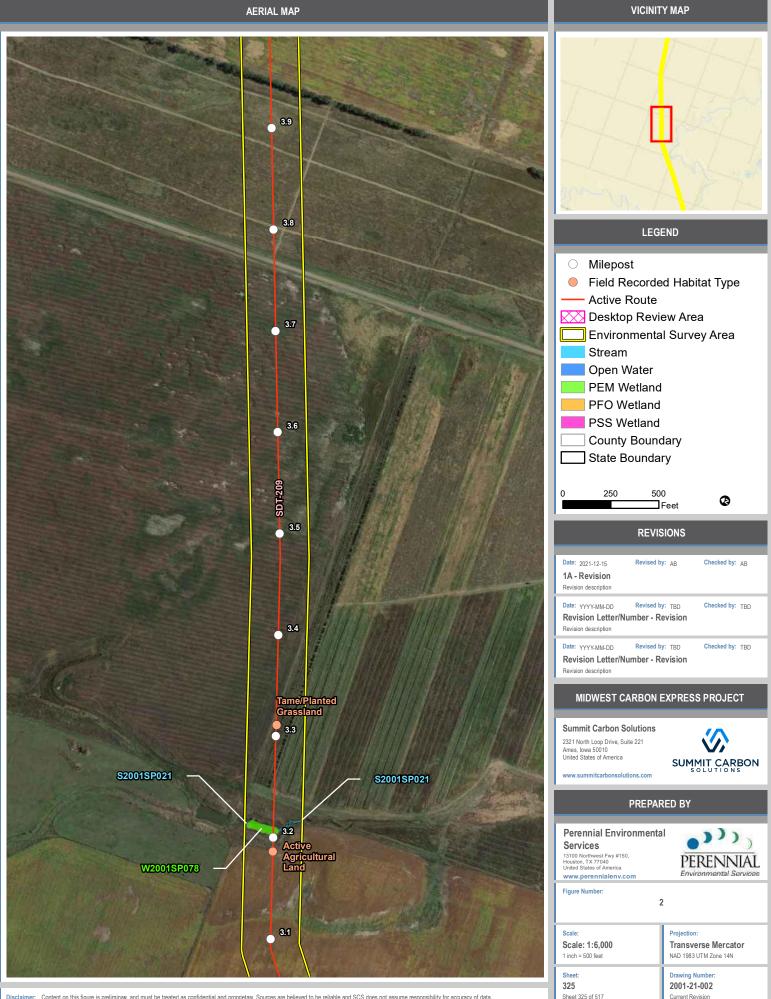




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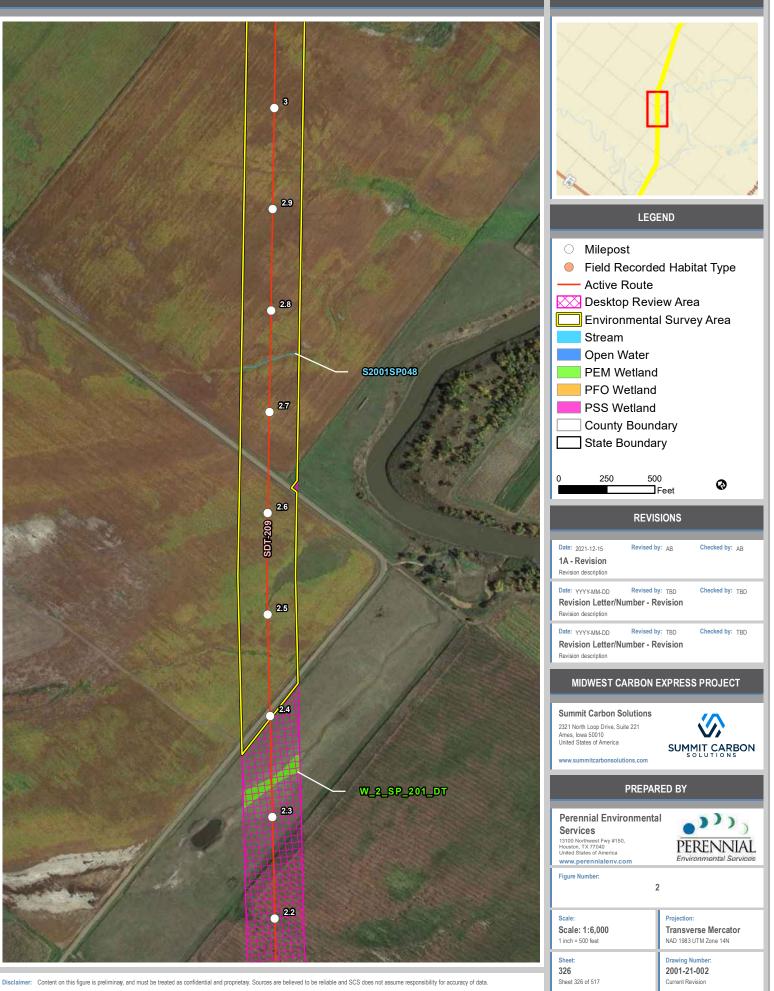


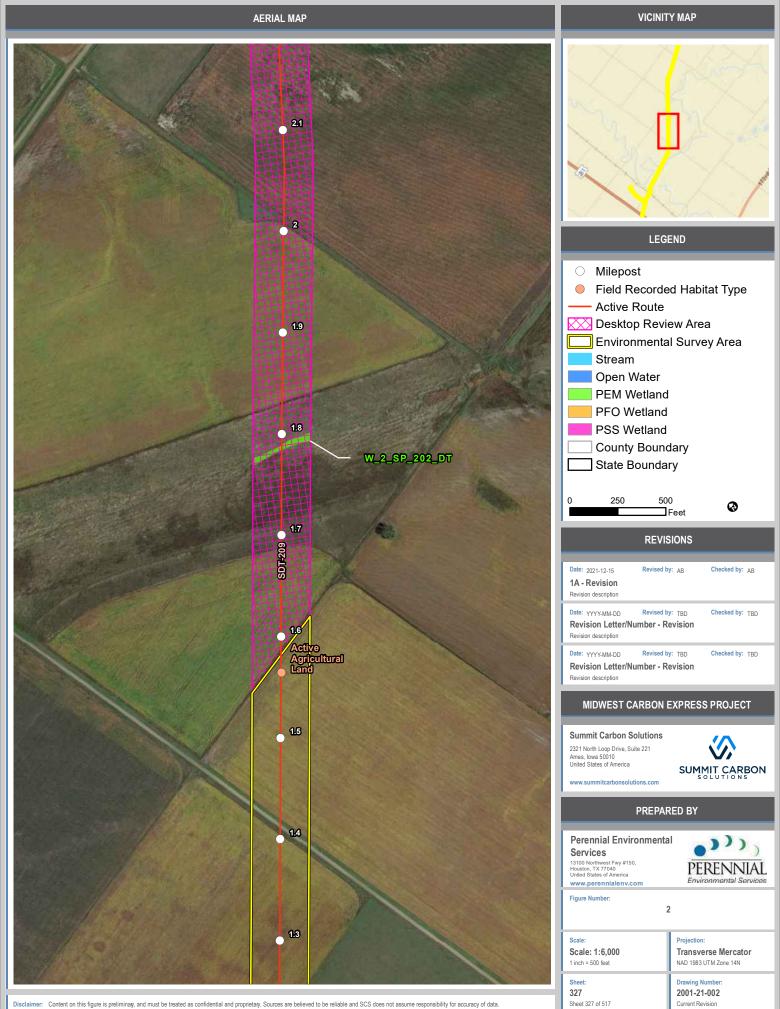


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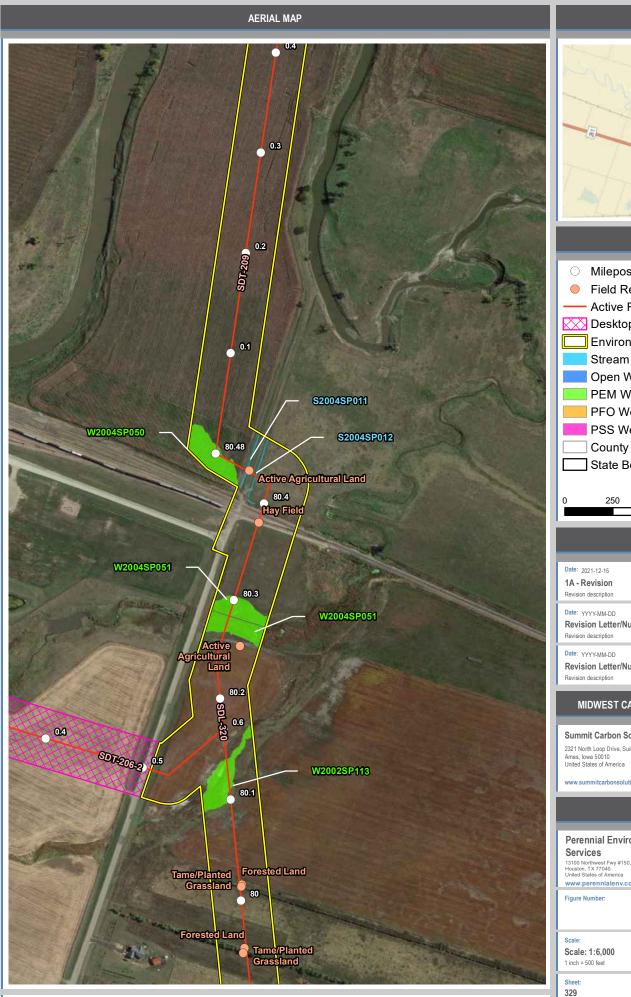
## AERIAL MAP

## VICINITY MAP









LEGEND Milepost Field Recorded Habitat Type Active Route Desktop Review Area Environmental Survey Area Stream Open Water **PEM Wetland PFO Wetland** PSS Wetland **County Boundary** State Boundary 250 500 Ø Feet REVISIONS Revised by: AB Checked by: AB Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** MIDWEST CARBON EXPRESS PROJECT Summit Carbon Solutions 2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America SUMMIT CARBON summitcarbonsolutions.com PREPARED BY ,,,,, **Perennial Environmental** PERENNIAL

VICINITY MAP

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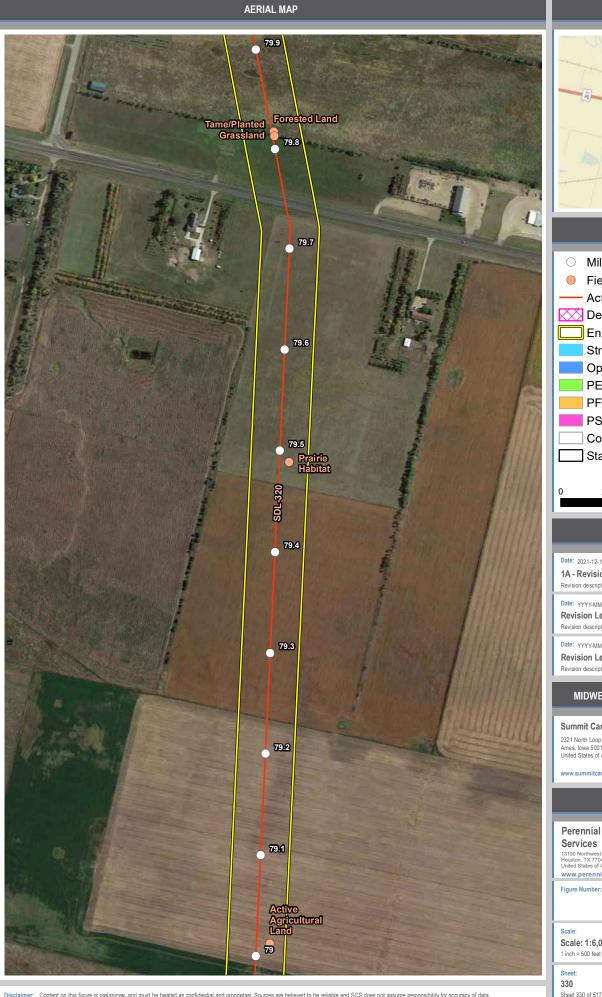
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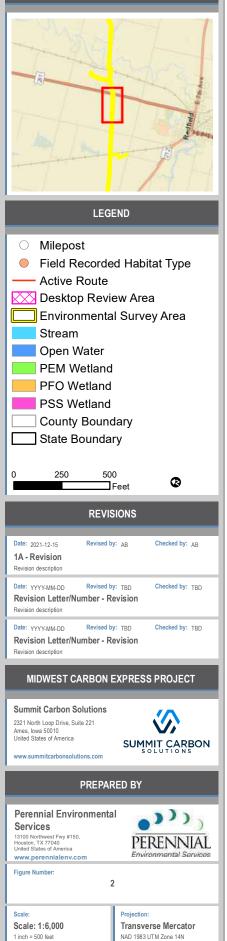
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2001-21-002

Current Revision

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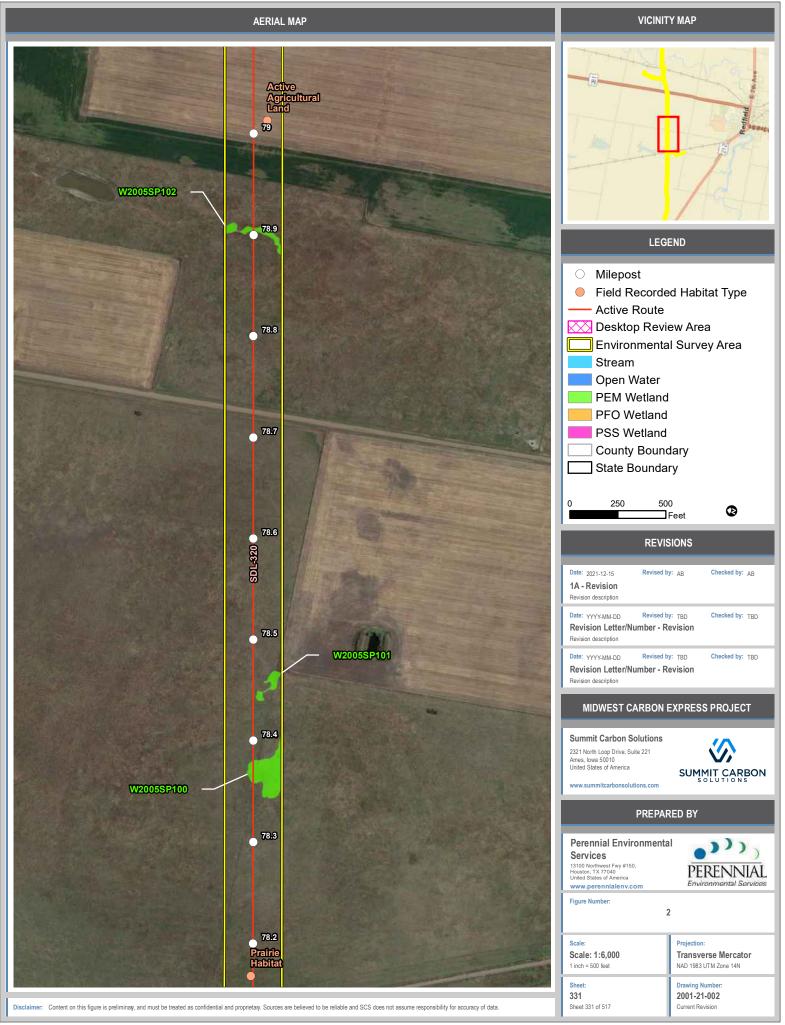


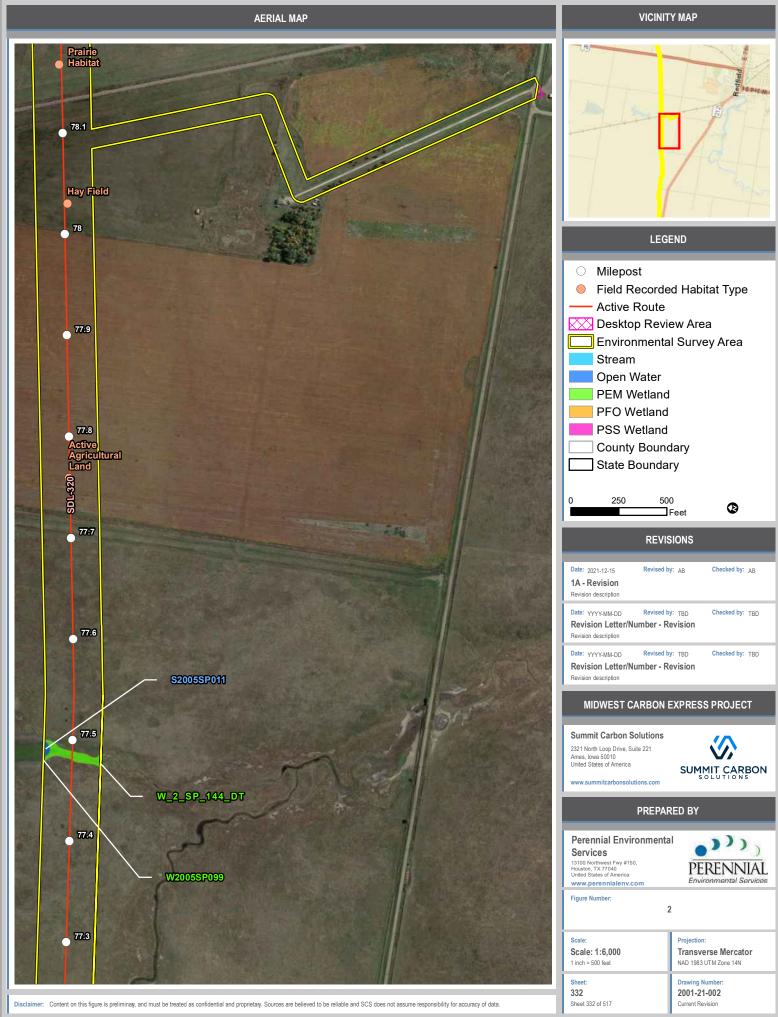
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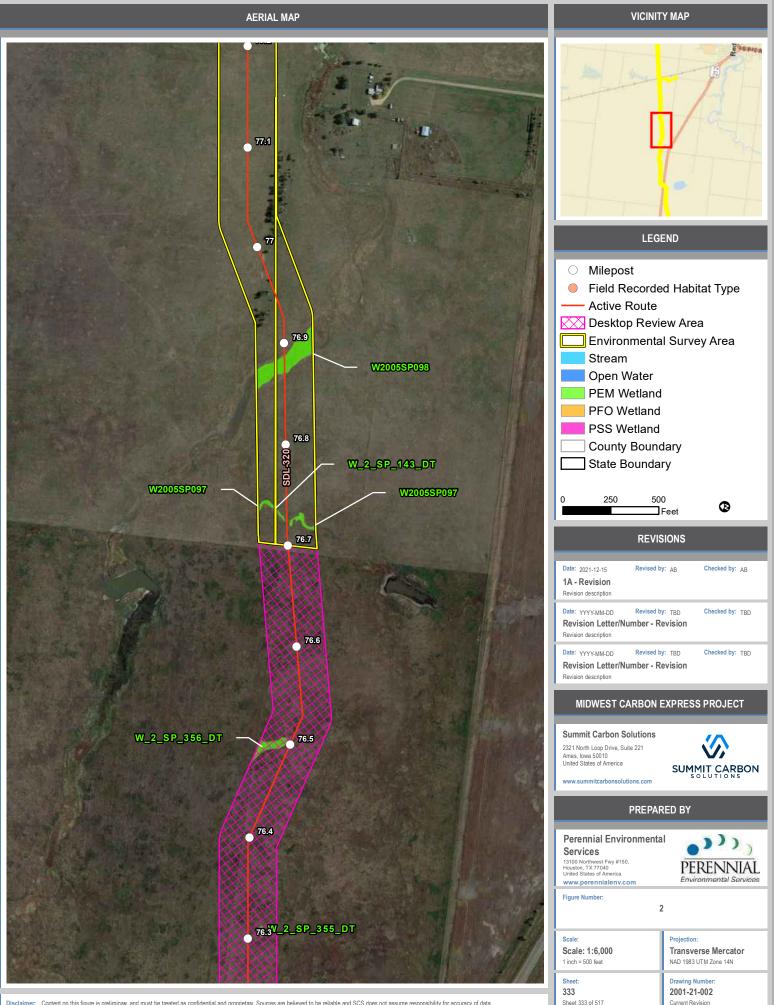
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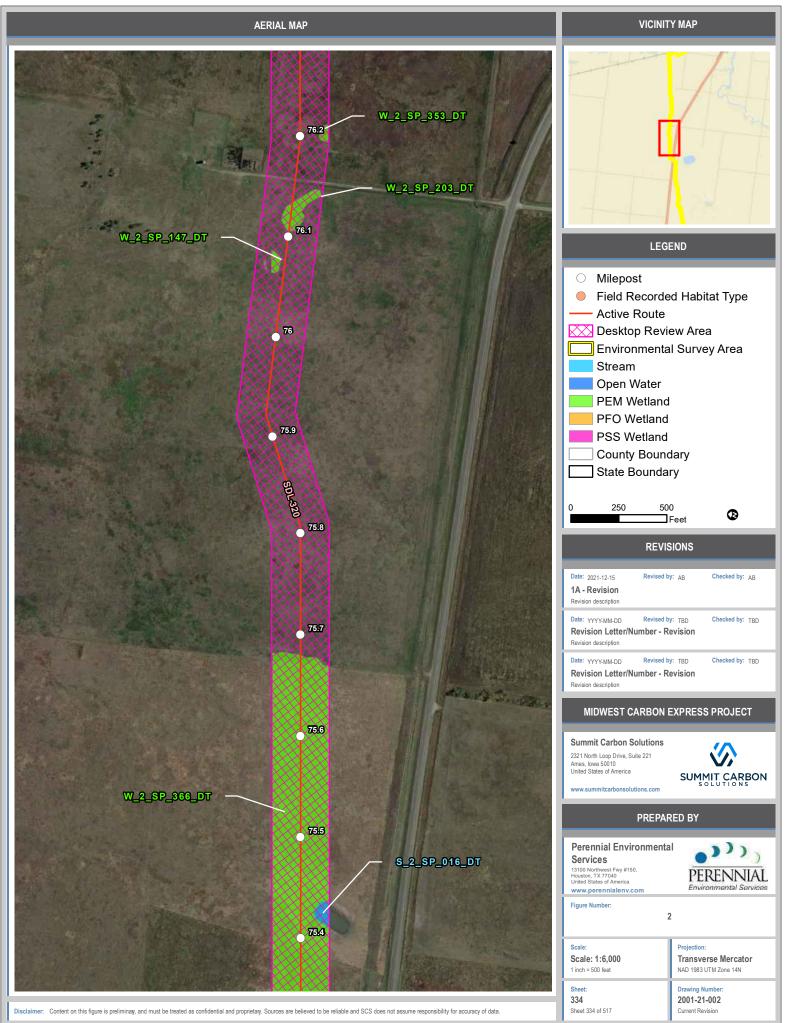
VICINITY MAP

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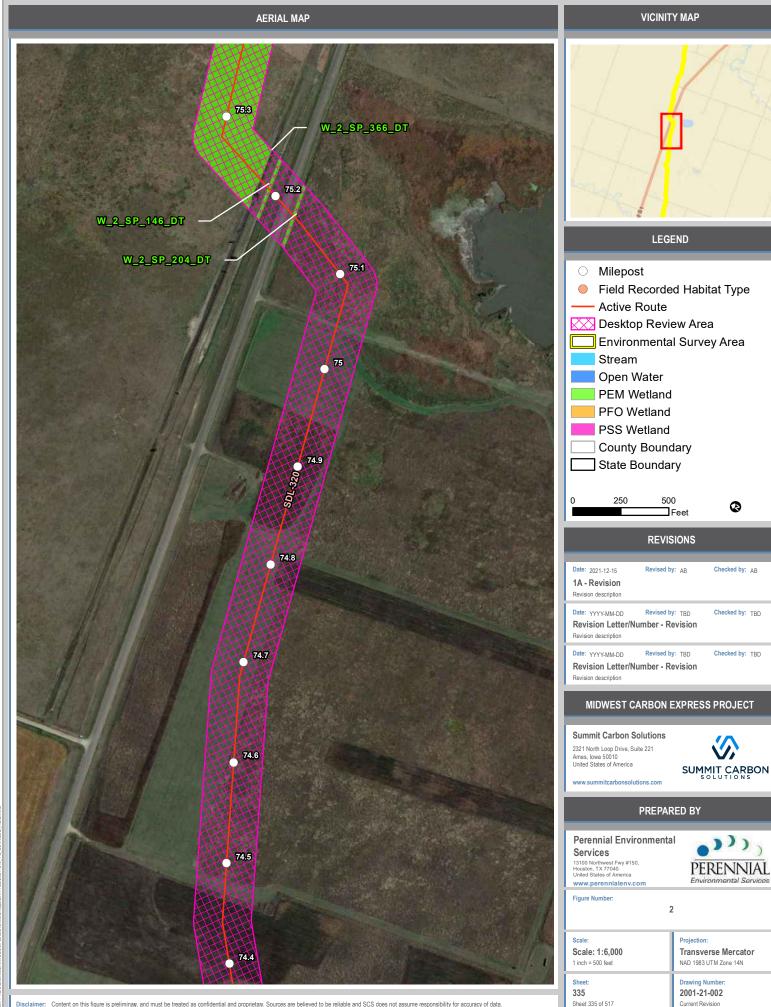


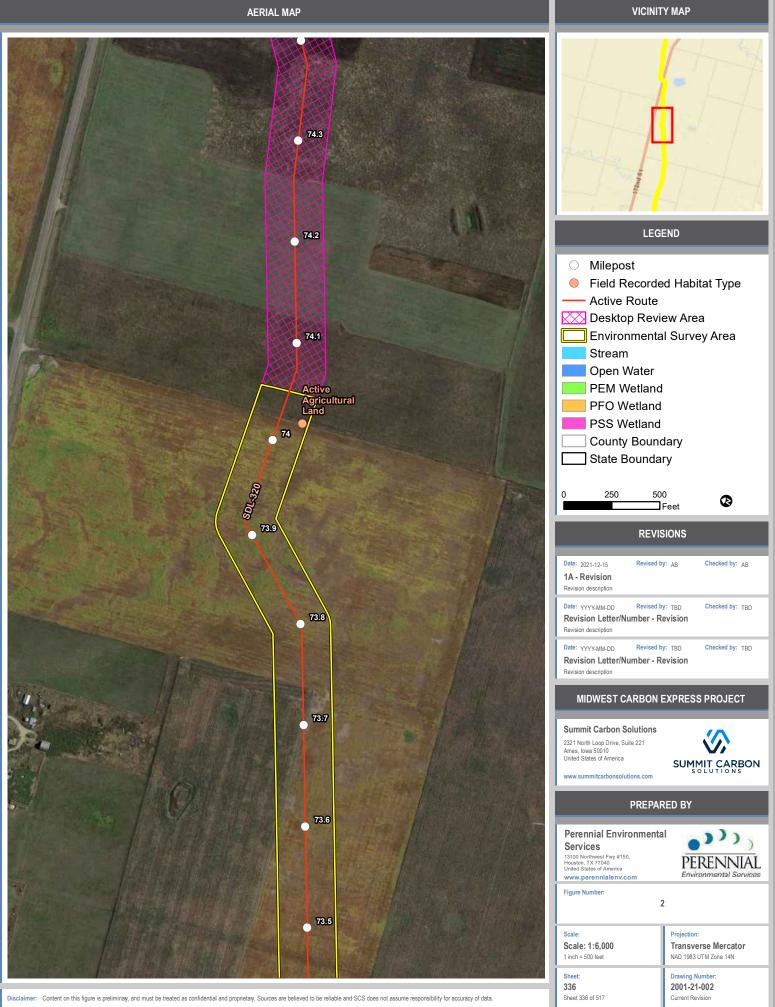


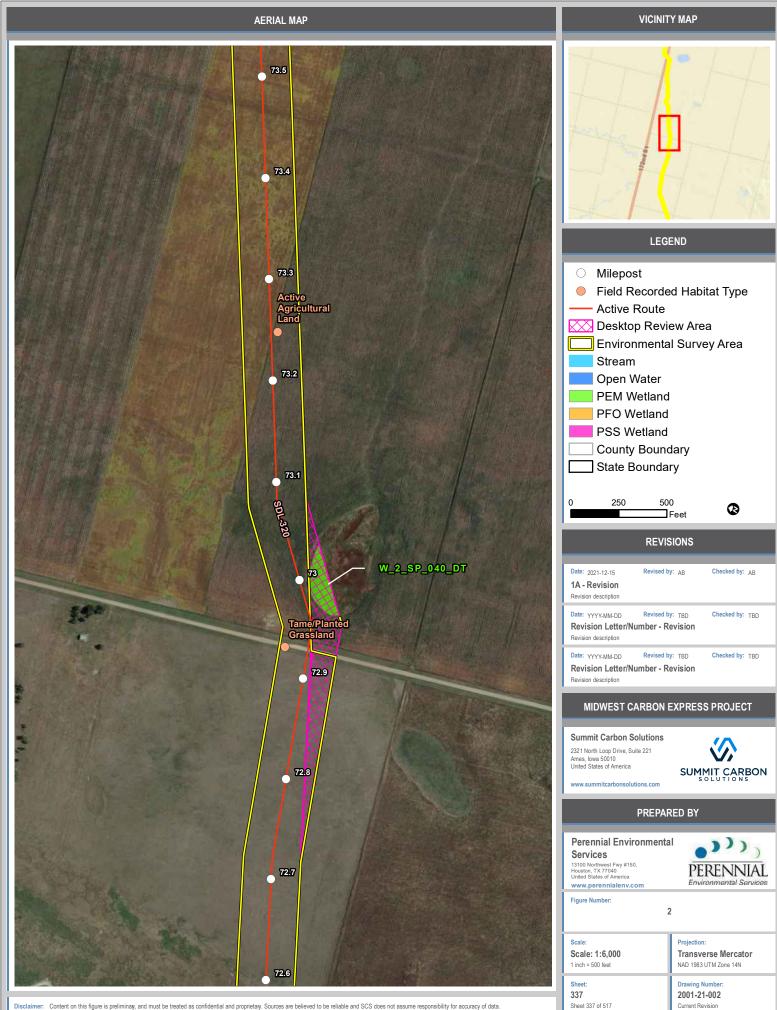


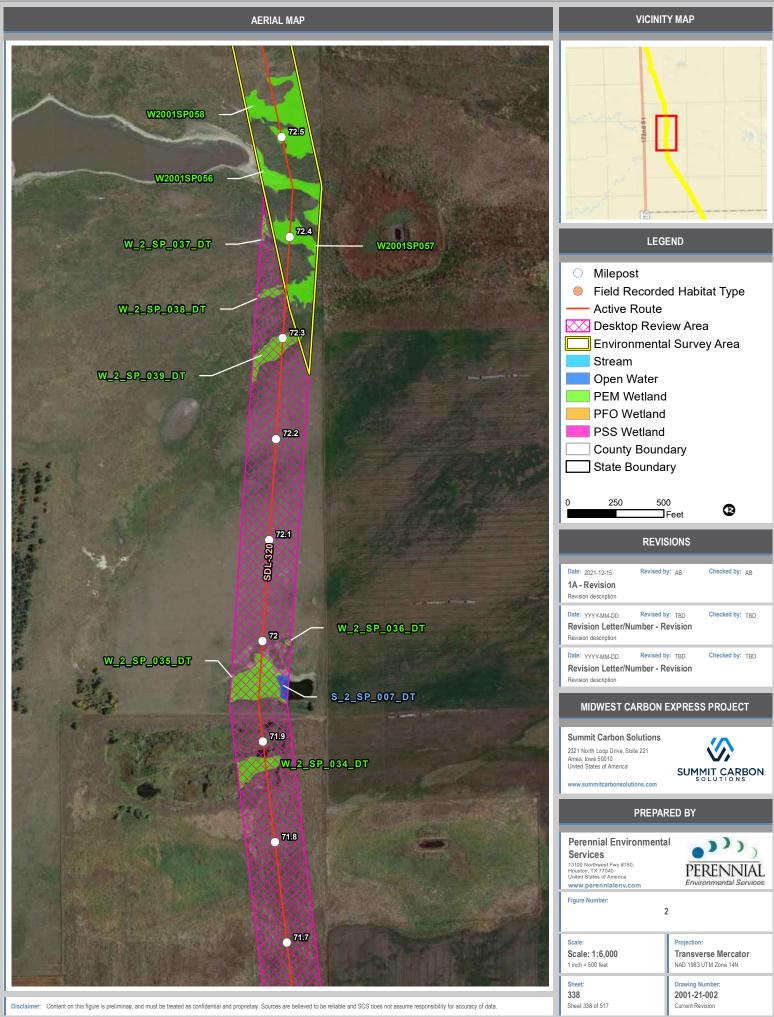


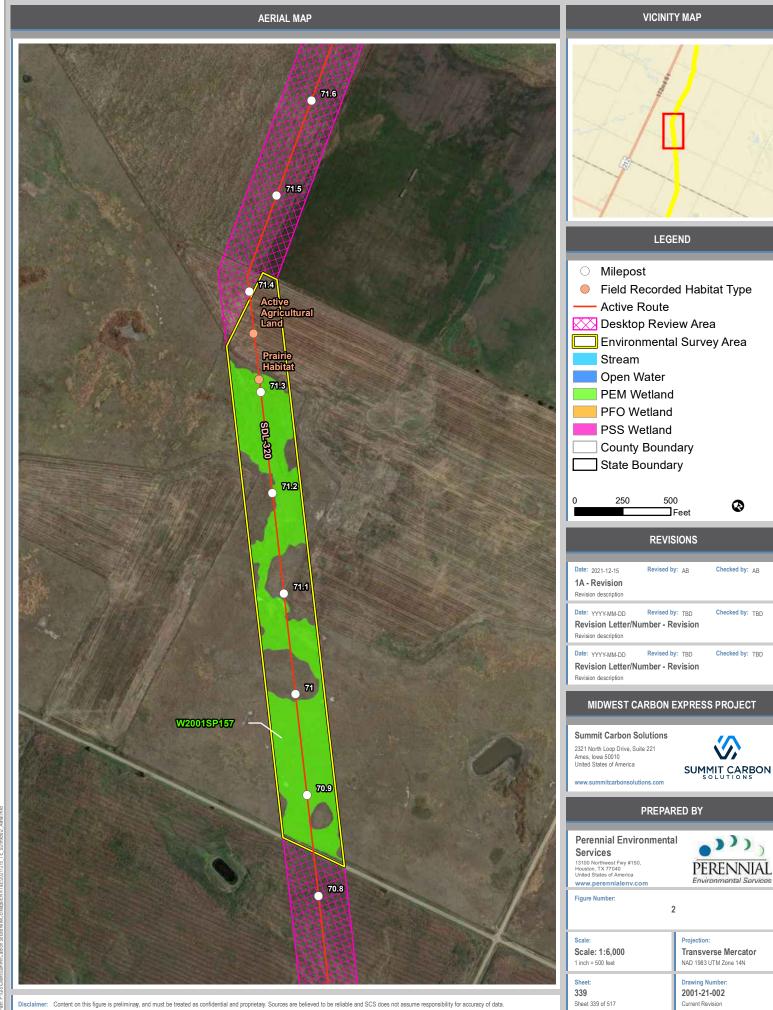
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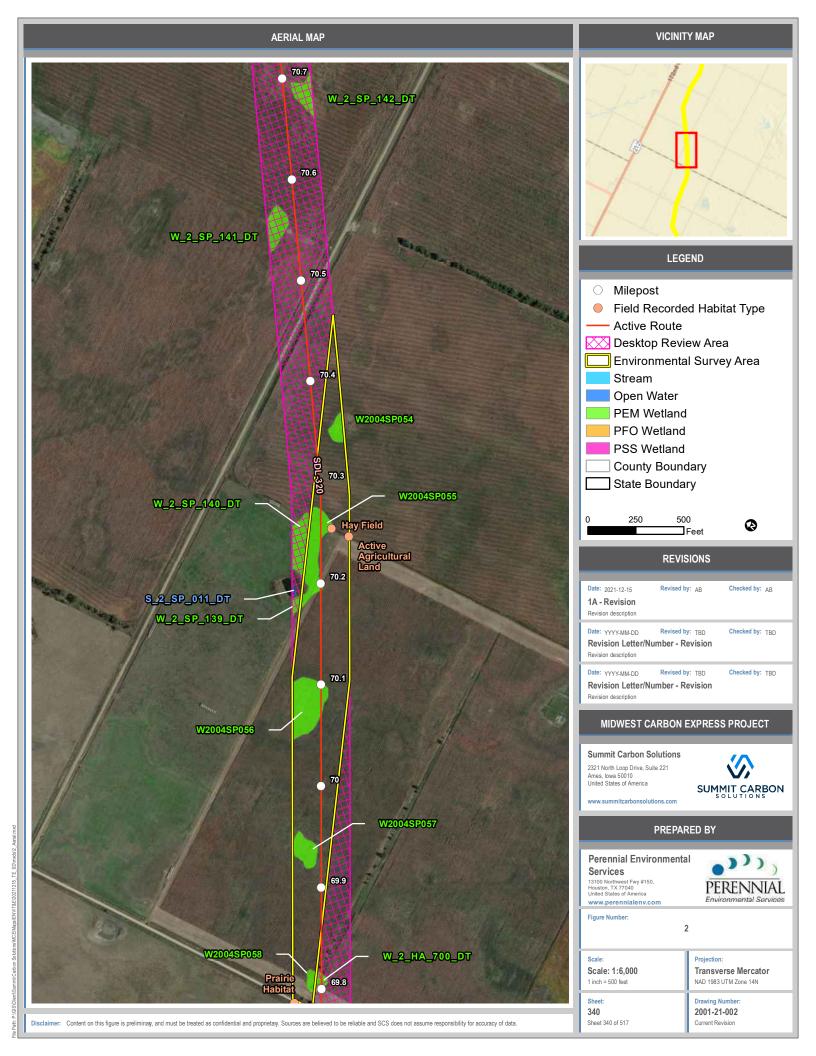


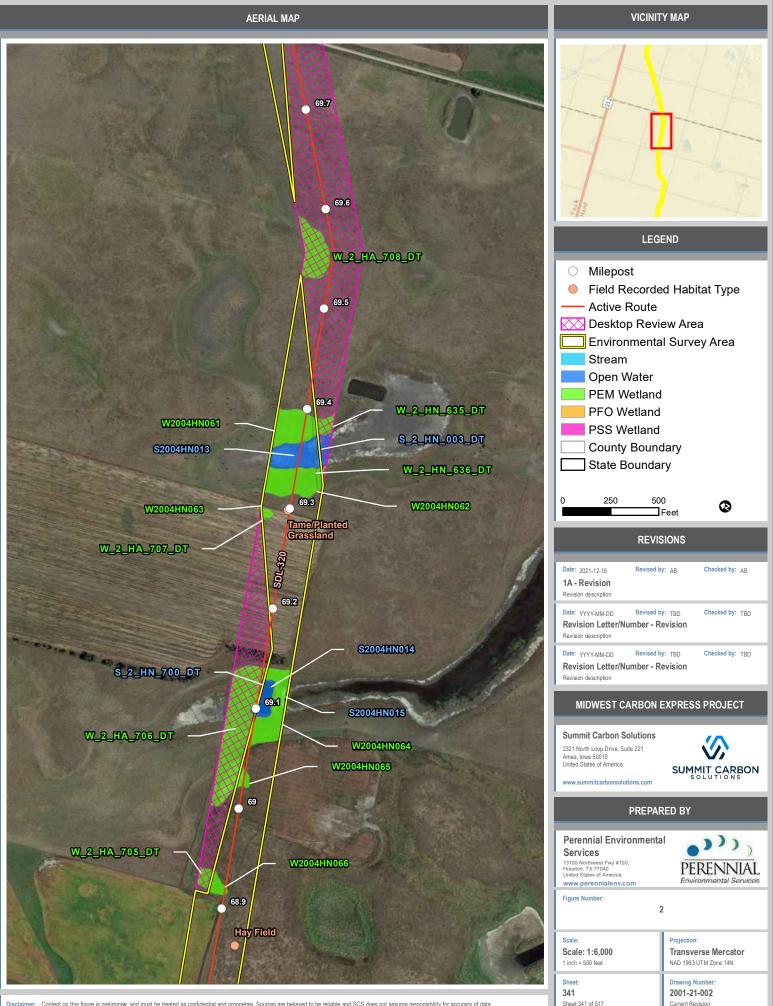






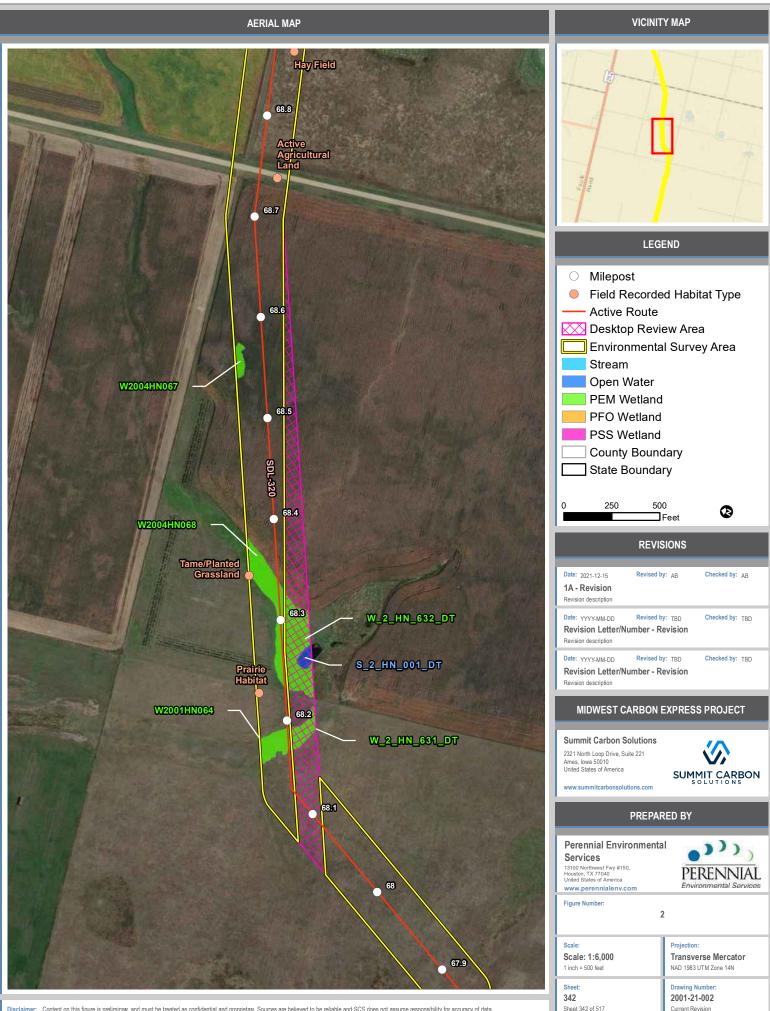


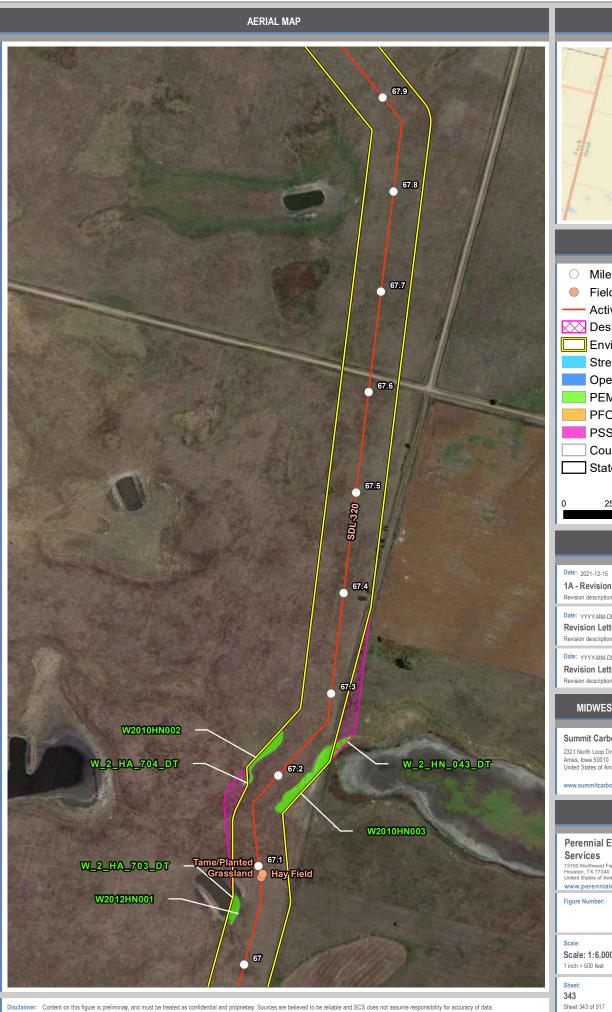


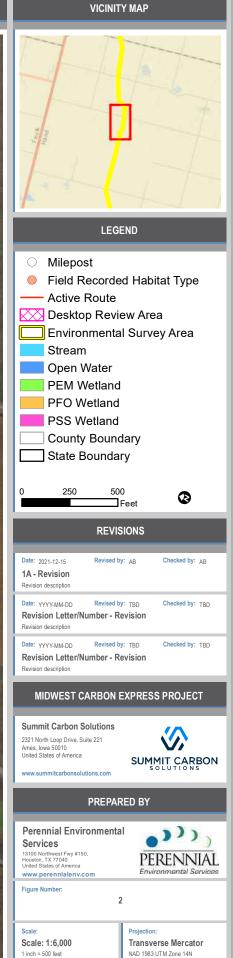


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Current Revision





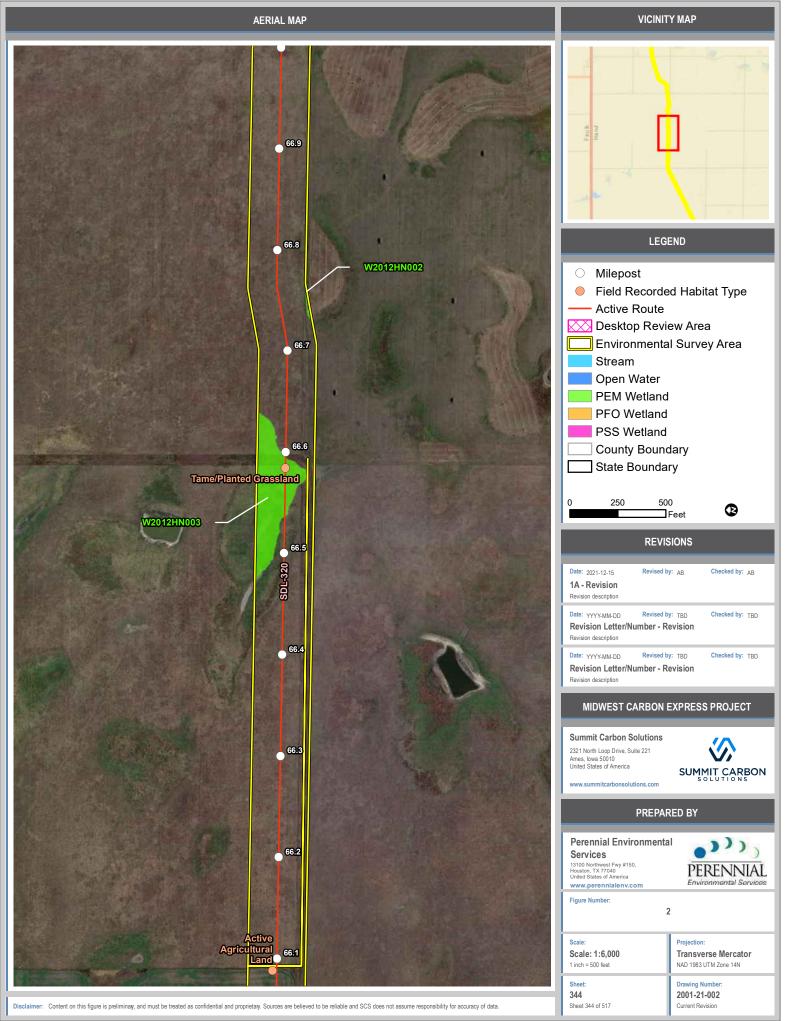


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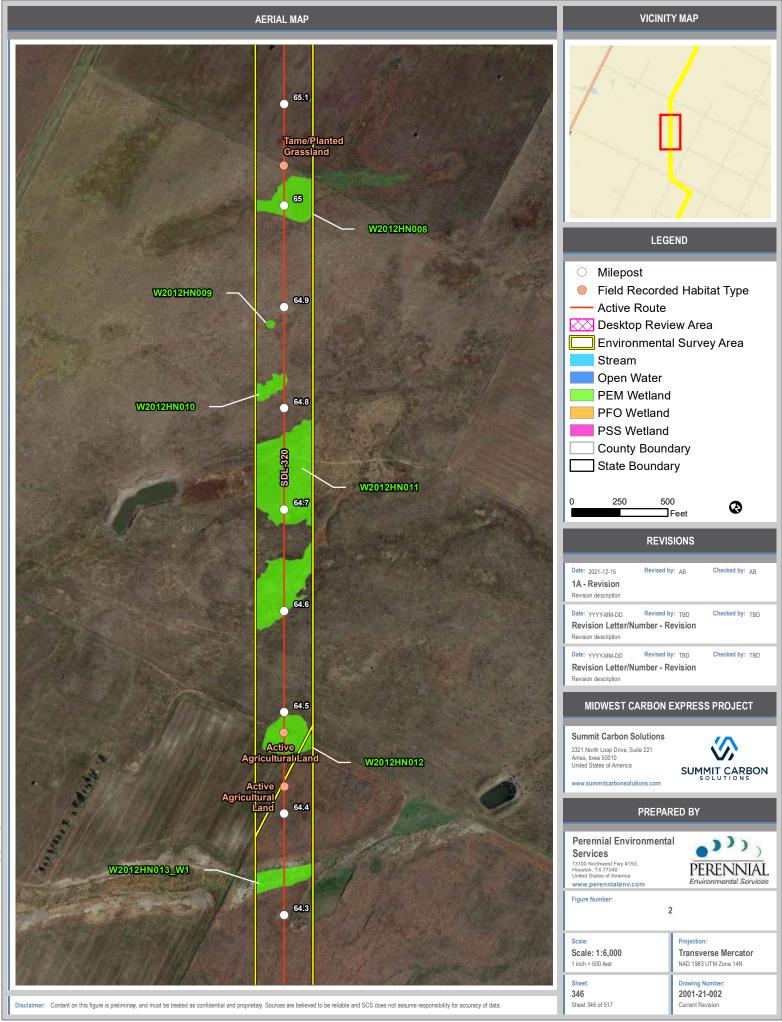
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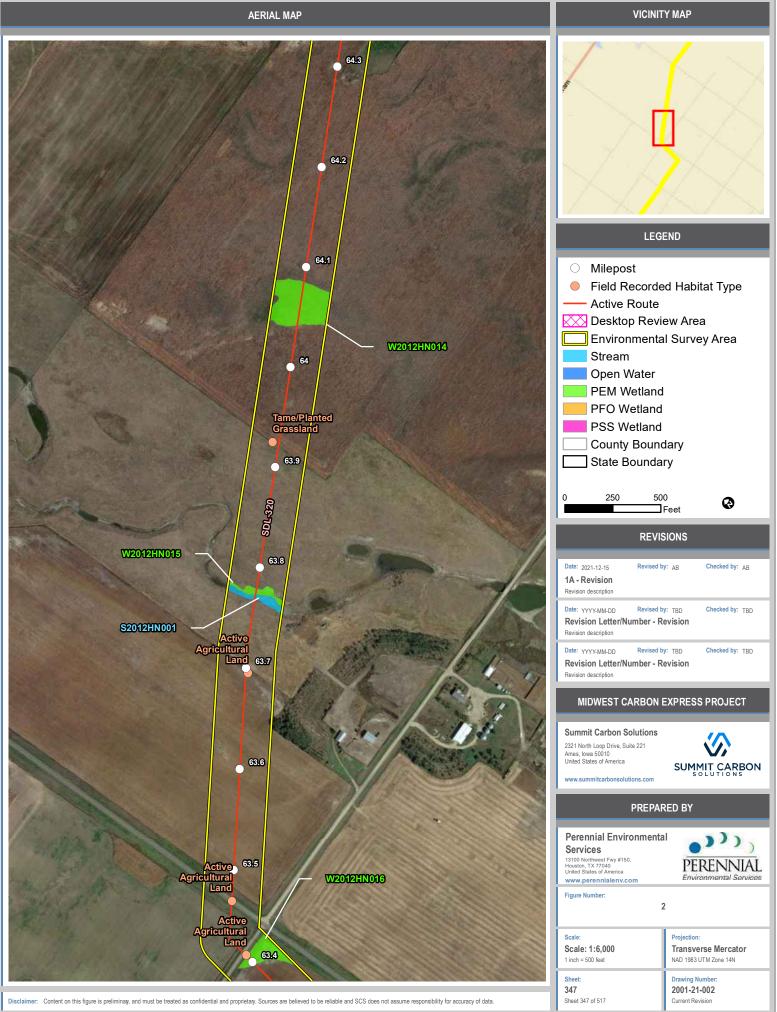
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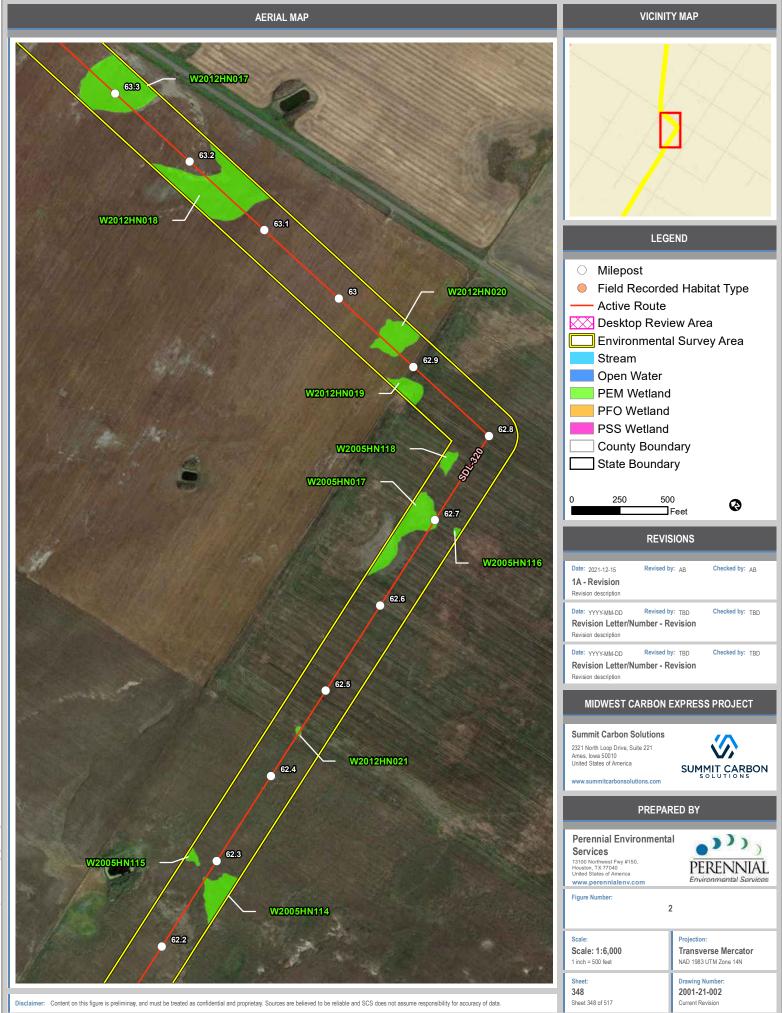


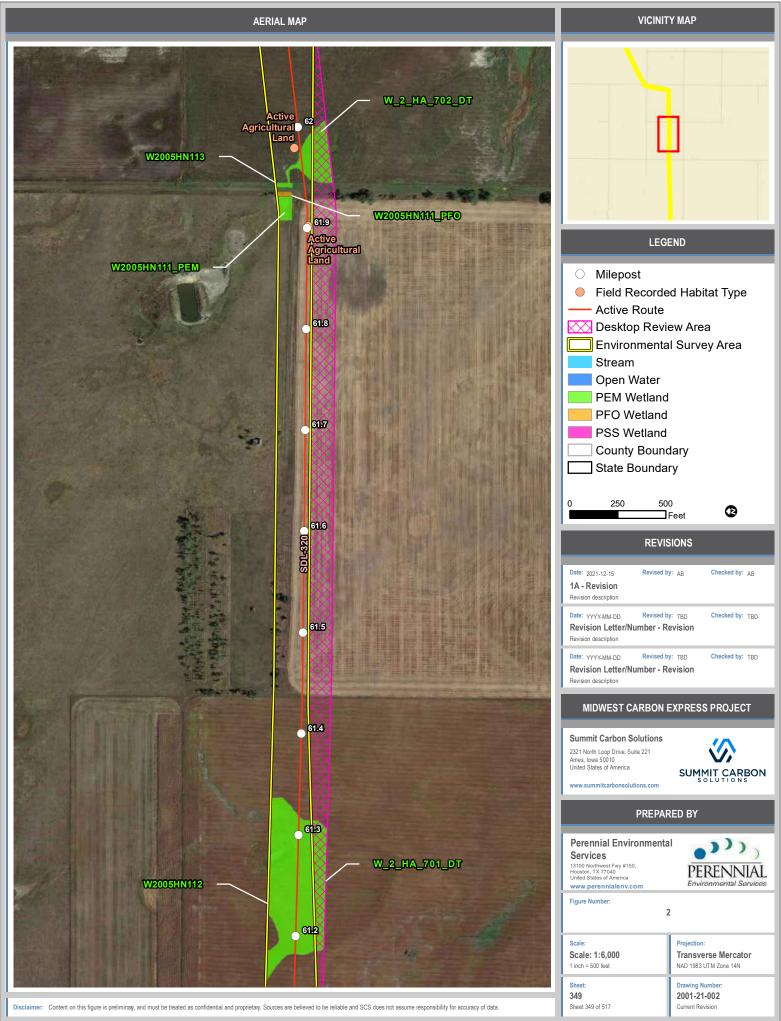
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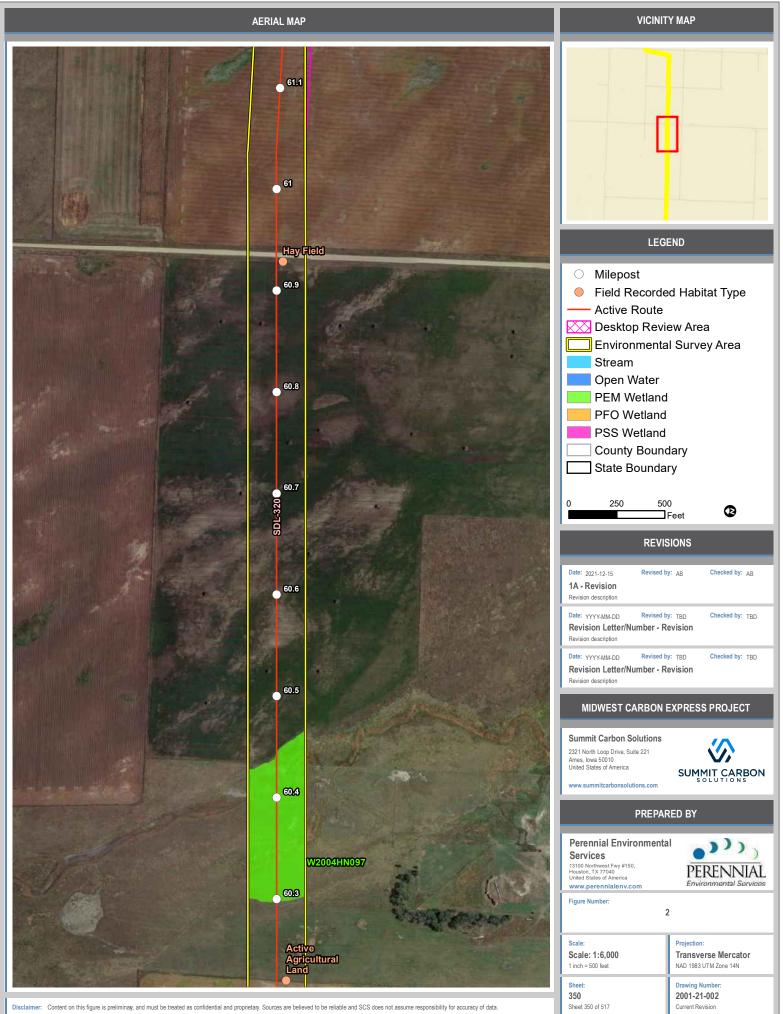




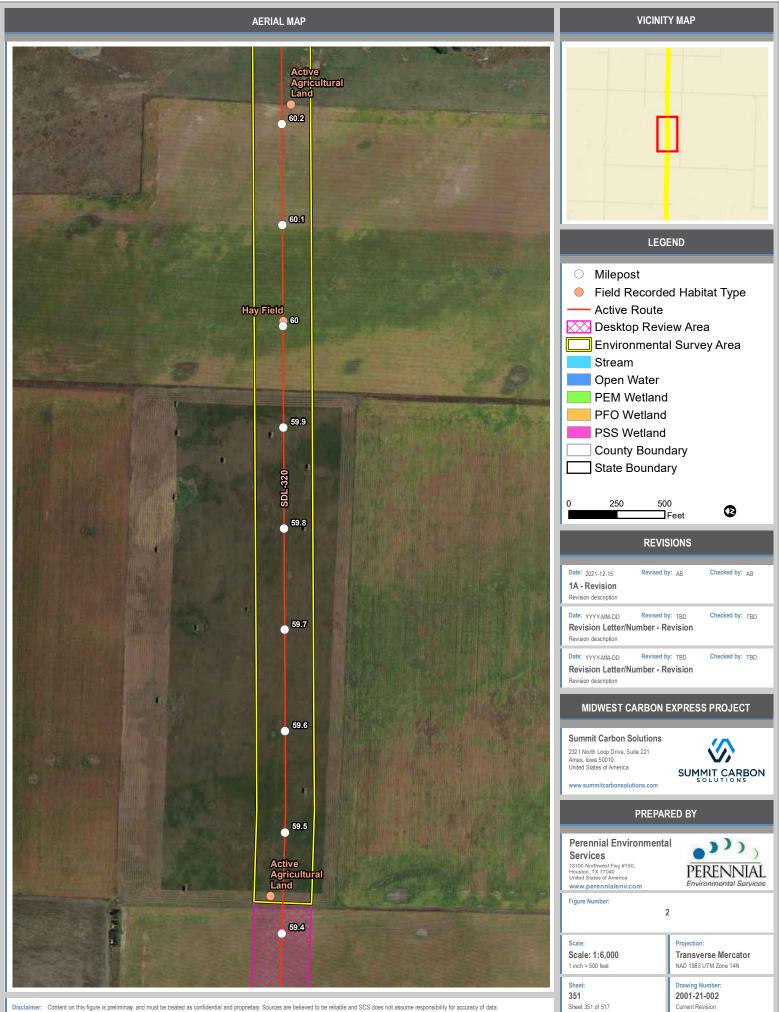




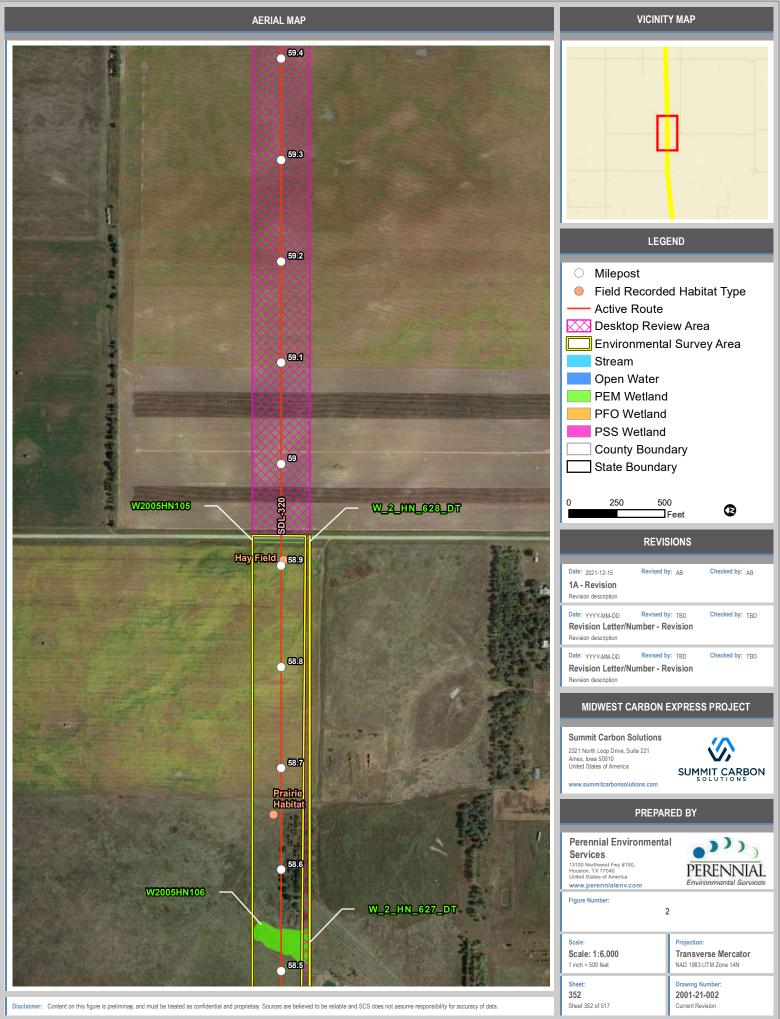


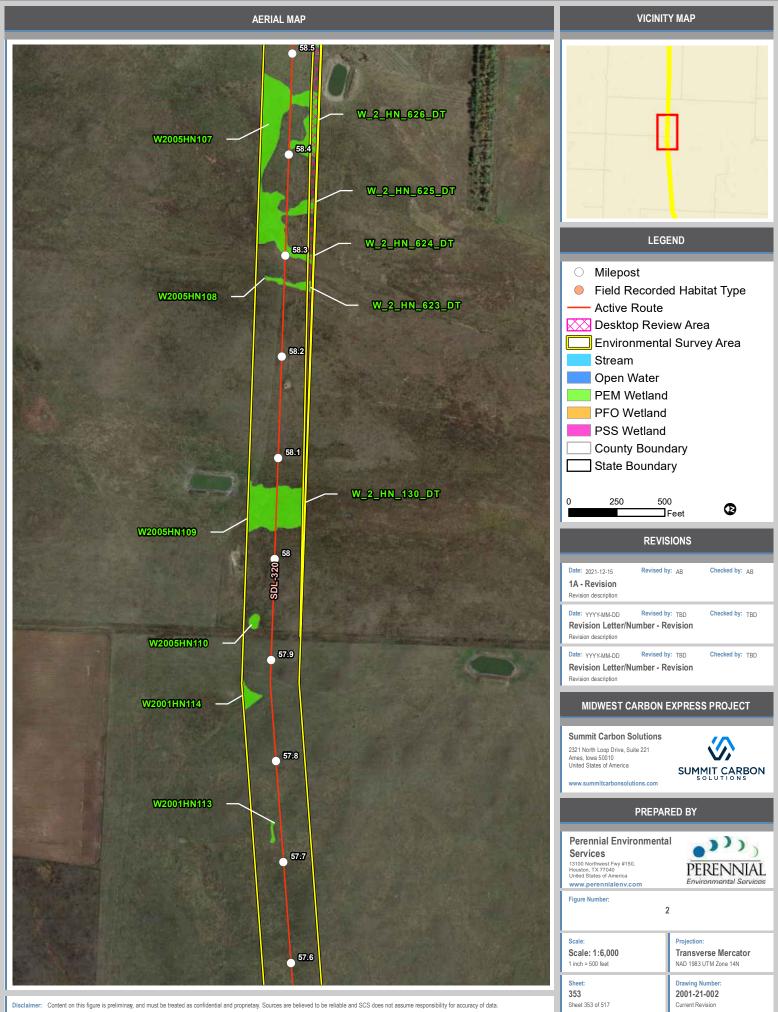


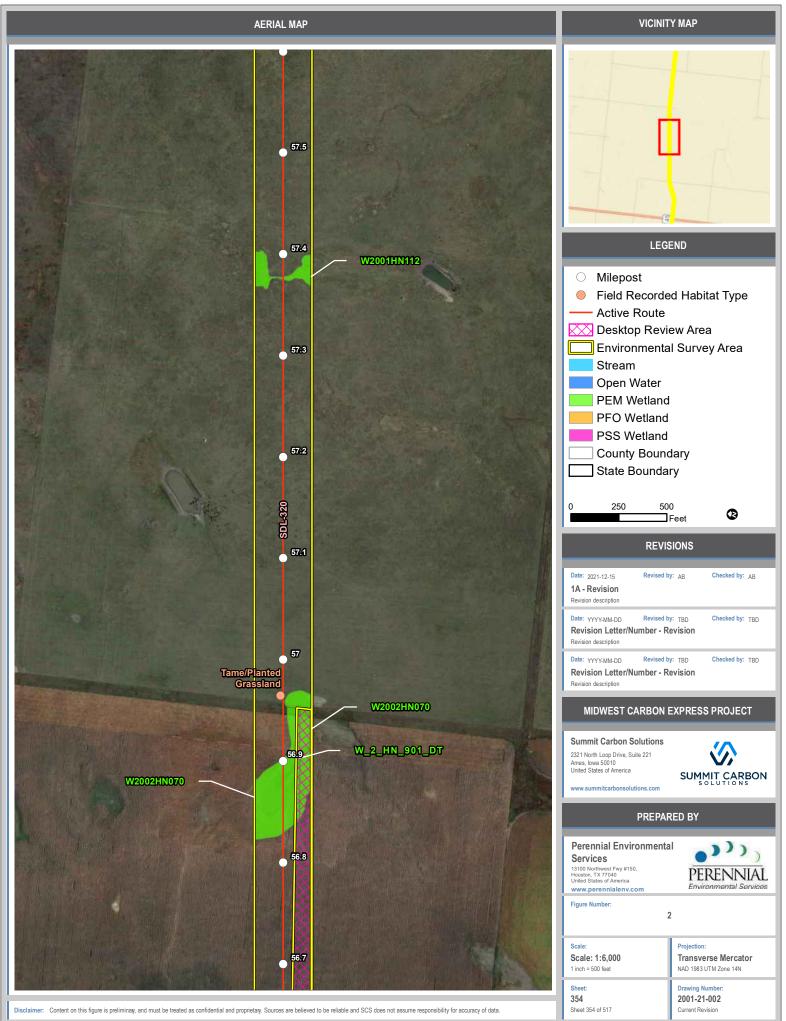
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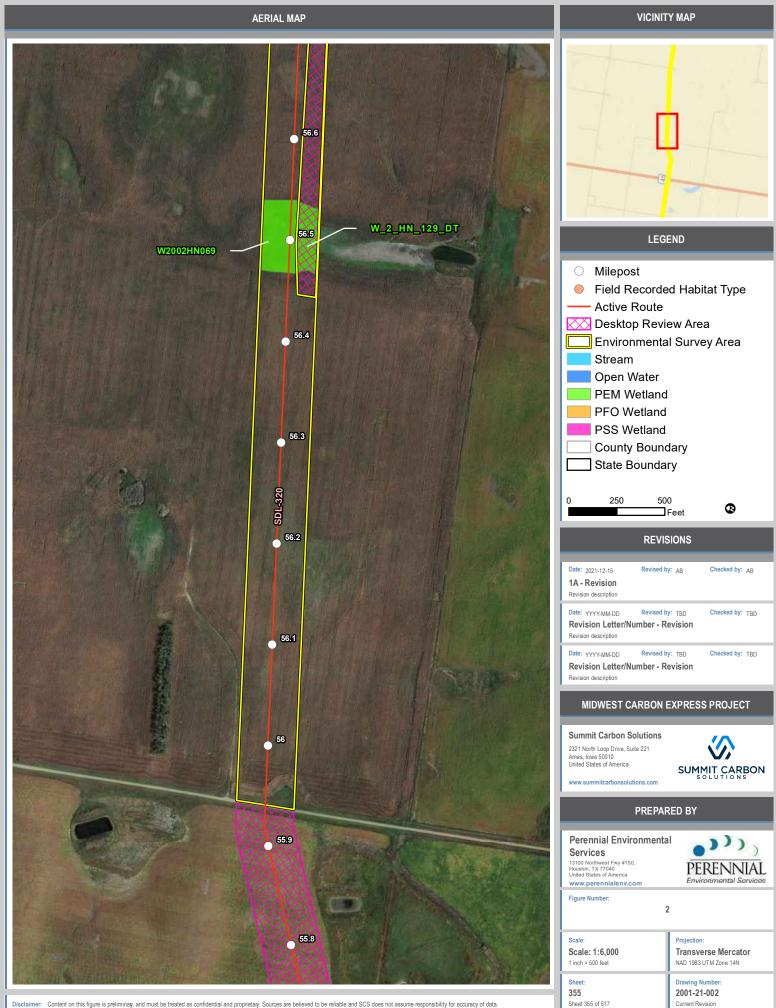


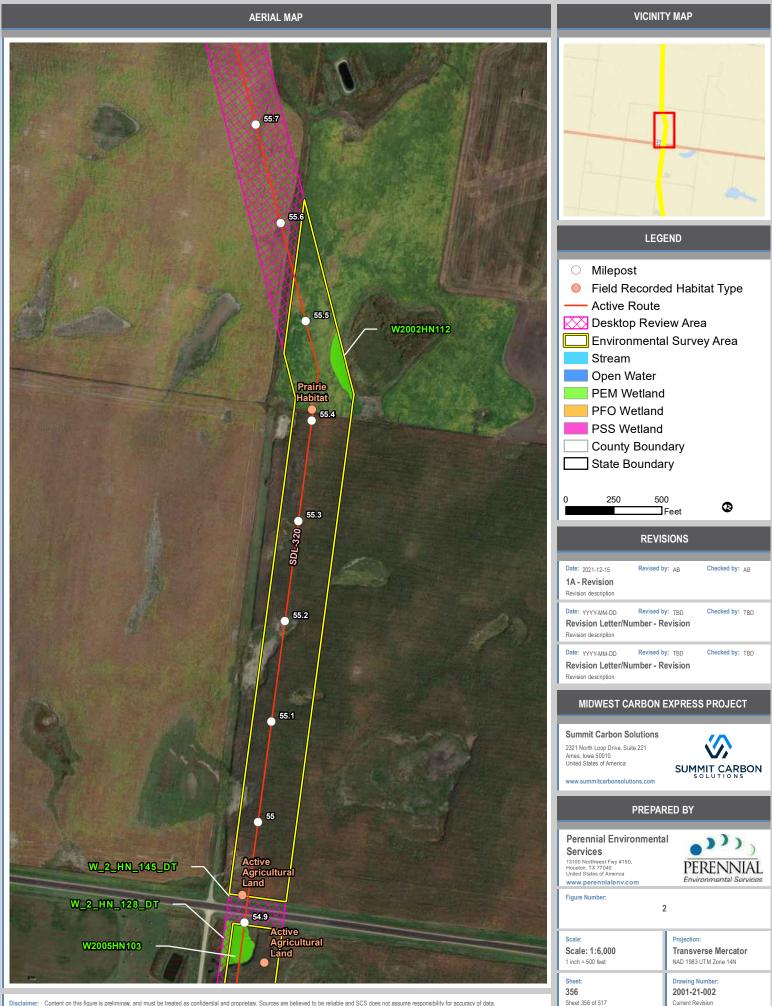
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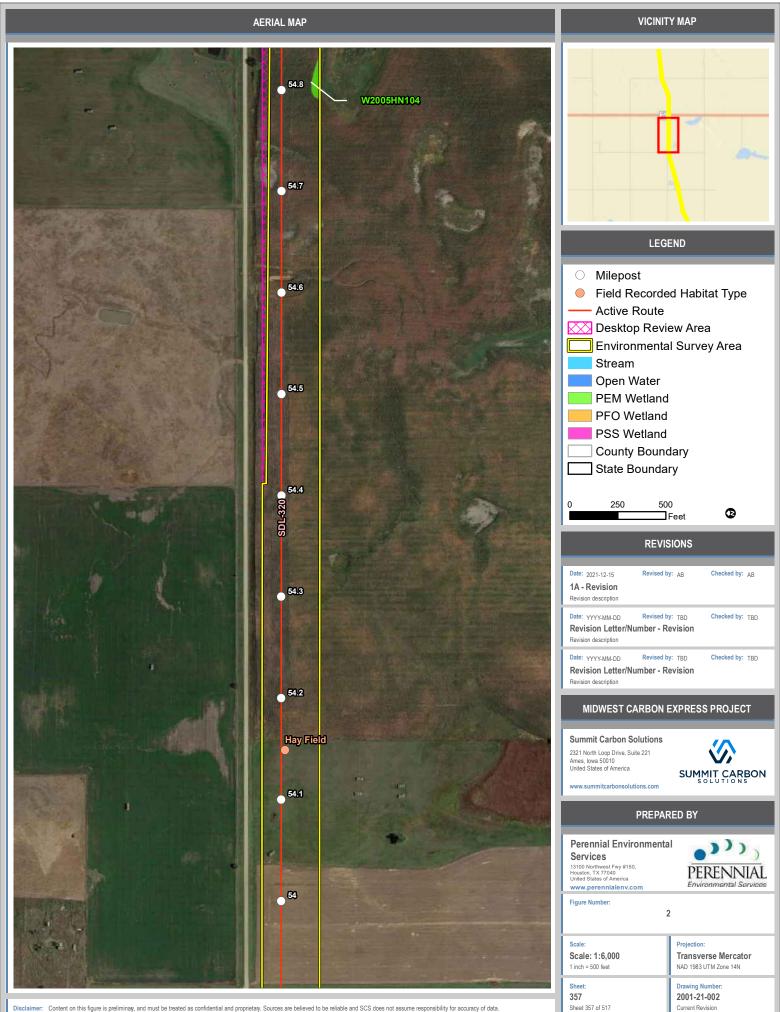


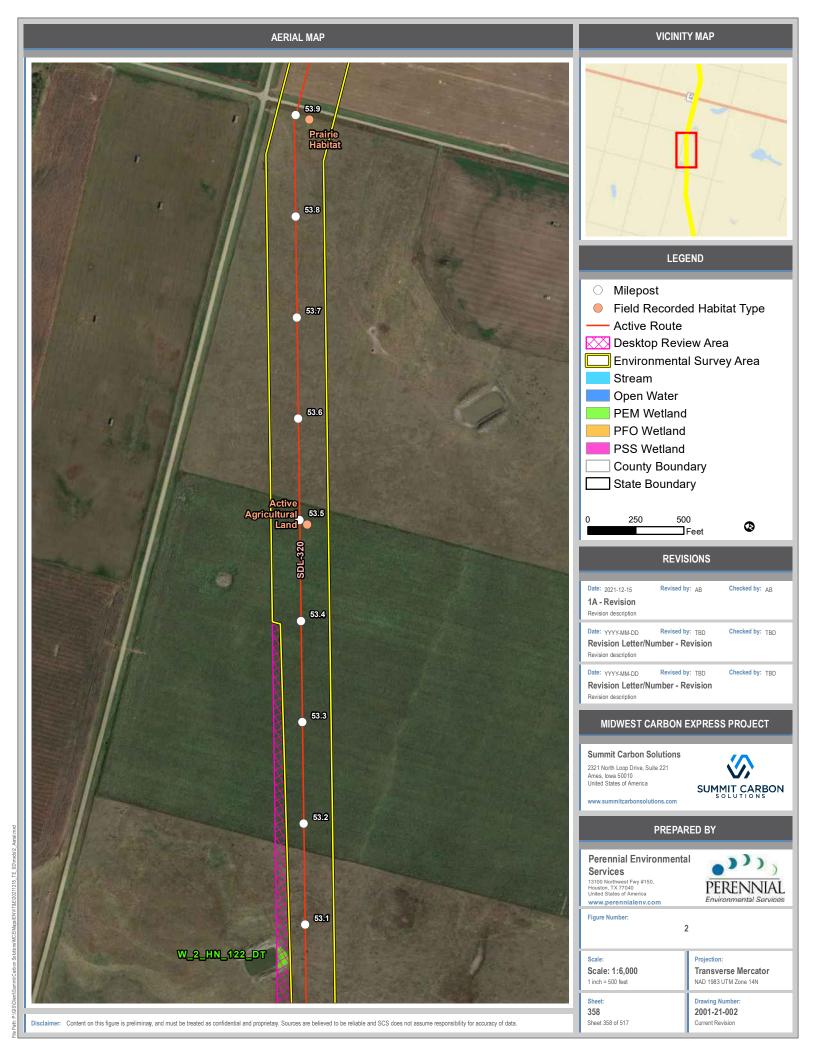


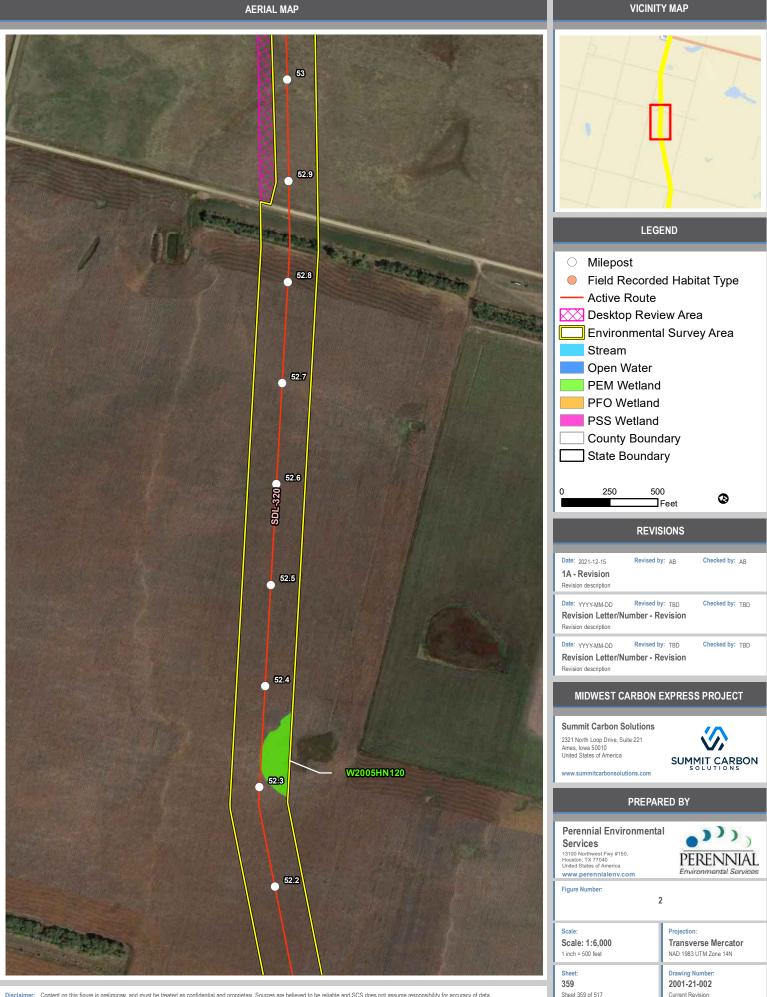




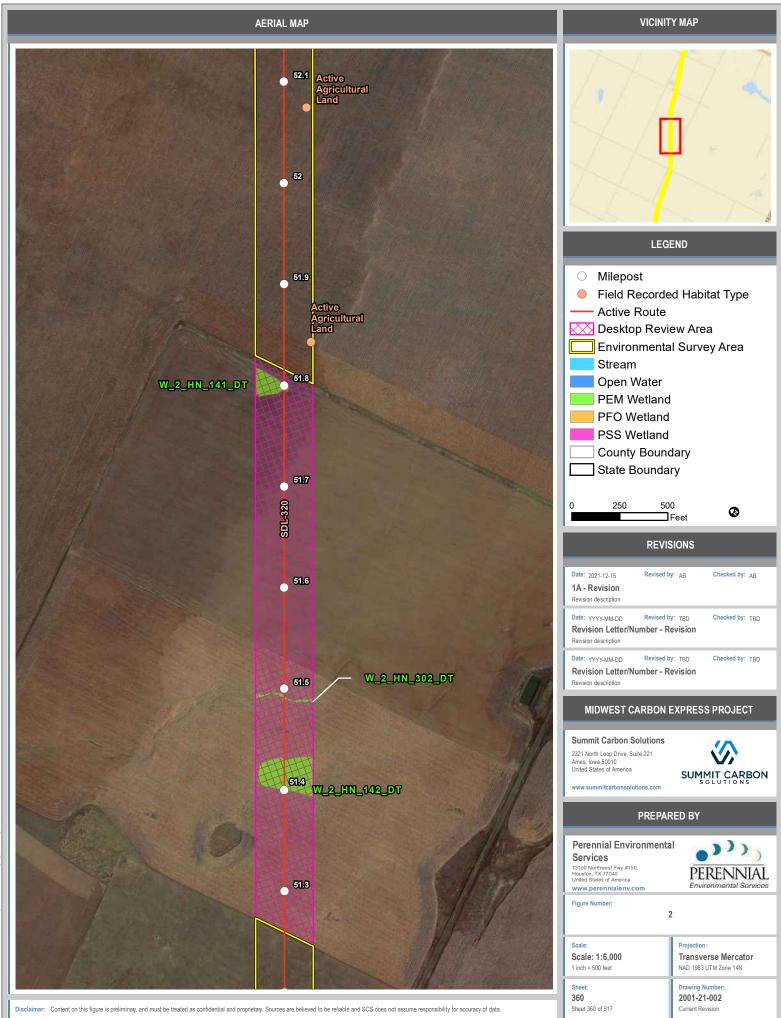


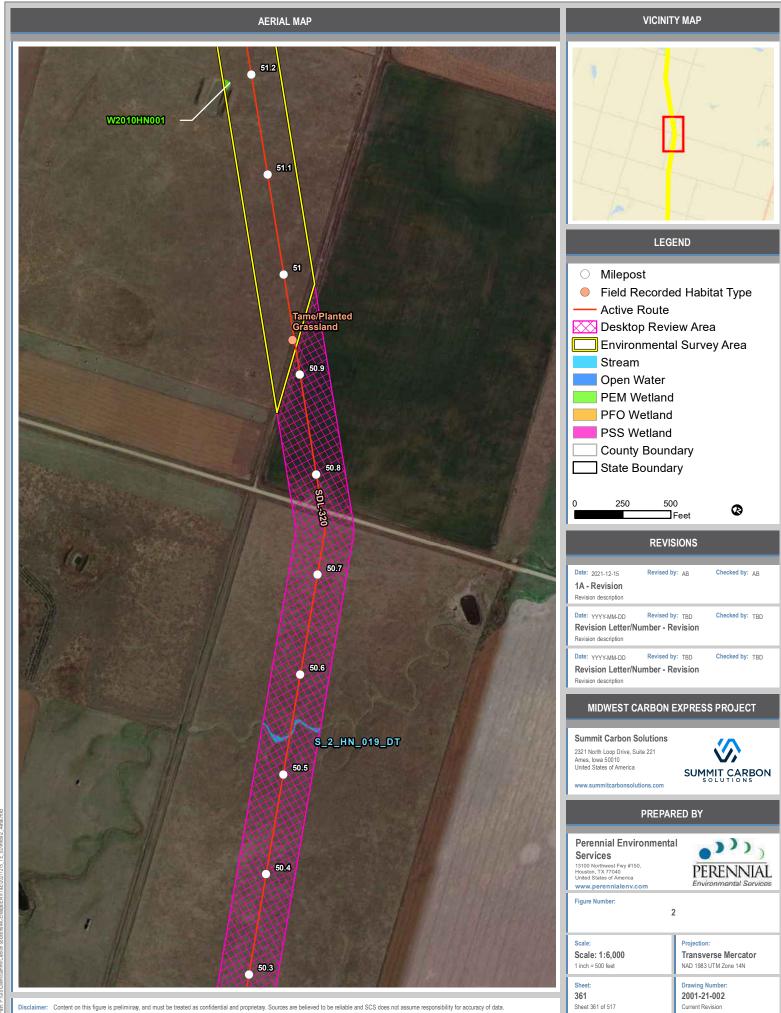


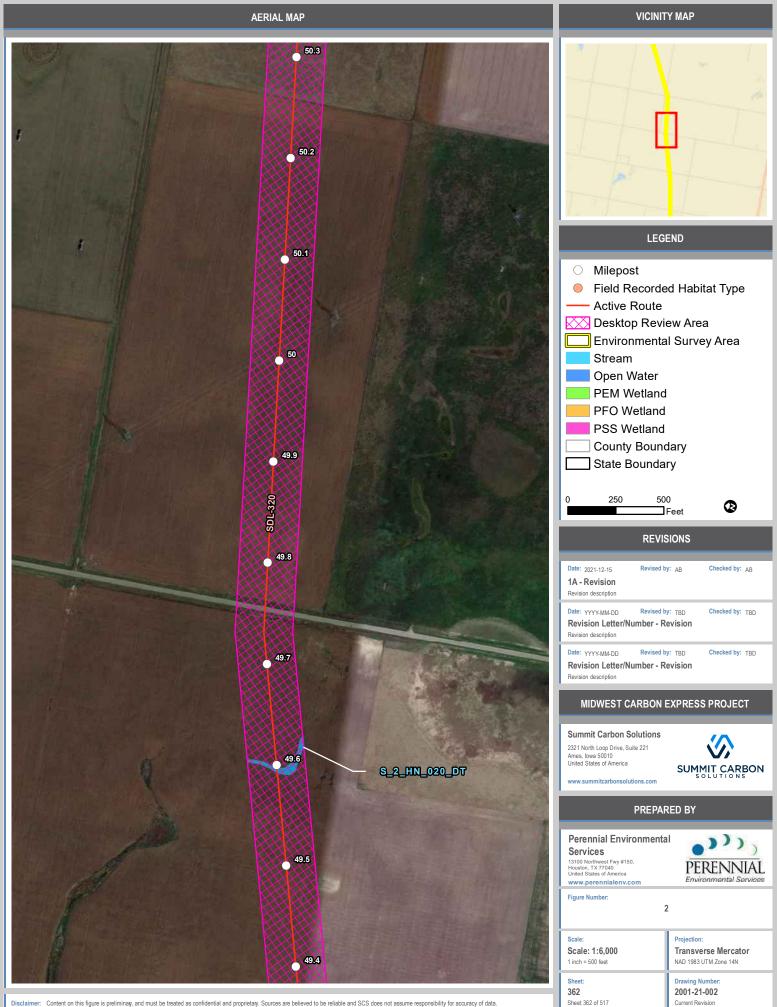




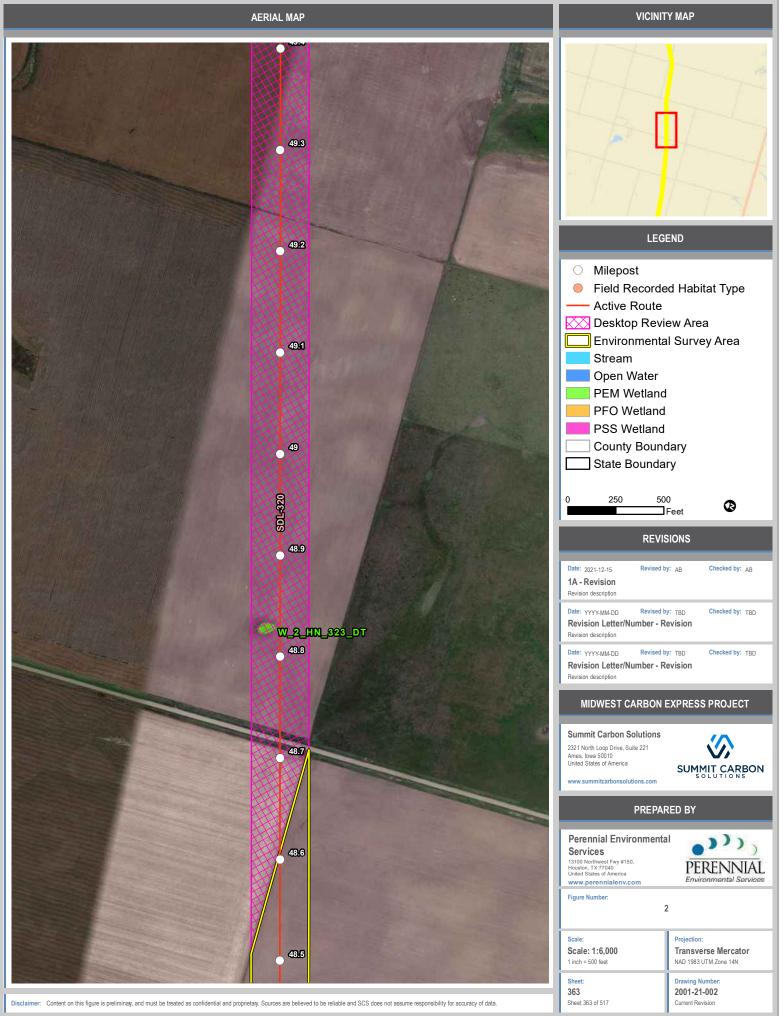
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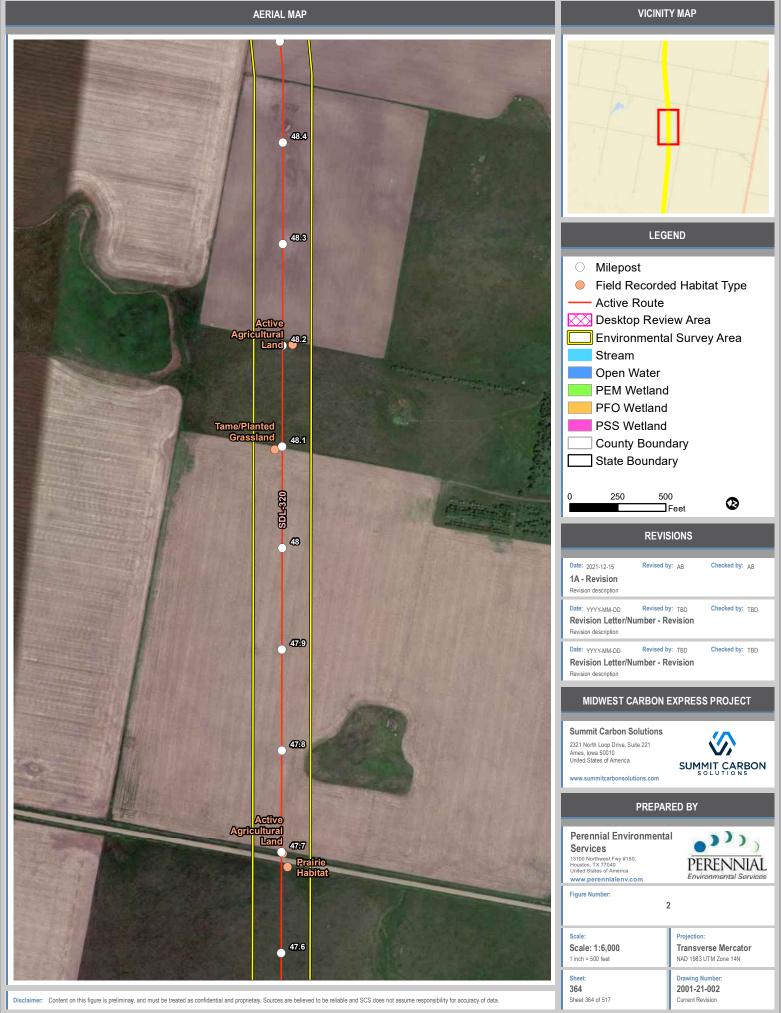




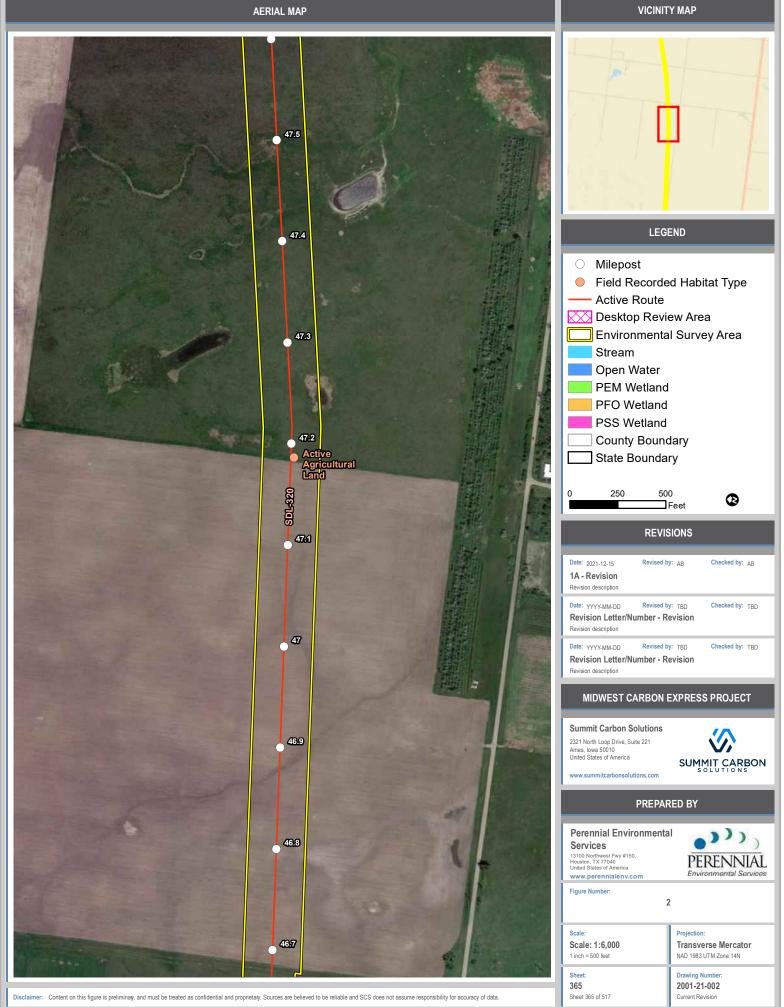
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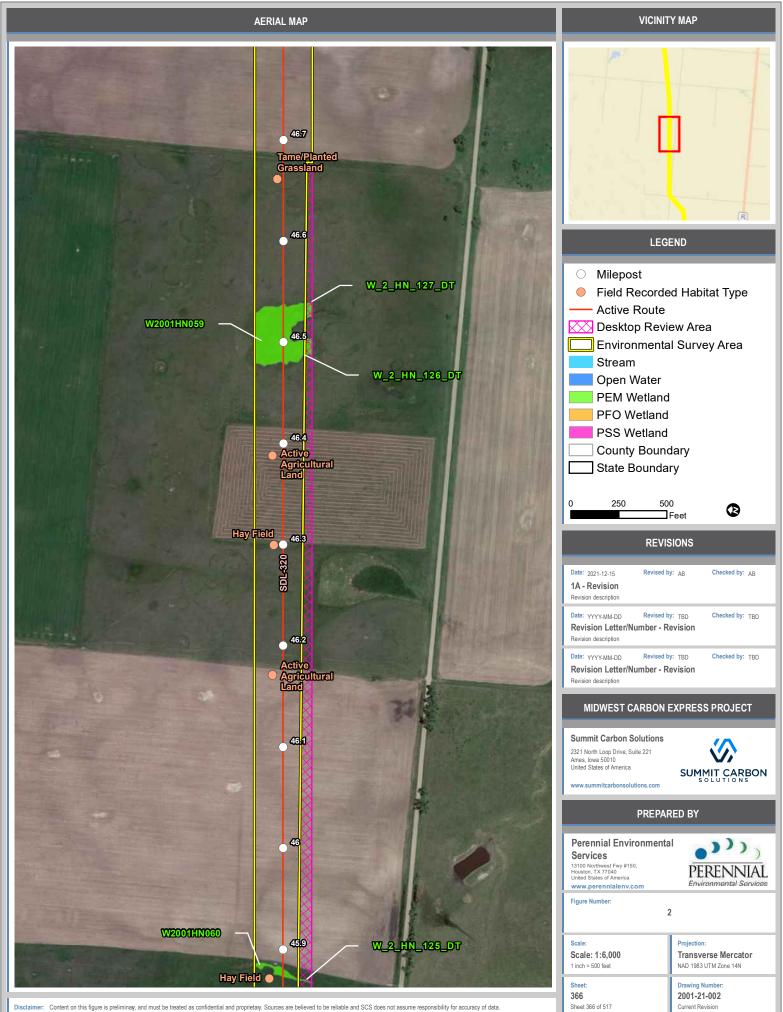


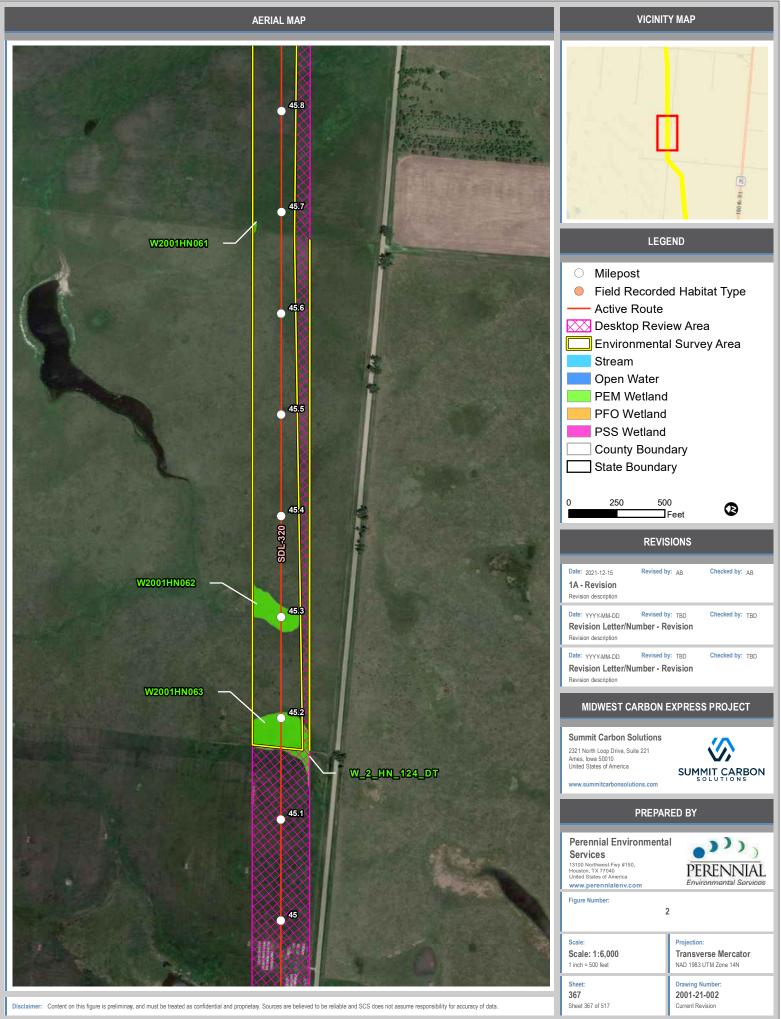
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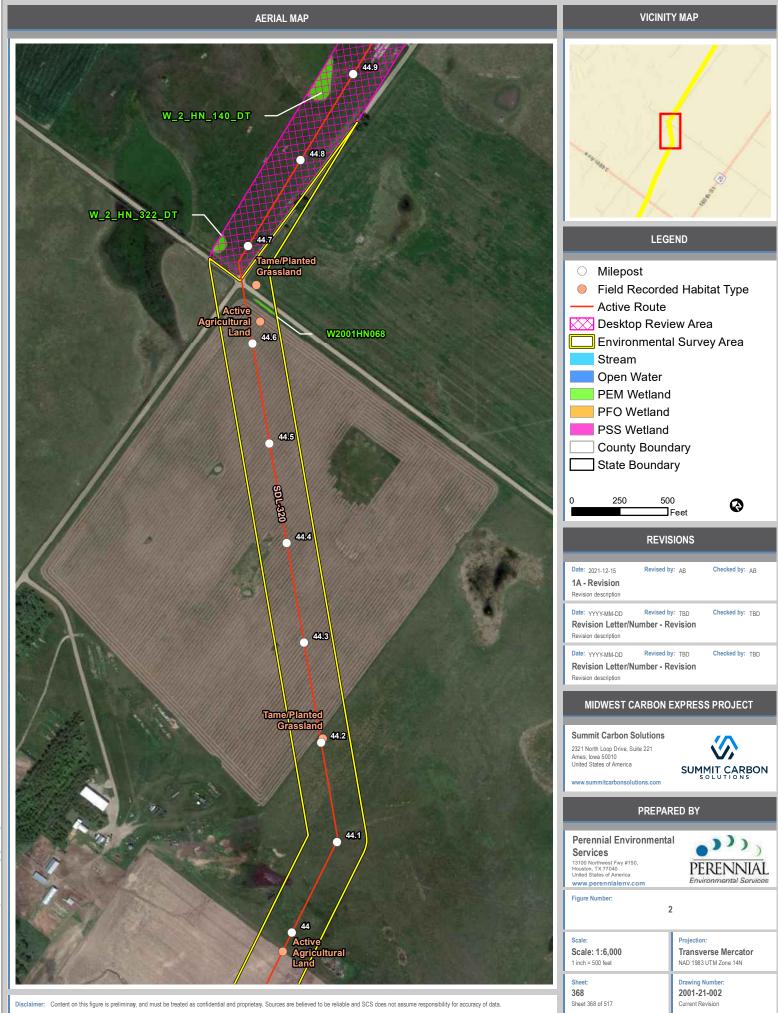


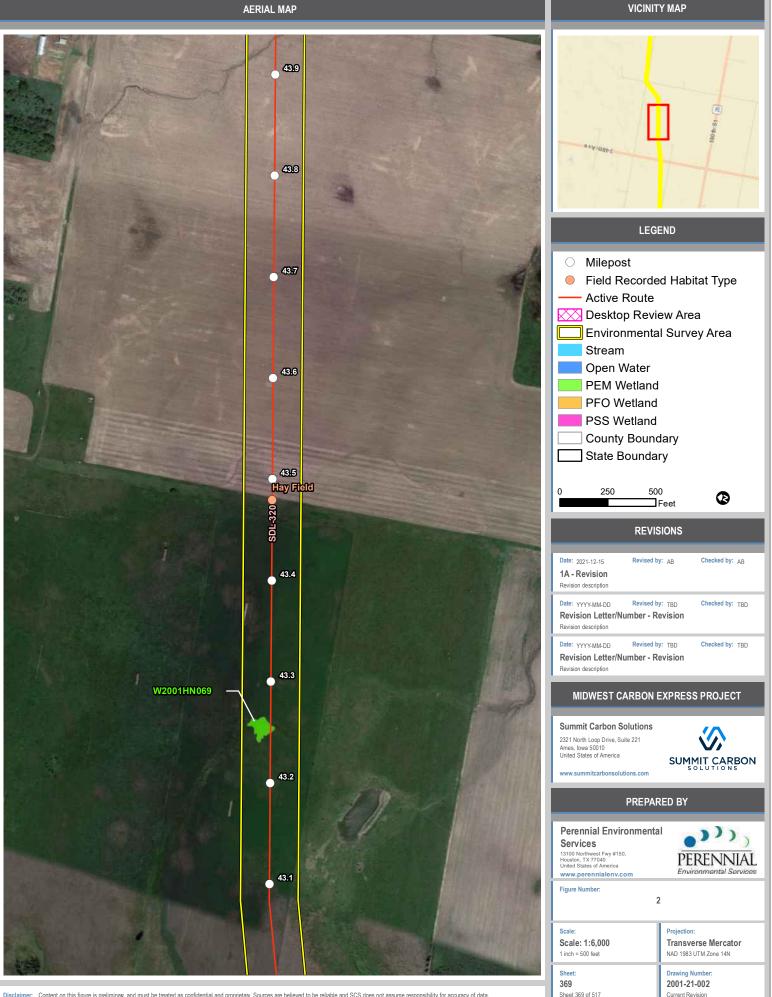
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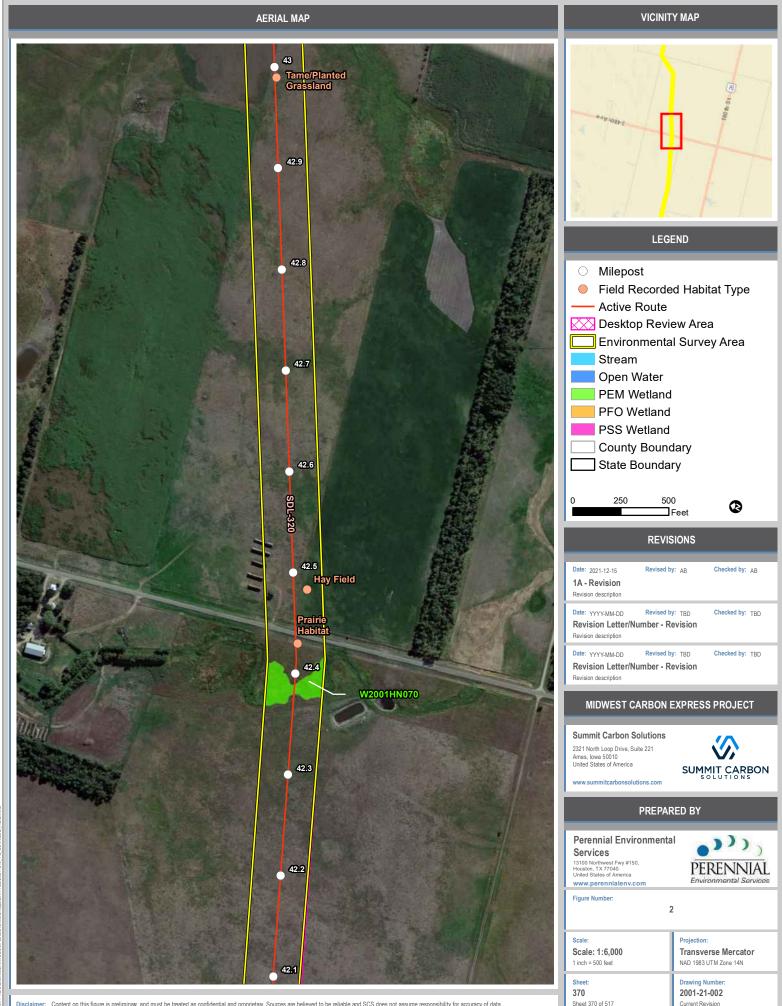




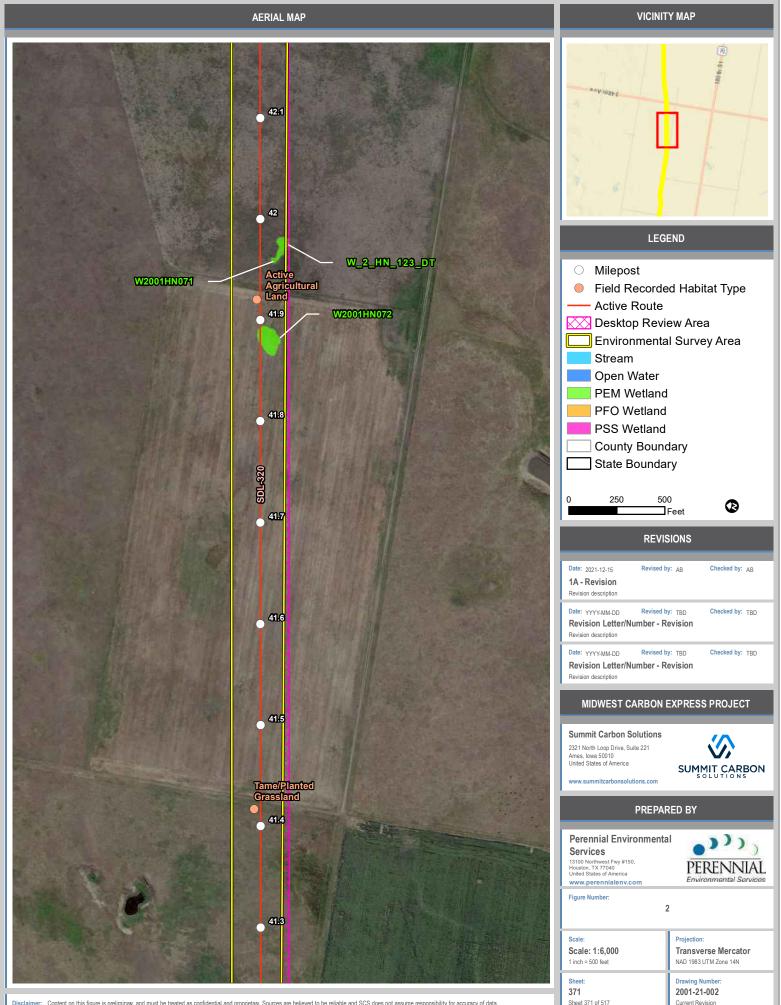


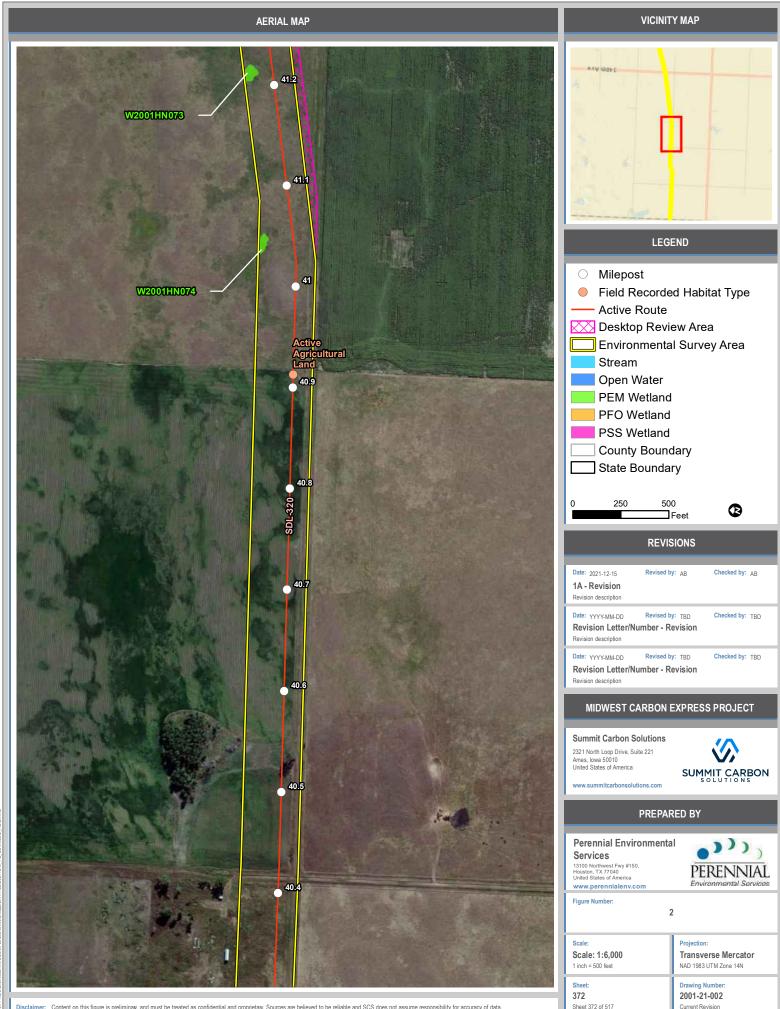




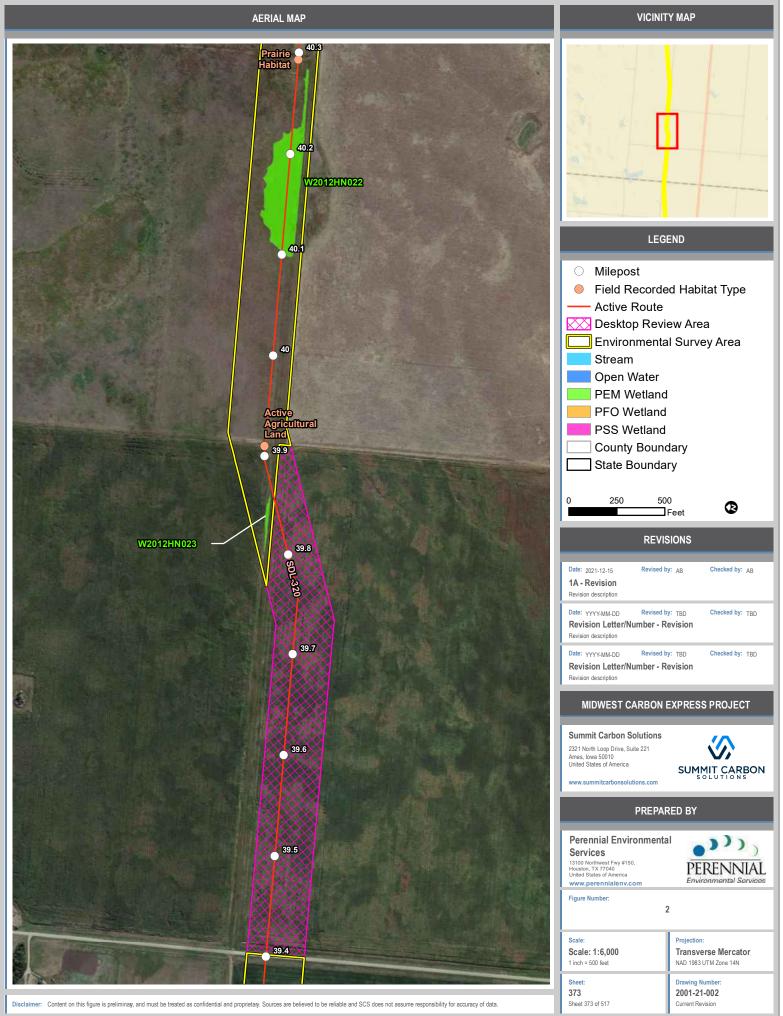


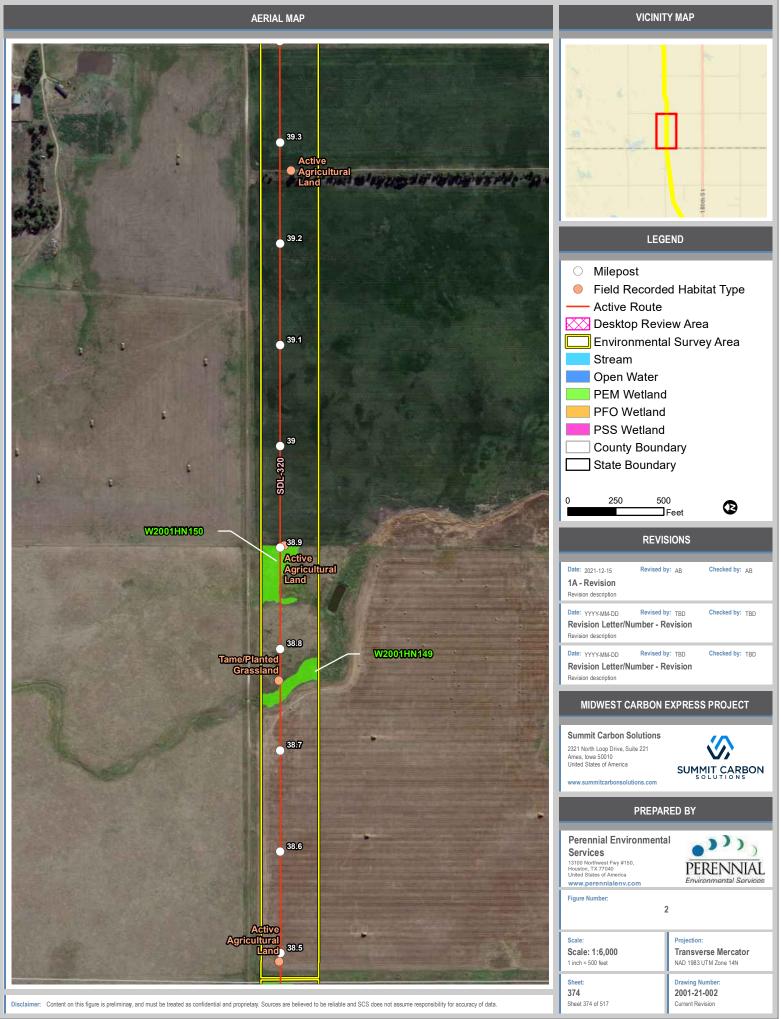
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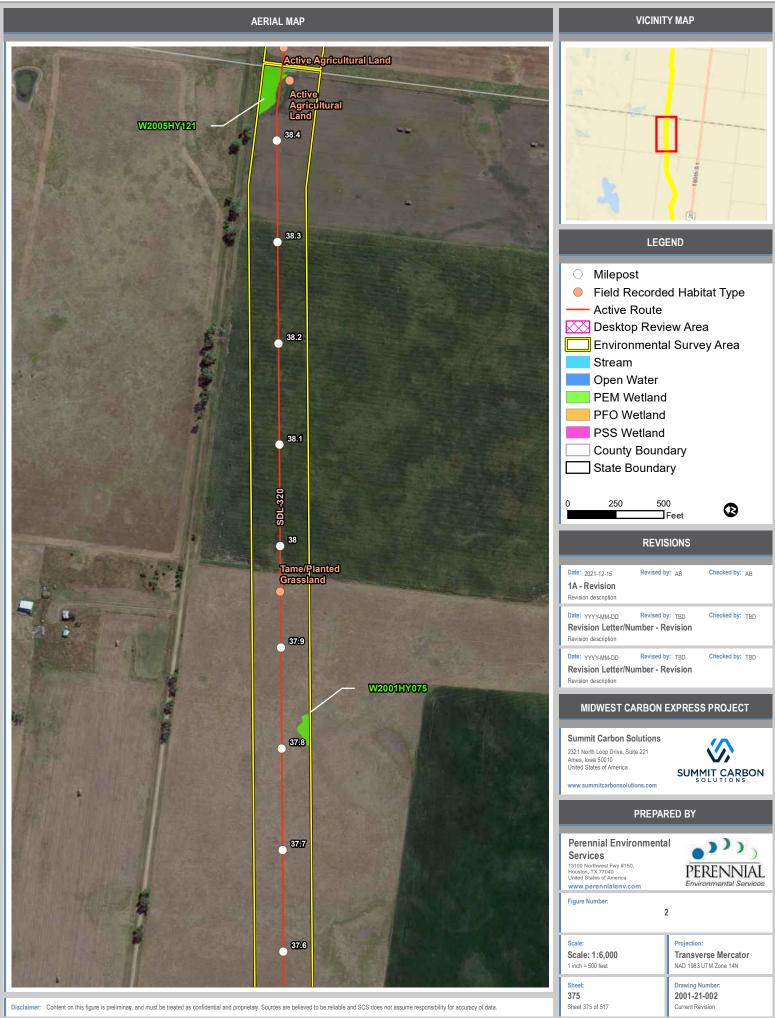


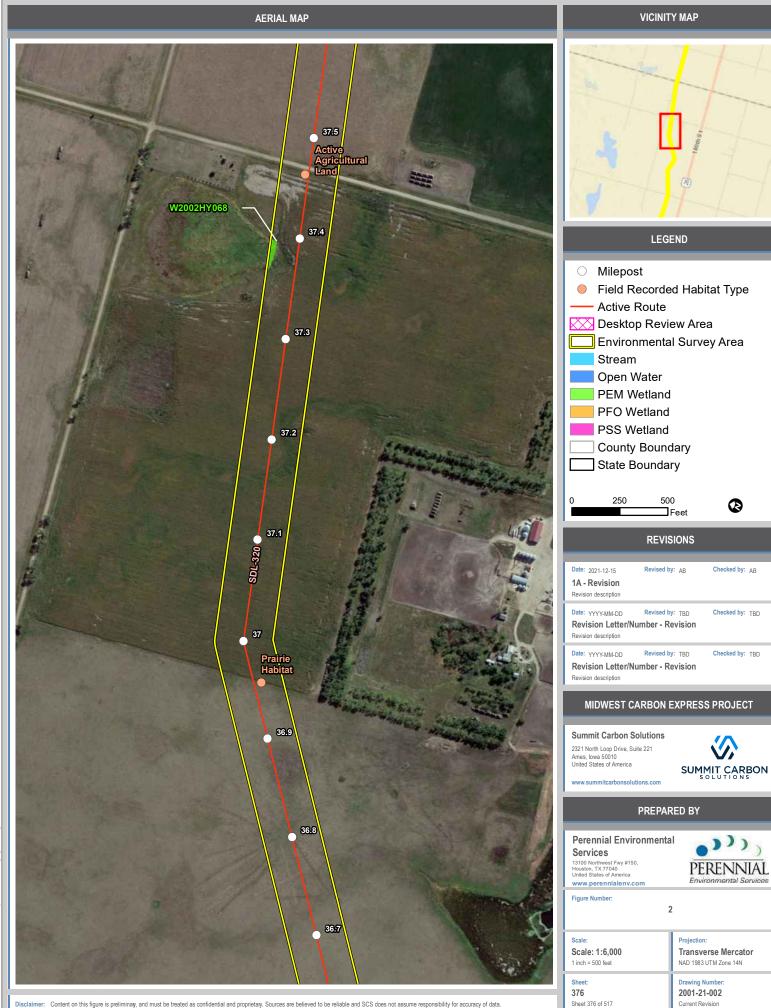


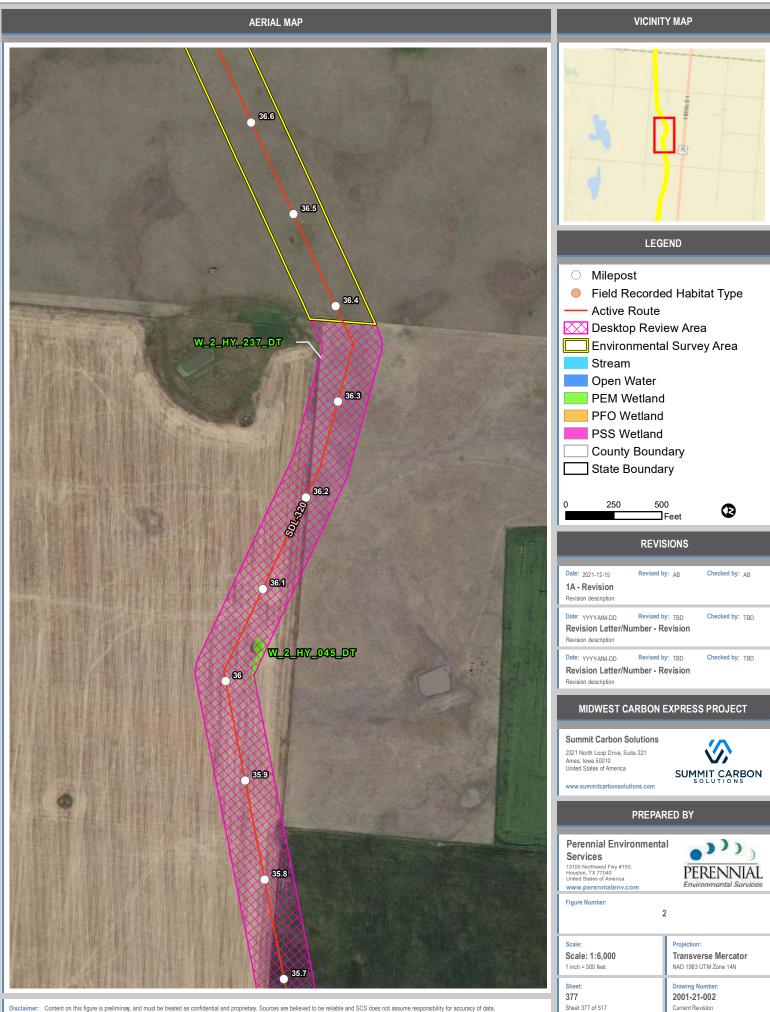
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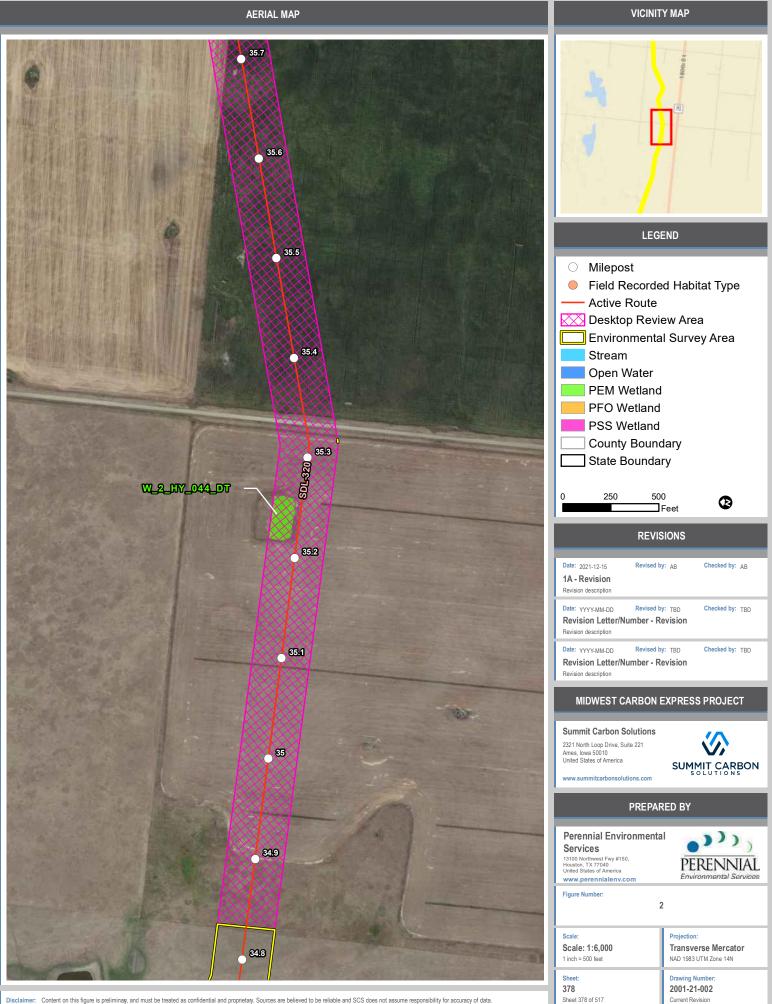


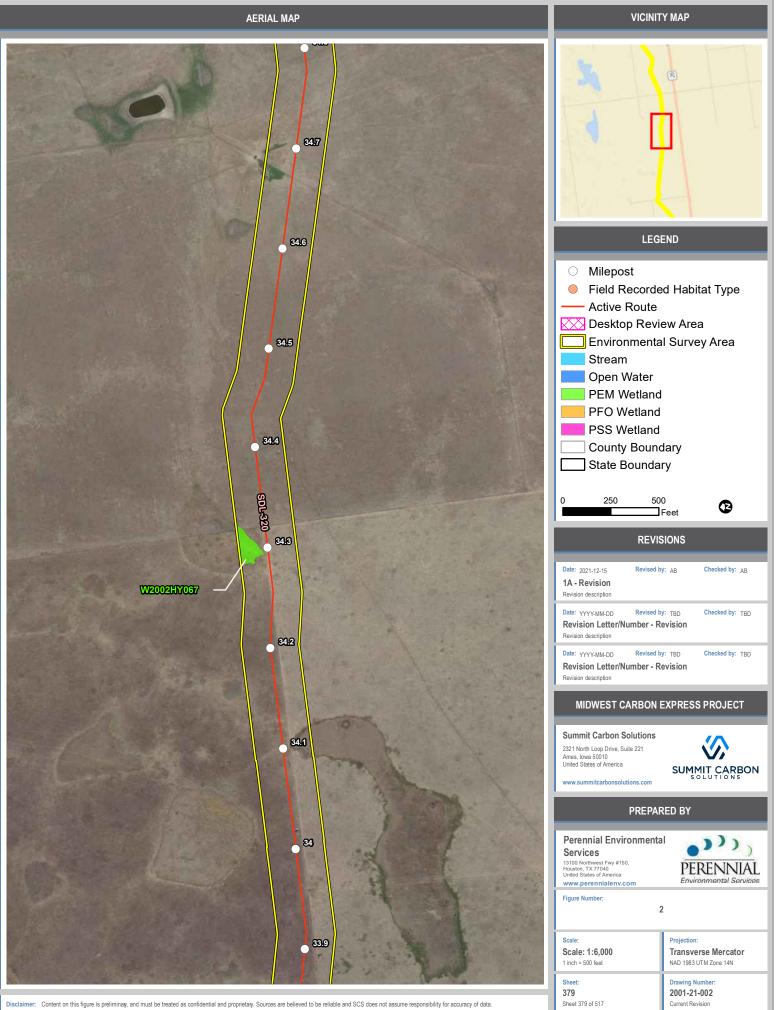


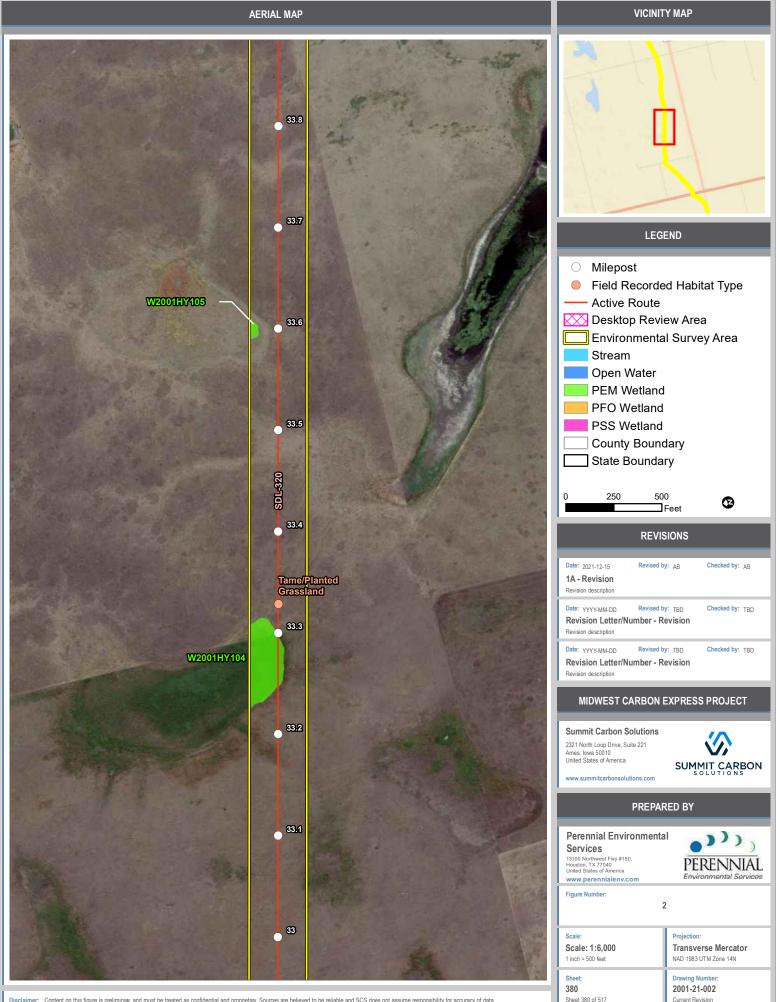




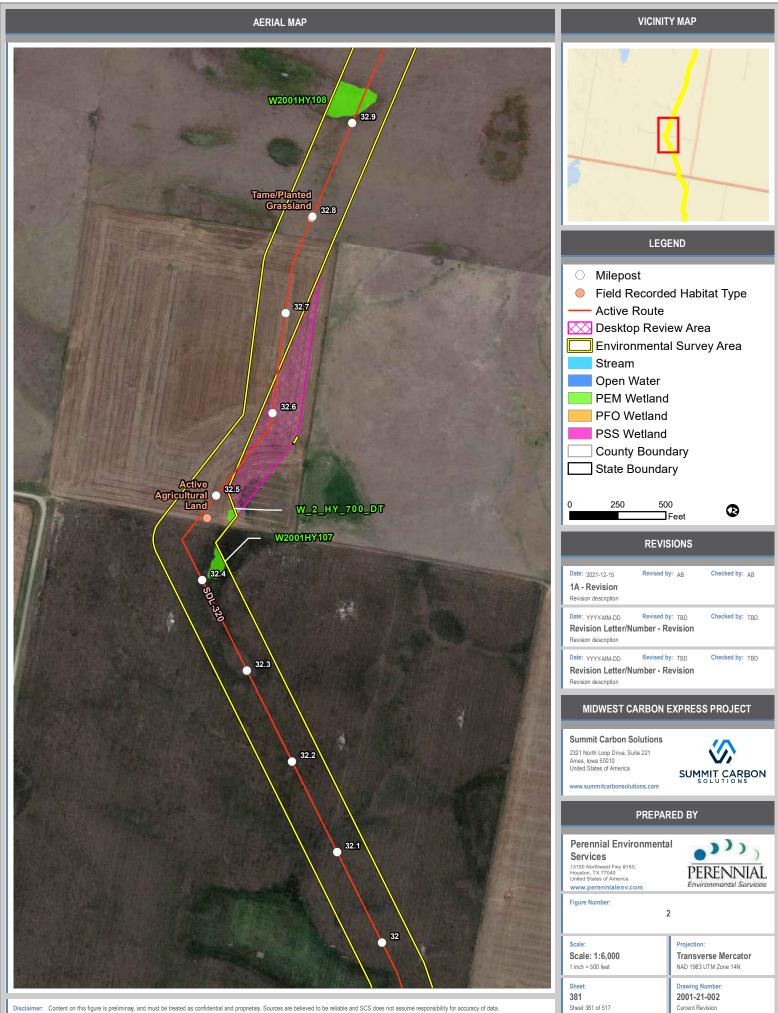


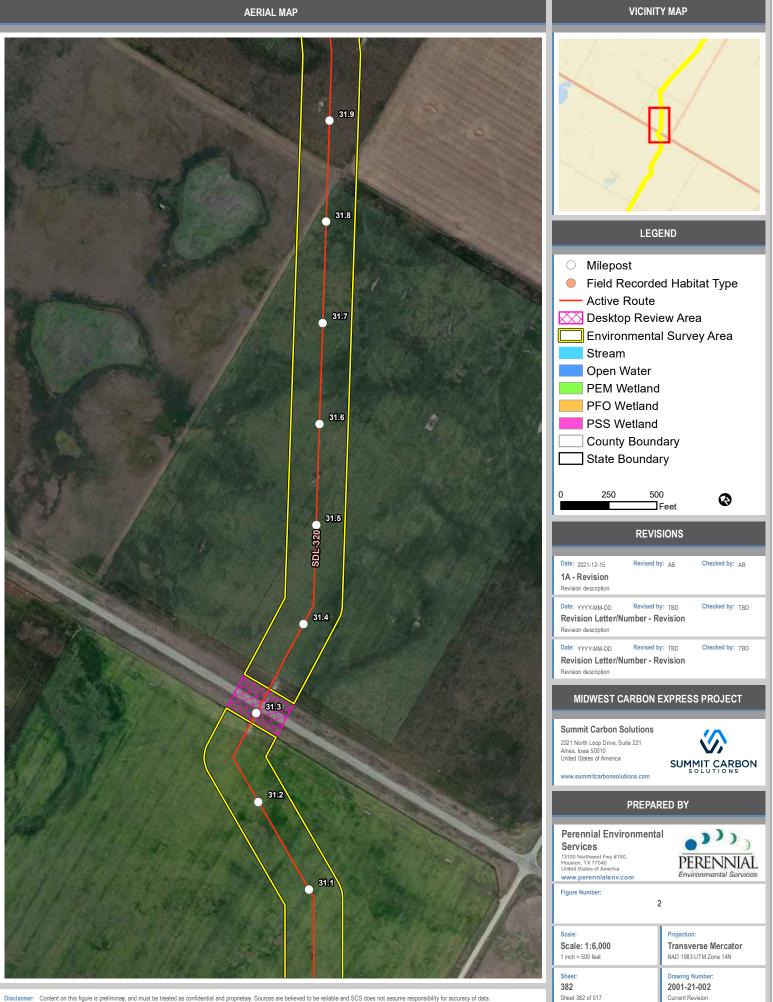


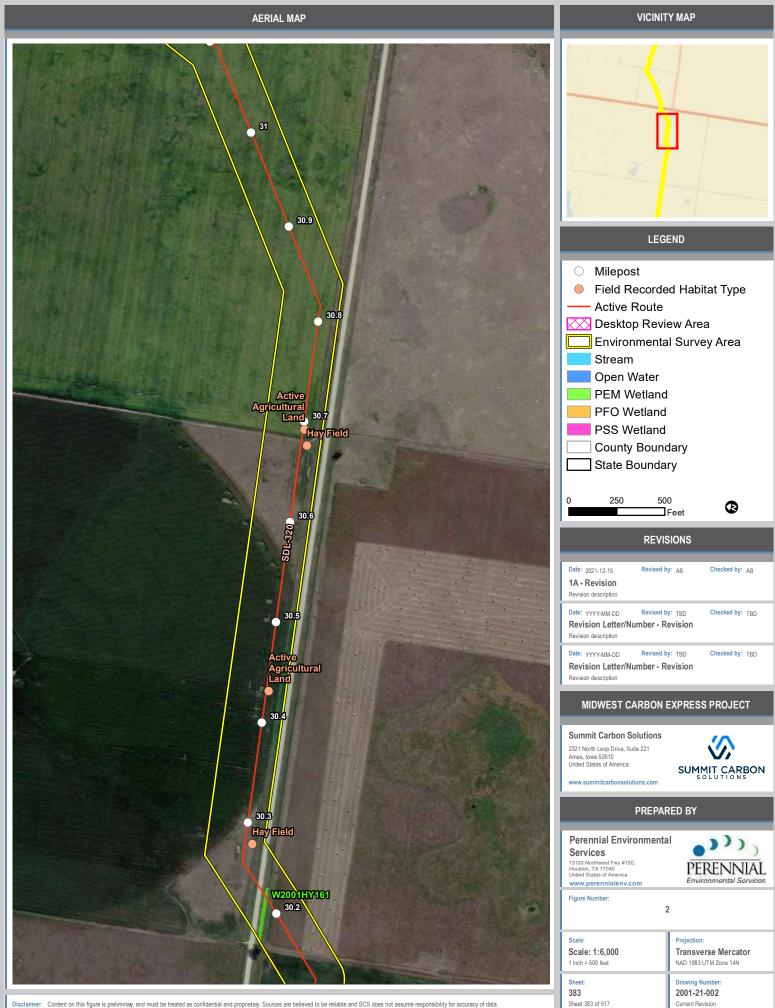


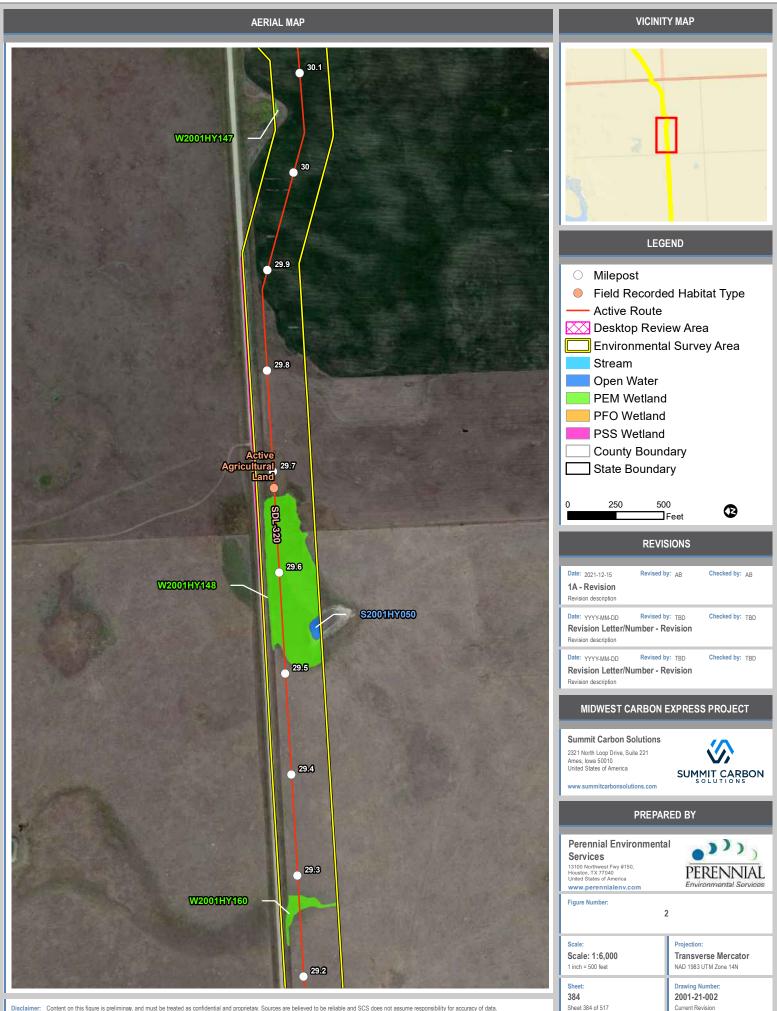


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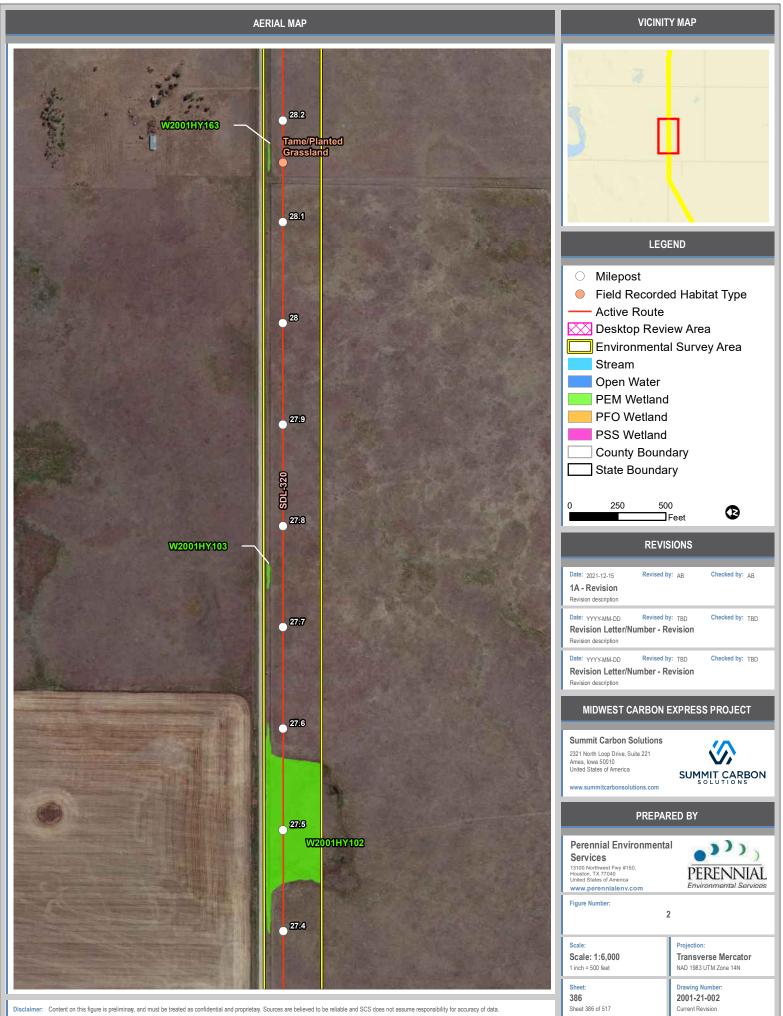




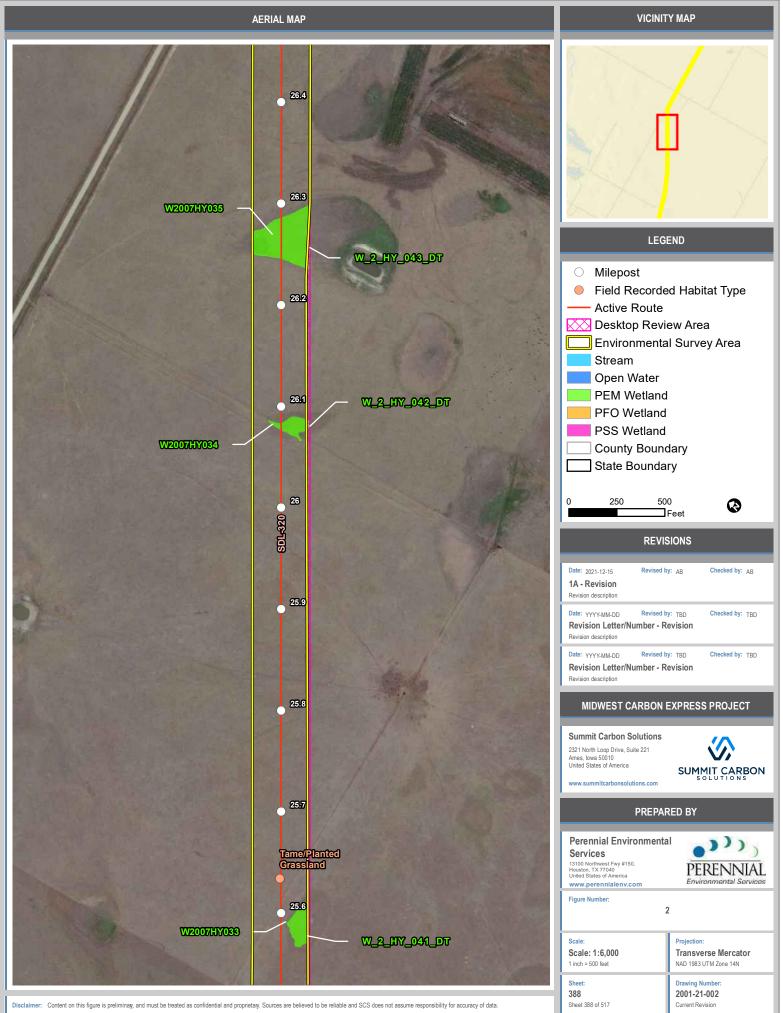


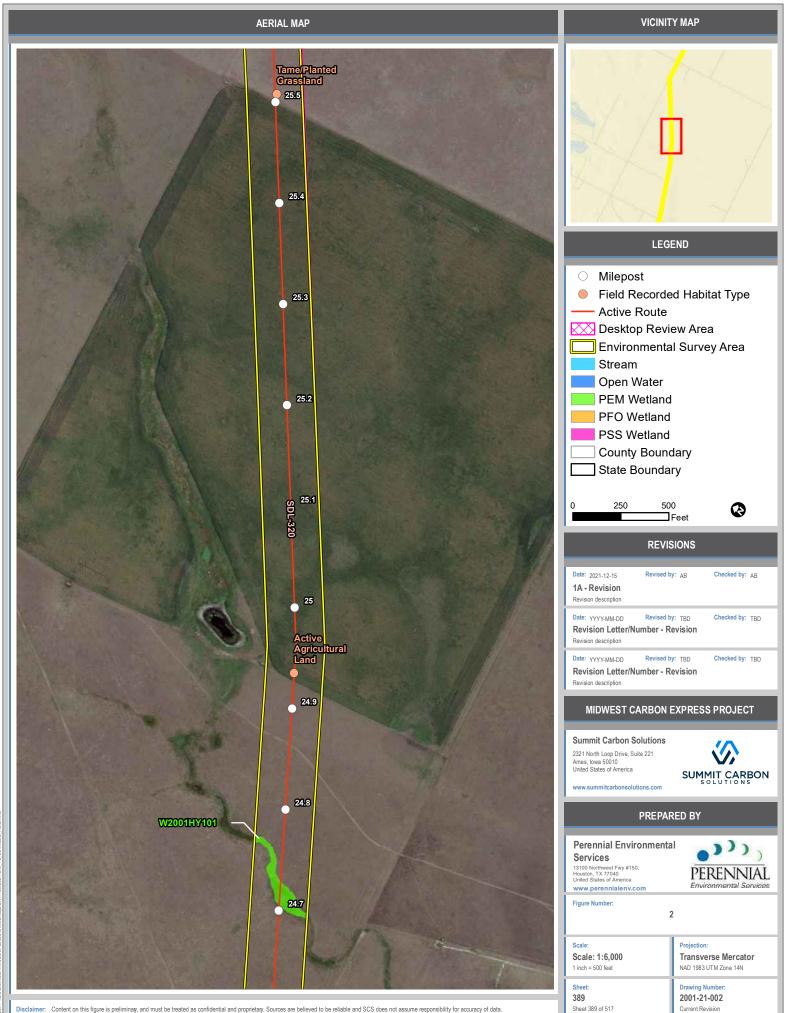


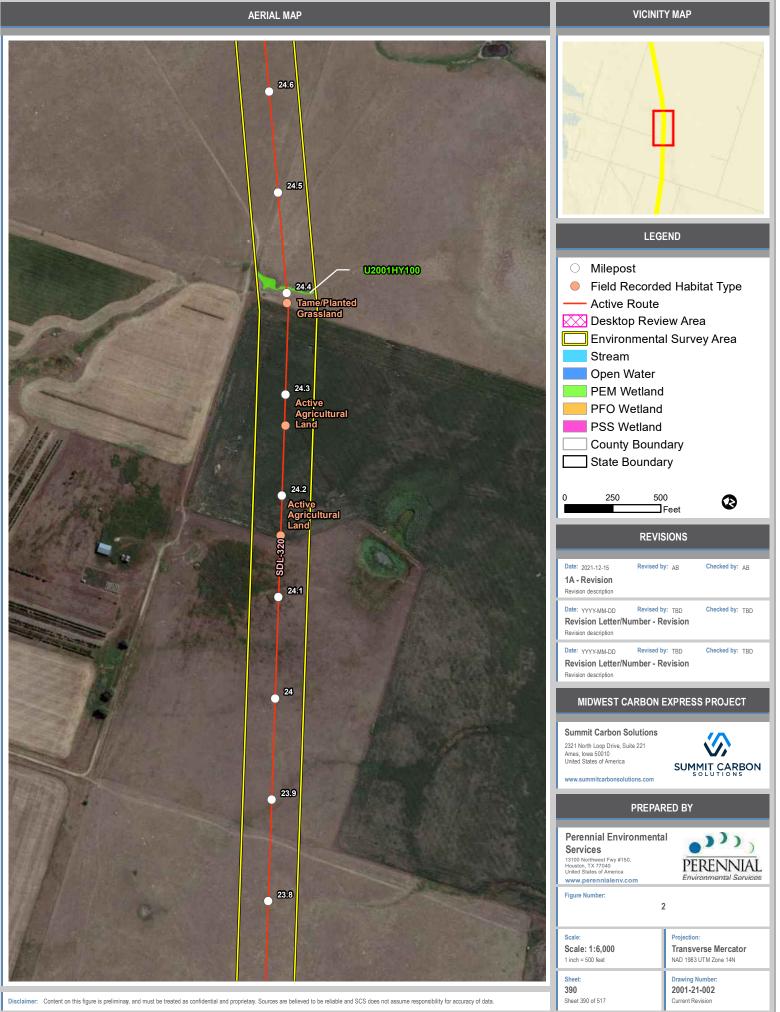




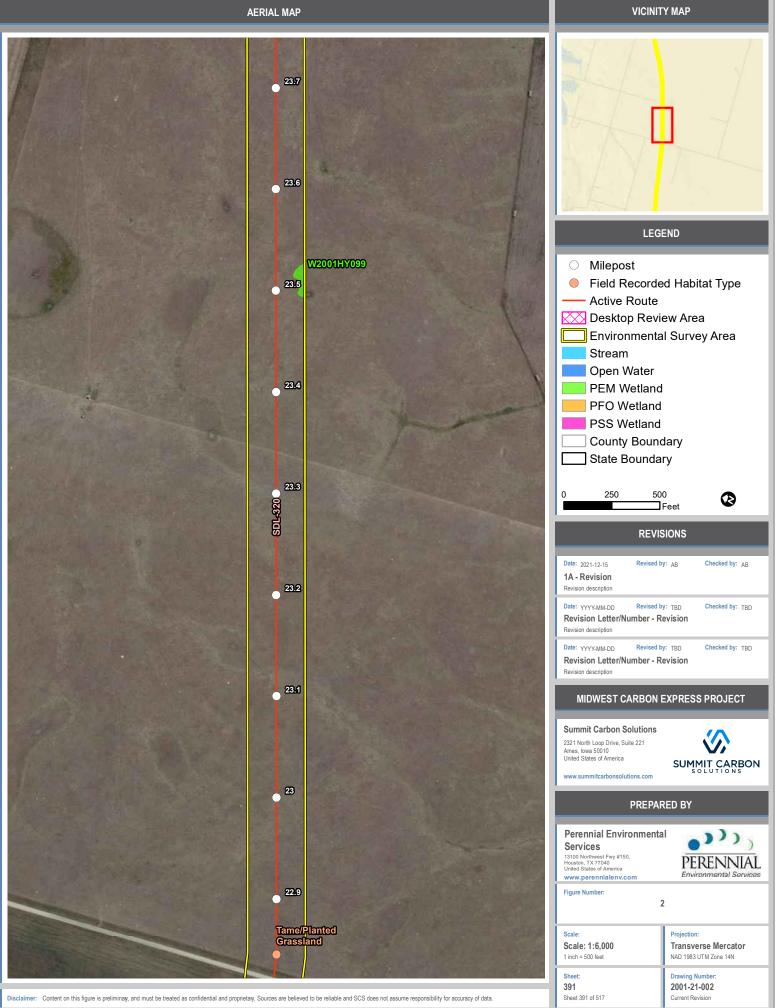


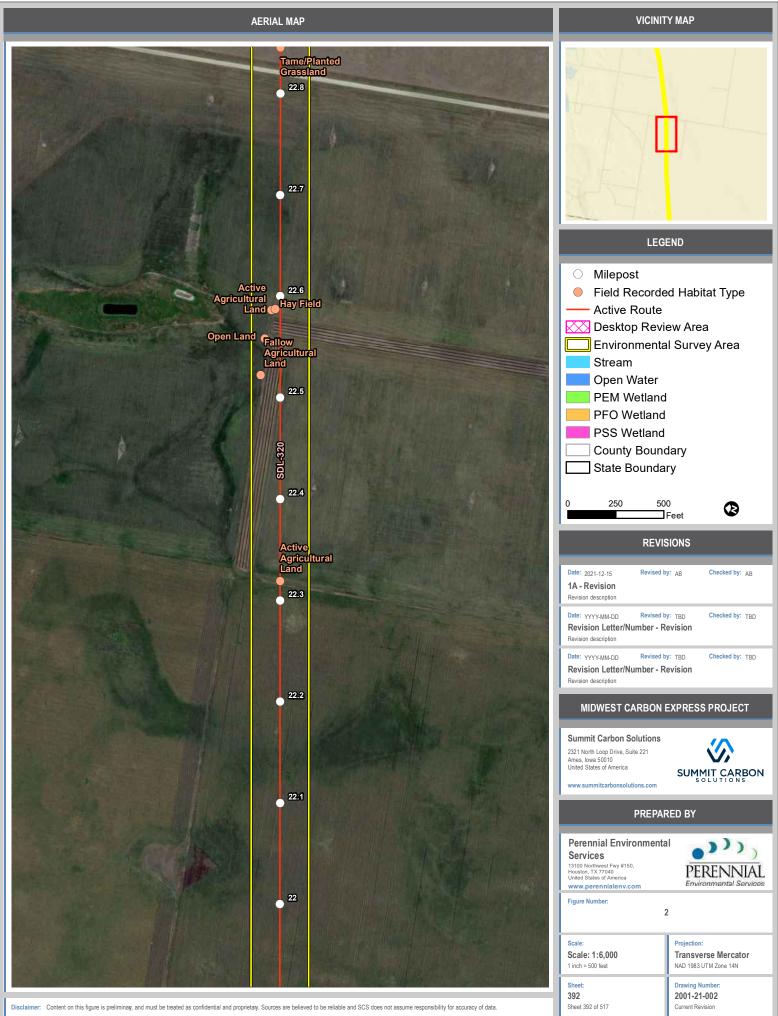


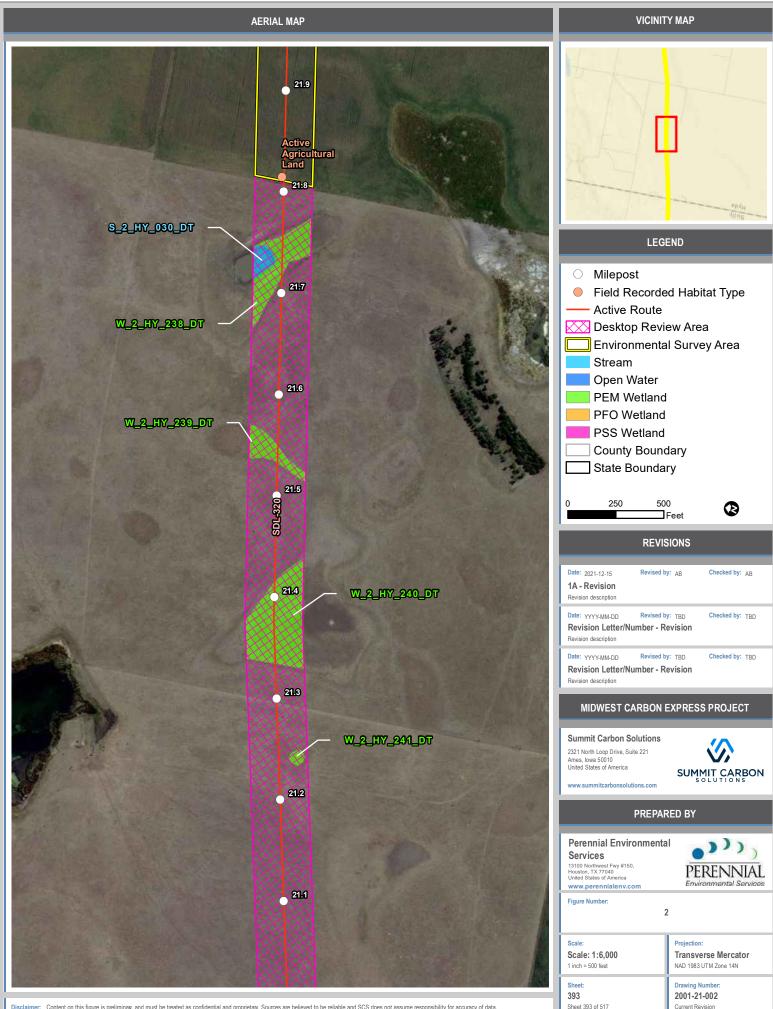


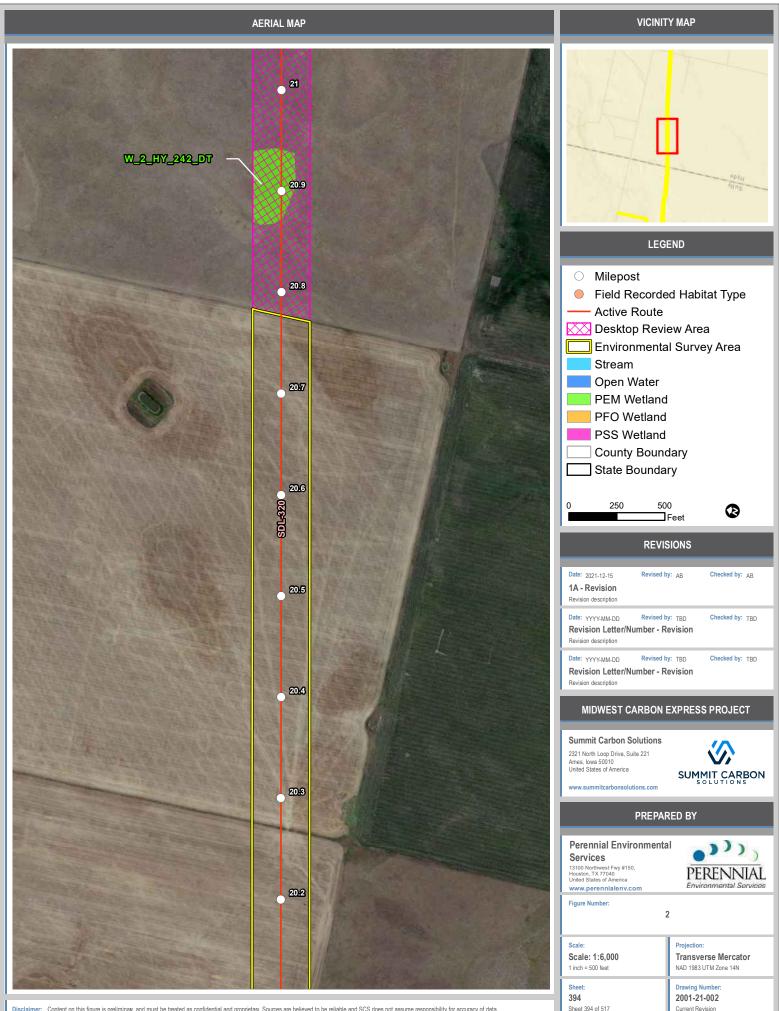


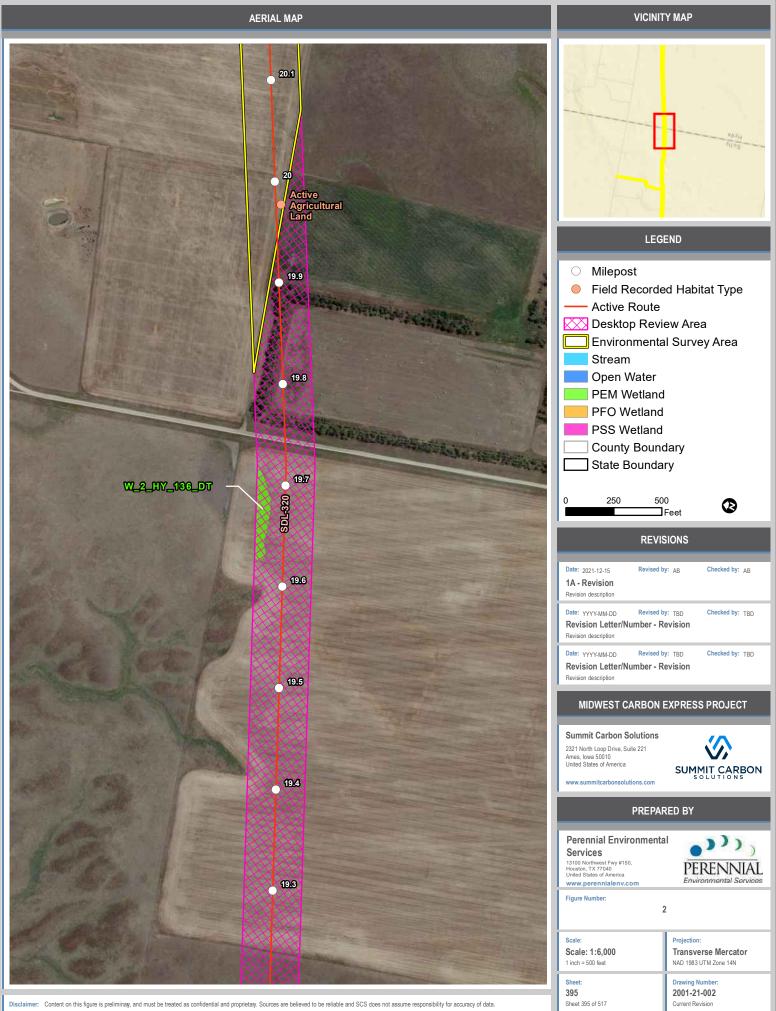
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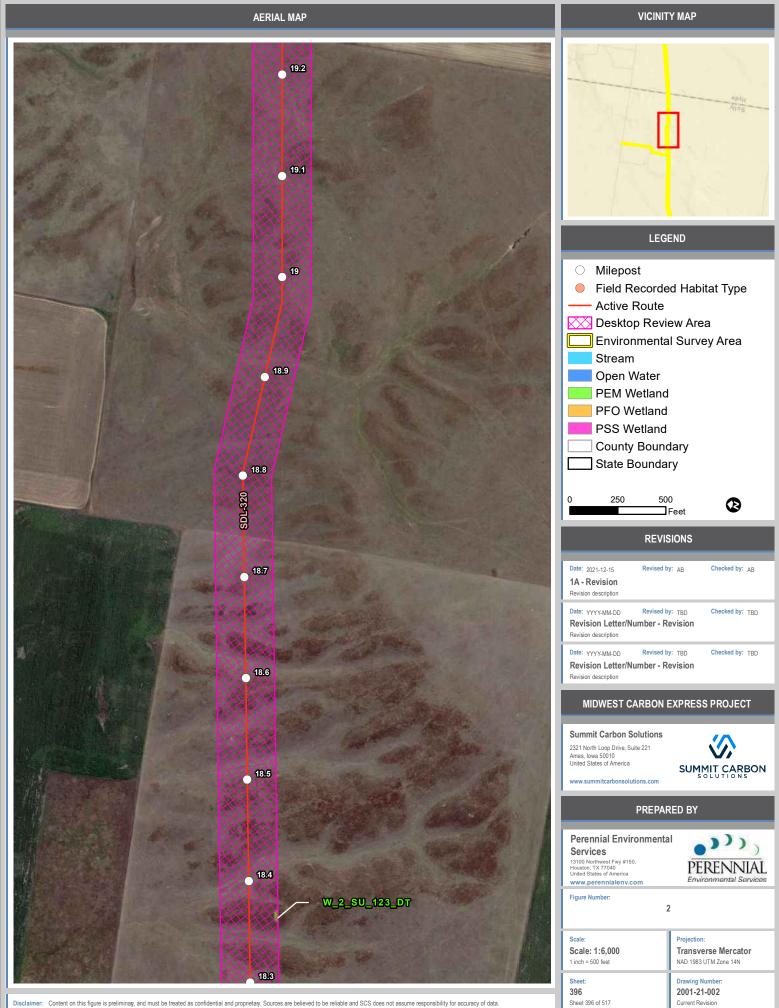


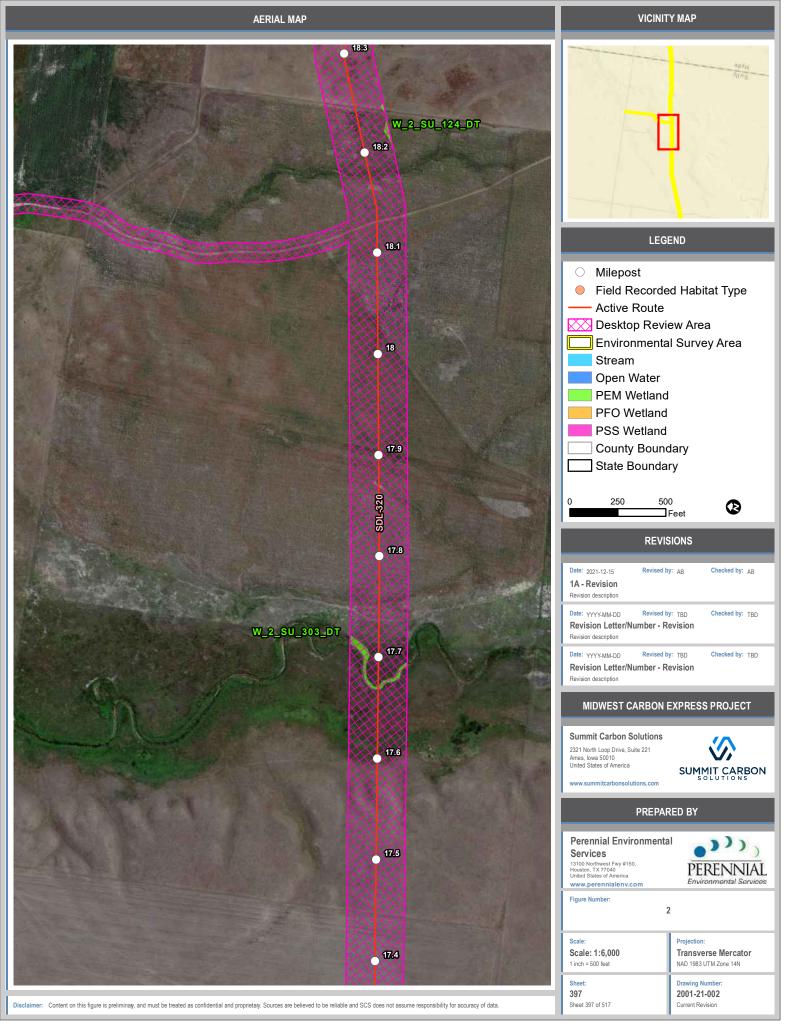


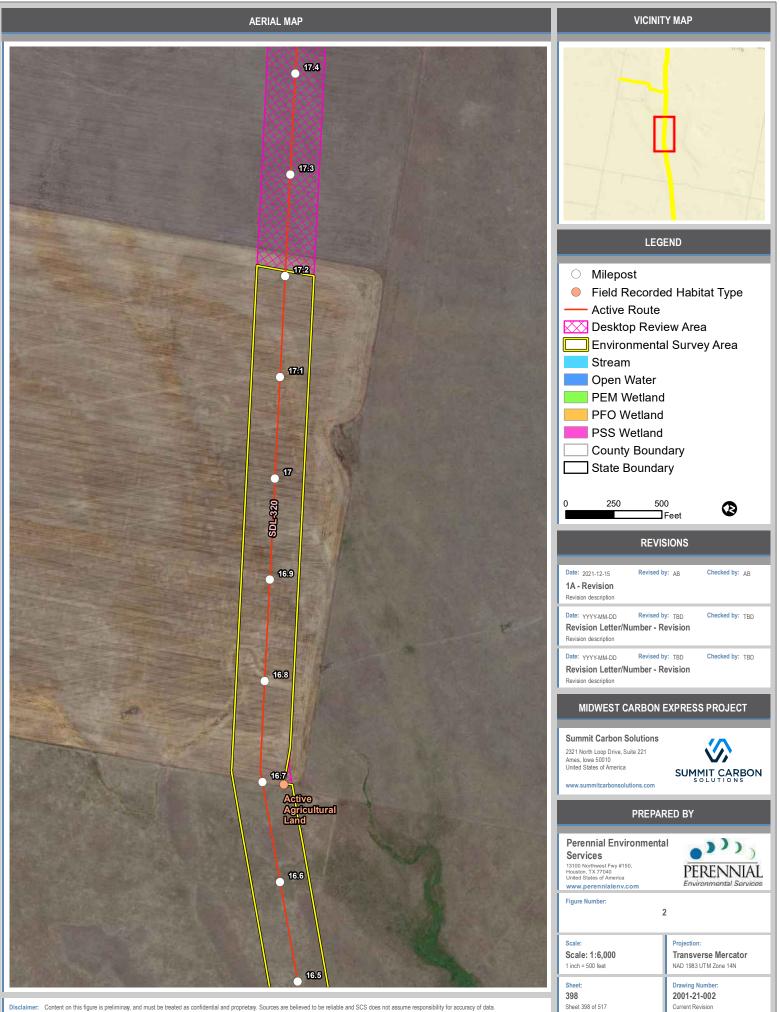


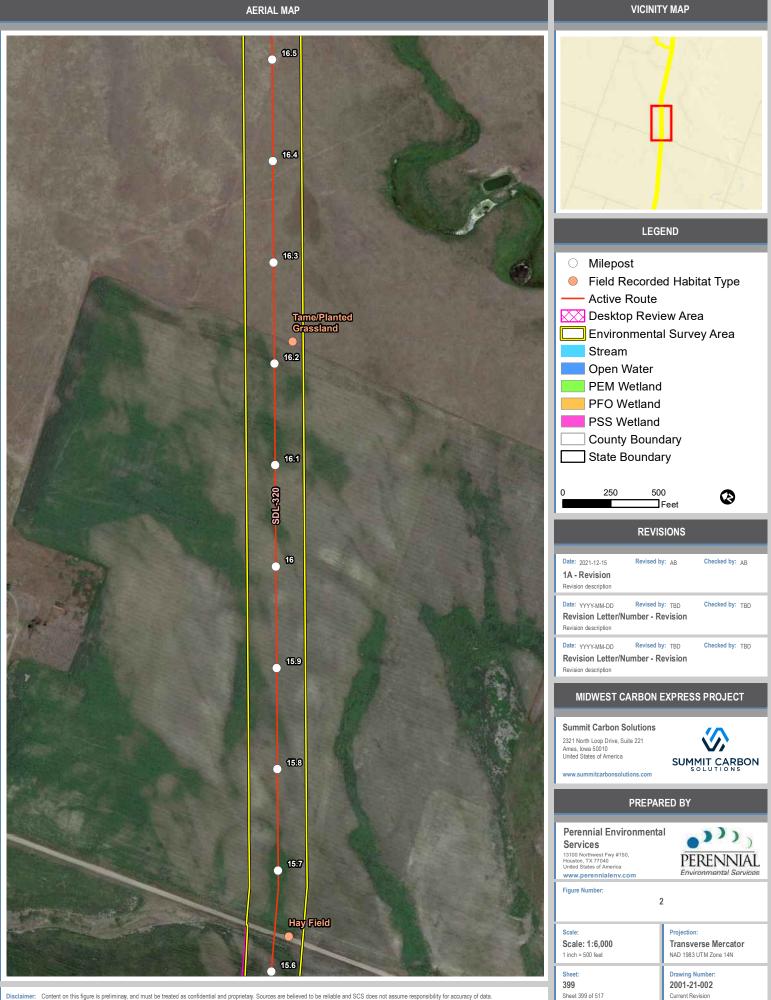




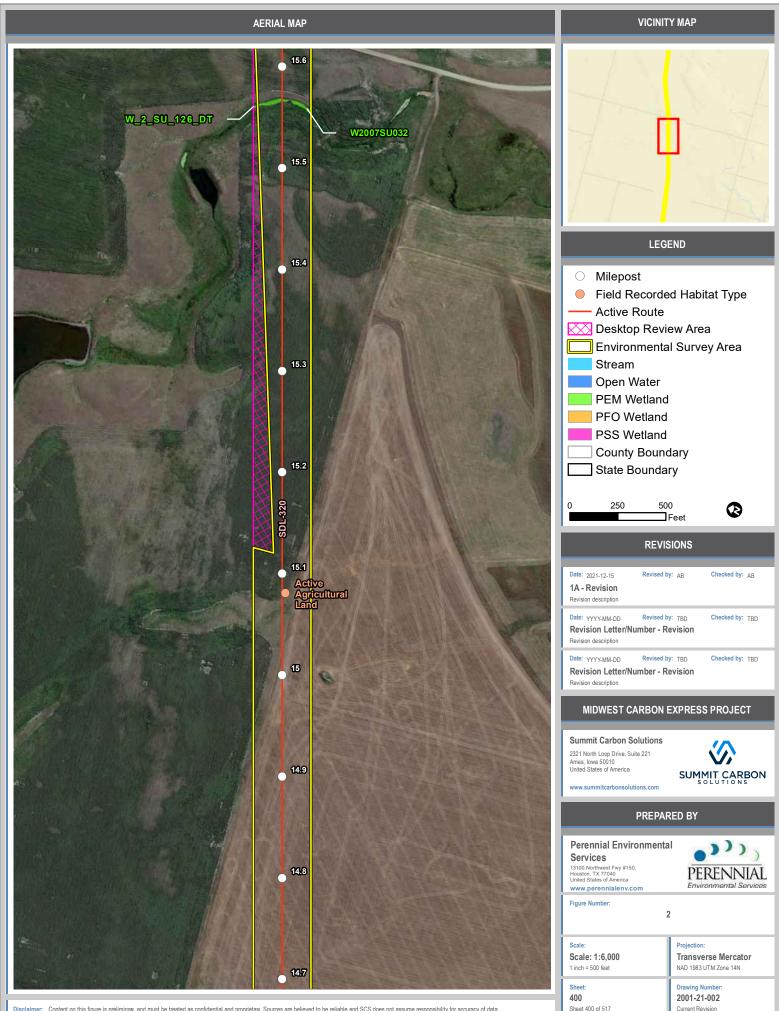


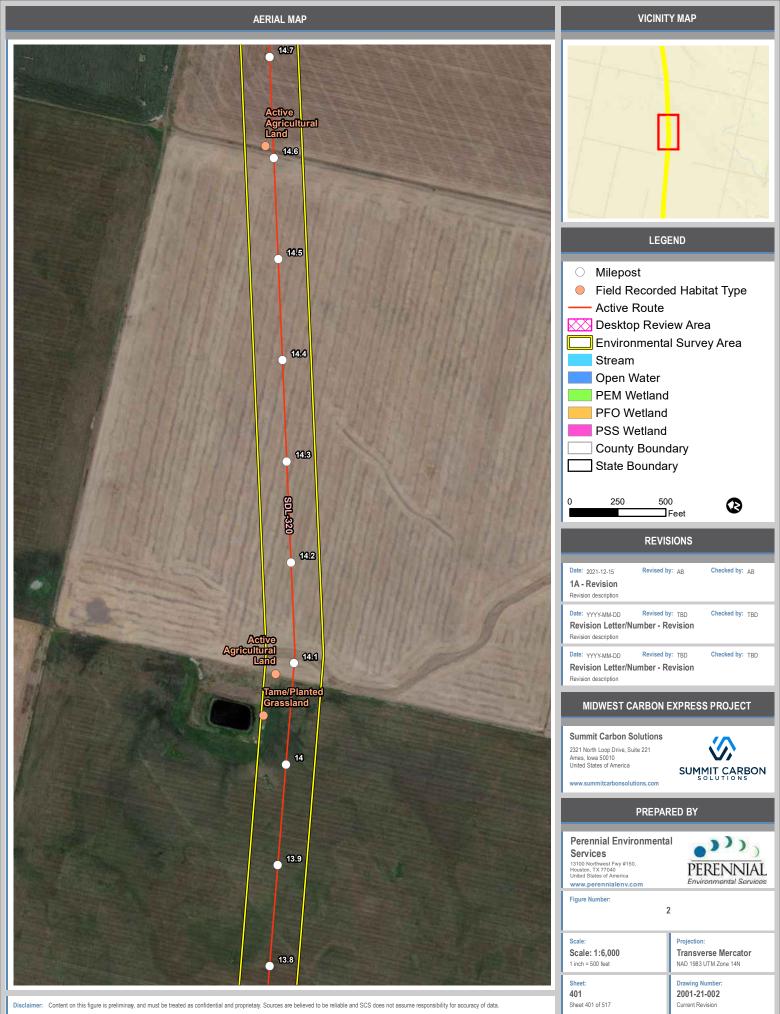


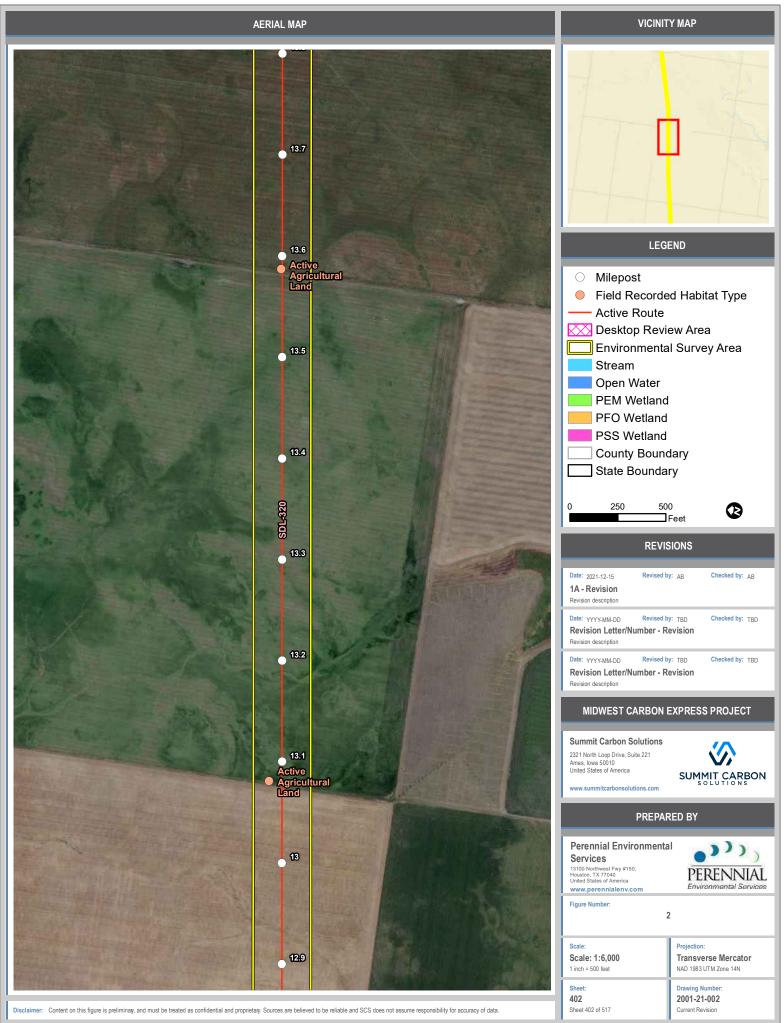


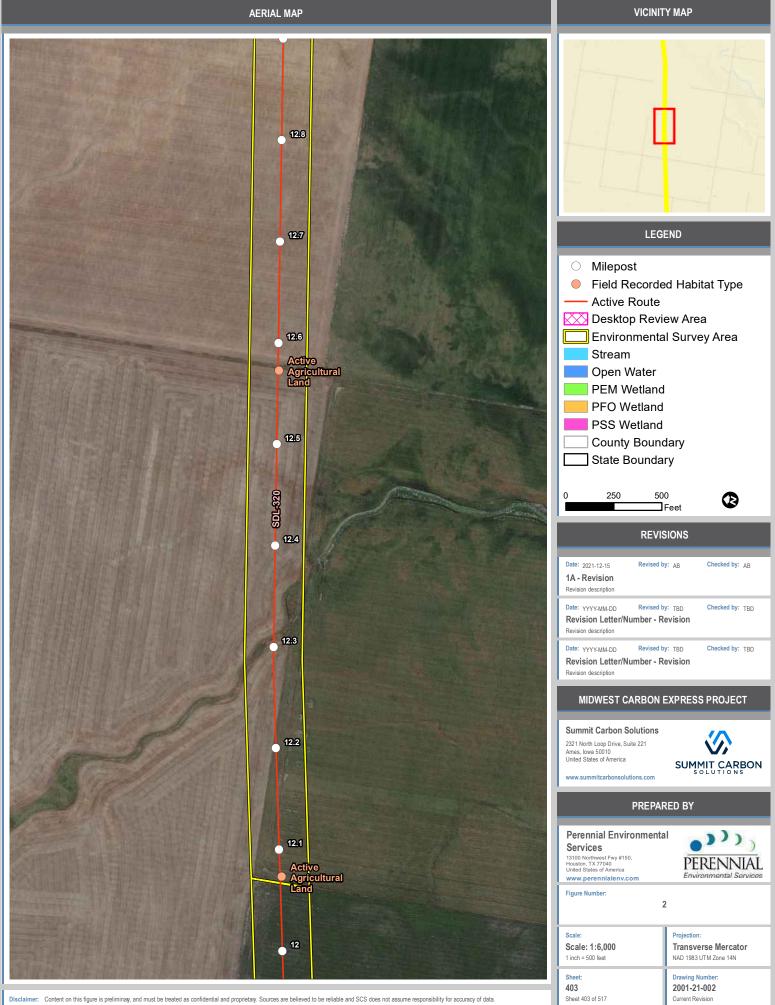


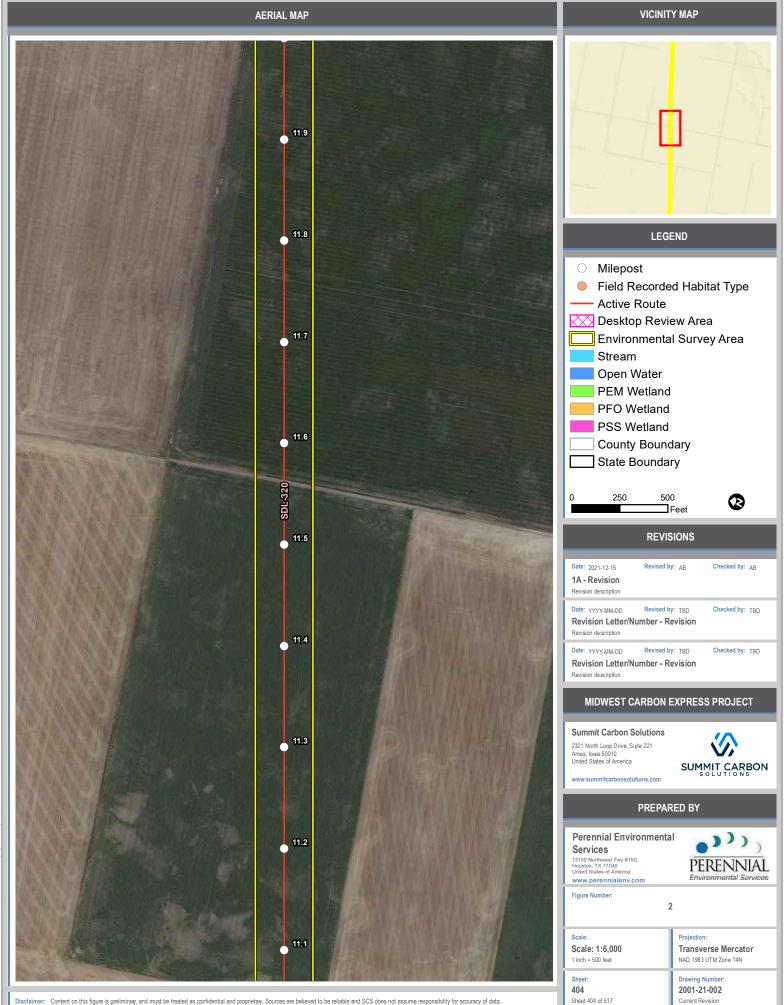
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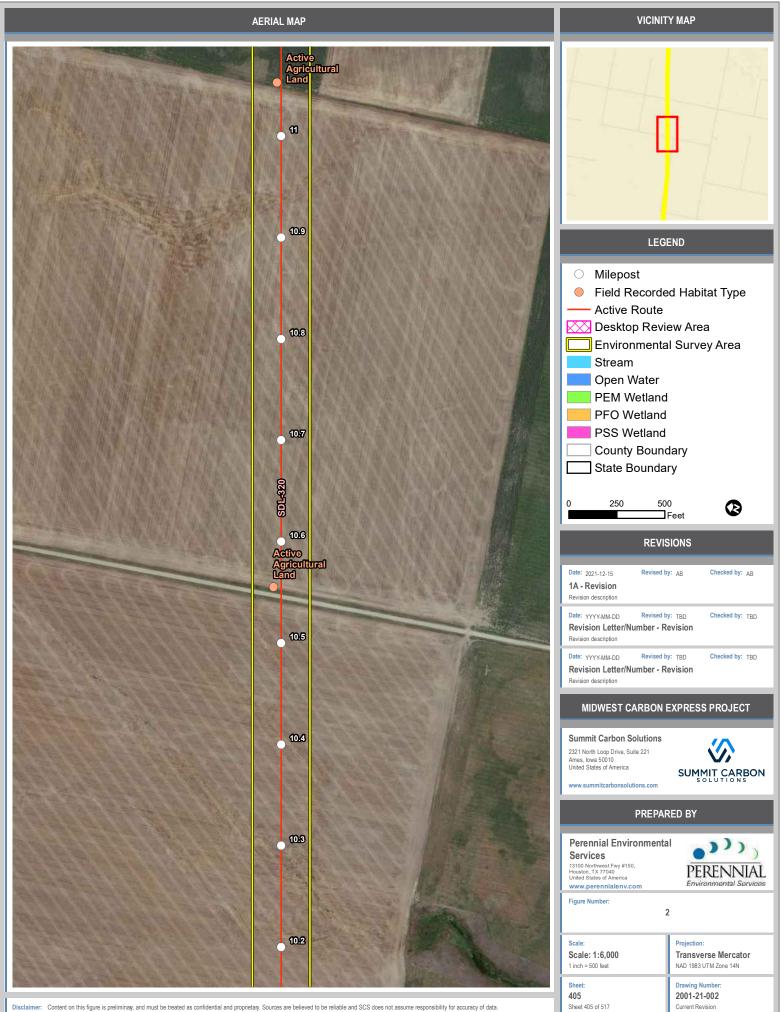


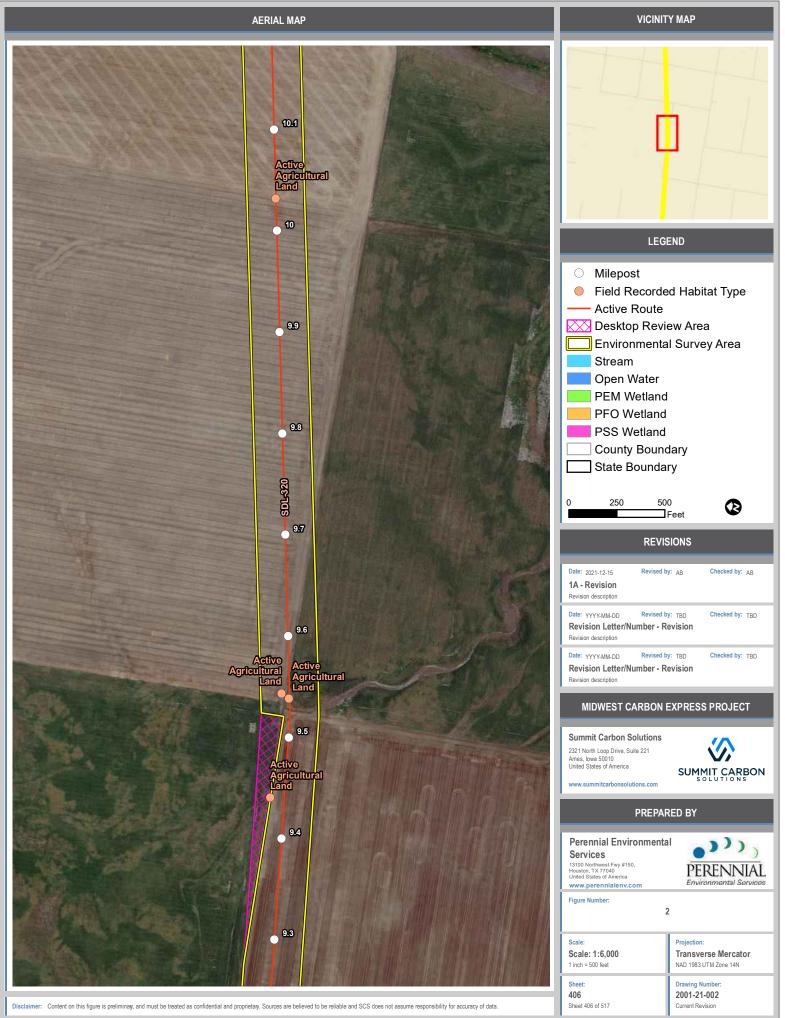




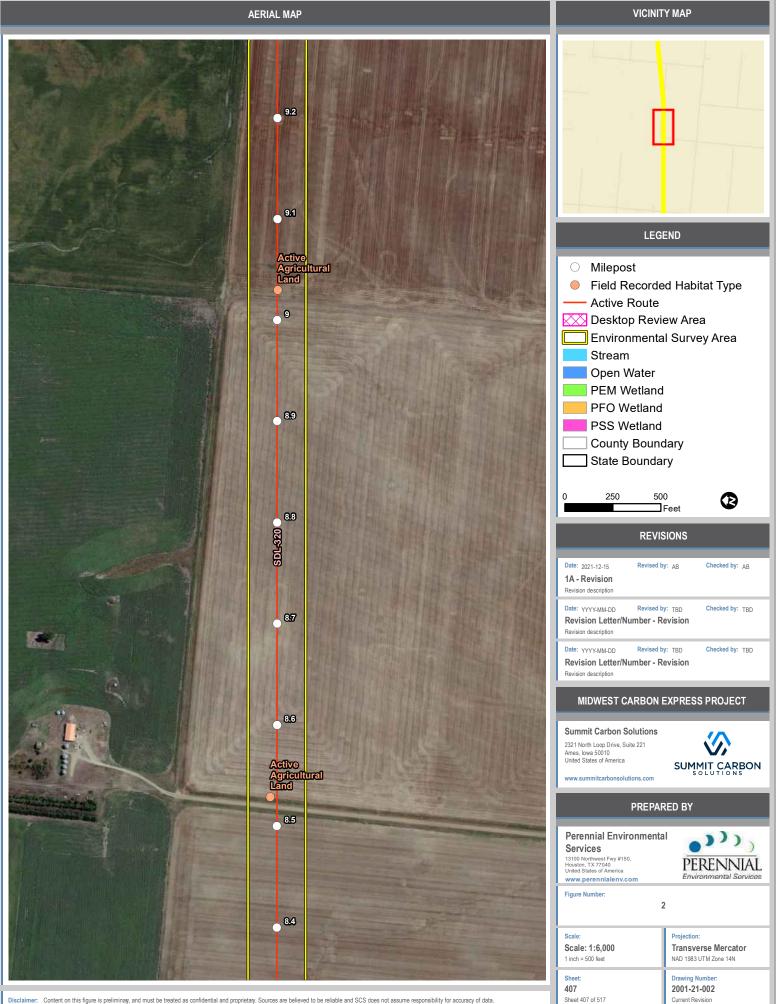


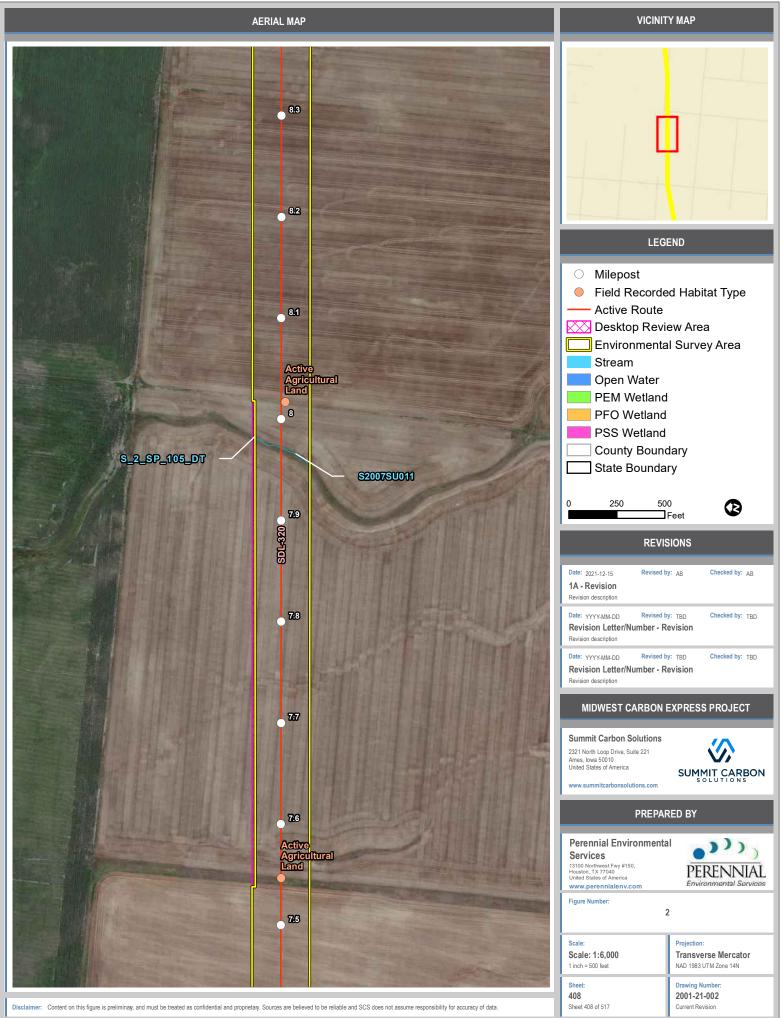




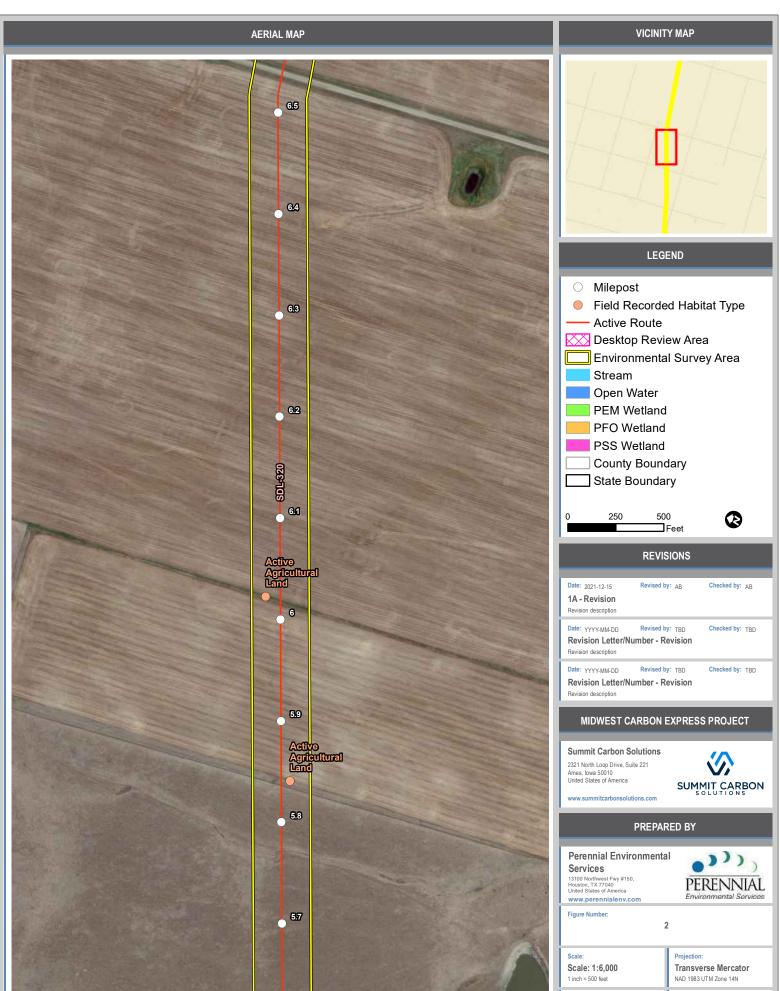


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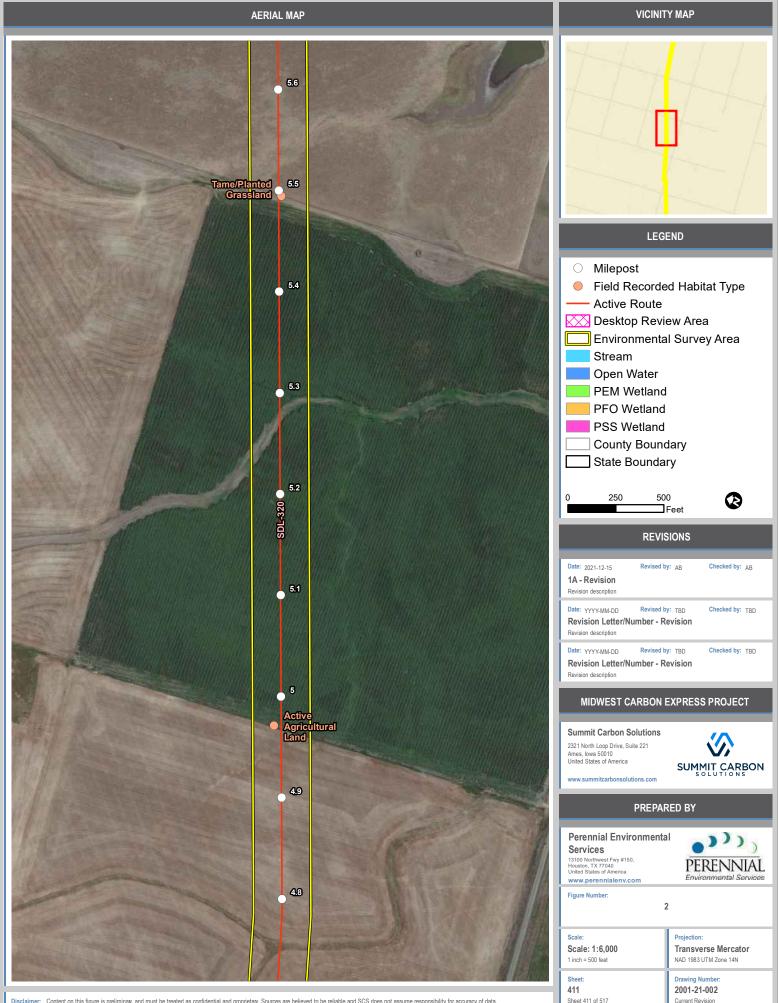
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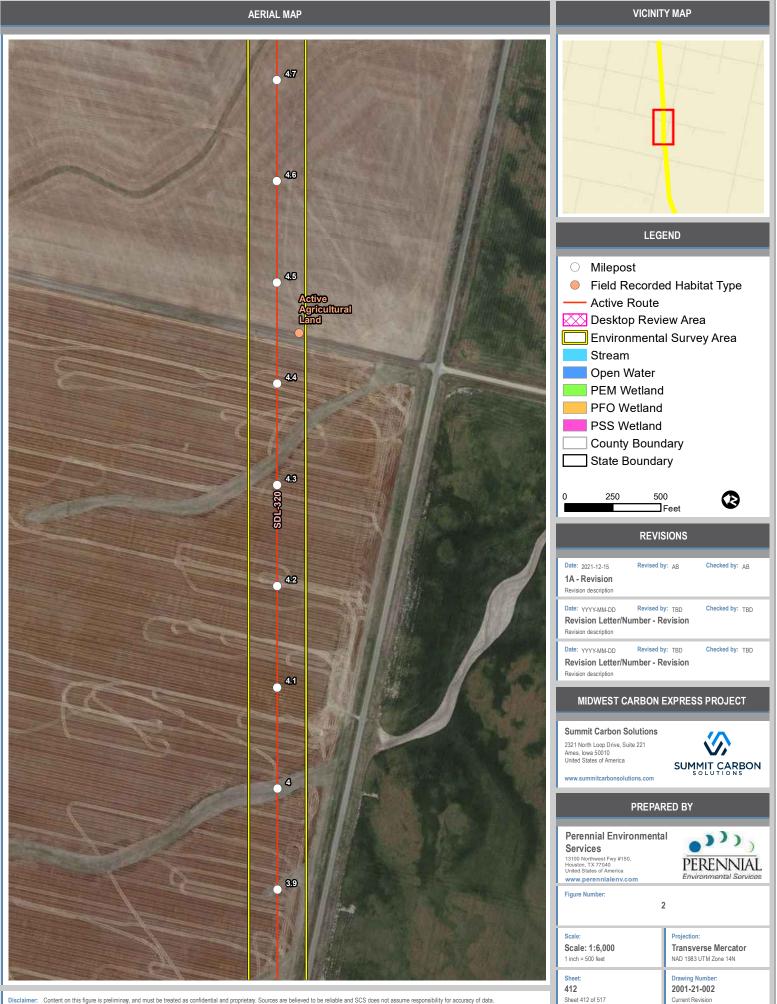
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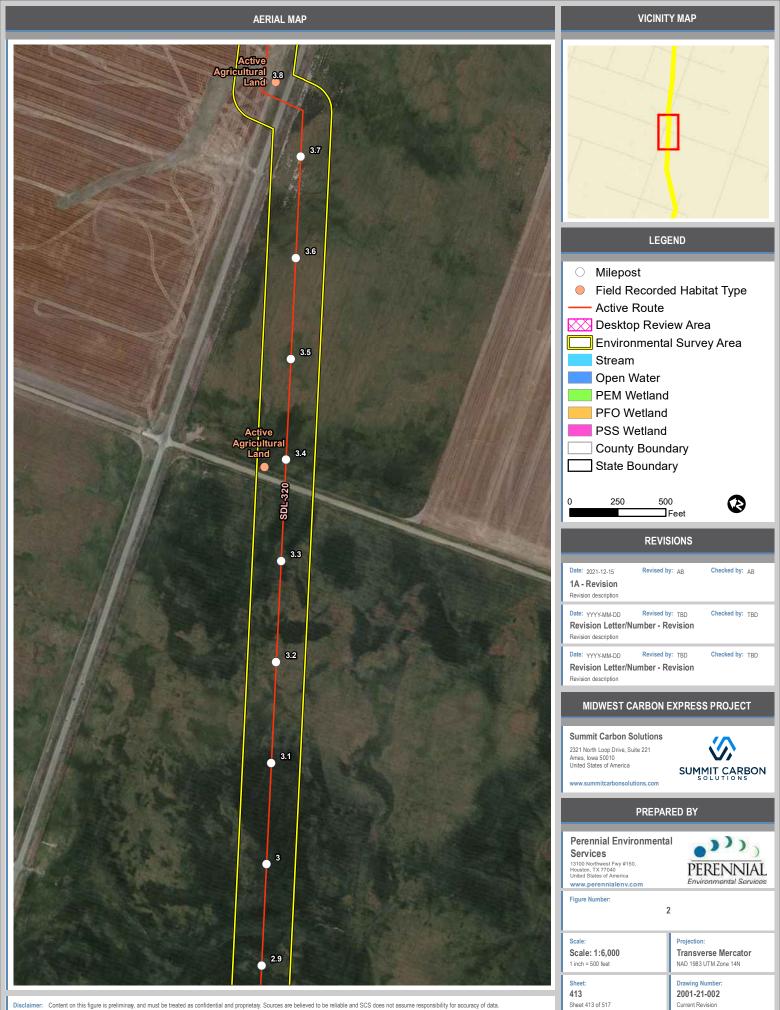
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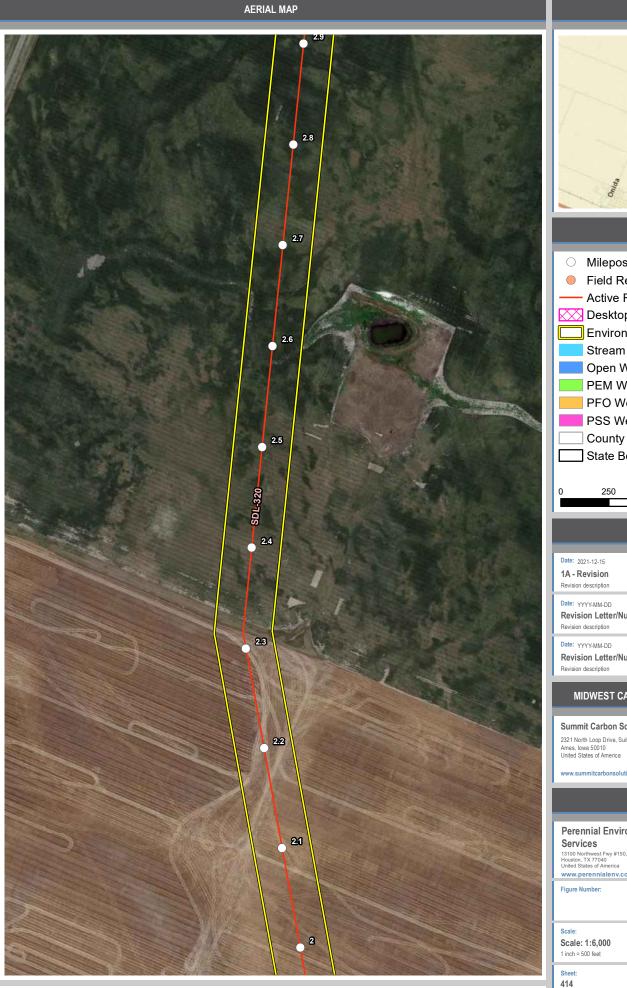
Current Revision



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 Milepost Field Recorded Habitat Type Active Route Desktop Review Area Environmental Survey Area Stream Open Water PEM Wetland PFO Wetland PSS Wetland **County Boundary** State Boundary 250 500 Q Feet REVISIONS Revised by: AB Checked by: AB Date: 2021-12-15 1A - Revision Revision description Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Revision description Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** Revision description MIDWEST CARBON EXPRESS PROJECT Summit Carbon Solutions

2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America w.summitcarbonsolutions.com

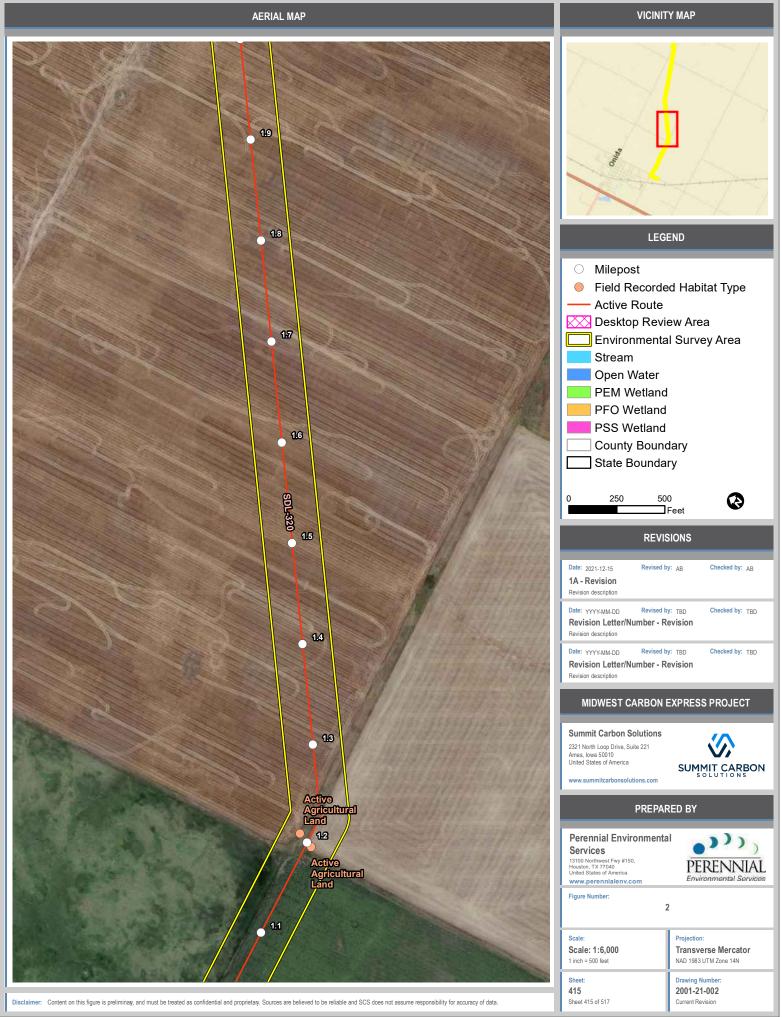
Sheet 414 of 517



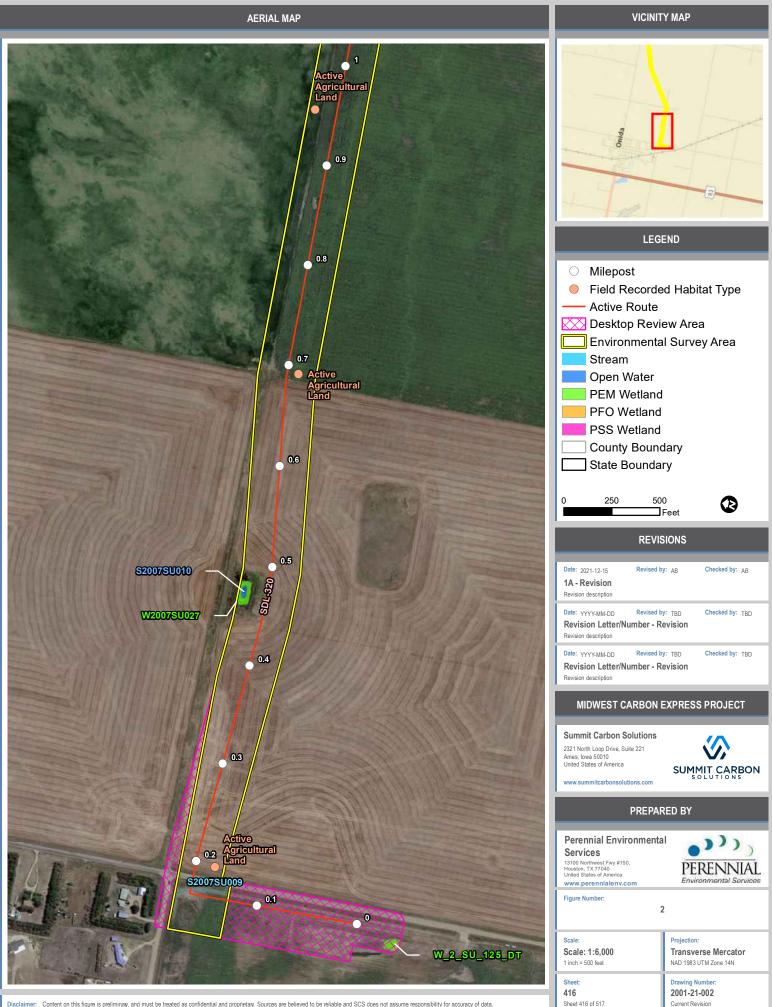
PREPARED BY ,,,,, **Perennial Environmental** PERENNIAL www.perennialenv.com 2

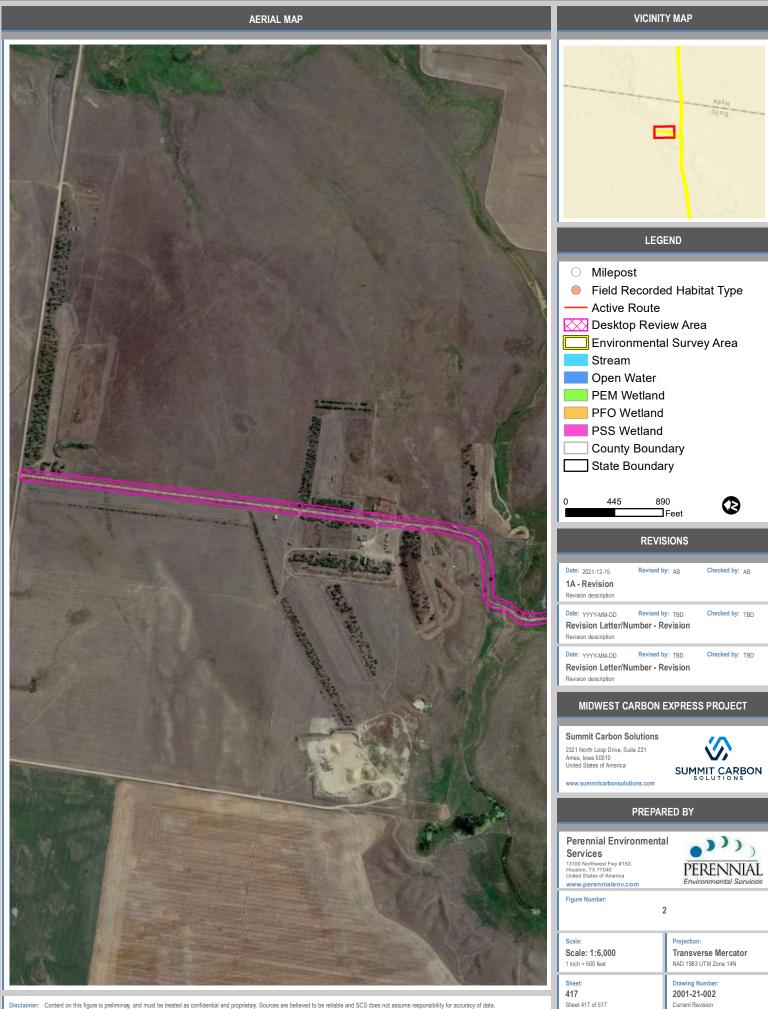
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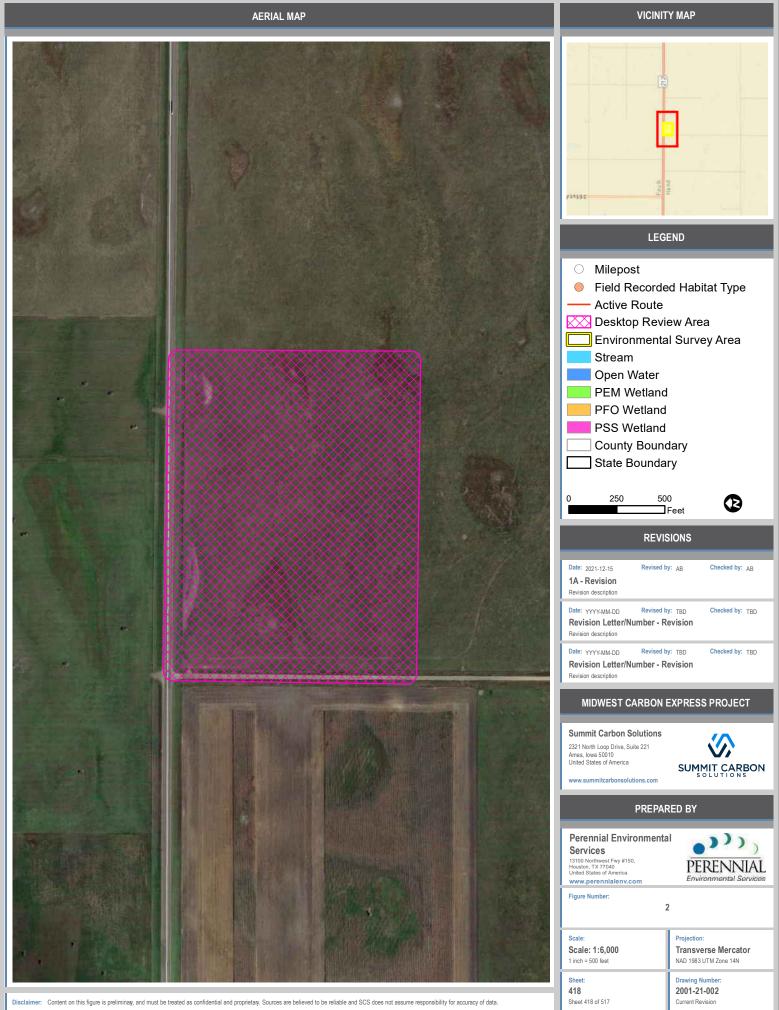
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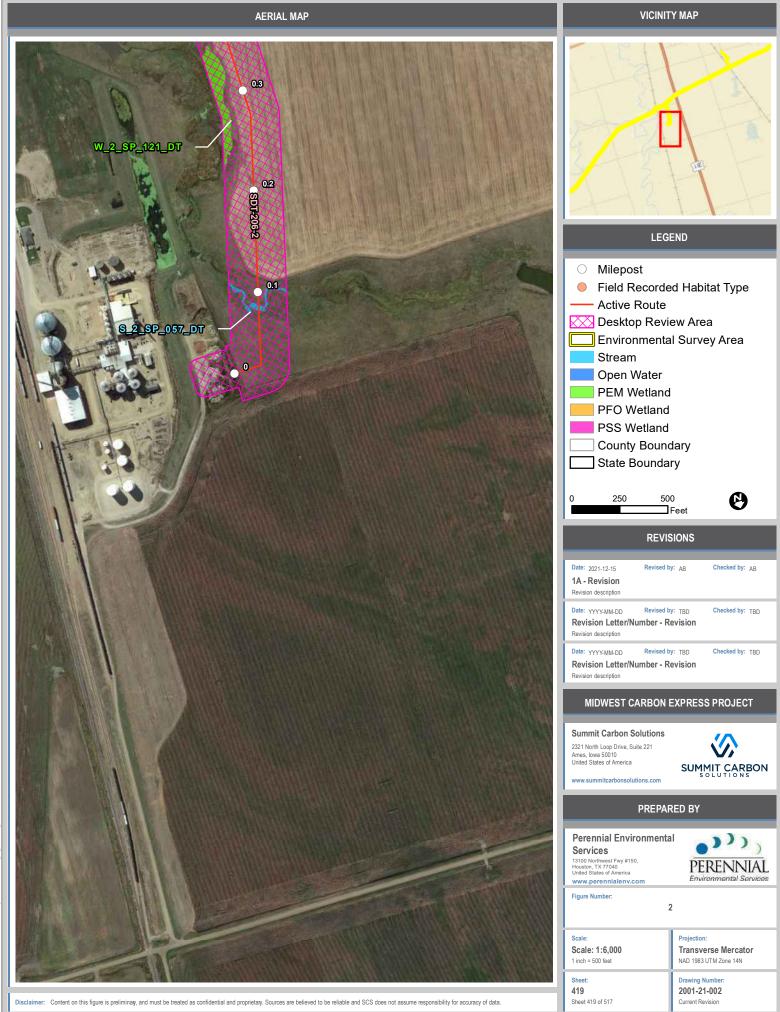


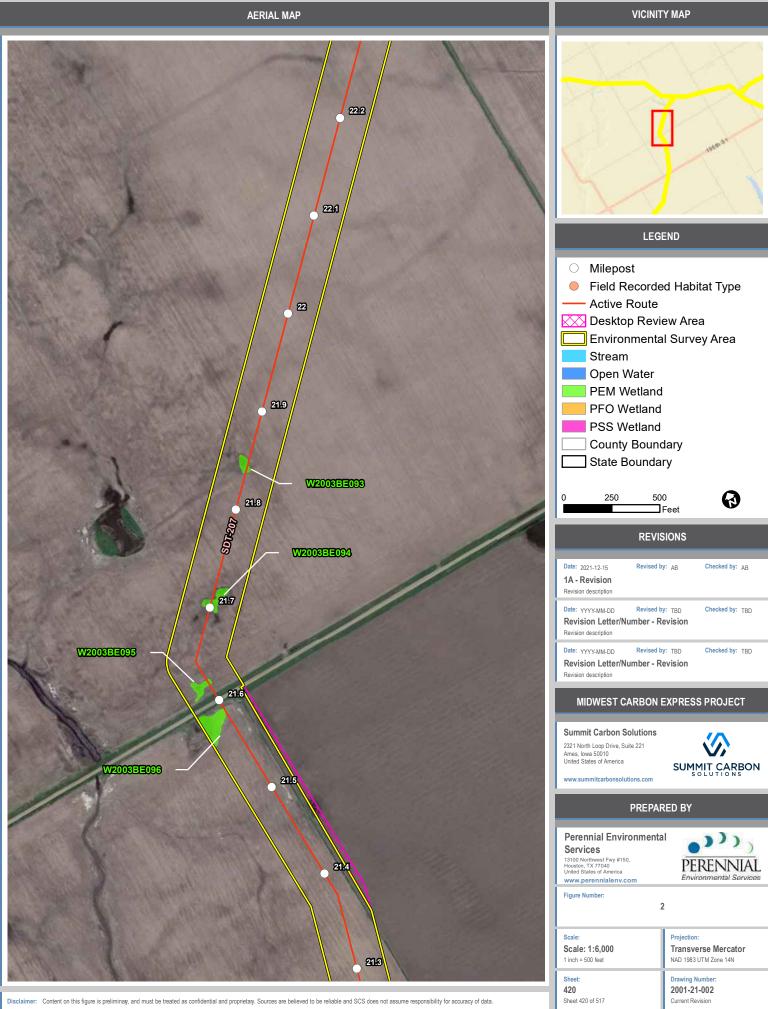
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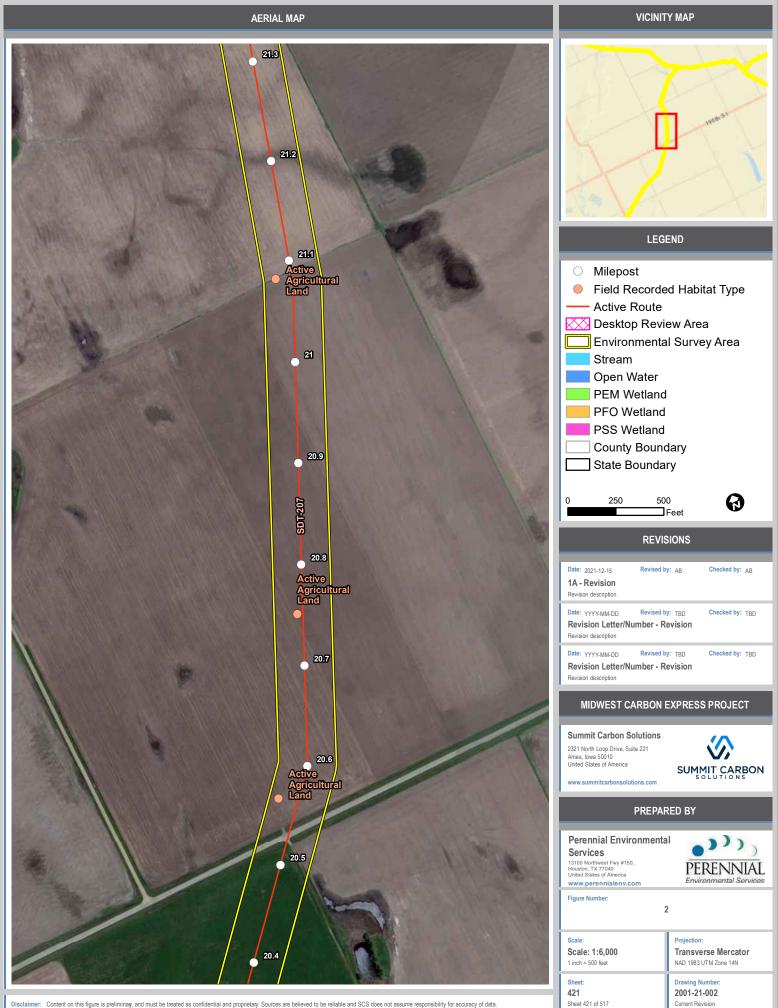


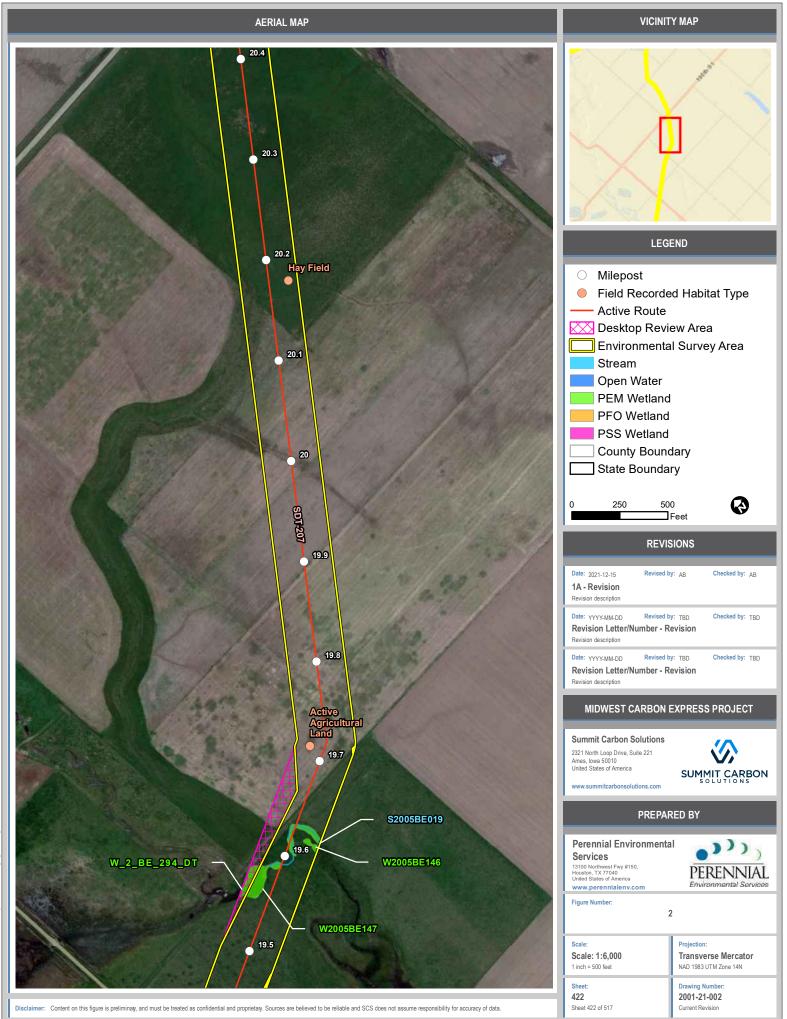


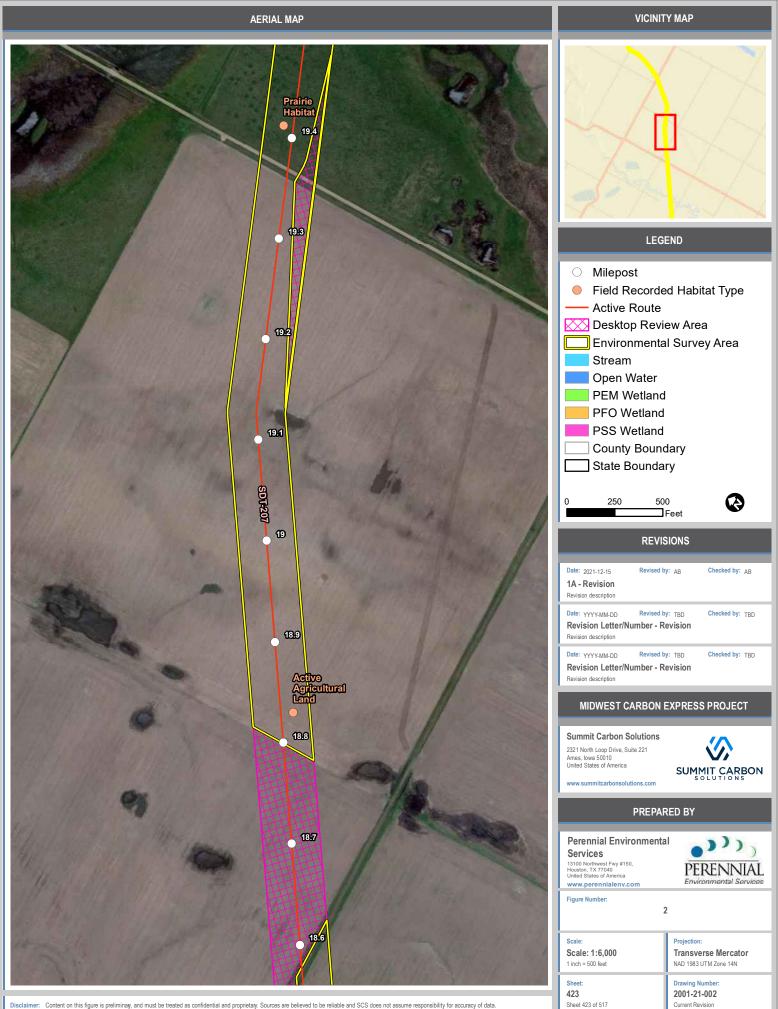


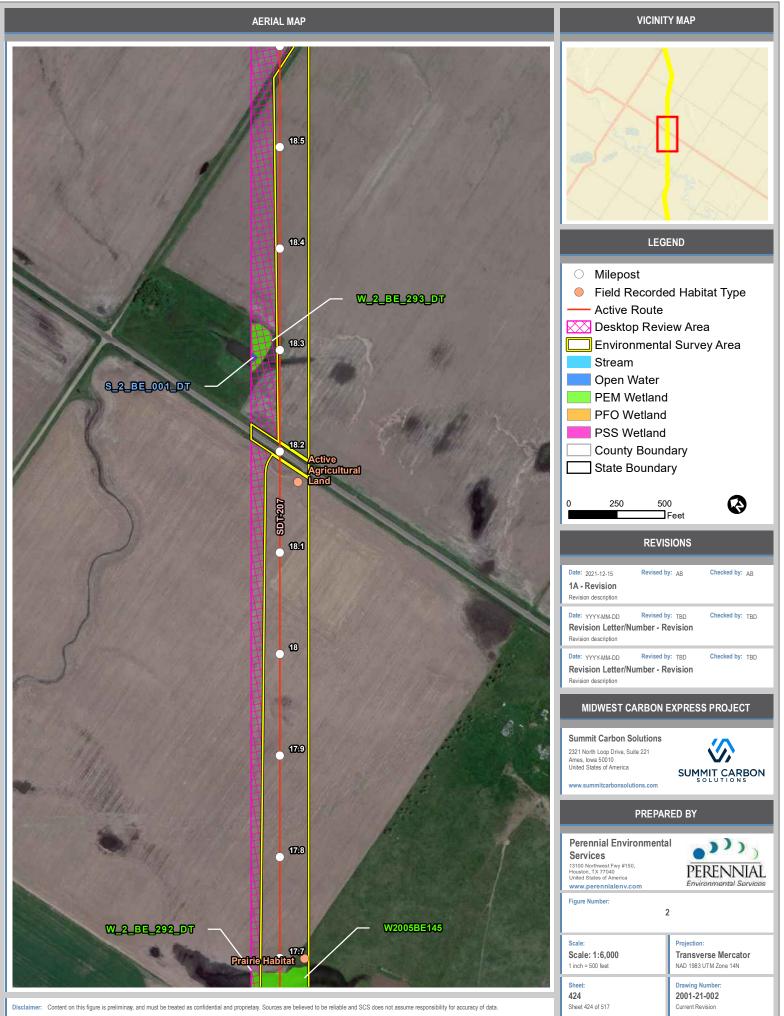




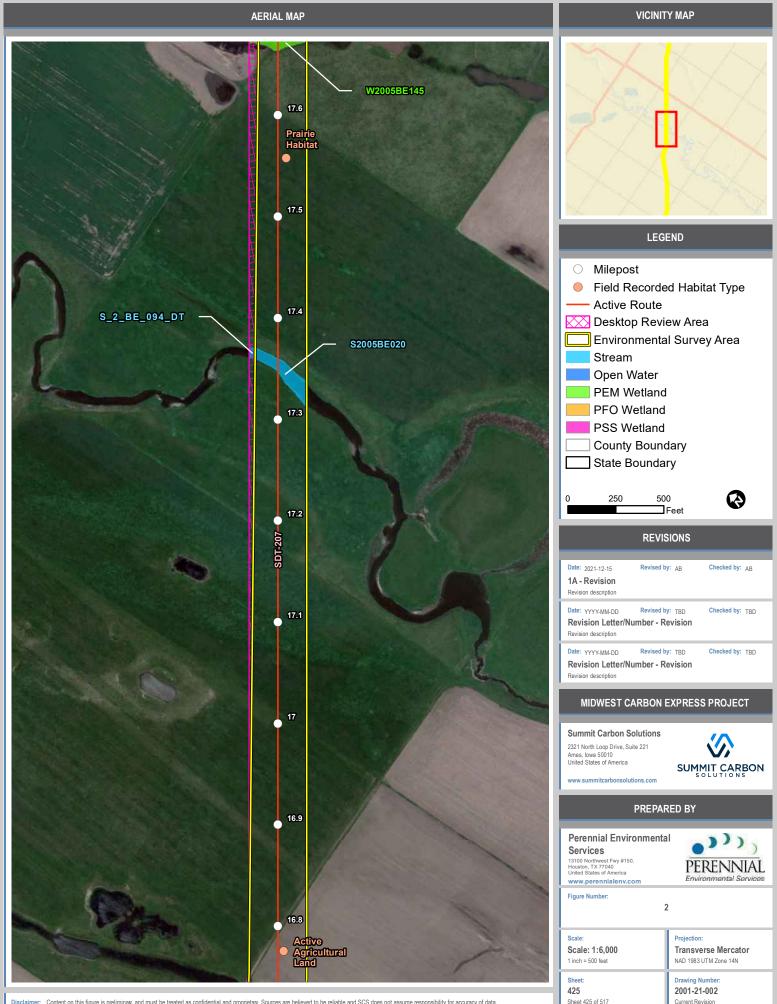




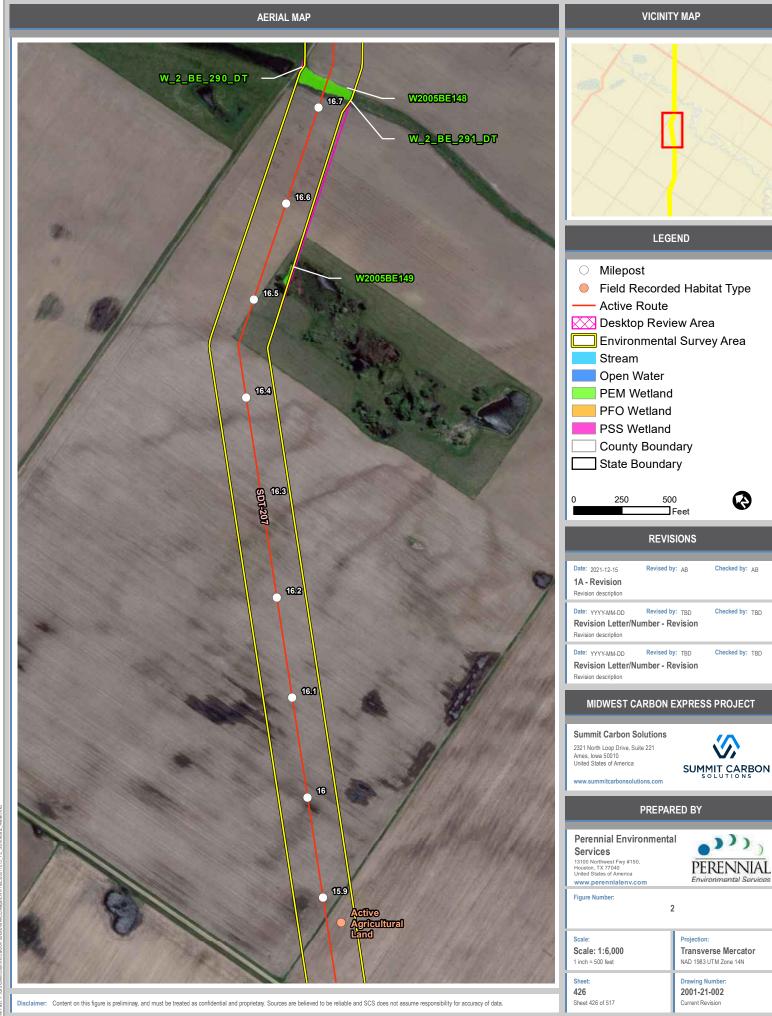


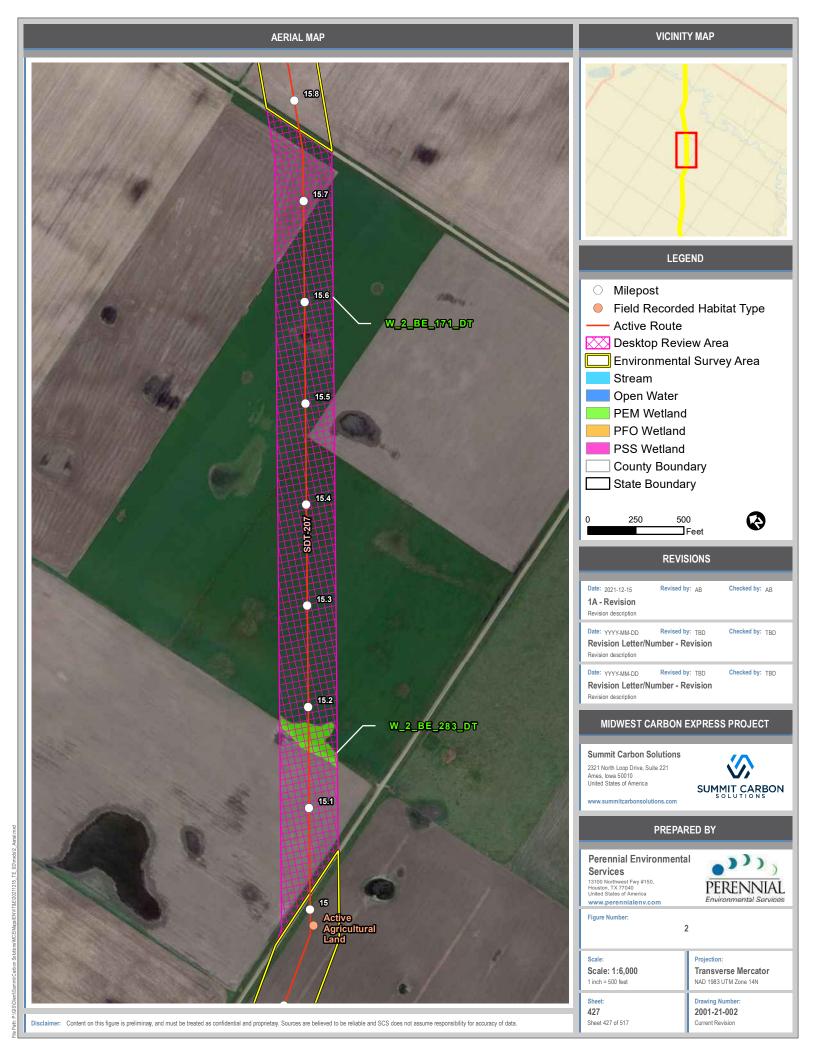


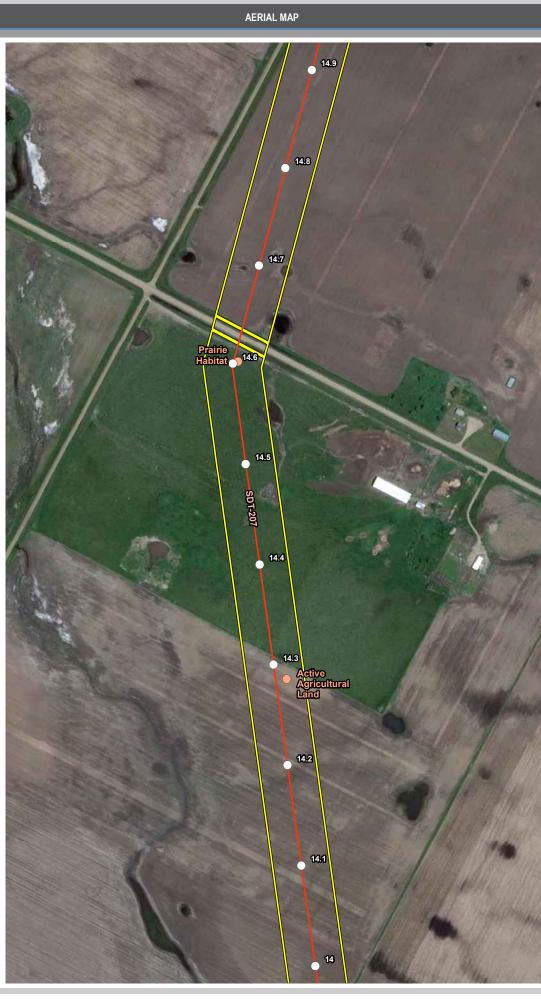
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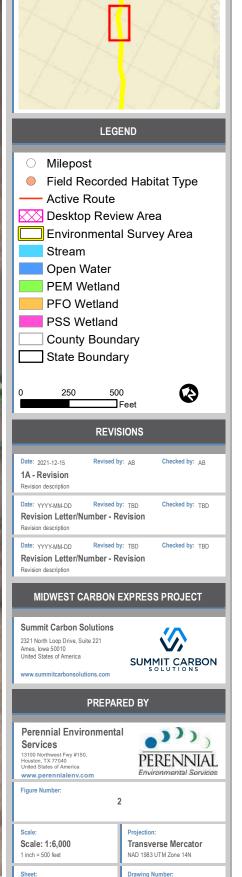


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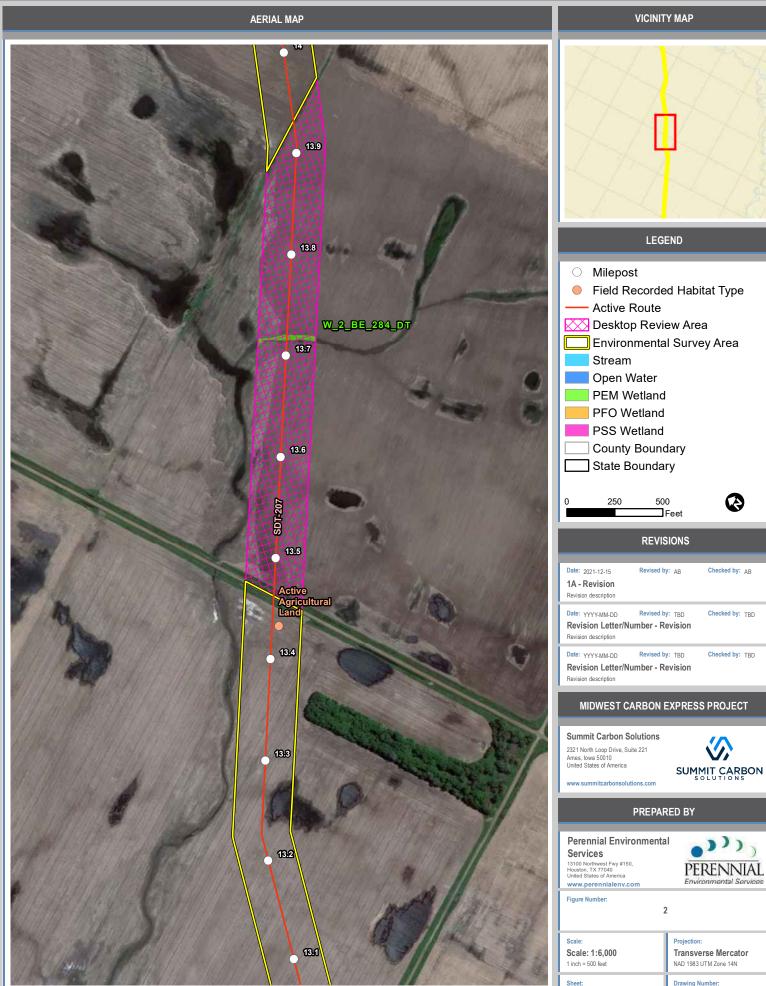




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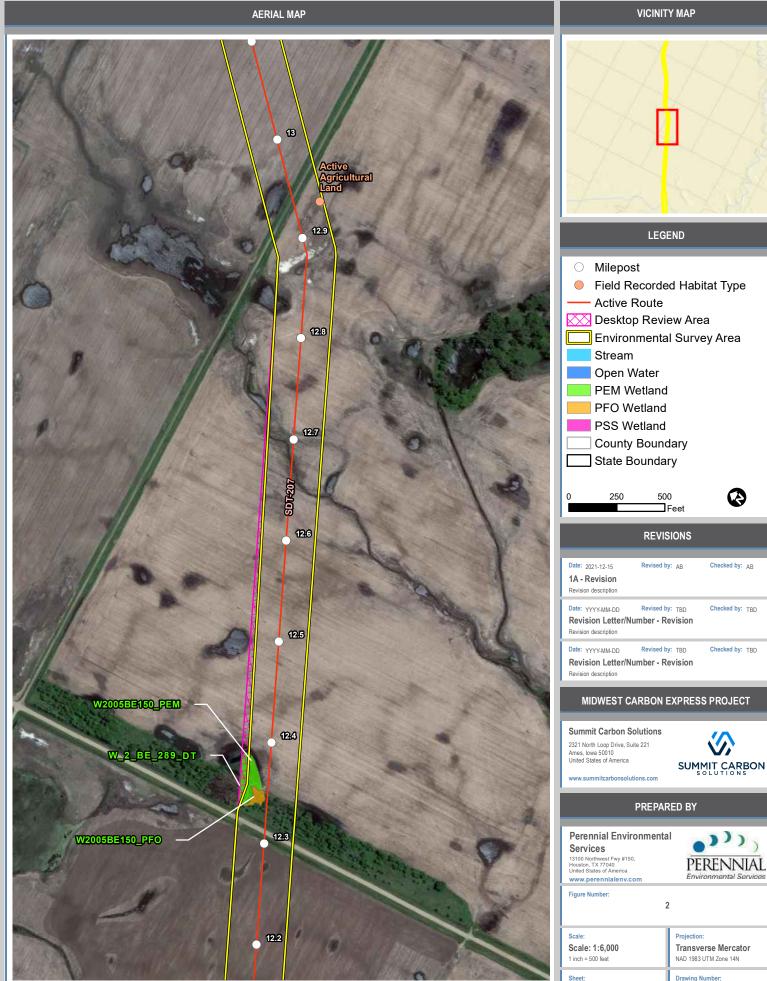
Current Revision

428 Sheet 428 of 517 VICINITY MAP



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 2001-21-002

 Sheet 429 of 517
 Current Revision



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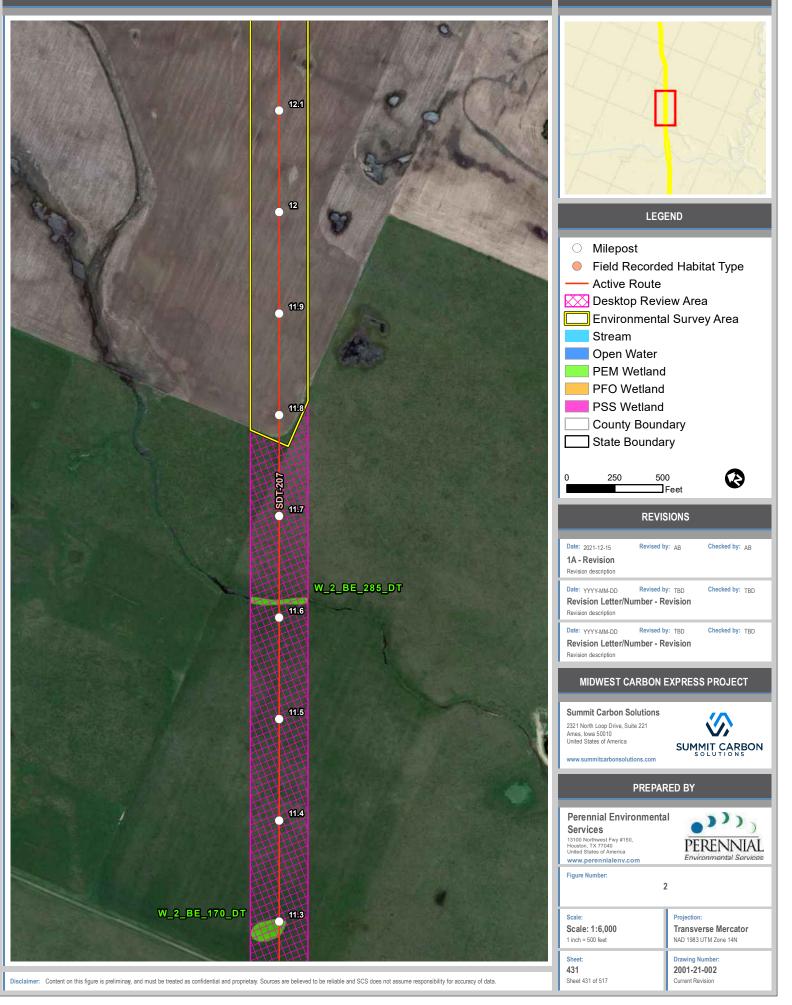
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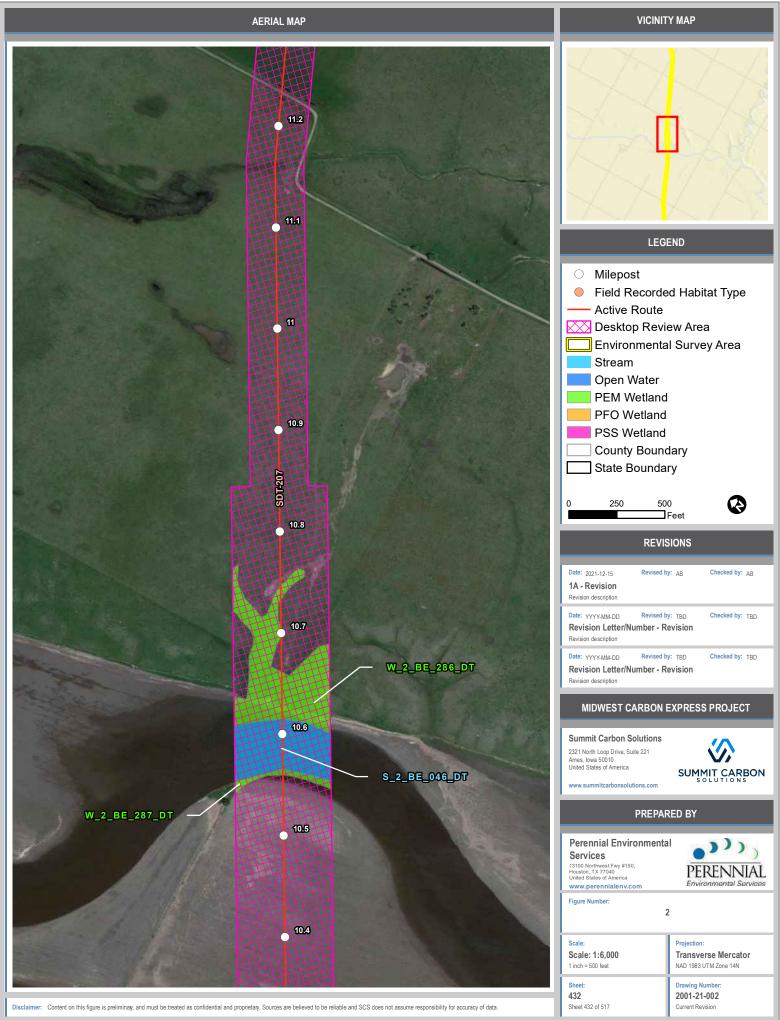
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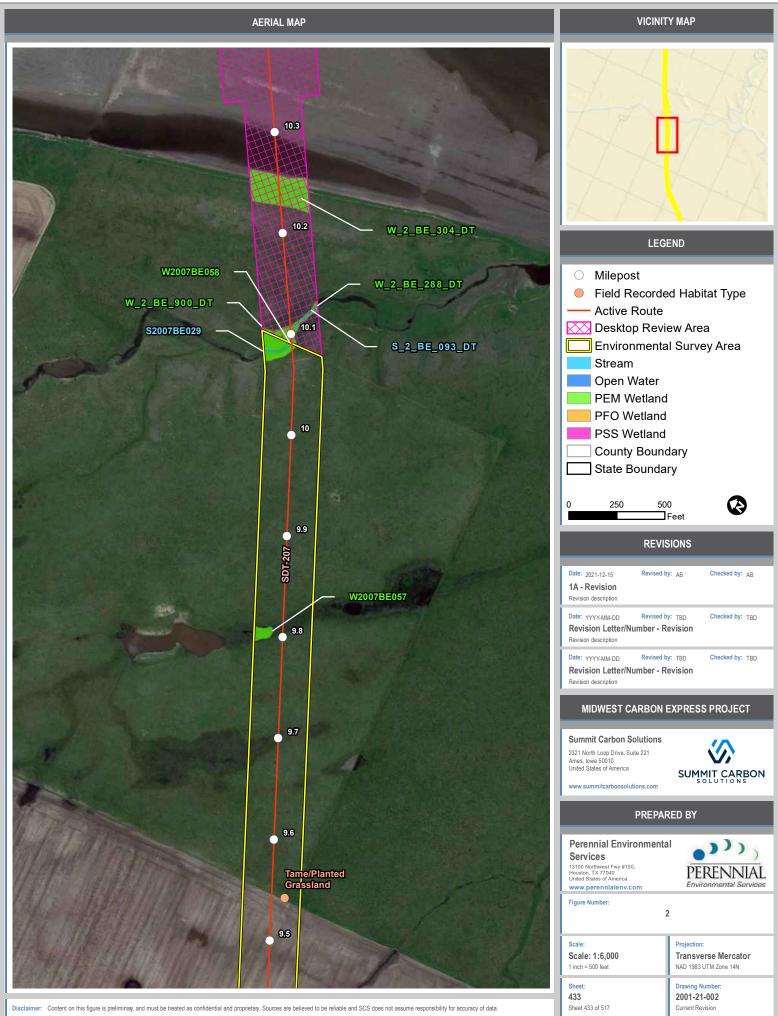
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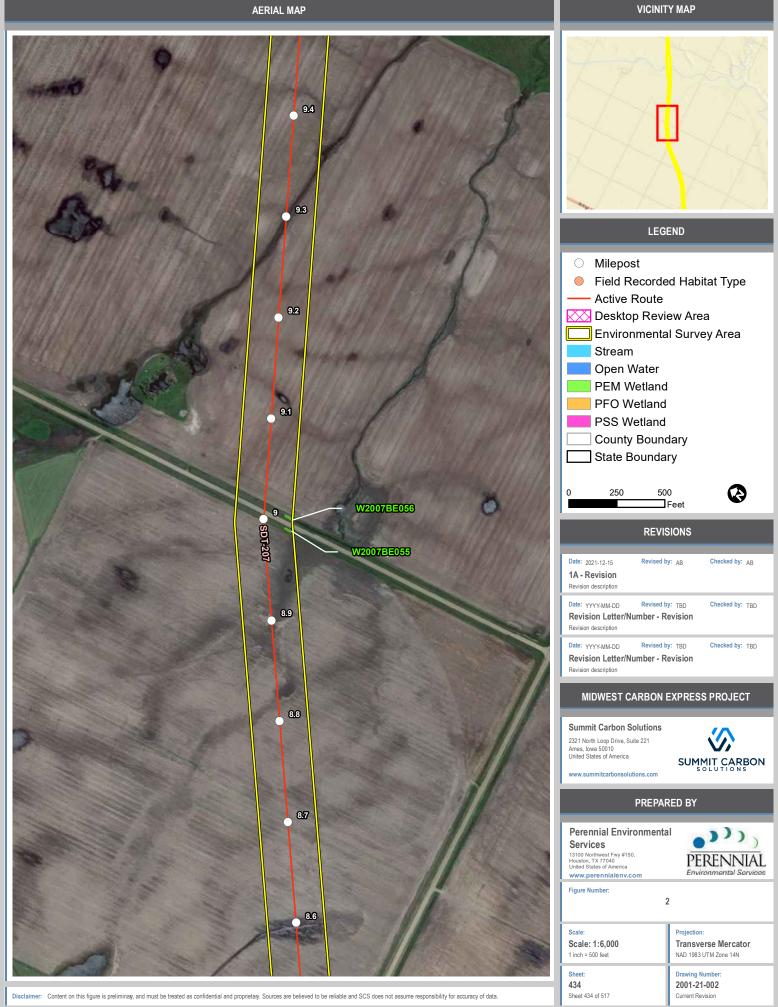
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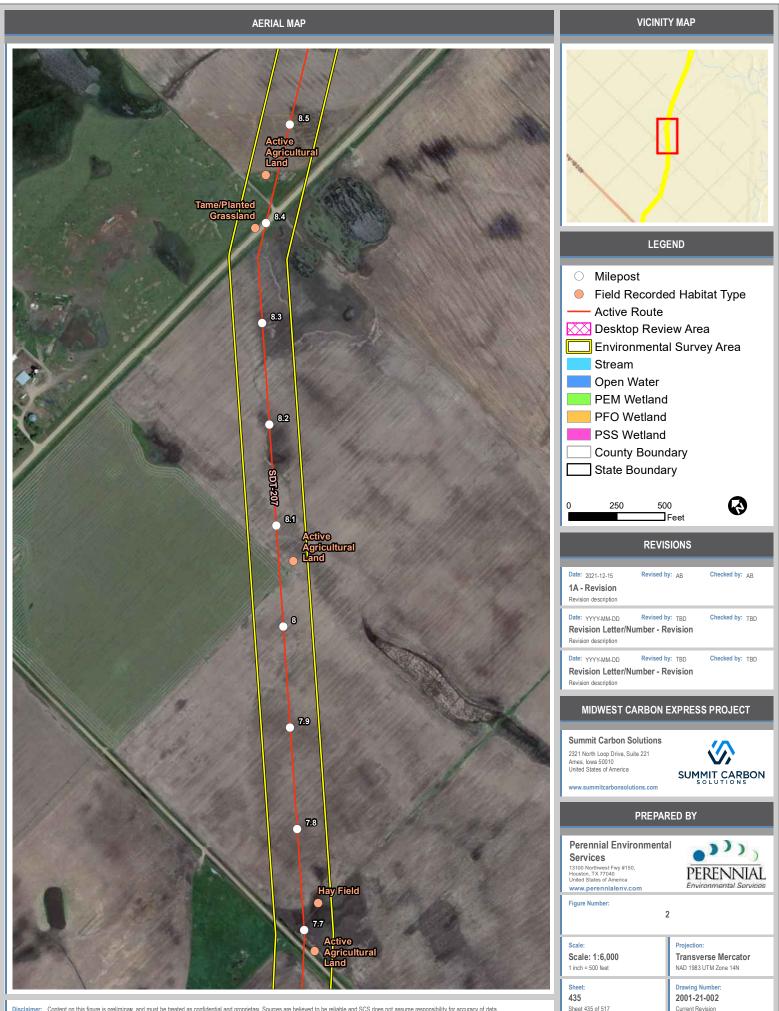
## VICINITY MAP



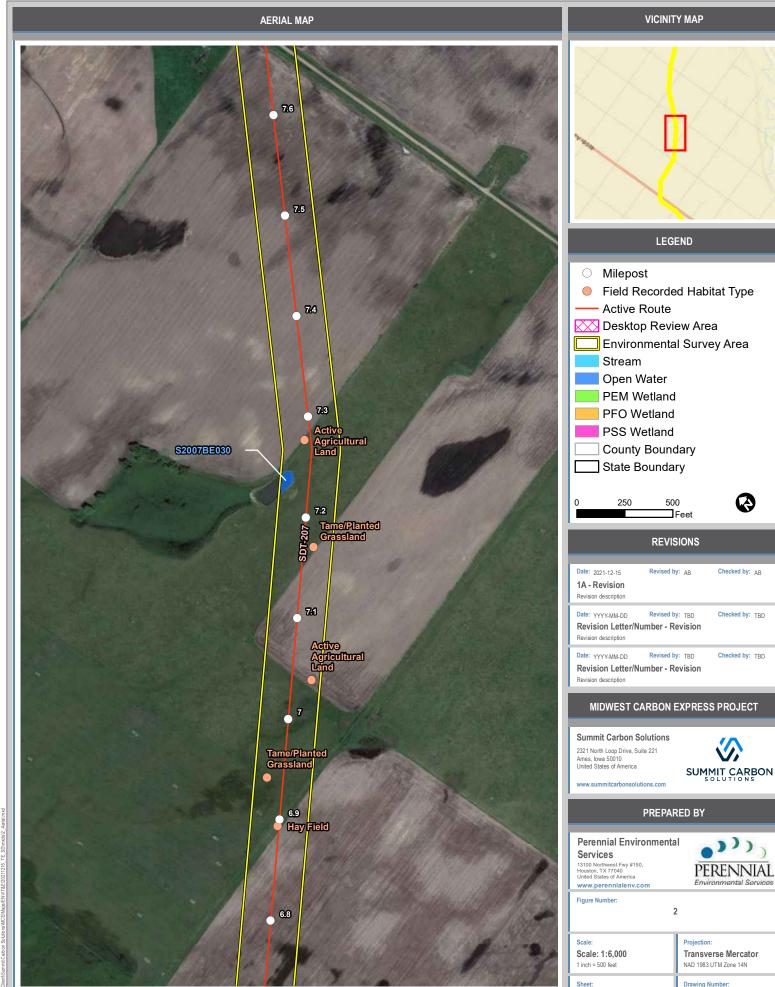








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NAD 1983 UTM Zone 14N Drawing Number: 2001-21-002 Current Revision

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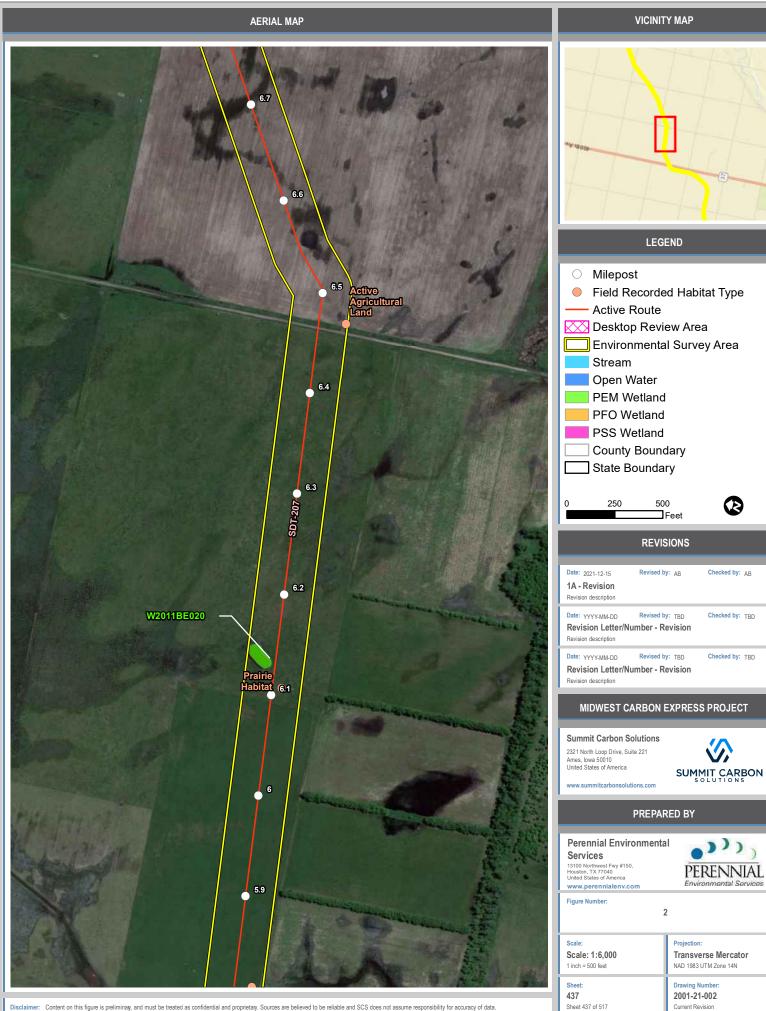
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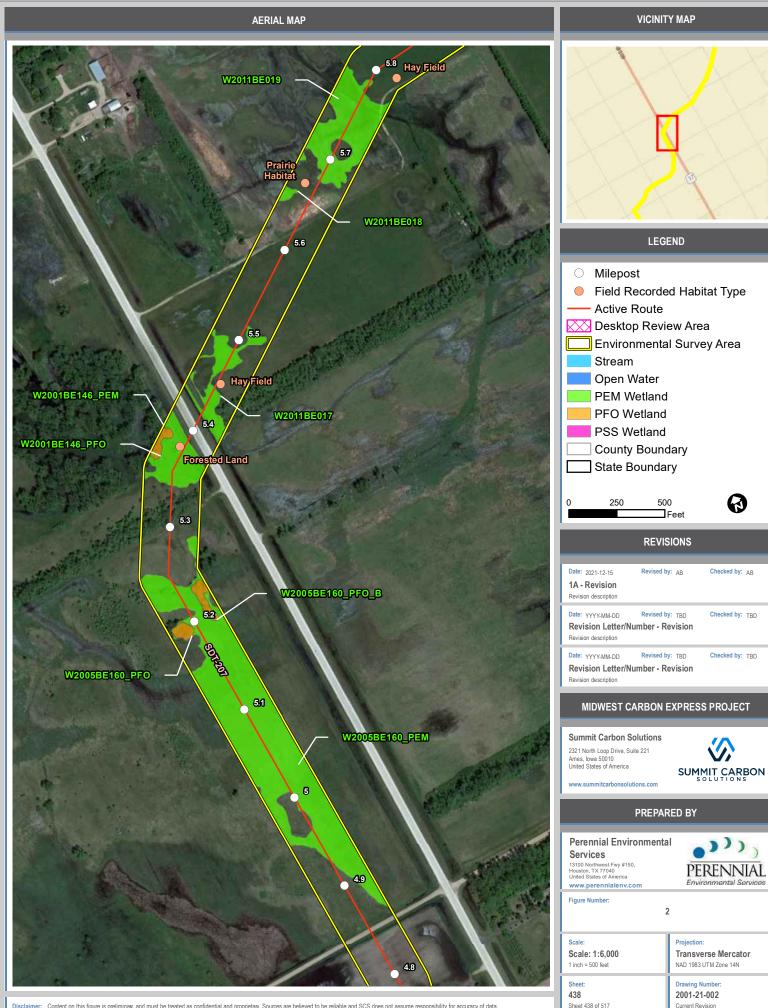
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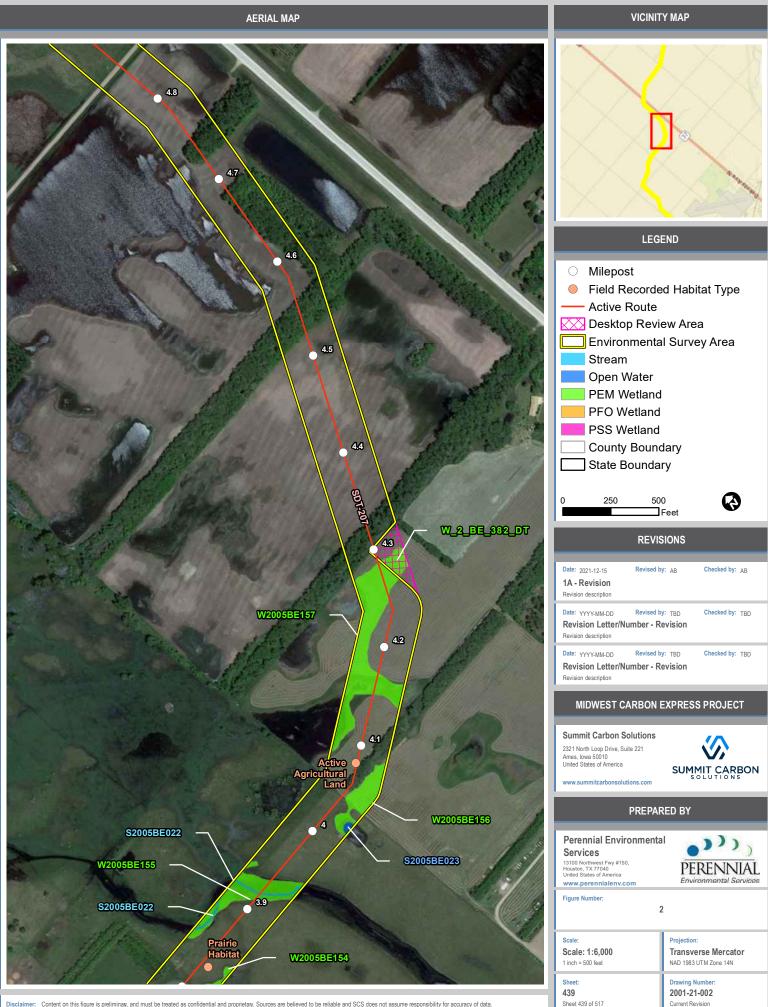
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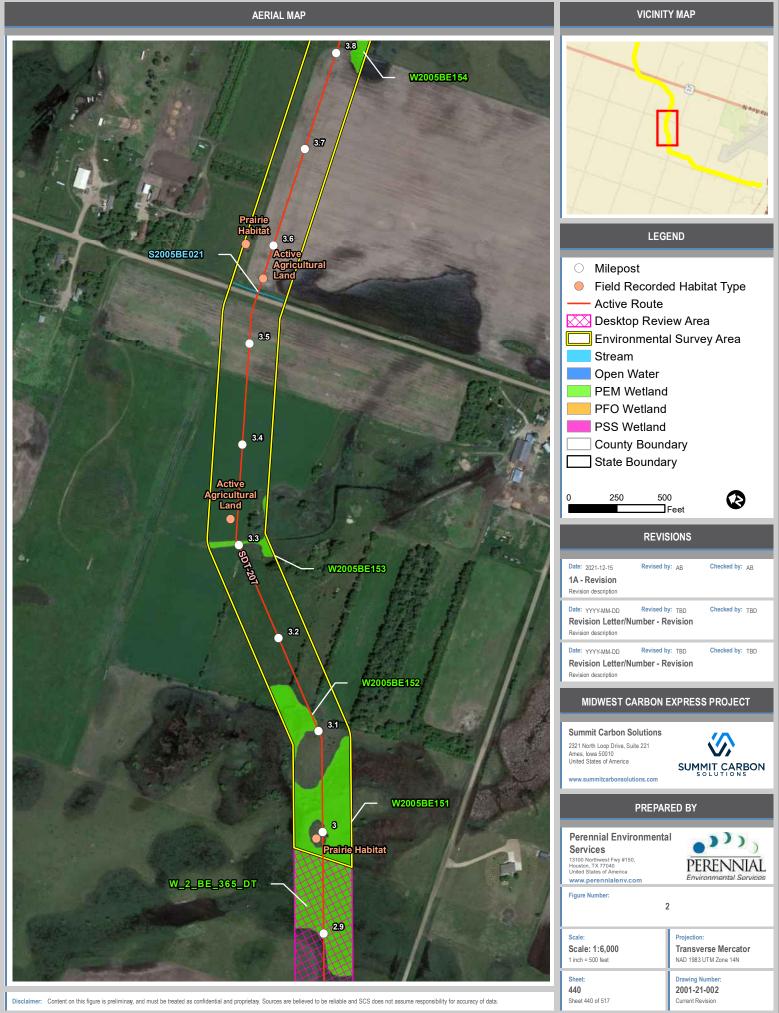
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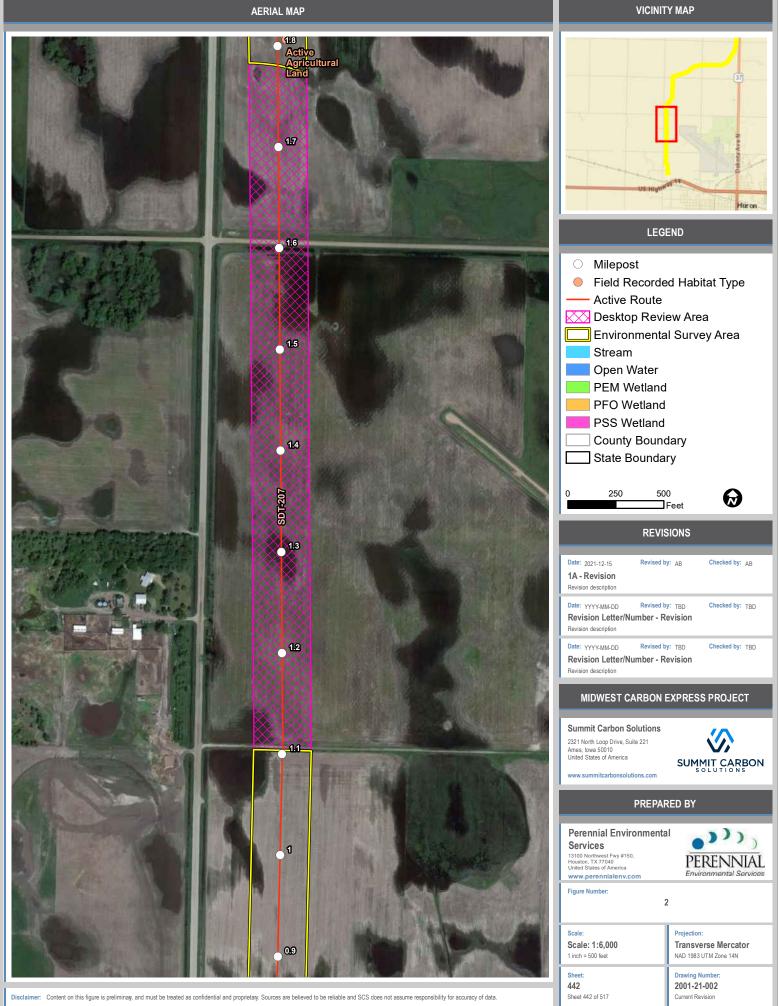




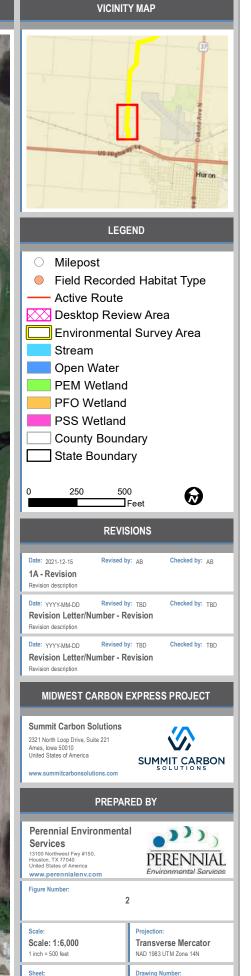
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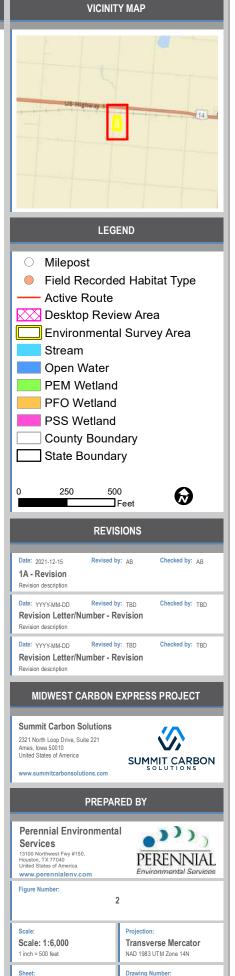


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Current Revision

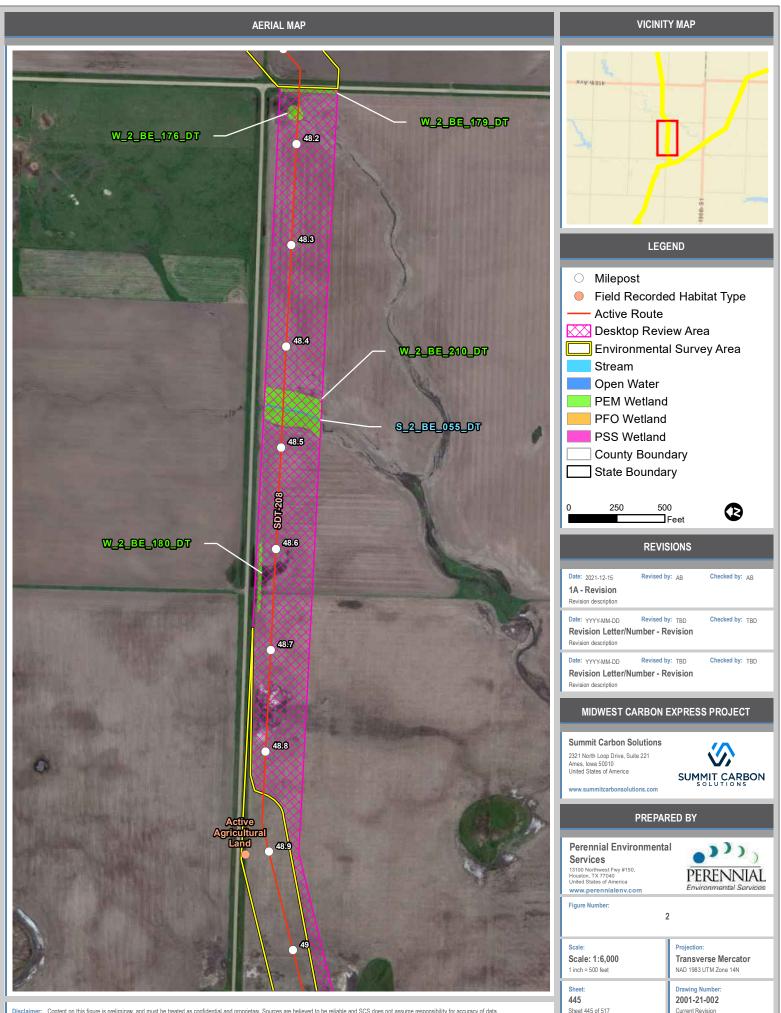
443 Sheet 443 of 517

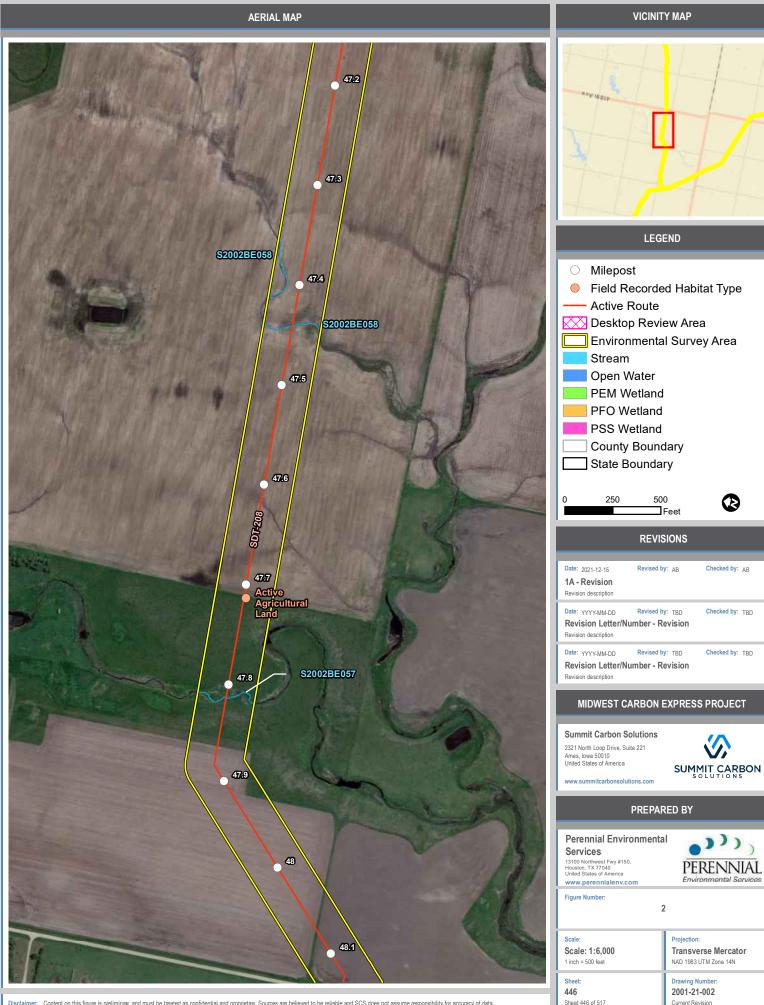




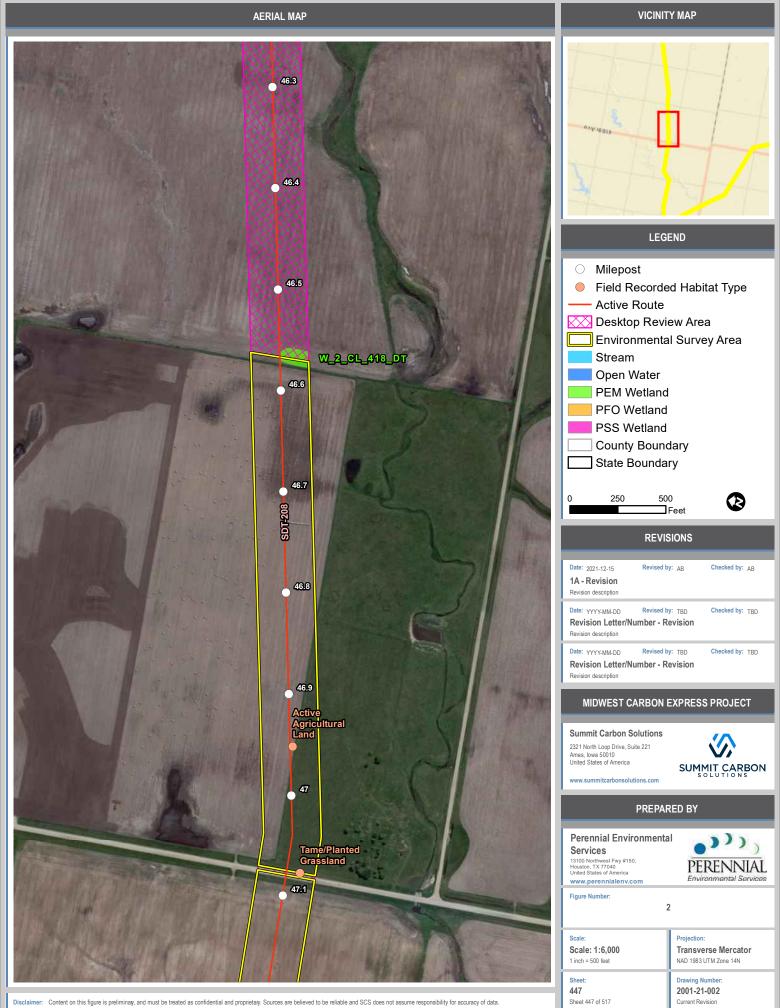
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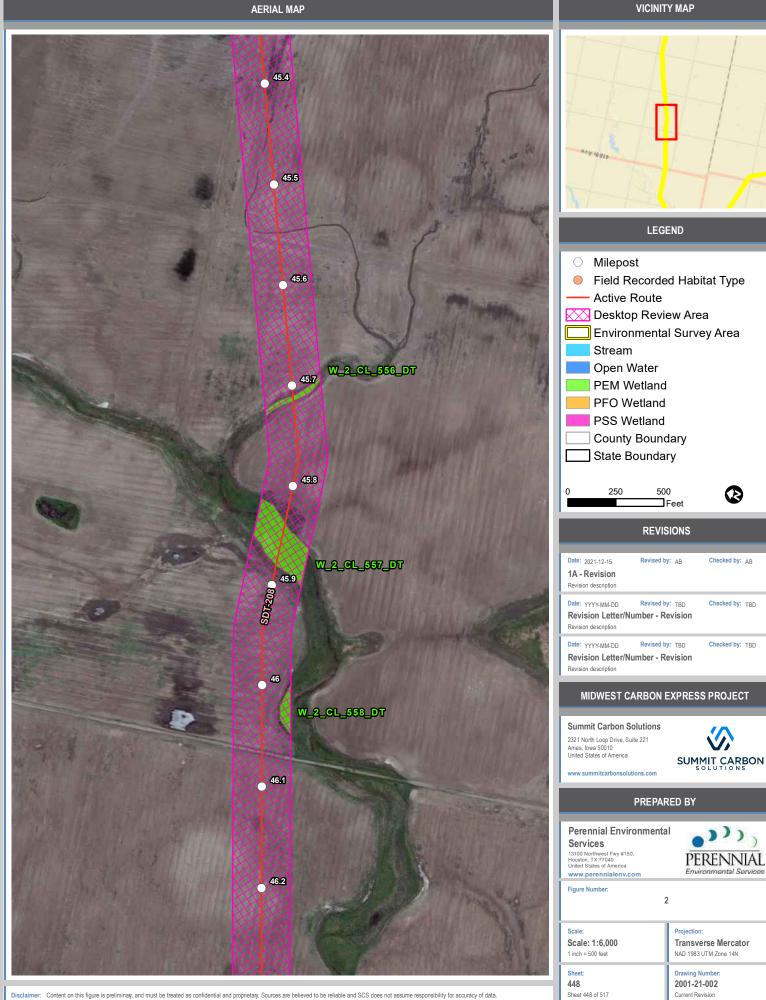
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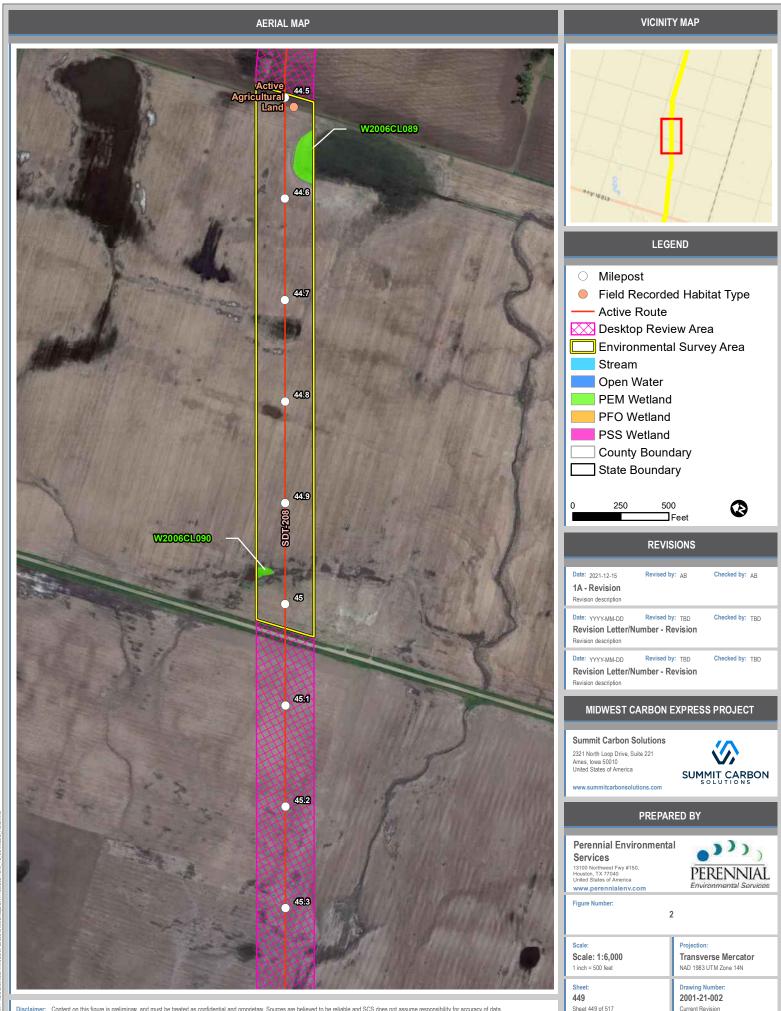
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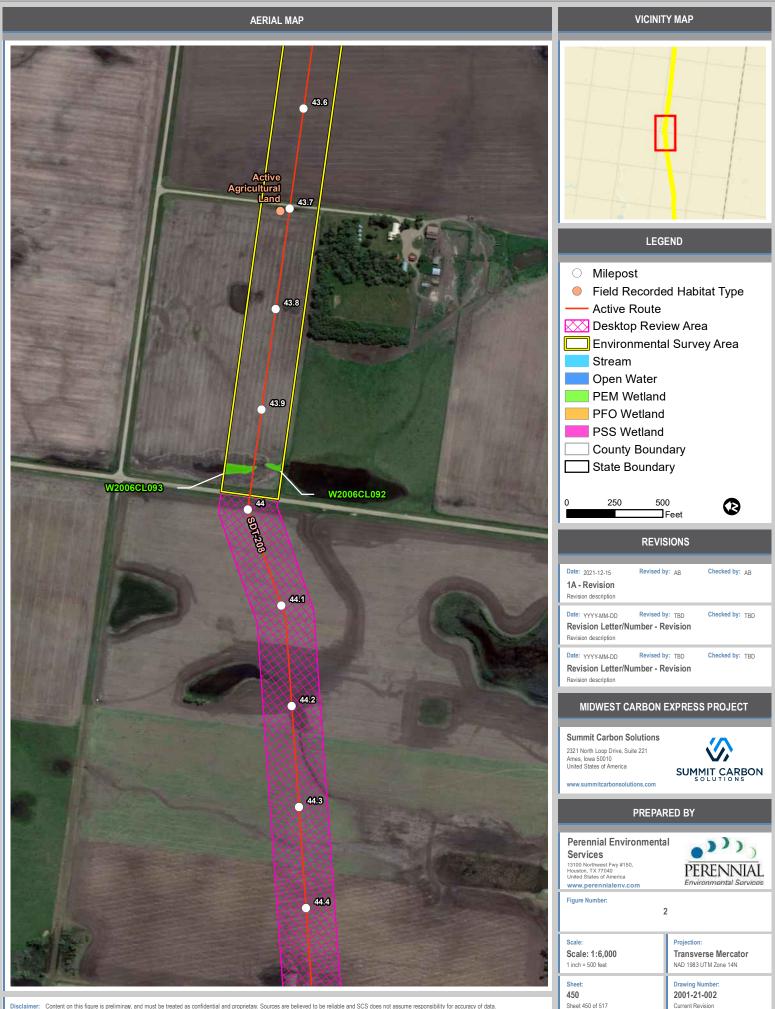
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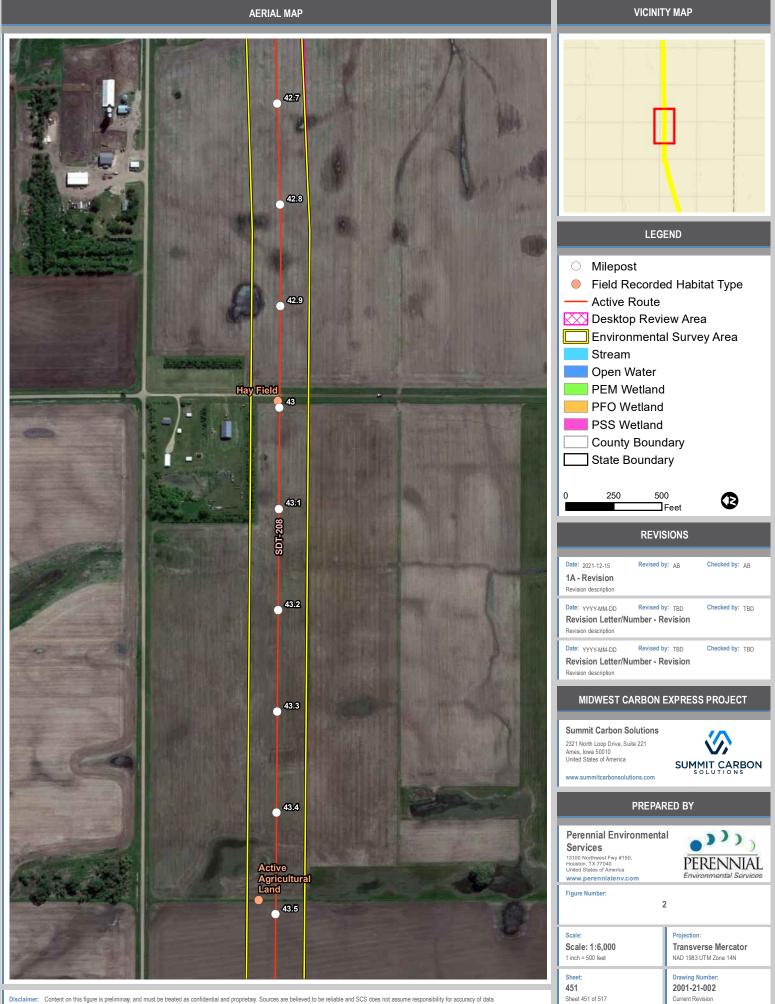
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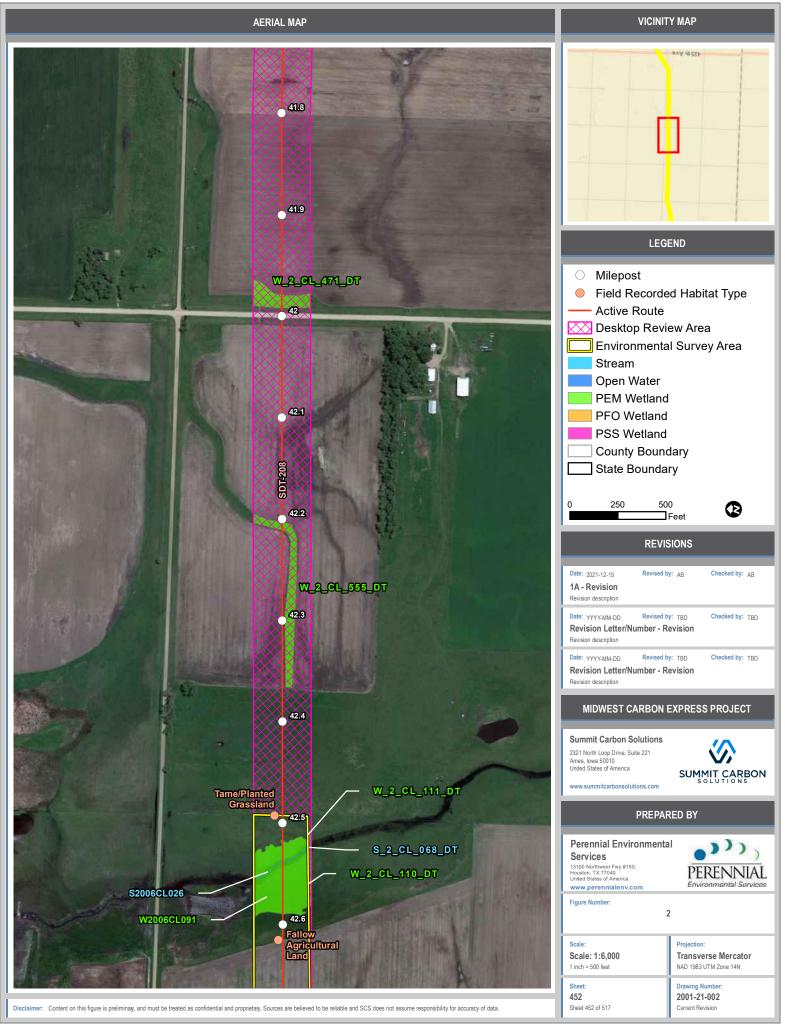
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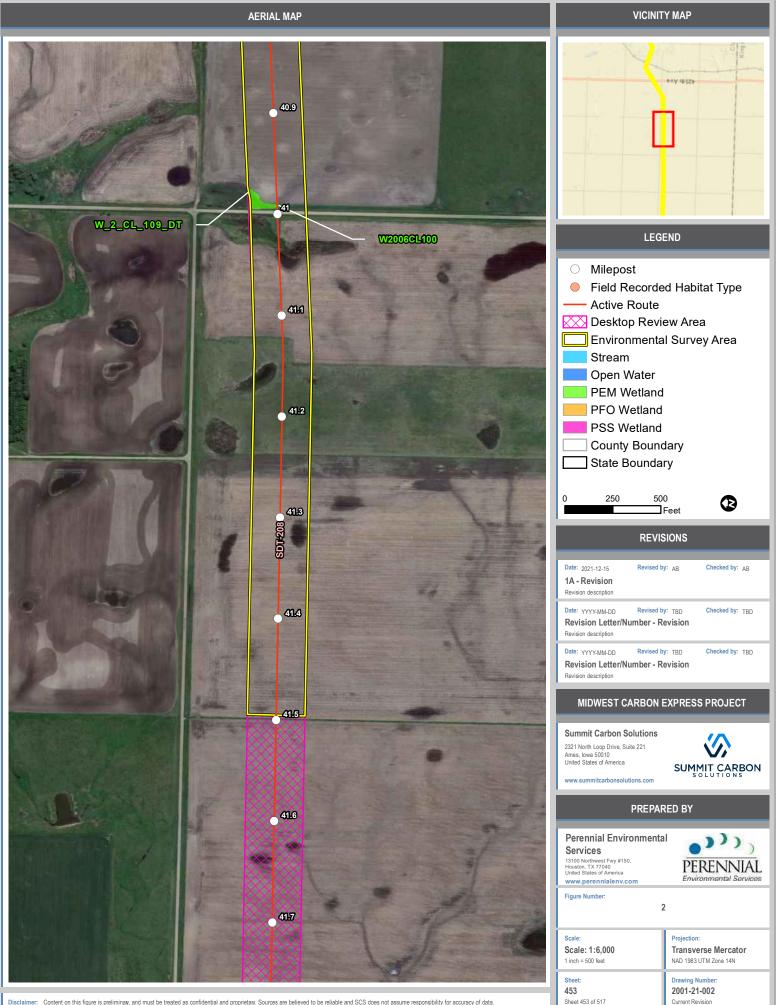


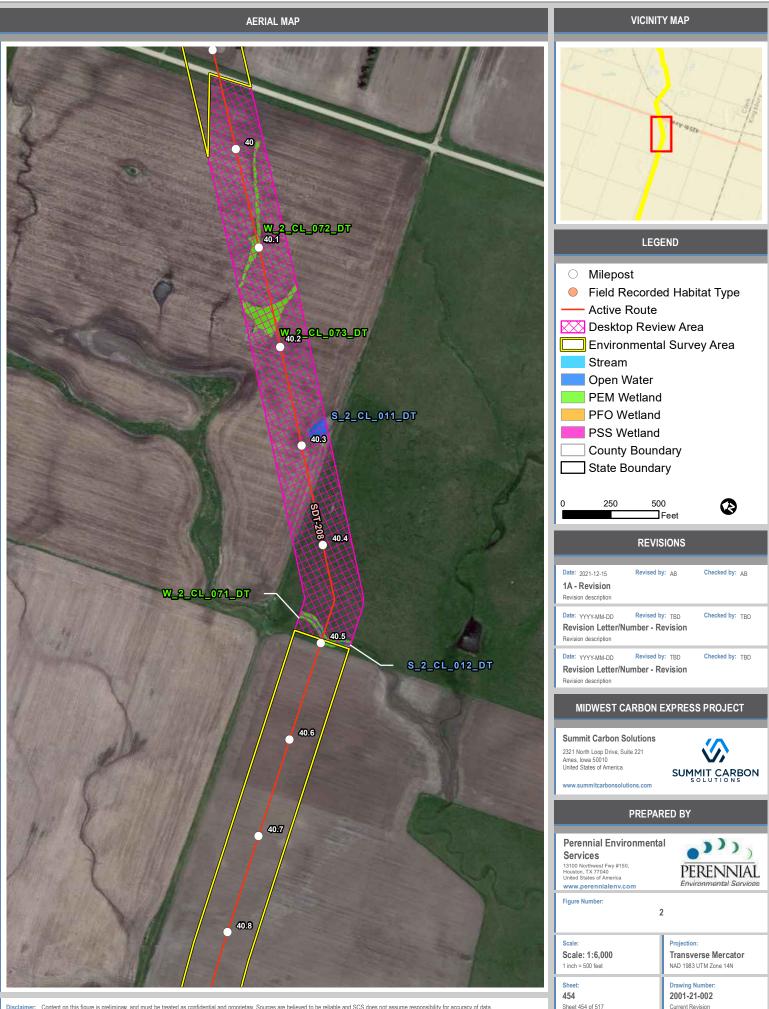
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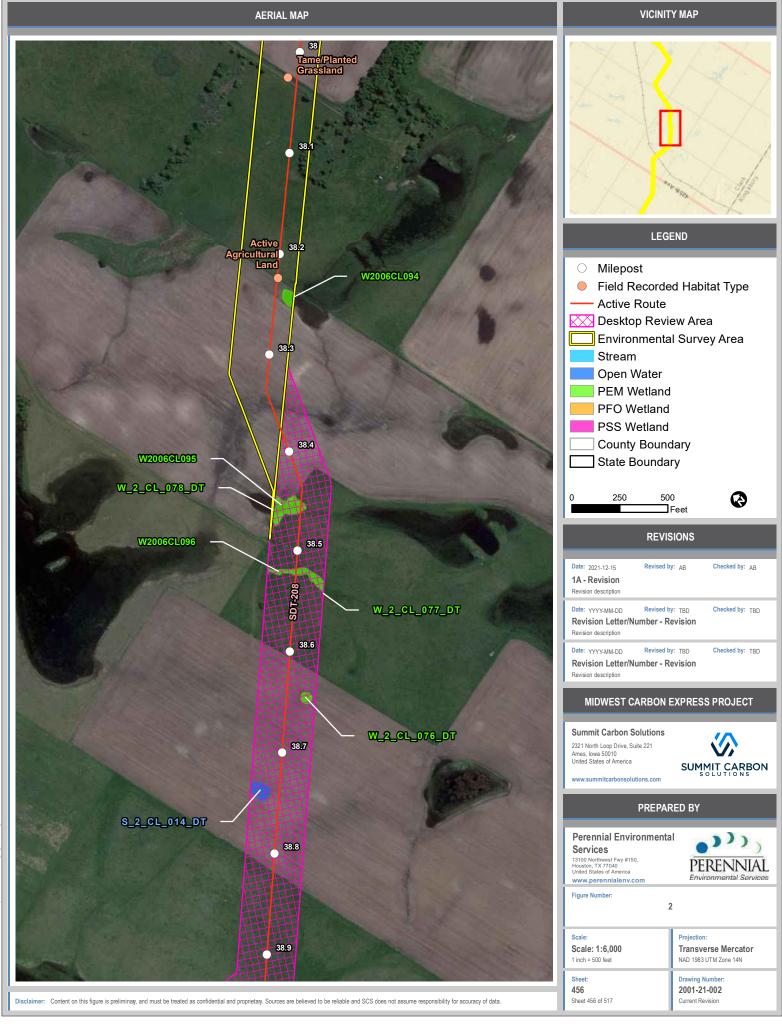


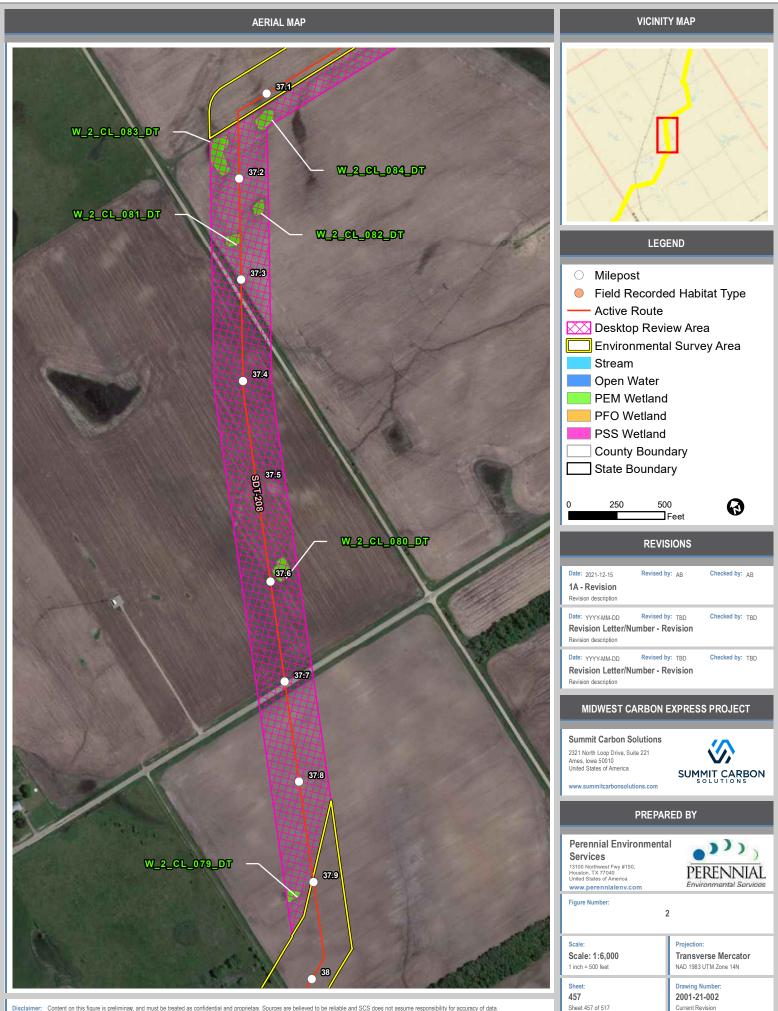


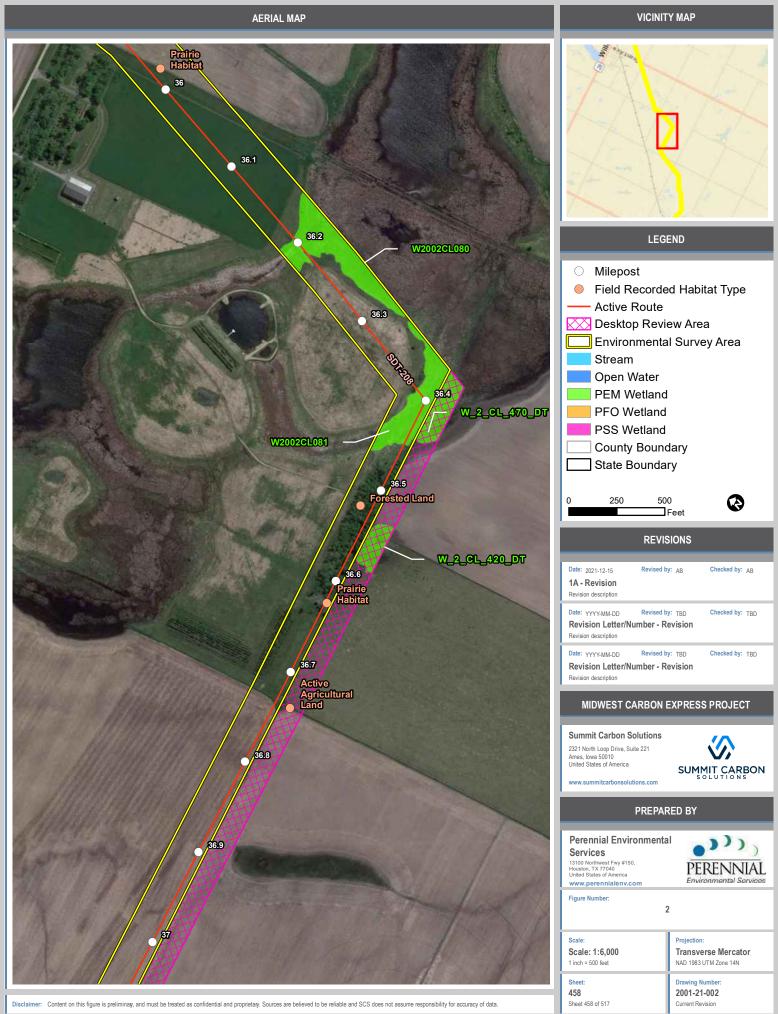










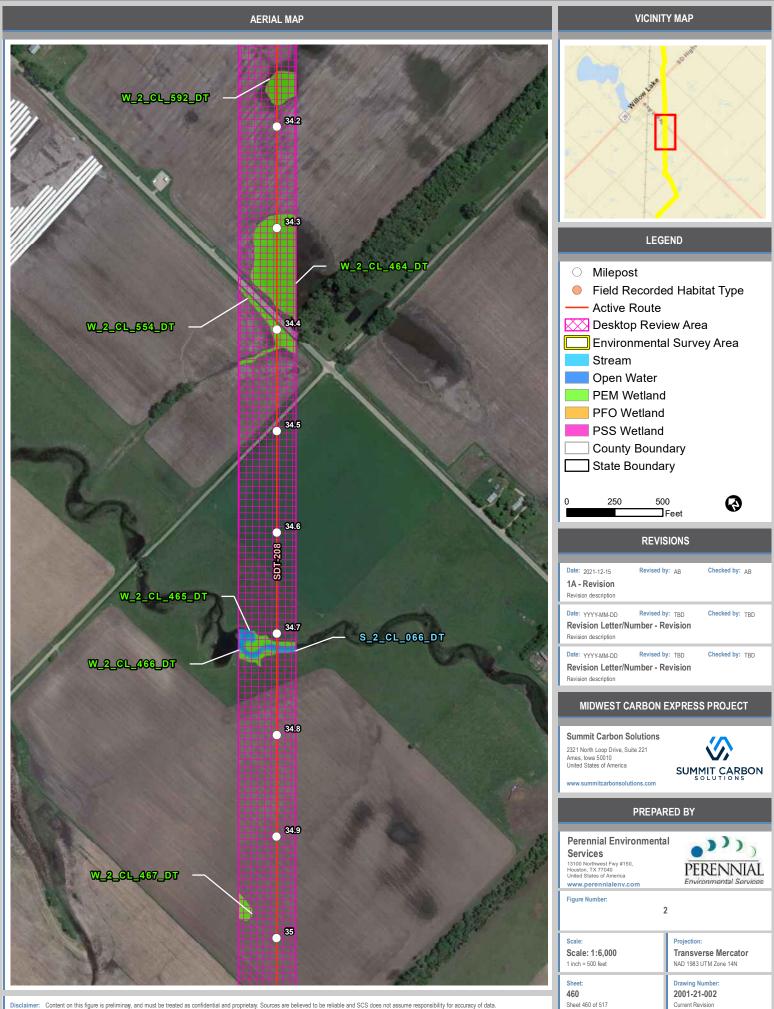


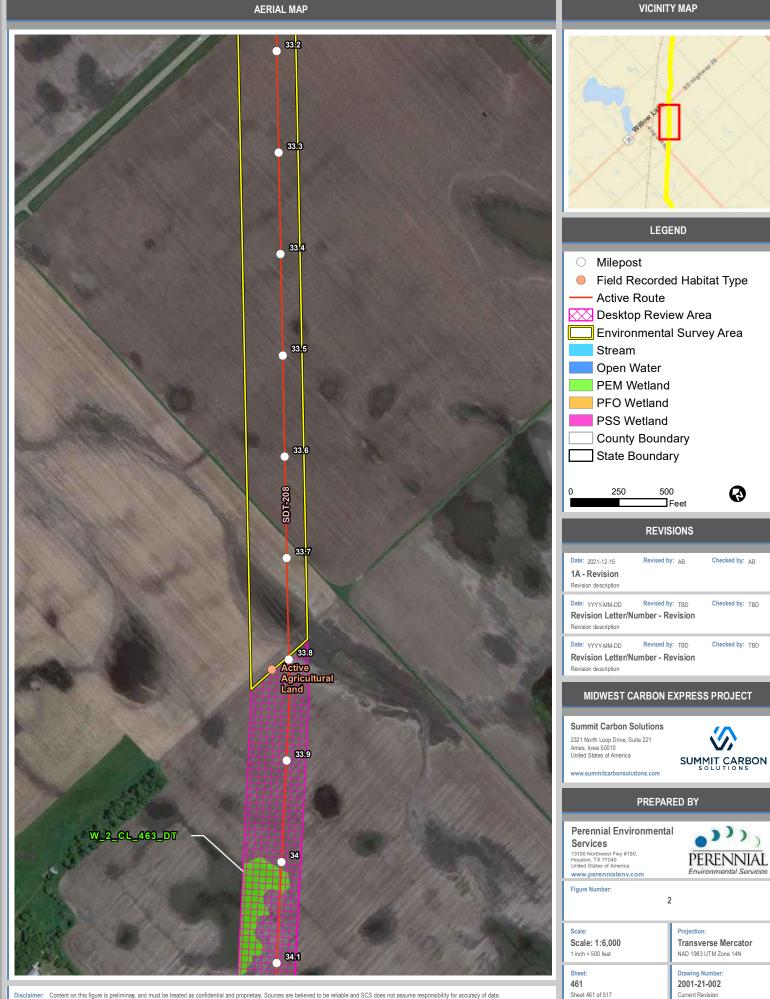


LEGEND Milepost Field Recorded Habitat Type  $\bigcirc$ Active Route Desktop Review Area Environmental Survey Area Stream Open Water PEM Wetland PFO Wetland PSS Wetland **County Boundary** State Boundary 250 500 6 Feet REVISIONS Date: 2021-12-15 Revised by: AB Checked by: AB 1A - Revision Revision description Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Revision description Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** Revision description MIDWEST CARBON EXPRESS PROJECT Summit Carbon Solutions 2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America SUMMIT CARBON w.summitcarbonsolutions.com PREPARED BY ,,,, **Perennial Environmental** Services 13100 Northwest Fwy #150, Houston, TX 77040 United States of America PERENNIAL www.perennialenv.com Figure Number: 2

VICINITY MAP

Scale: Projection: Scale: 1:6,000 **Transverse Mercator** 1 inch = 500 feet NAD 1983 UTM Zone 14N Sheet: Drawing Number: 2001-21-002 459 Sheet 459 of 517 Current Revision

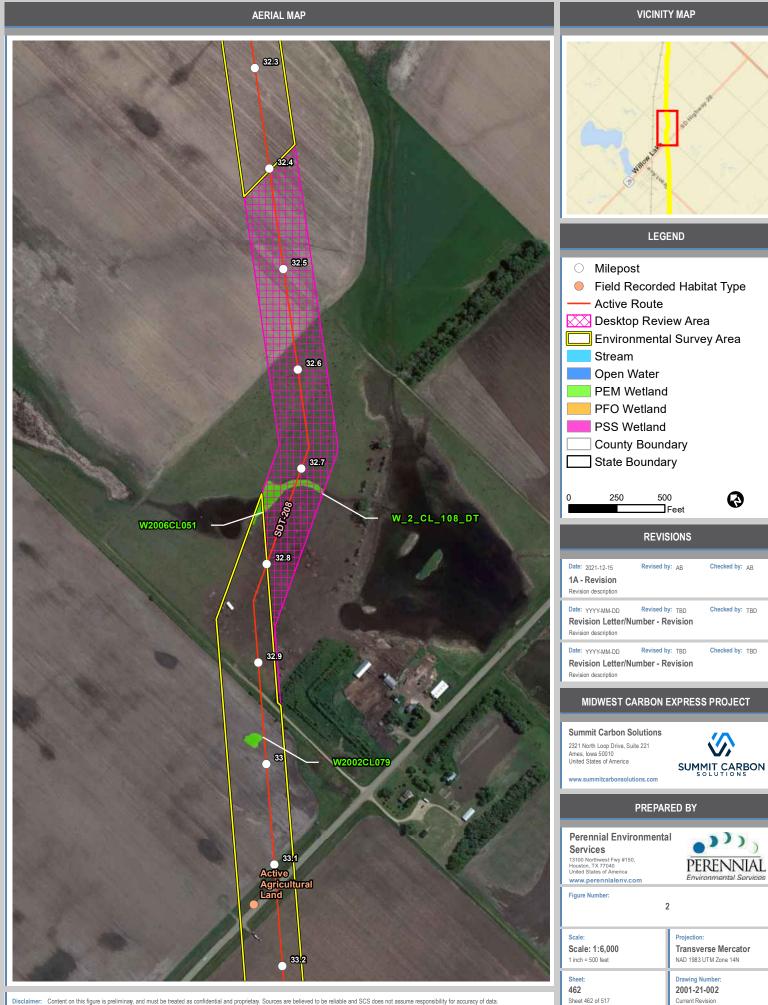




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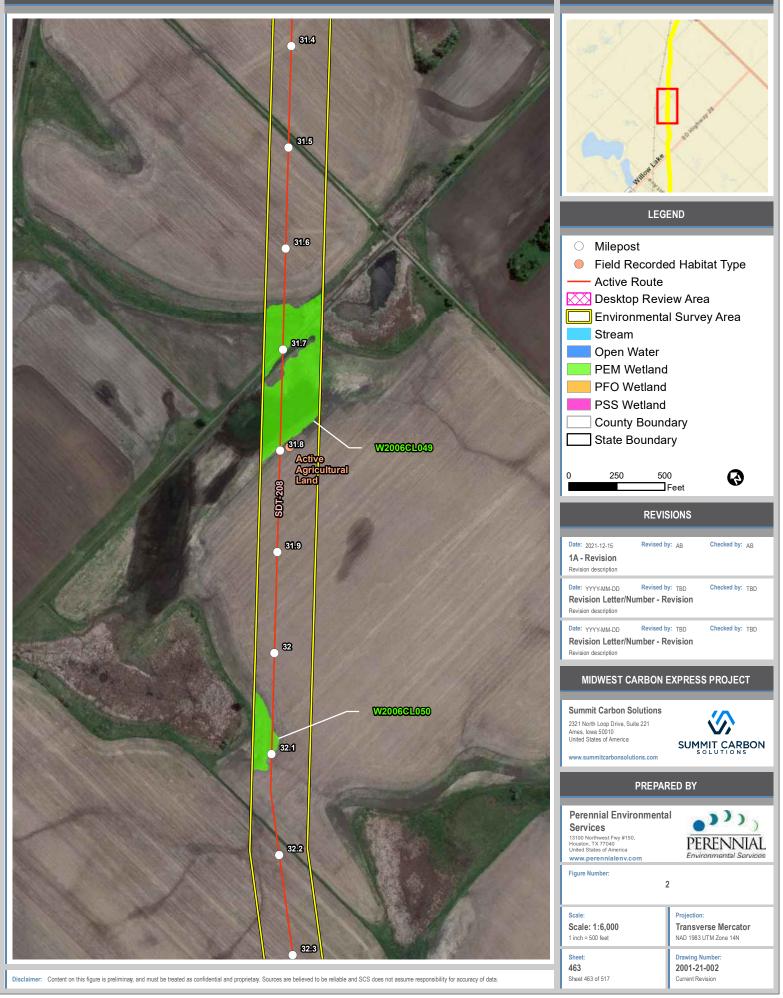
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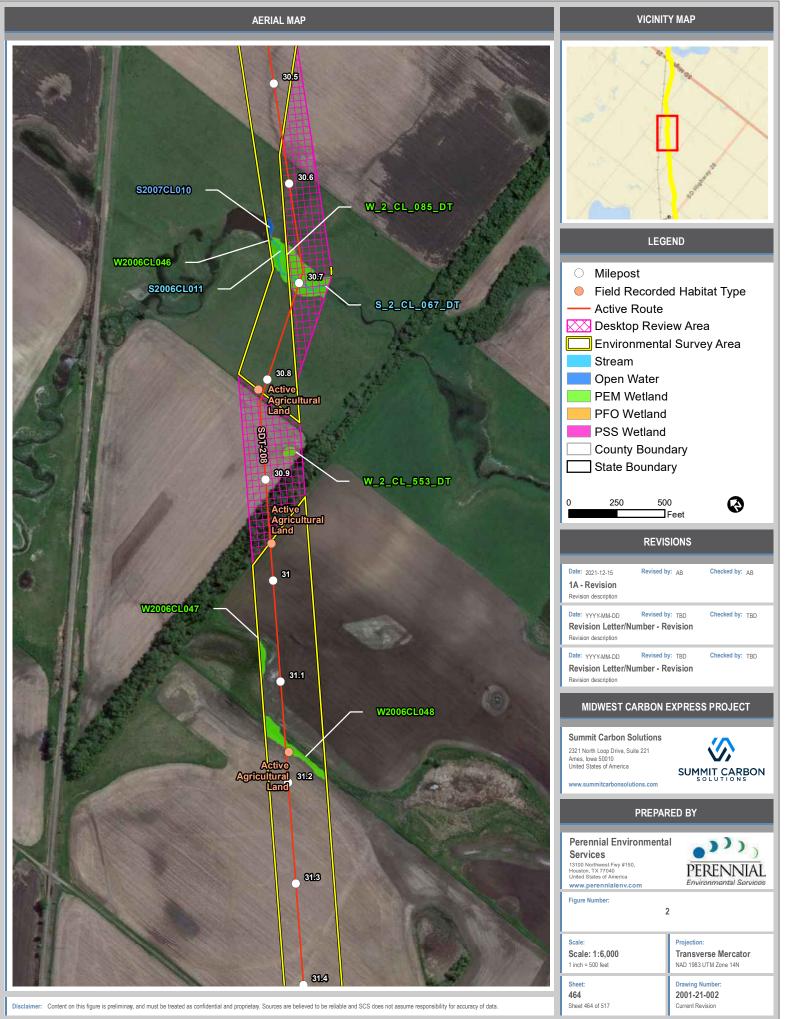
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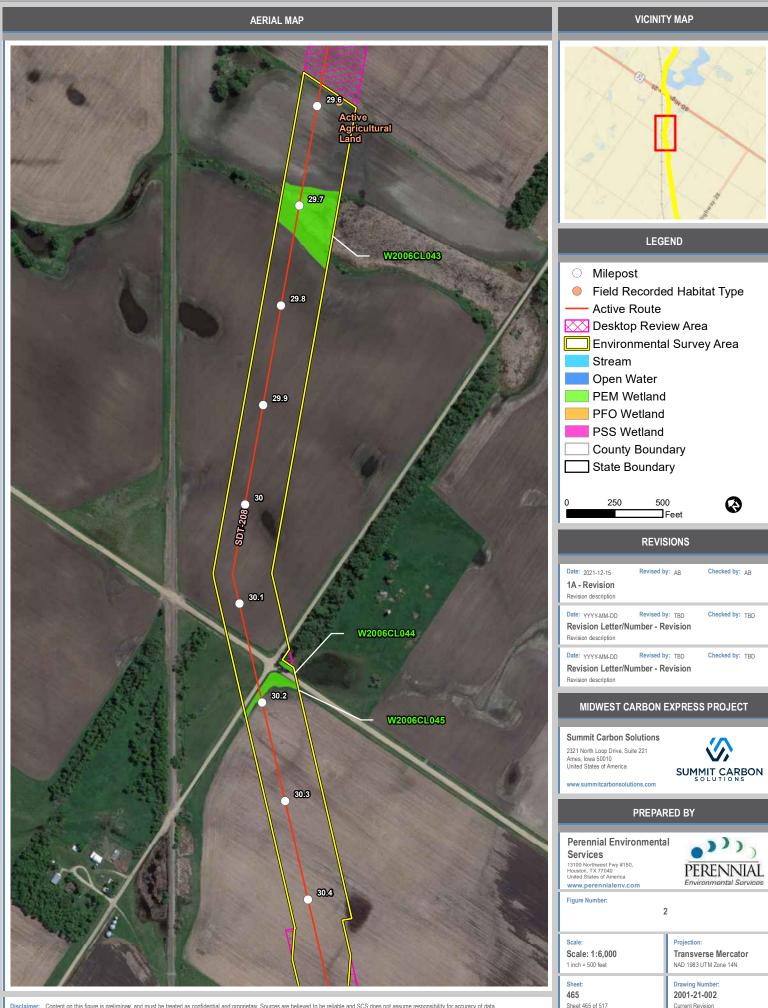


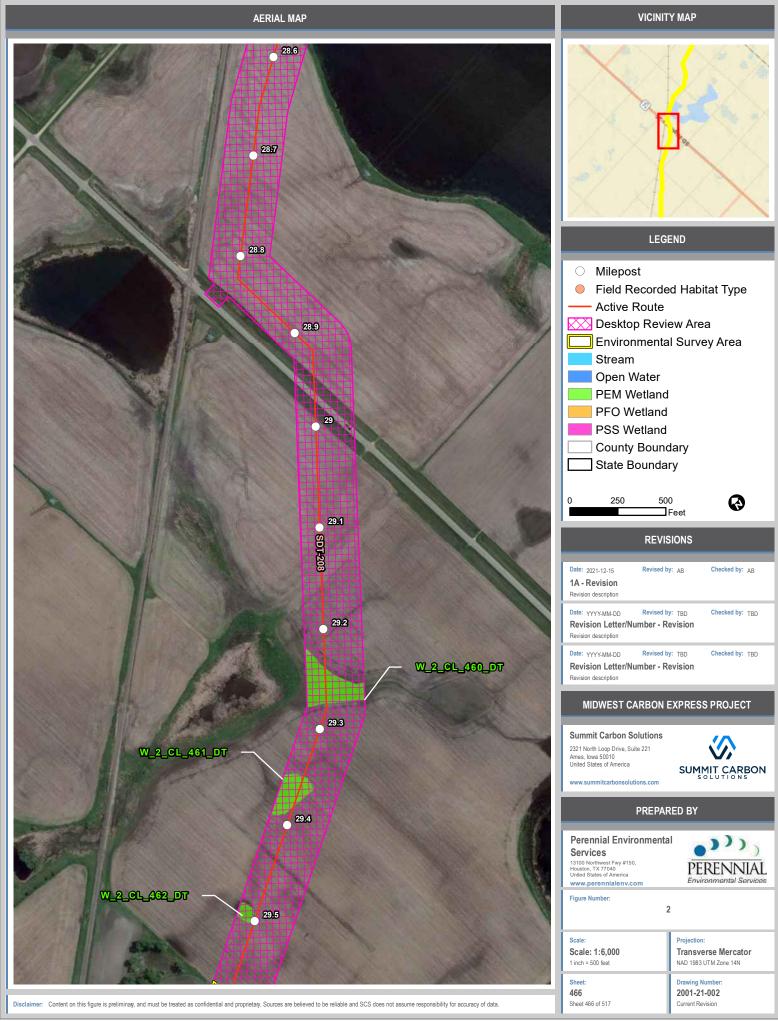
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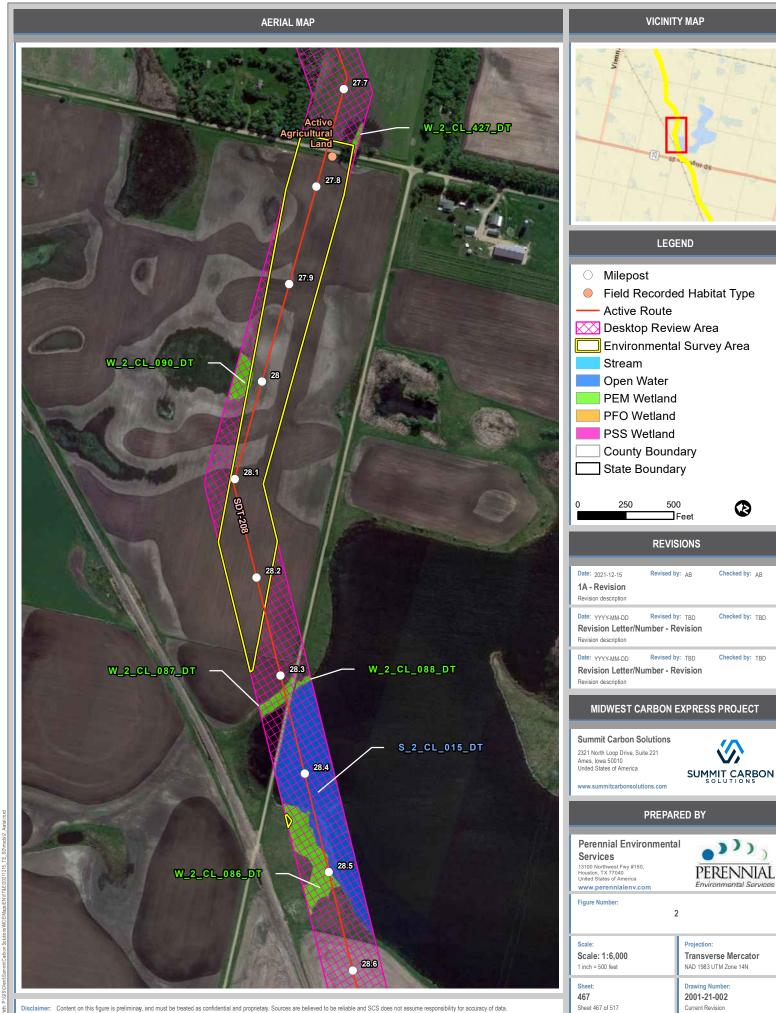
## VICINITY MAP











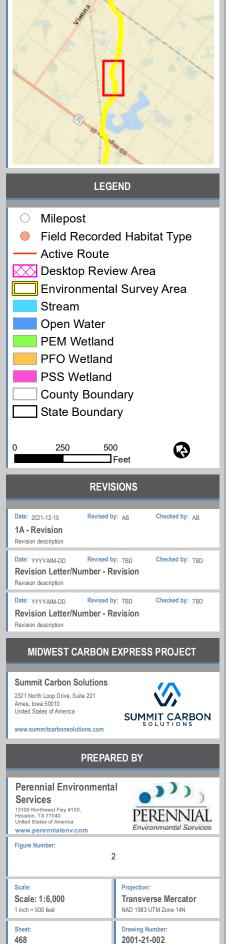
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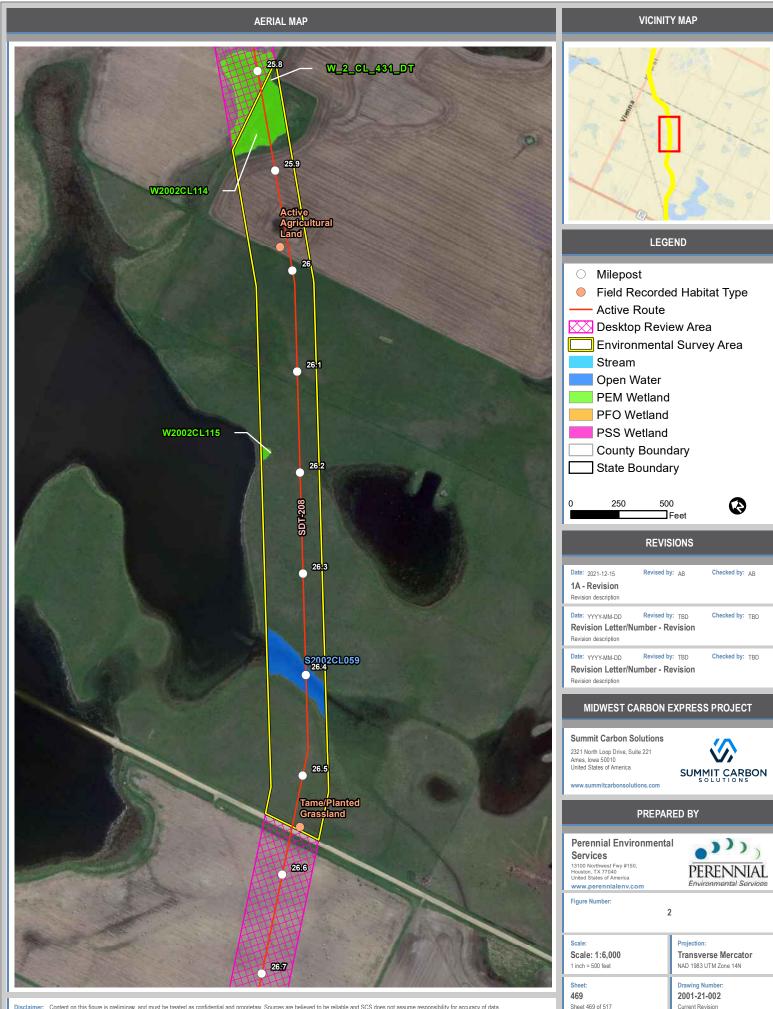
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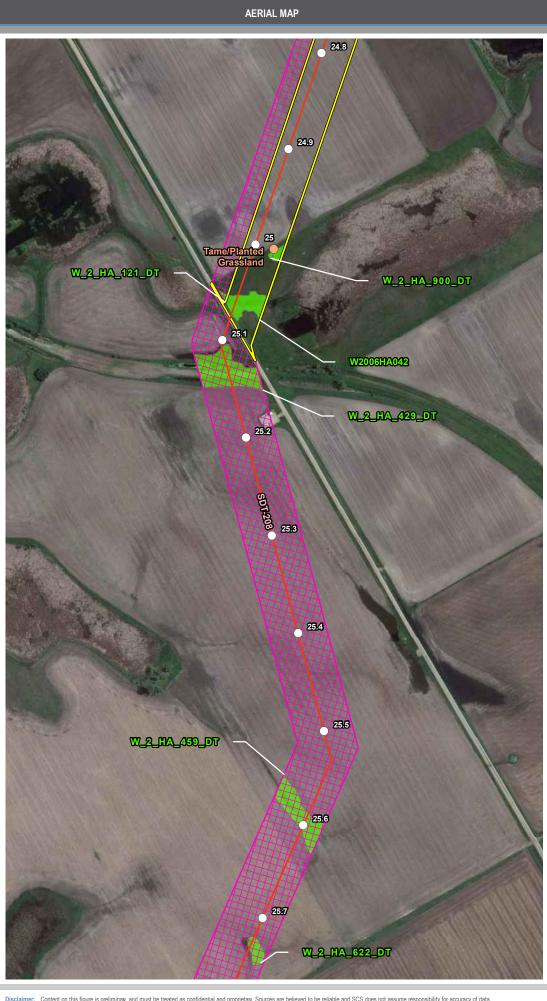
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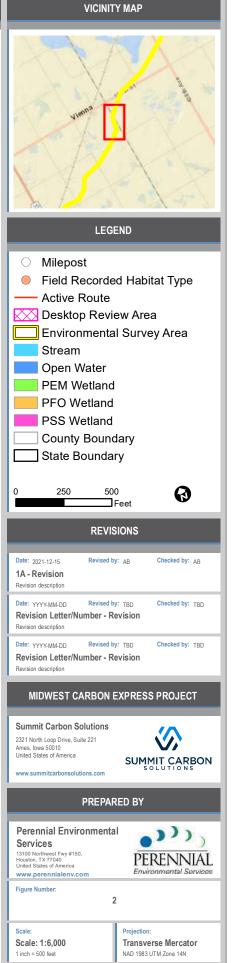
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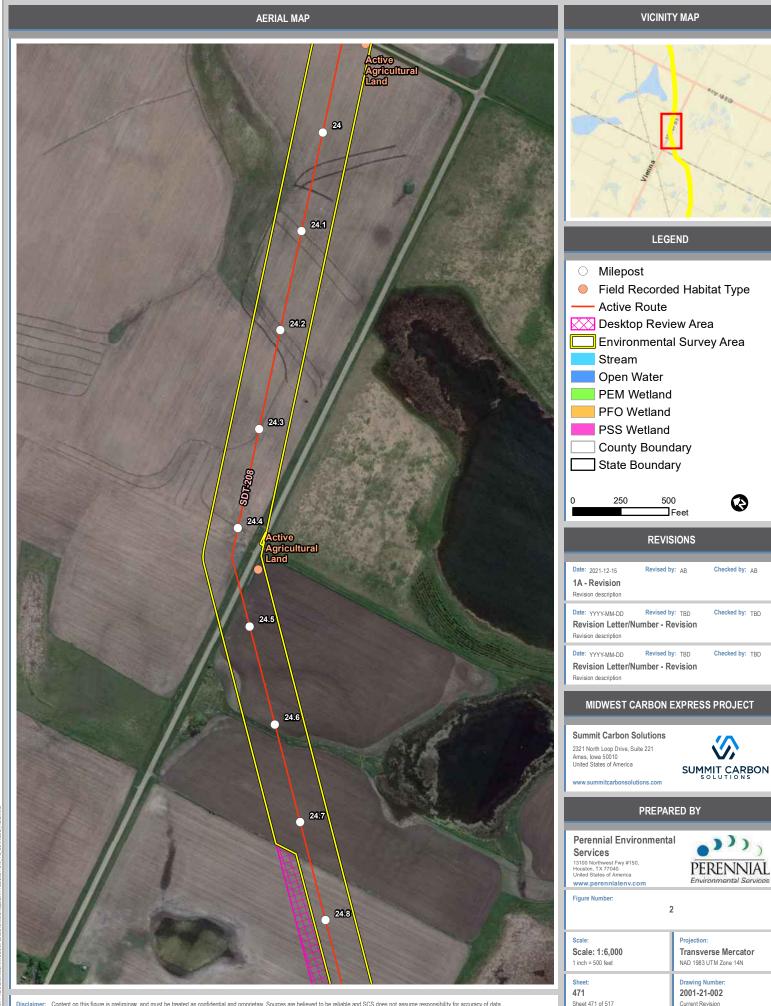




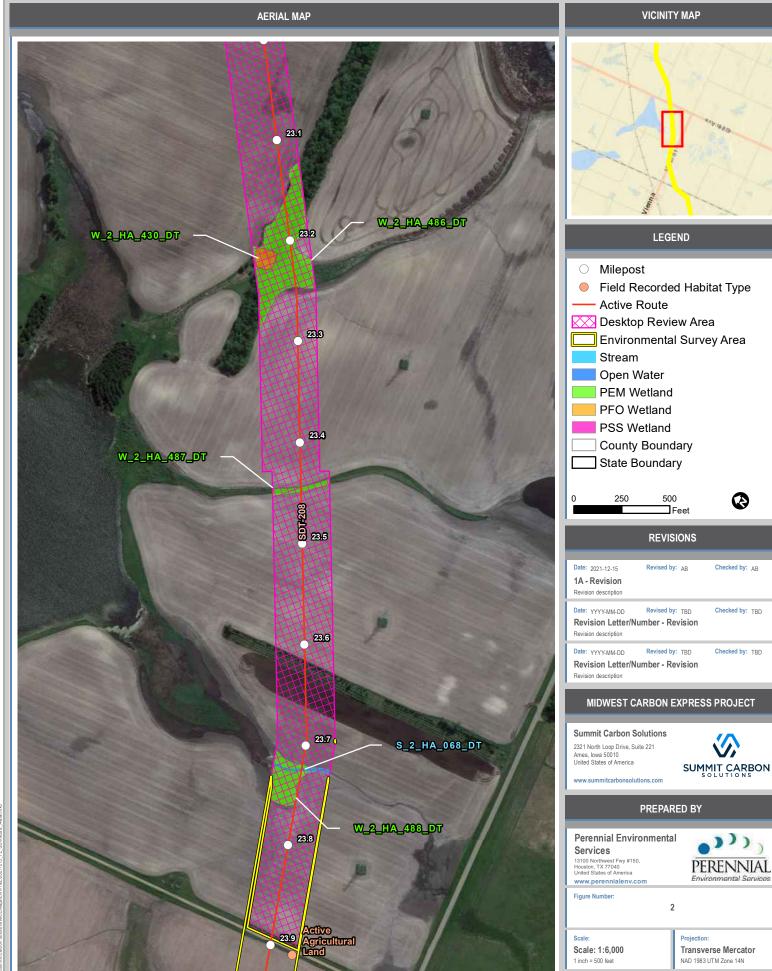
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Current Revision



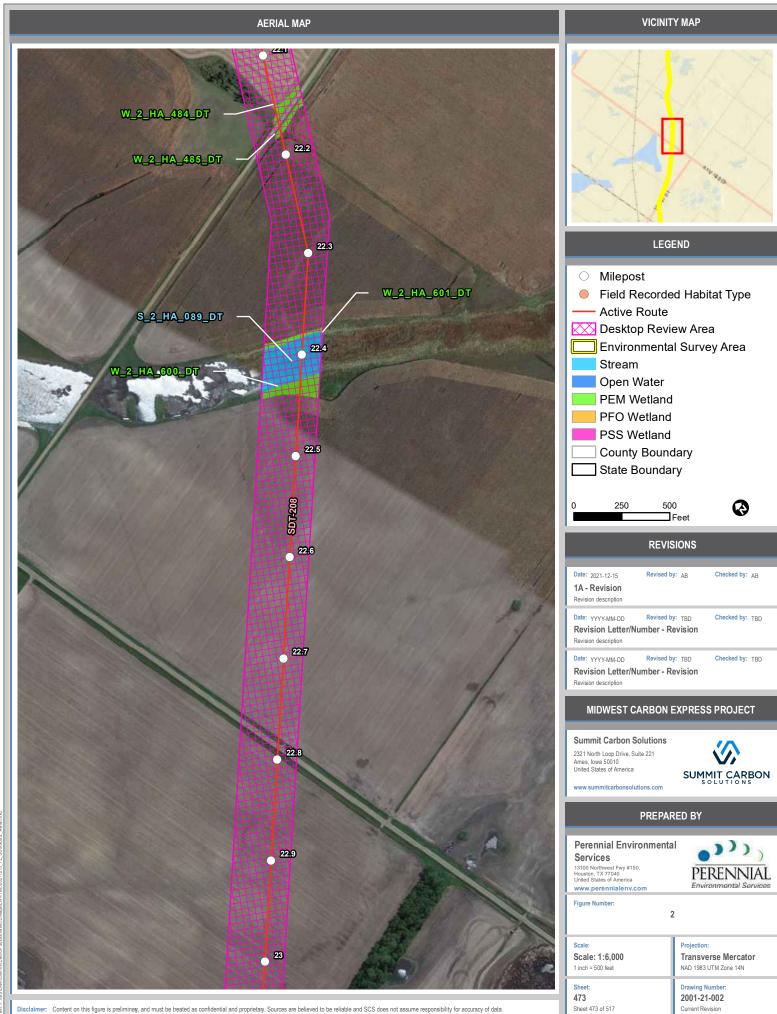
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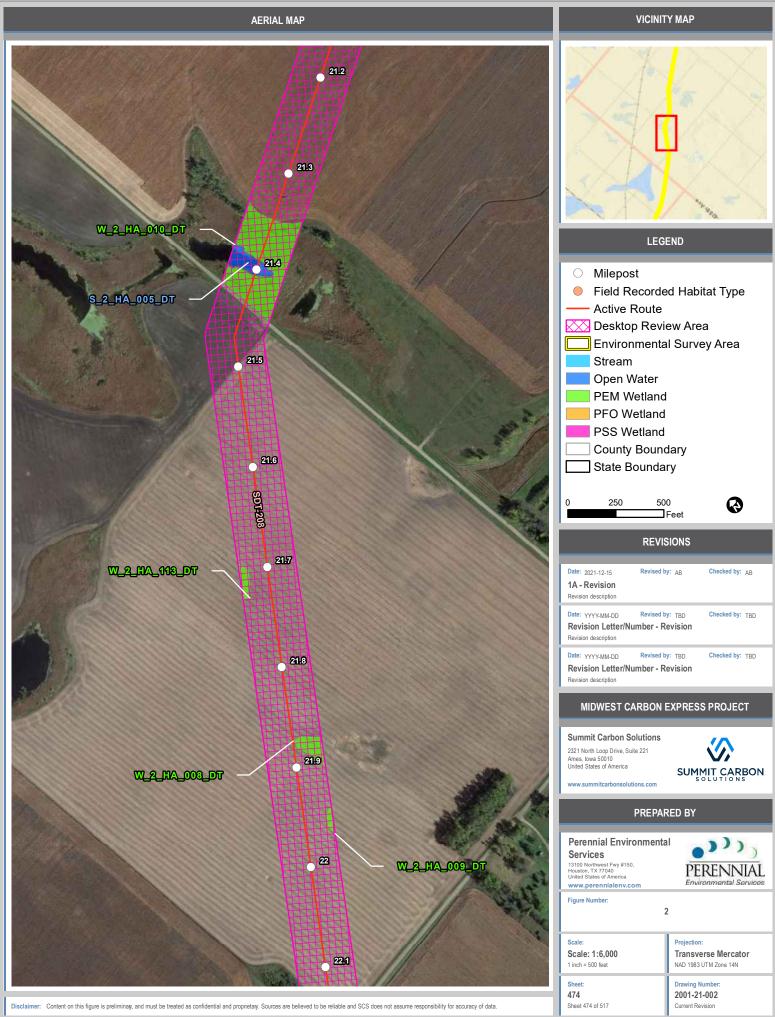


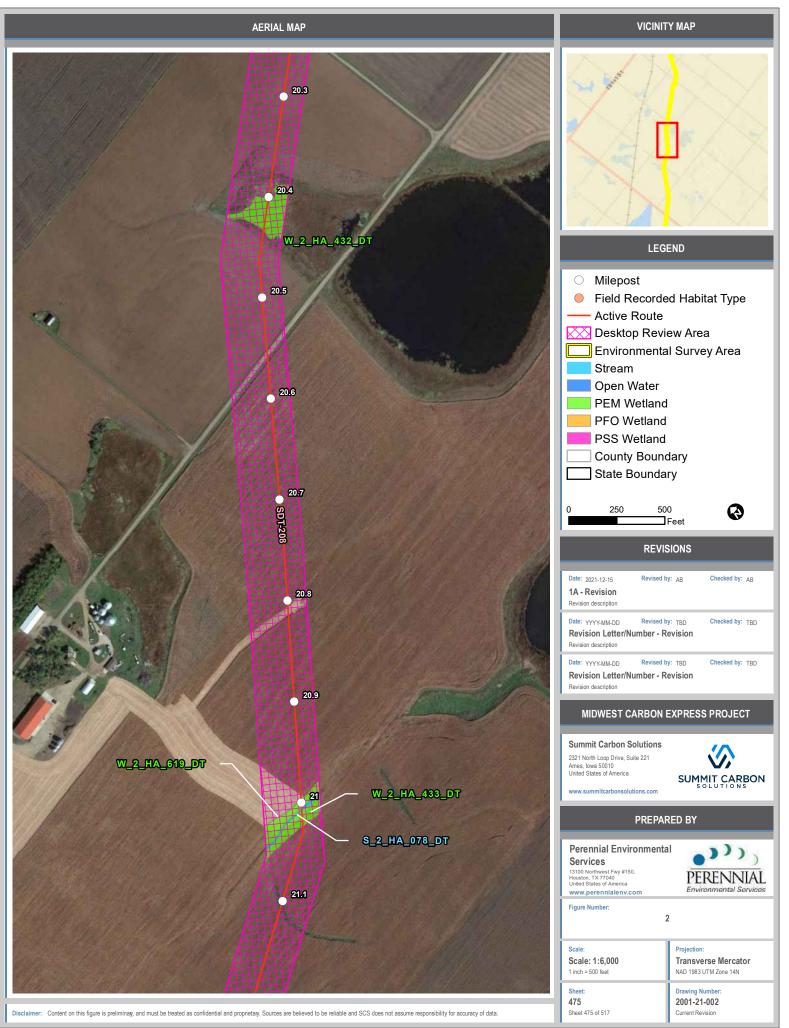
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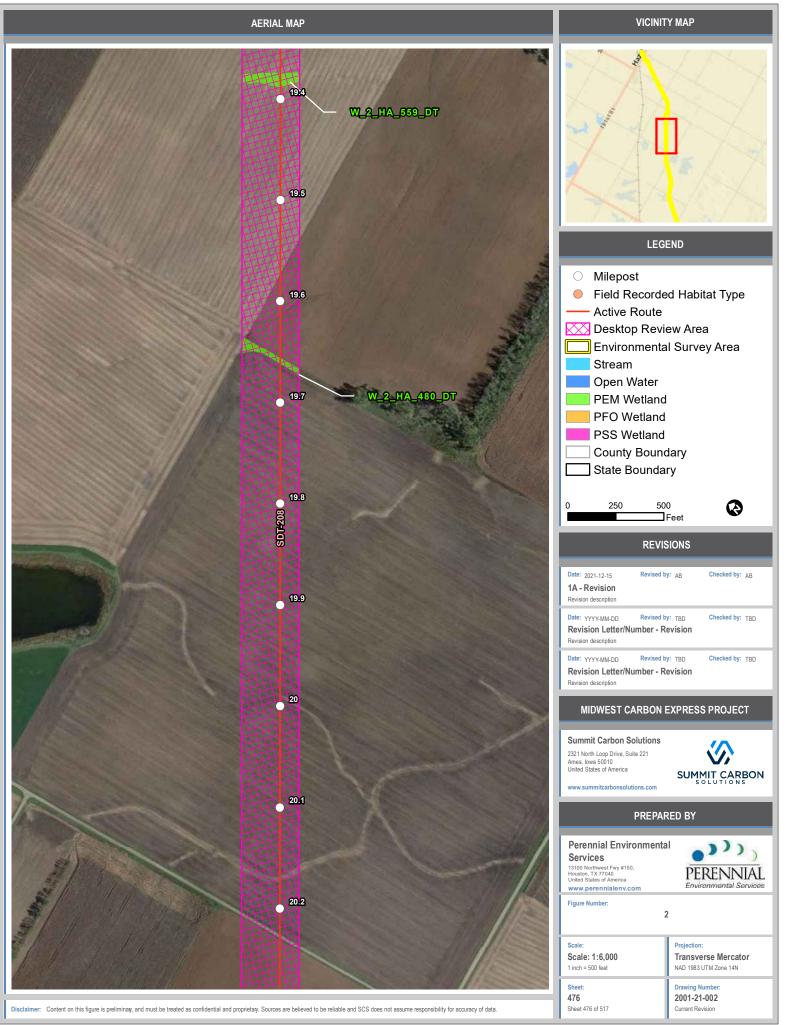
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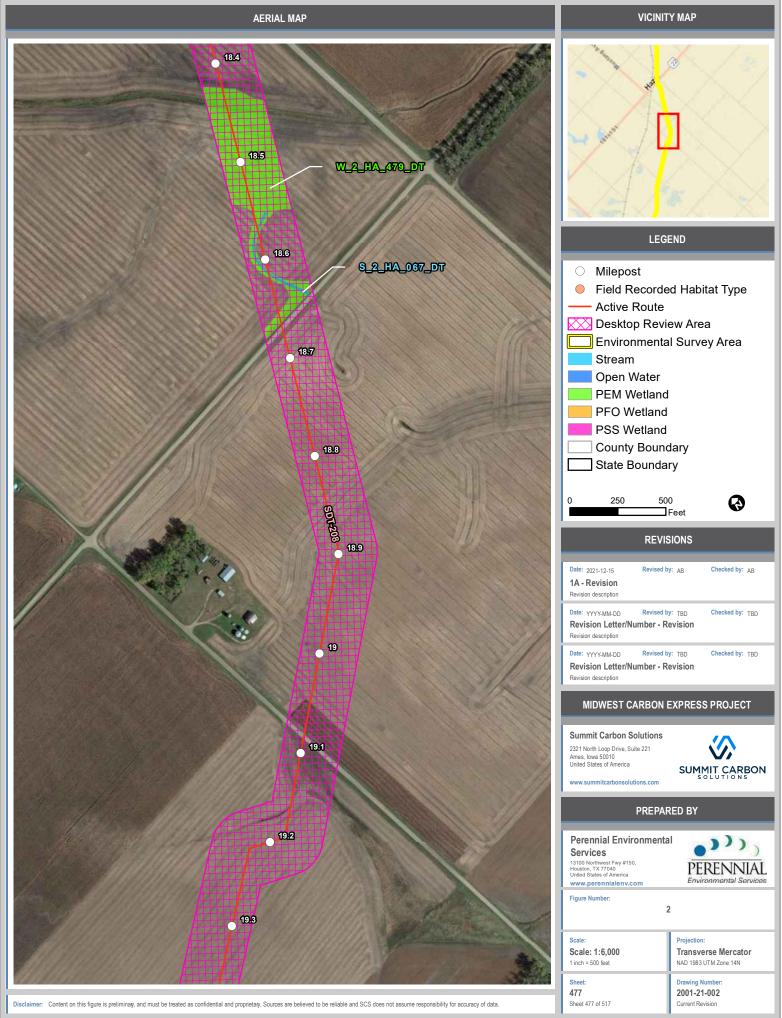
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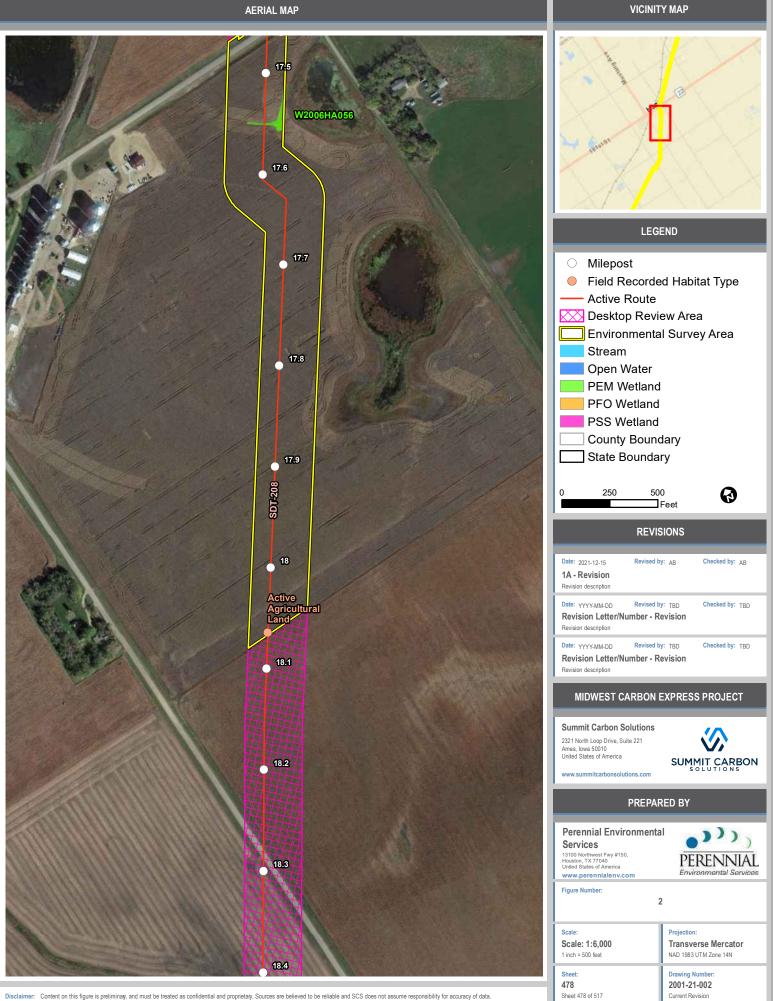


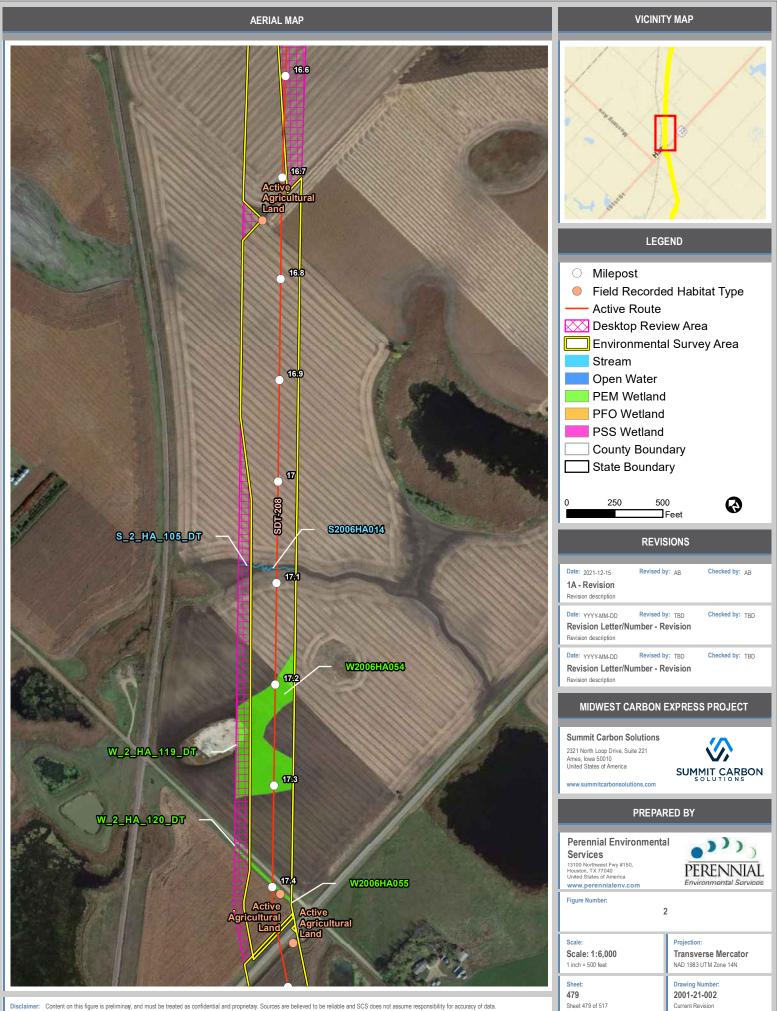


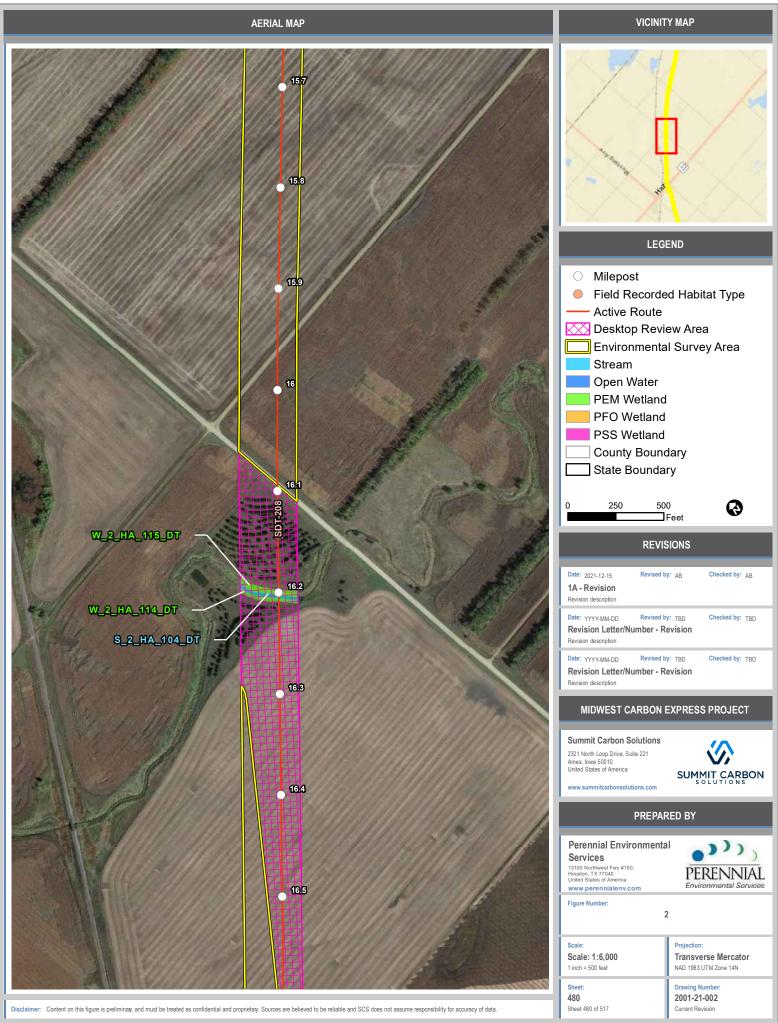


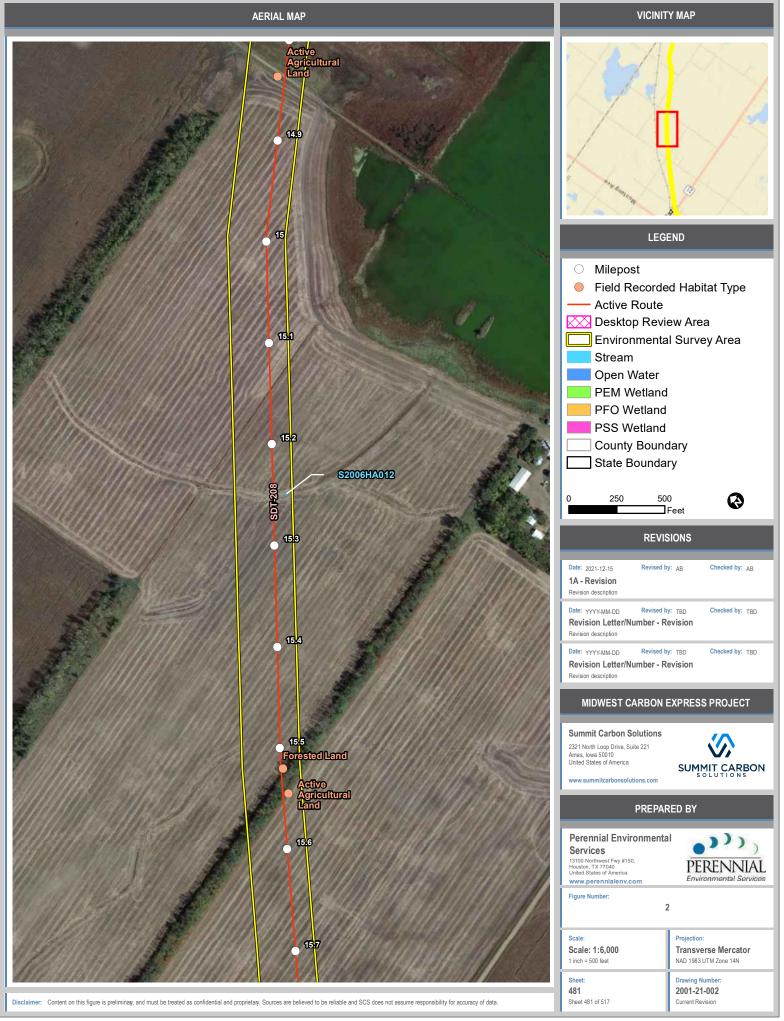


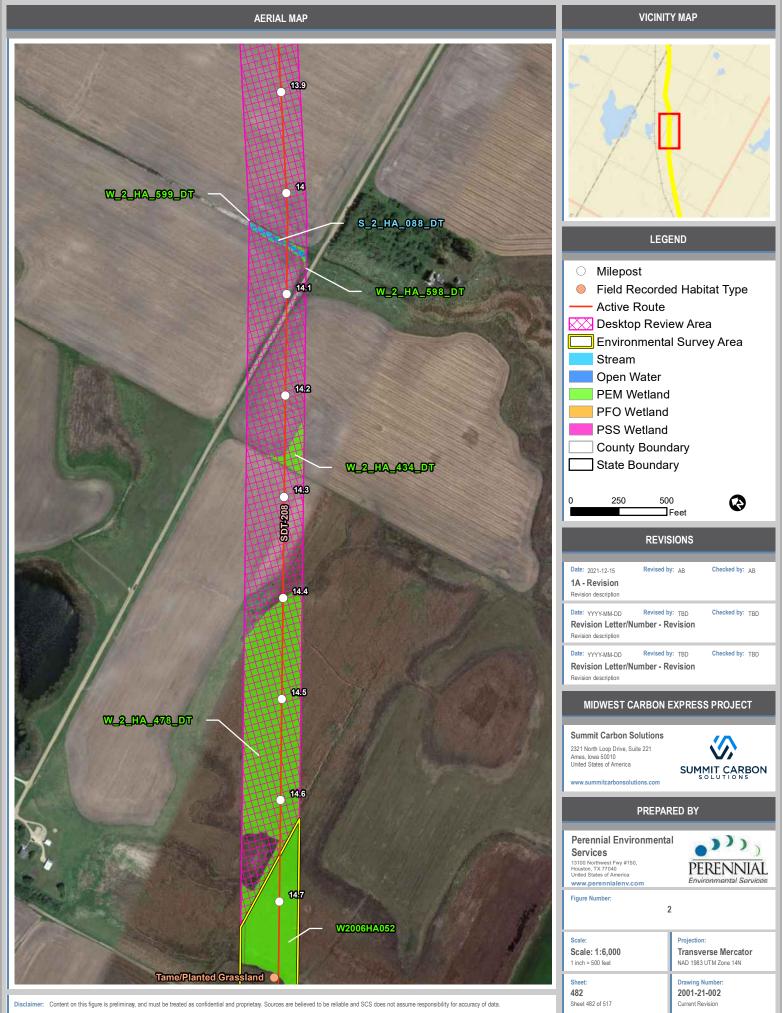
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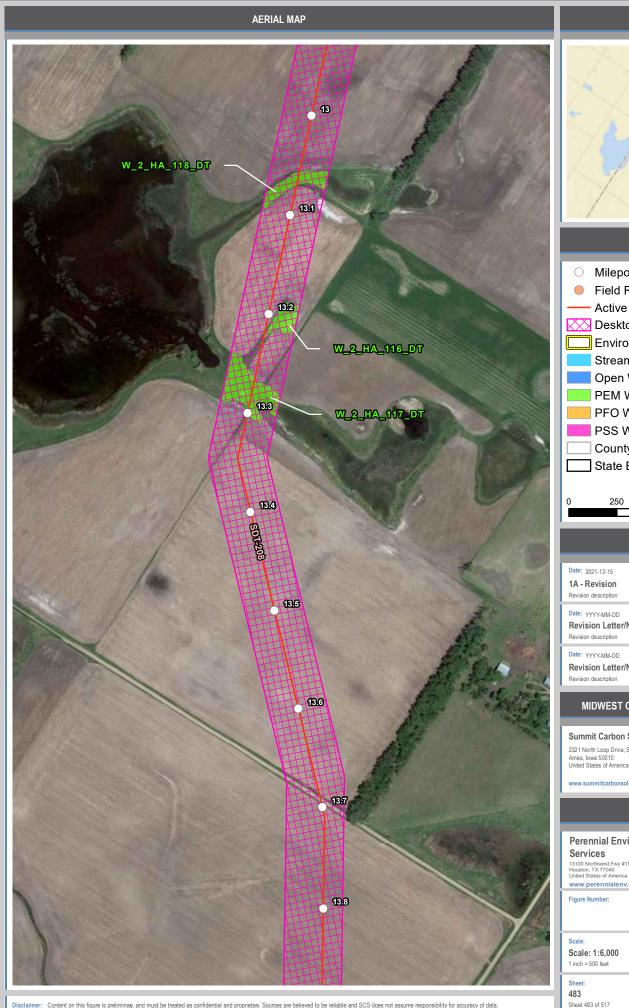


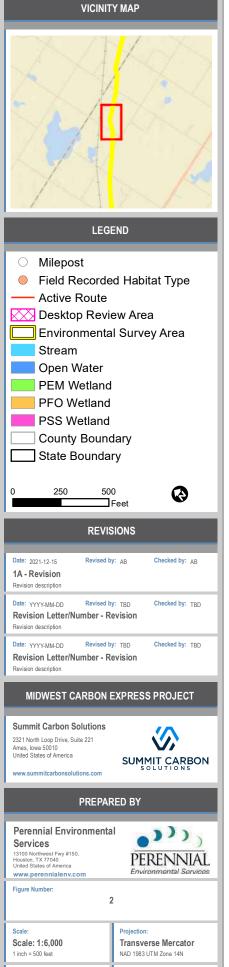






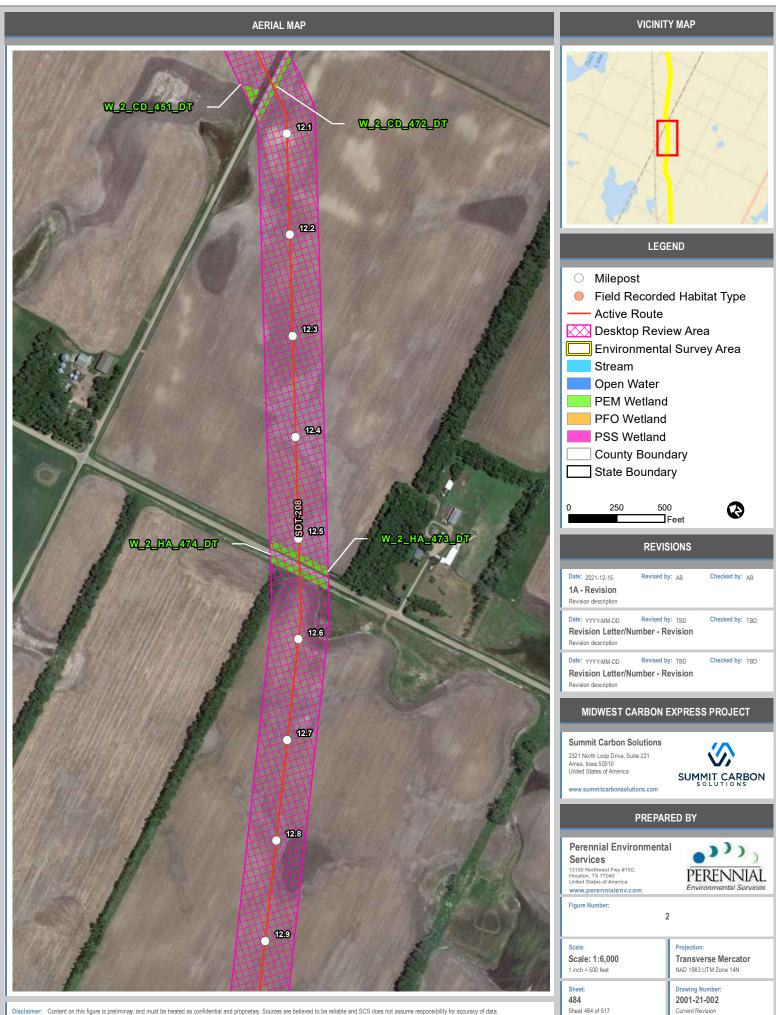
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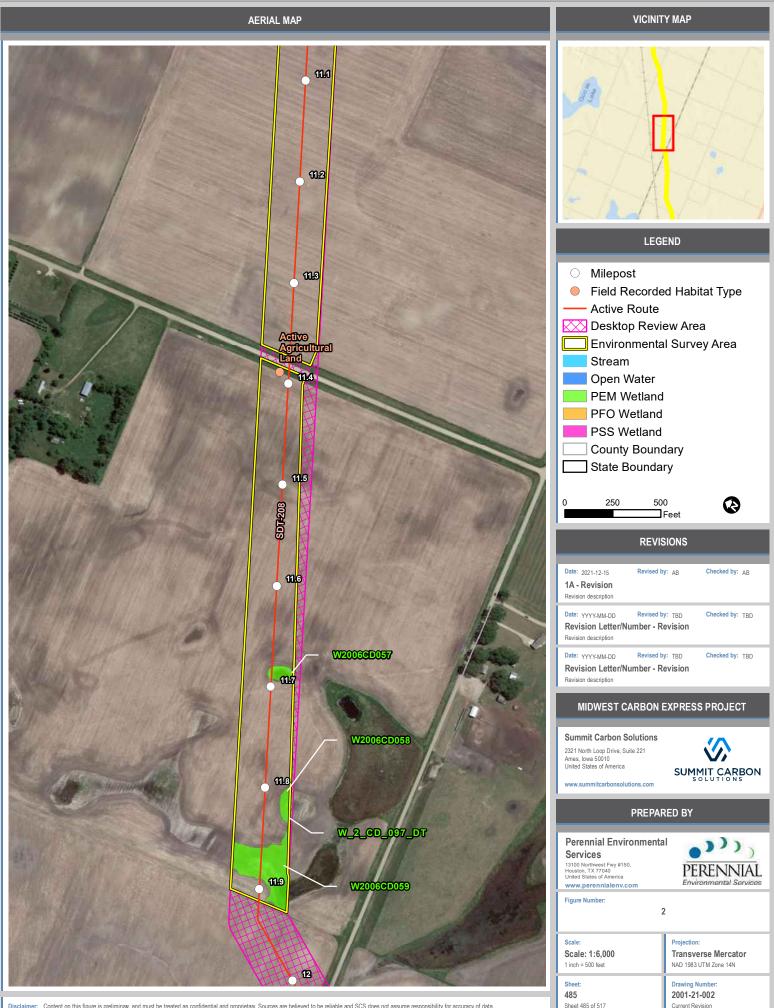




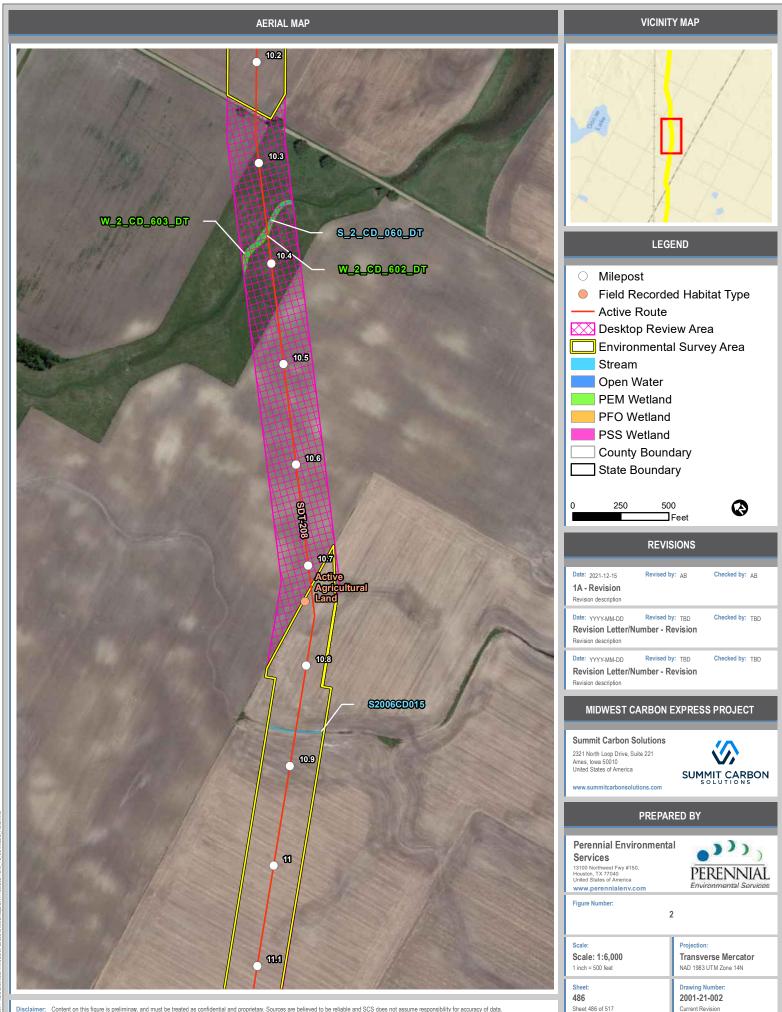
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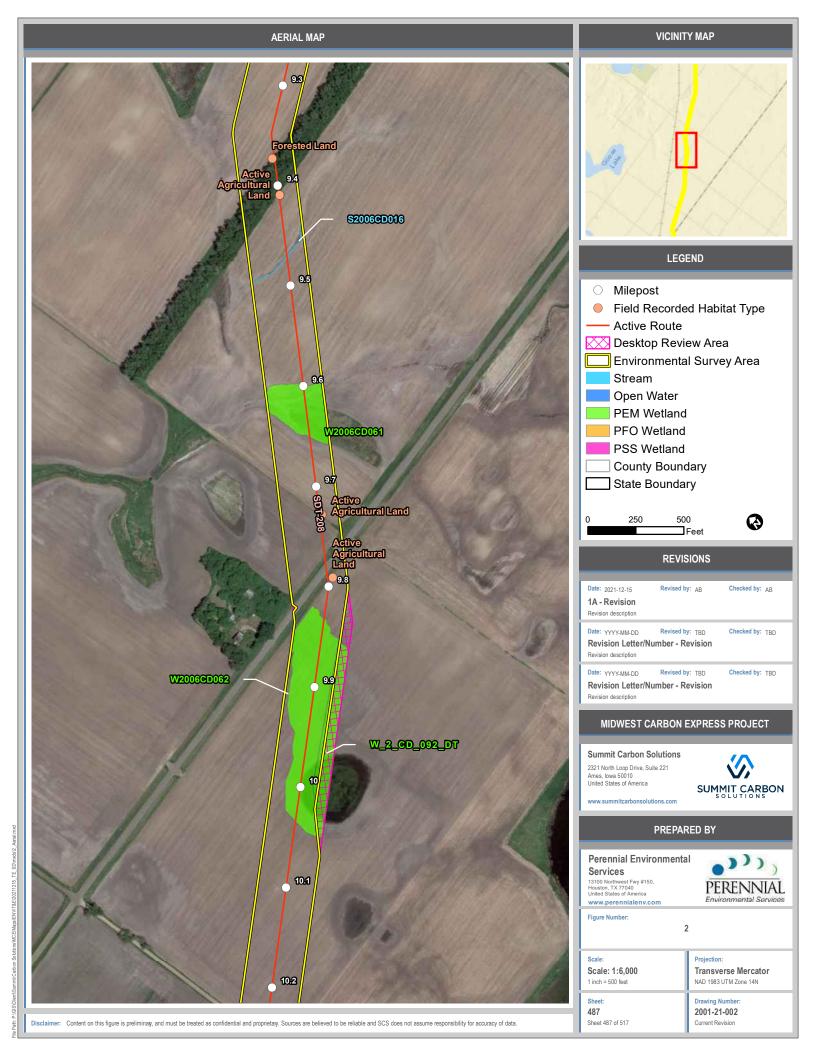
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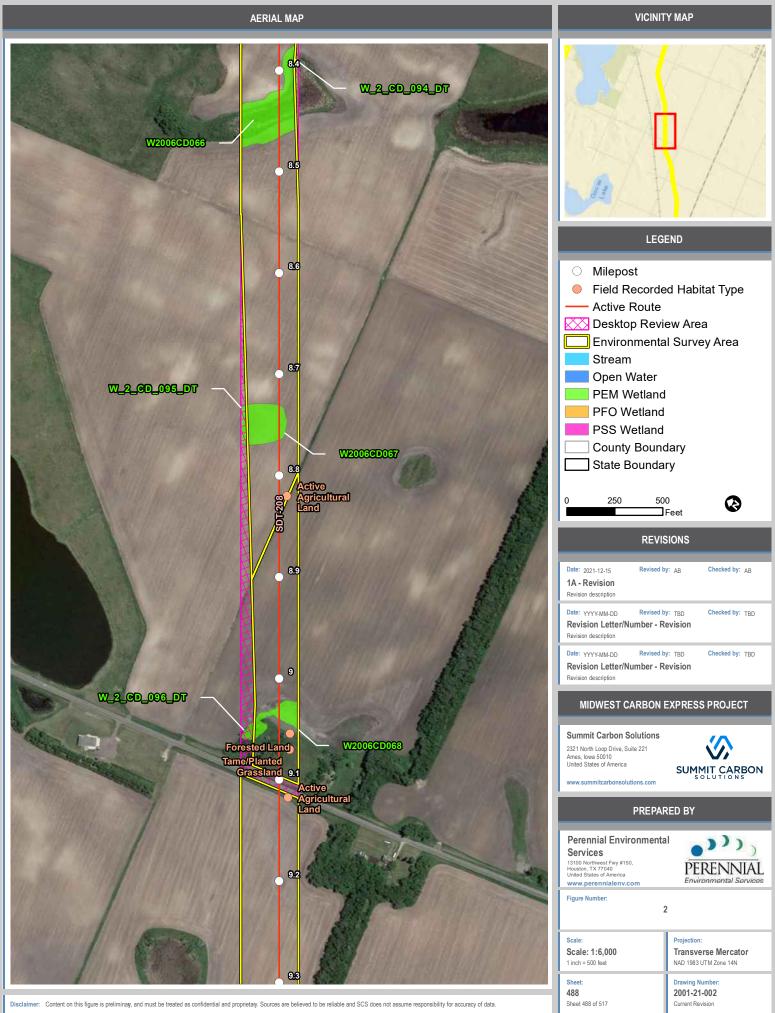




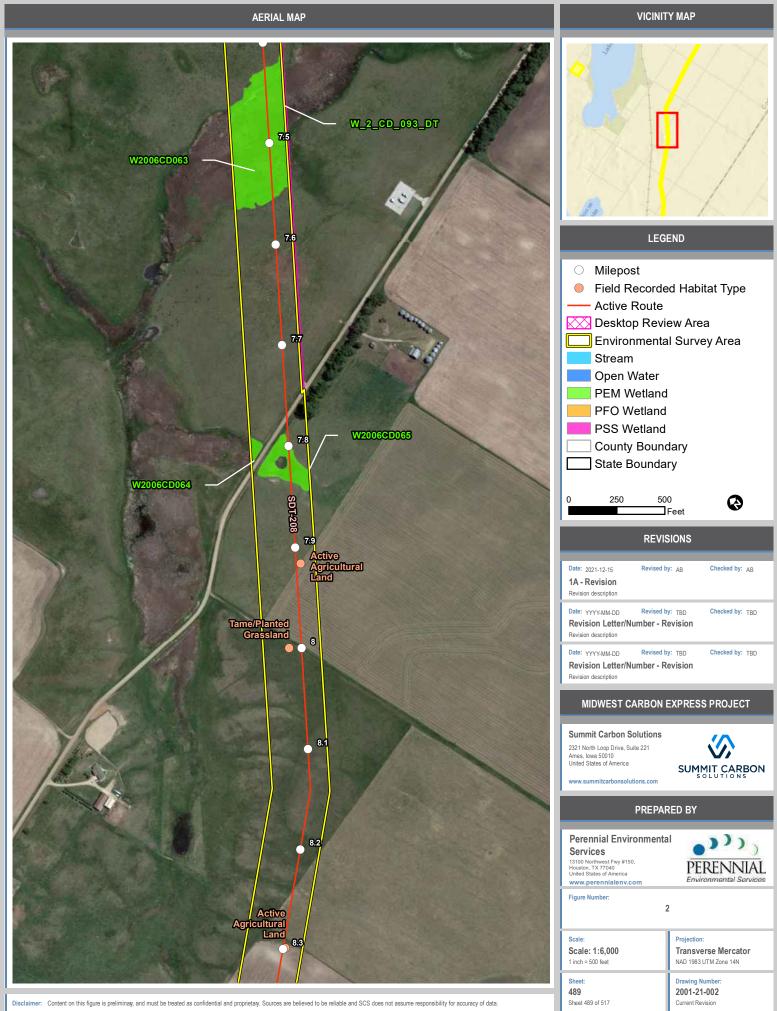
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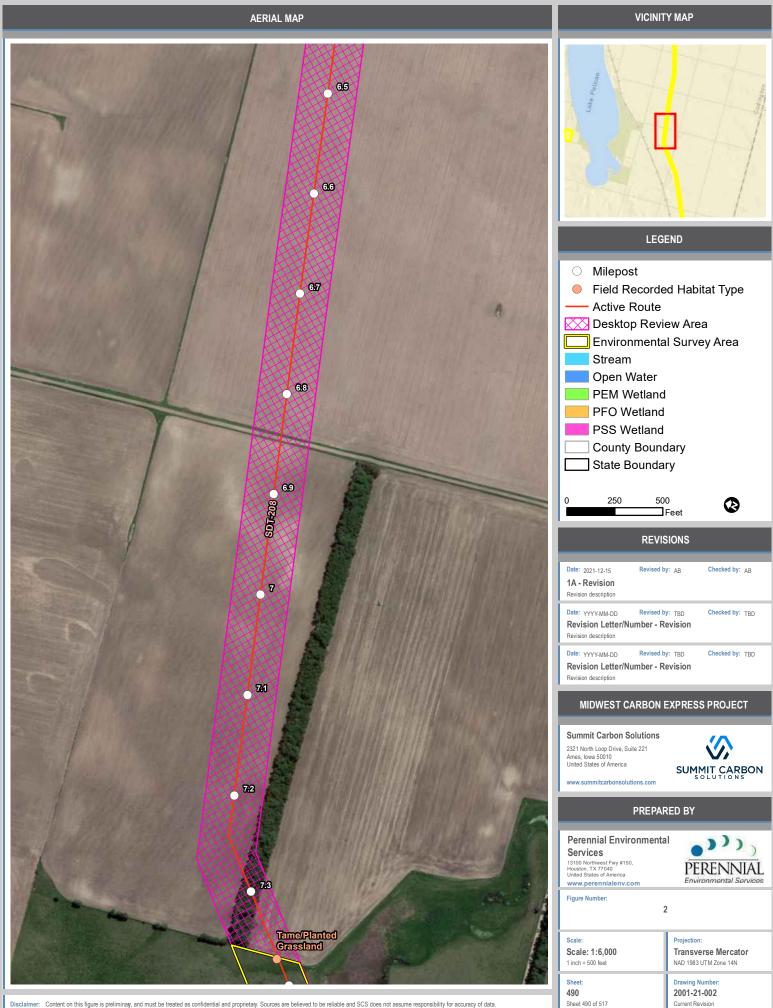


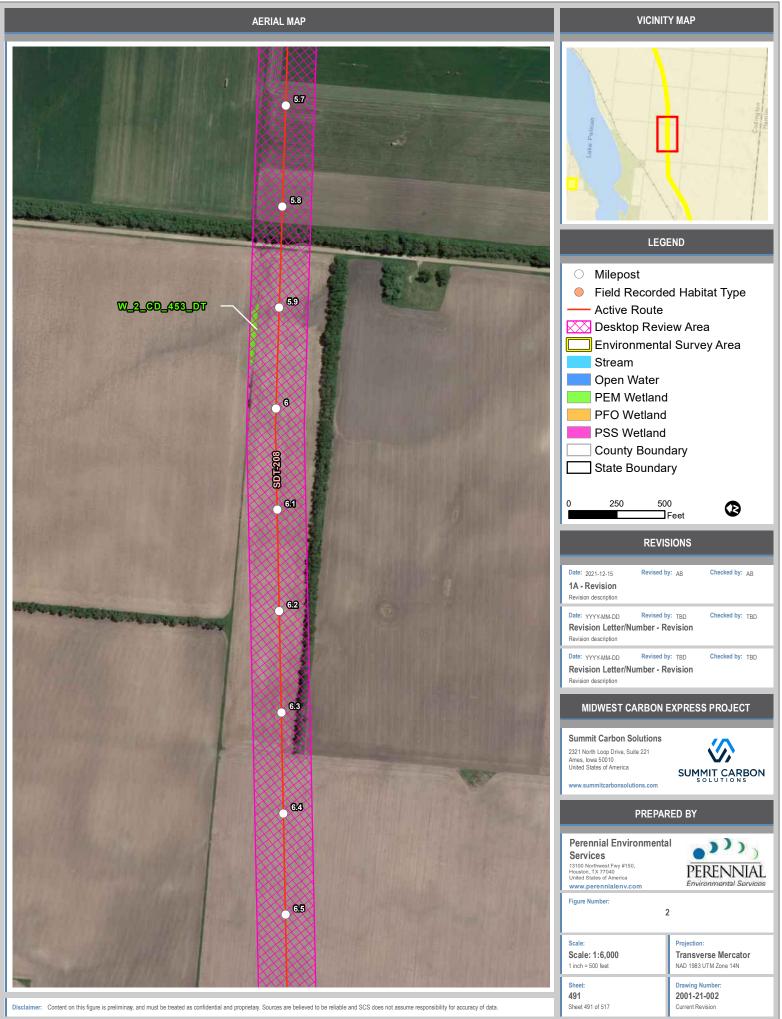


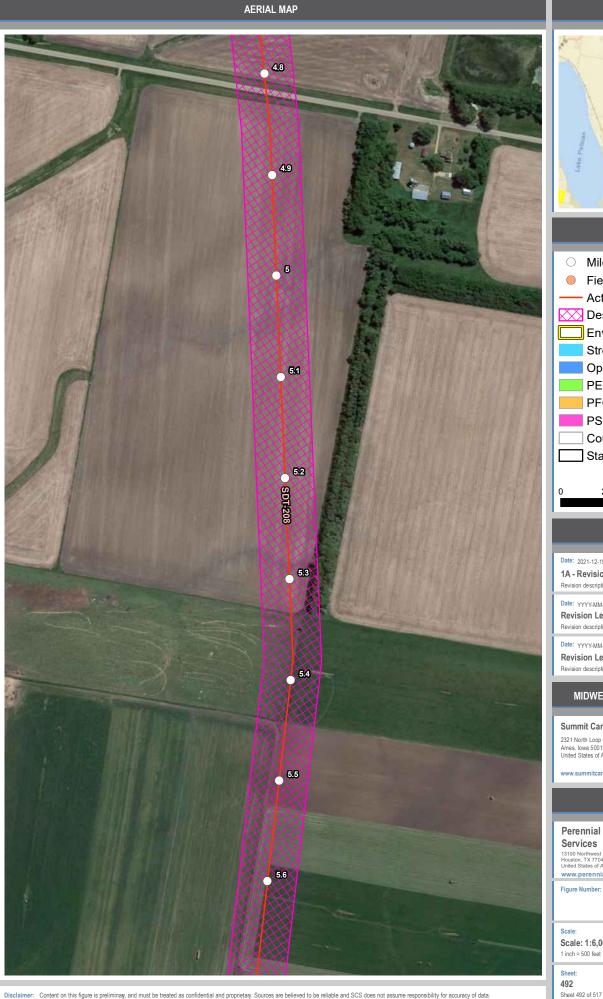
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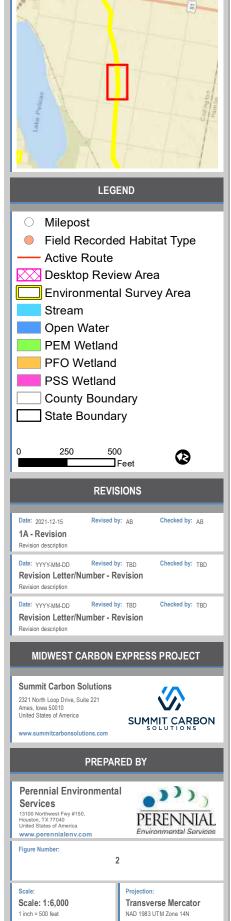


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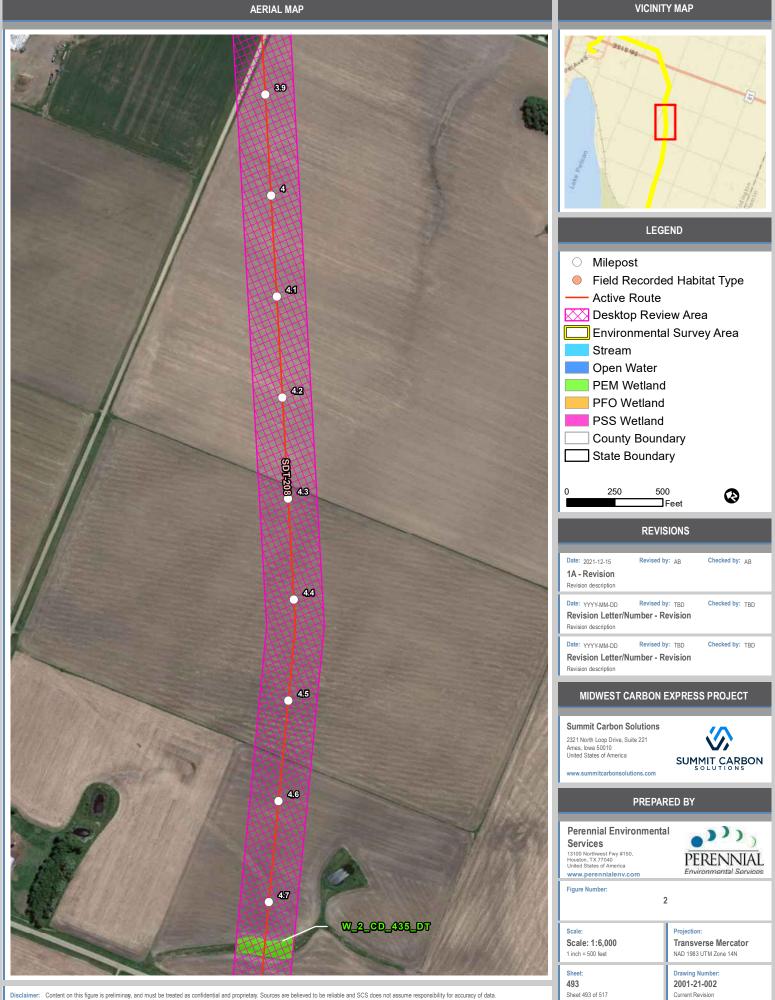


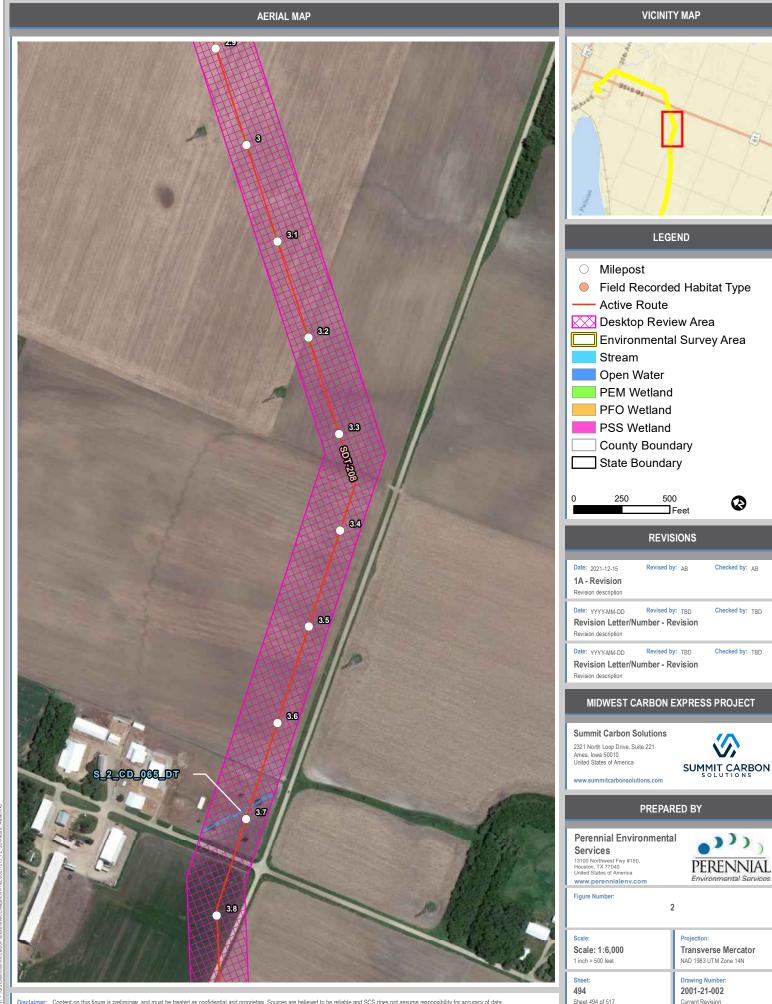
Drawing Number:

2001-21-002

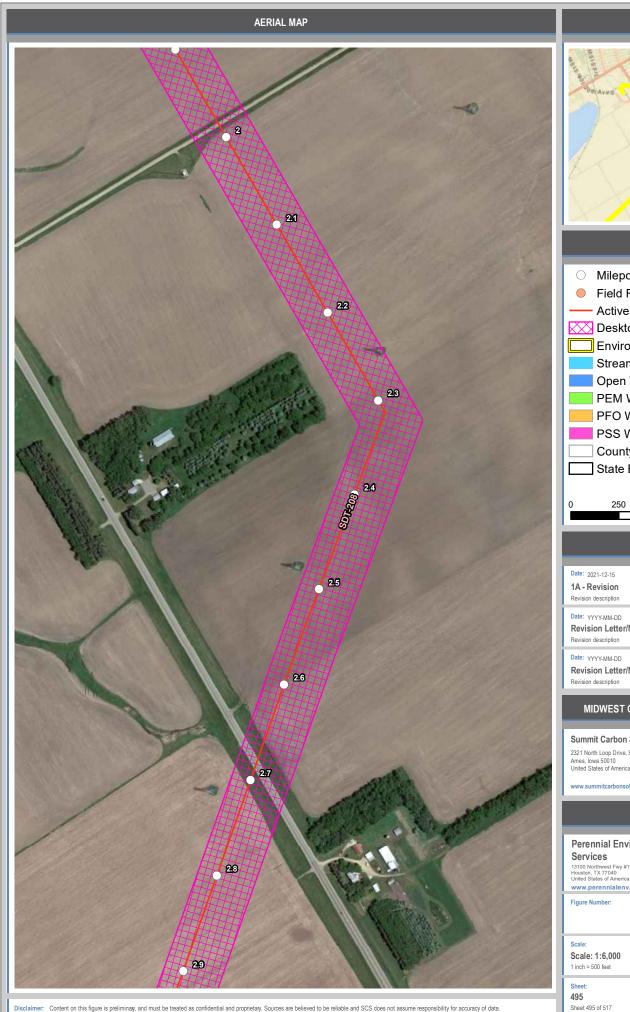
Current Revision

VICINITY MAP

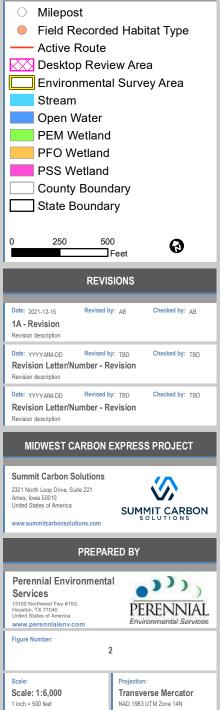




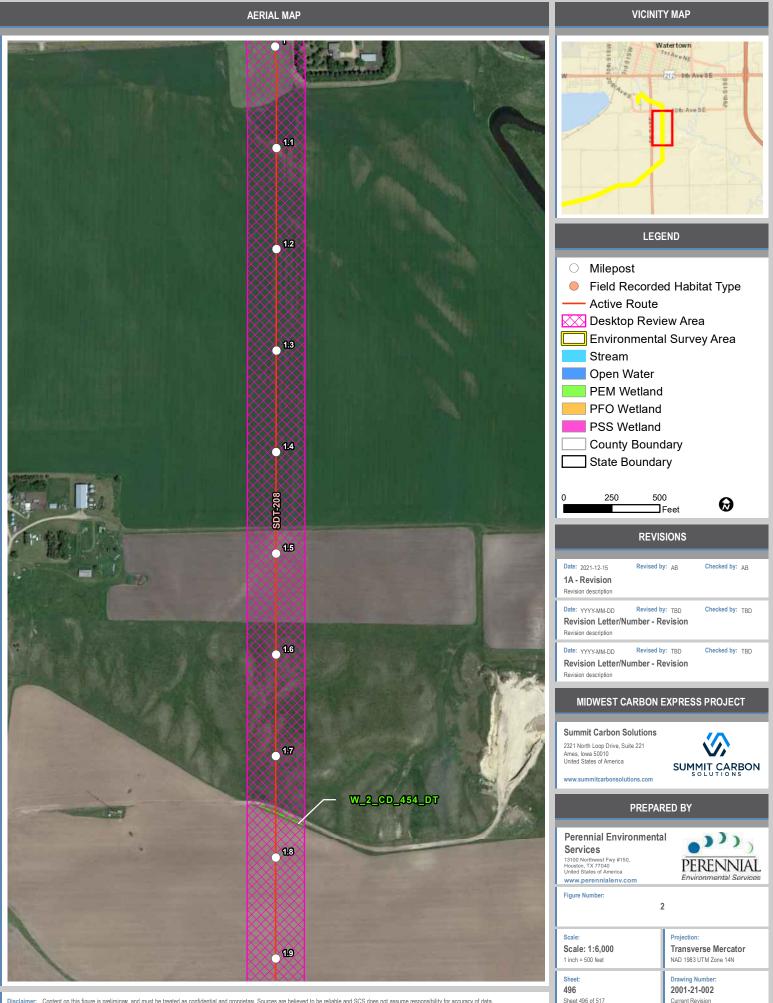
Sheet 494 of 517

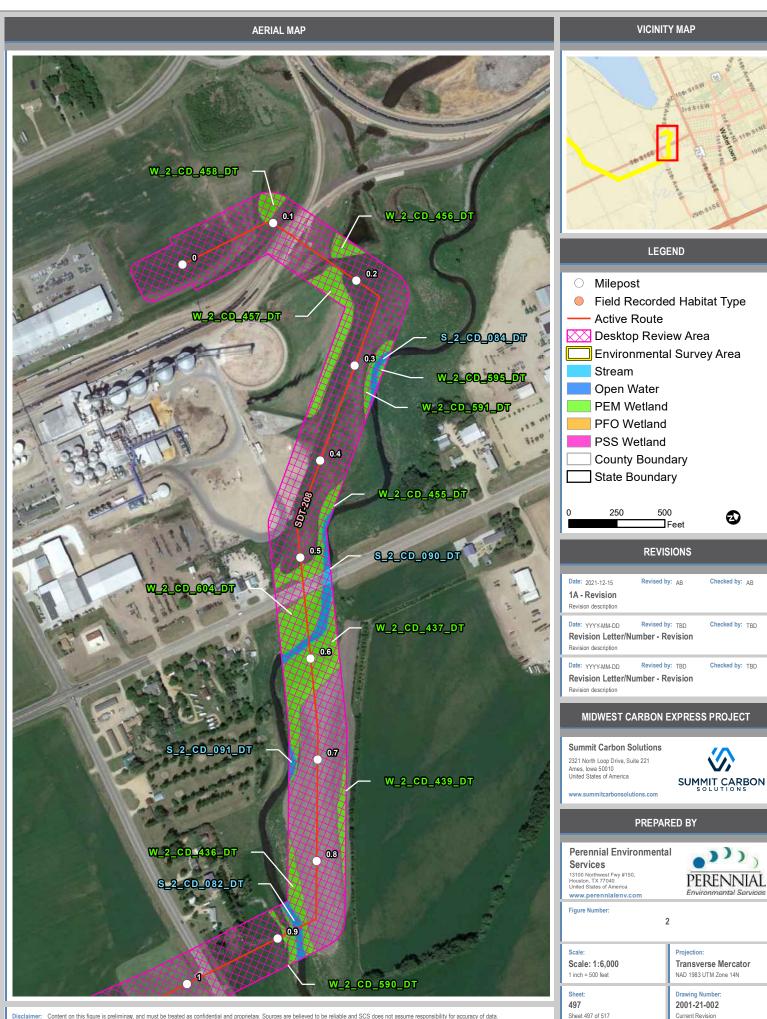


VICINITY MAP LEGEND



Drawing Number: 2001-21-002







## Waterto LEGEND Milepost Field Recorded Habitat Type $\bigcirc$ Active Route Desktop Review Area Environmental Survey Area Stream Open Water PEM Wetland PFO Wetland PSS Wetland **County Boundary** State Boundary 410 820 Ð Feet

REVISIONS Date: 2021-12-15 Revised by: AB Checked by: AB 1A - Revision Revision description Revised by: TRD Checked by: TBD Date: YYYY-MM-DD Revision Letter/Number - Revision Revision description Date: YYYY-MM-DD Revised by: TBD Checked by: TBD **Revision Letter/Number - Revision** Revision description

## MIDWEST CARBON EXPRESS PROJECT

Summit Carbon Solutions 2321 North Loop Drive, Suite 221 Ames, Iowa 50010 United States of America w.summitcarbonsolutions.com

Services

Figure Number:

Scale: 1:6,000

1 inch = 500 feet

Scale:

Sheet:

498 Sheet 498 of 517



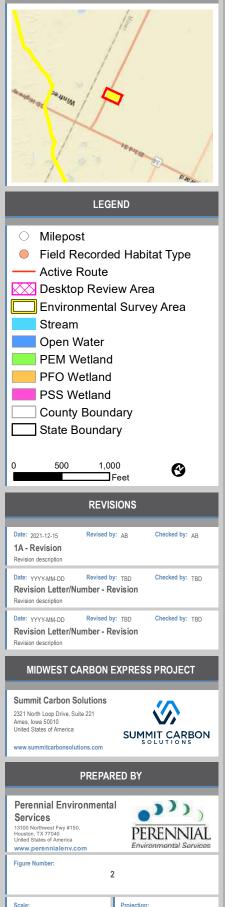
PREPARED BY ,,,, **Perennial Environmental** 13100 Northwest Fwy #150, Houston, TX 77040 United States of America PERENNIAL www.perennialenv.com

Current Revision

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VICINITY MAP





Scale: 1:6,000

1 inch = 500 feet

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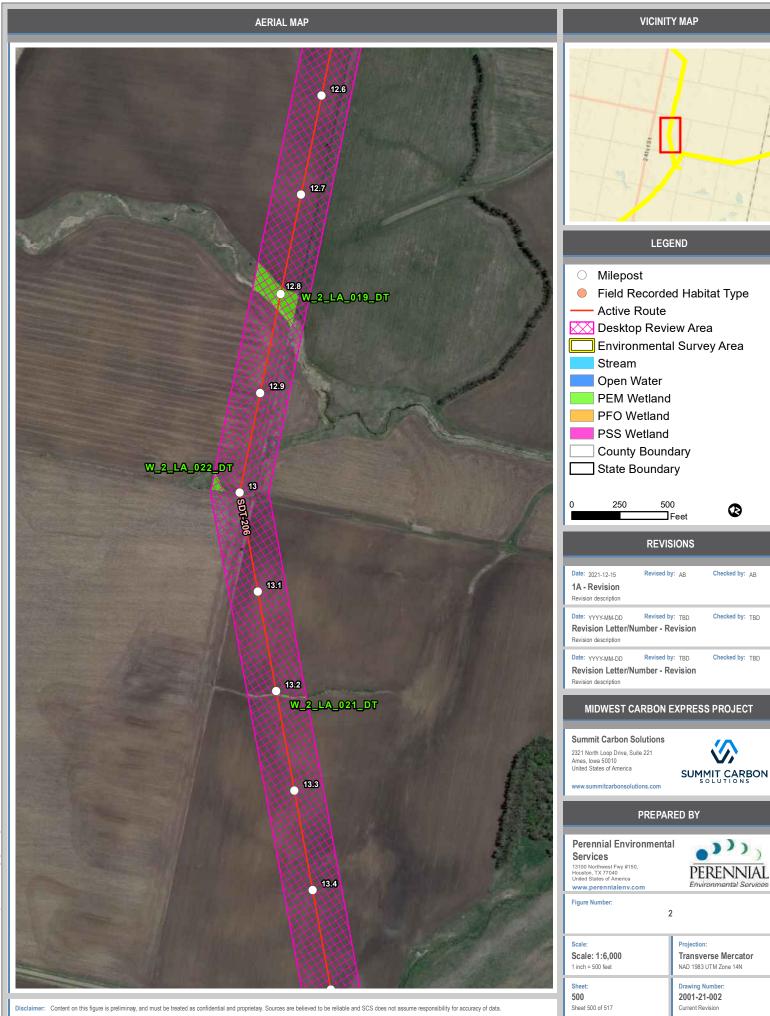
**499** Sheet 499 of 517 **Transverse Mercator** 

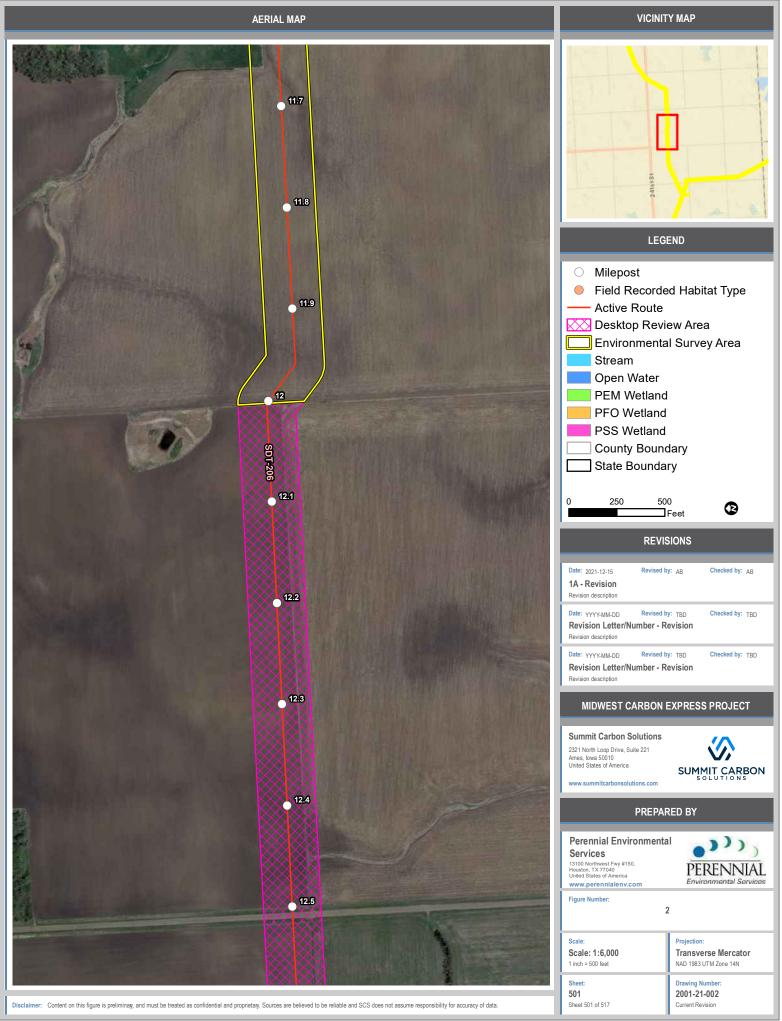
NAD 1983 UTM Zone 14N

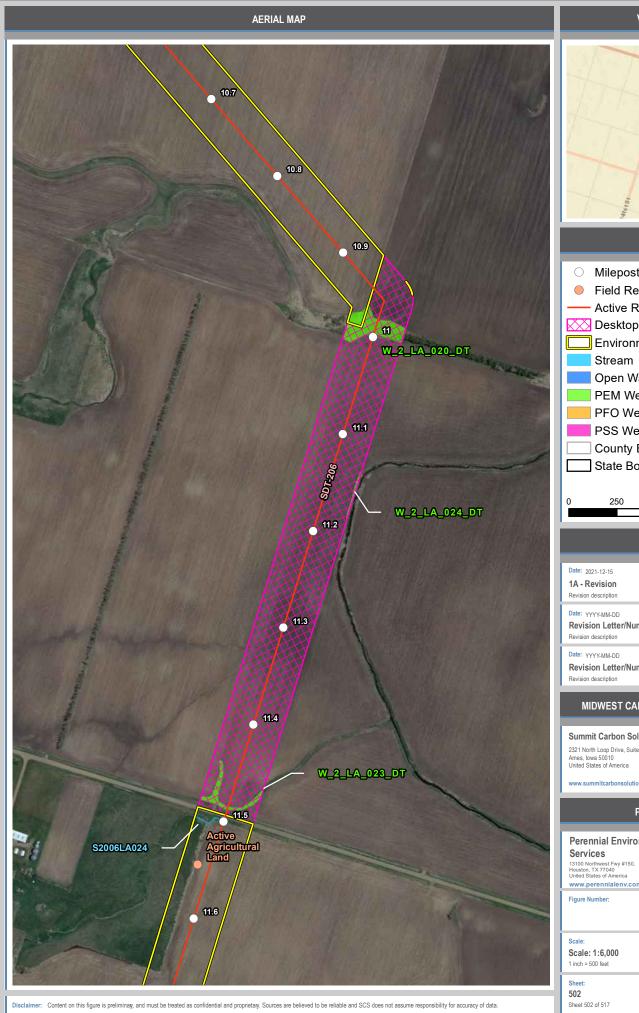
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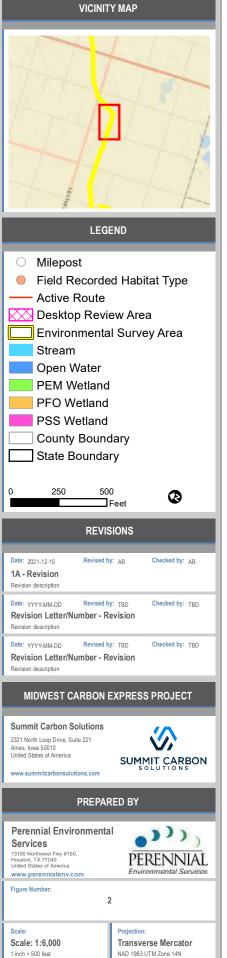
Current Revision

VICINITY MAP



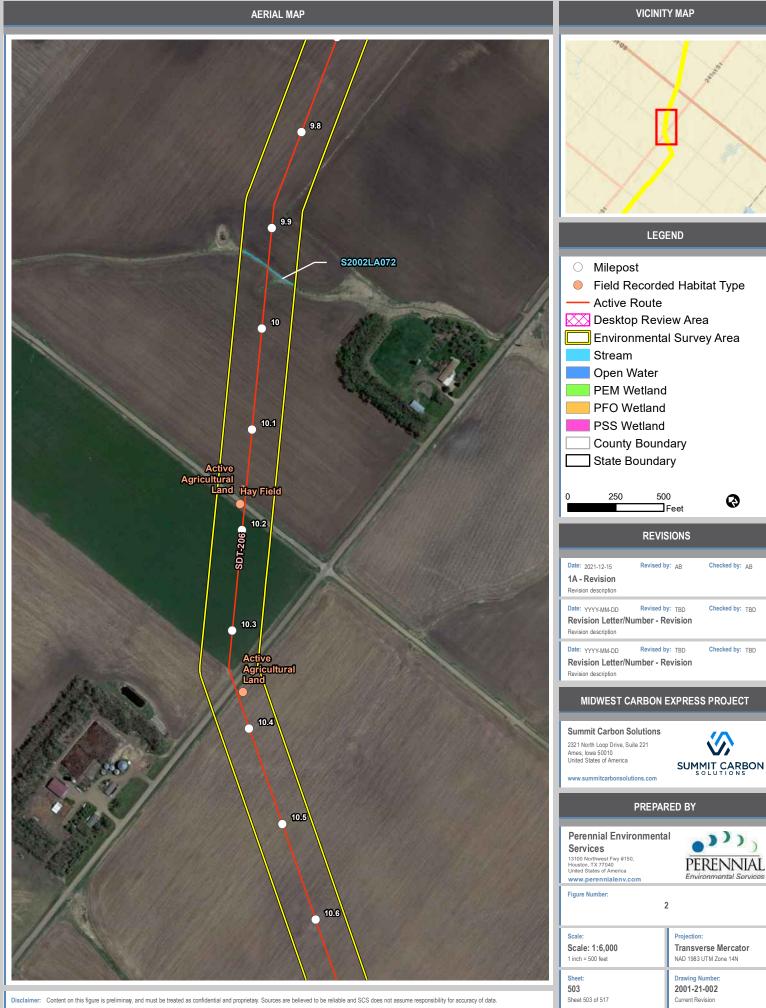


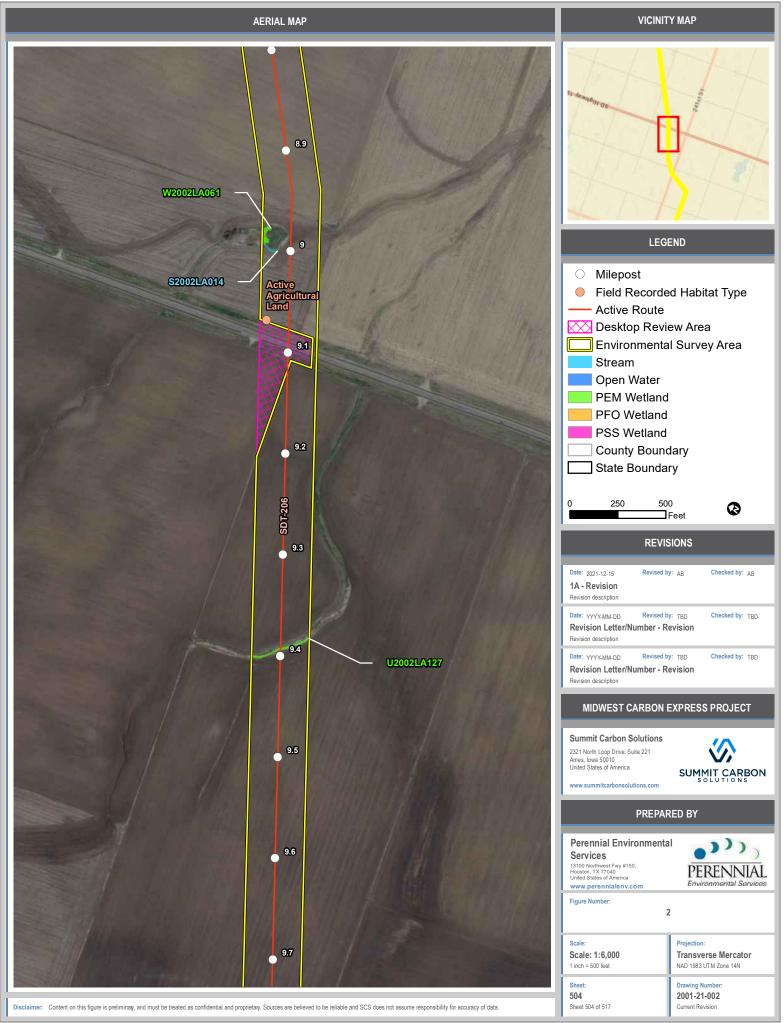


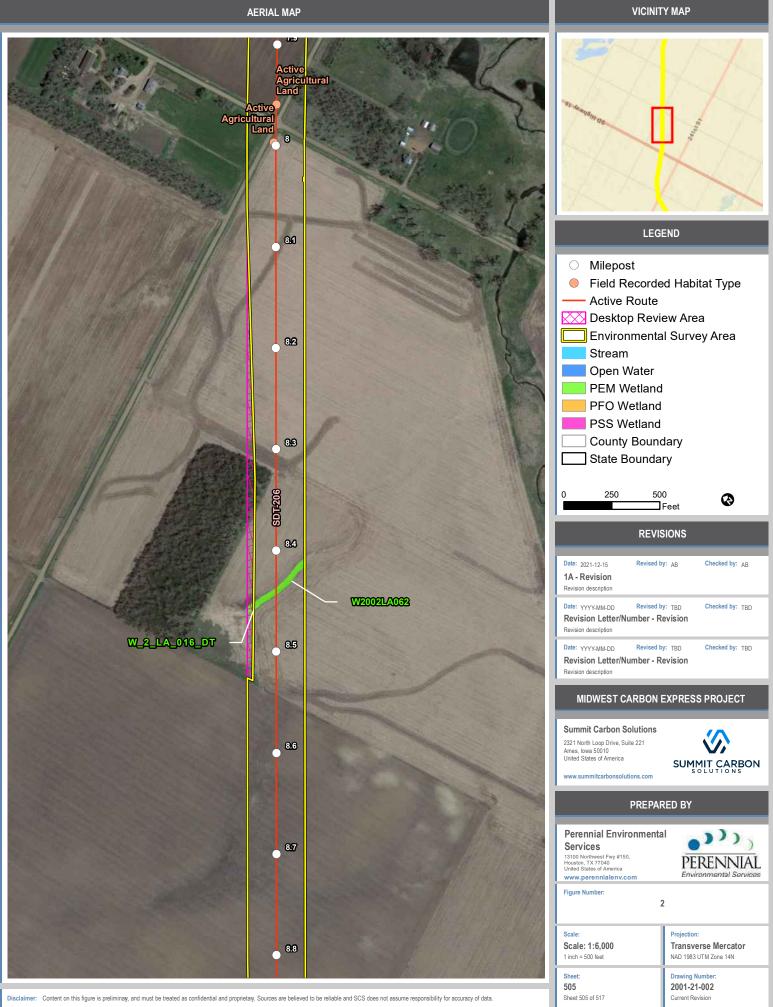


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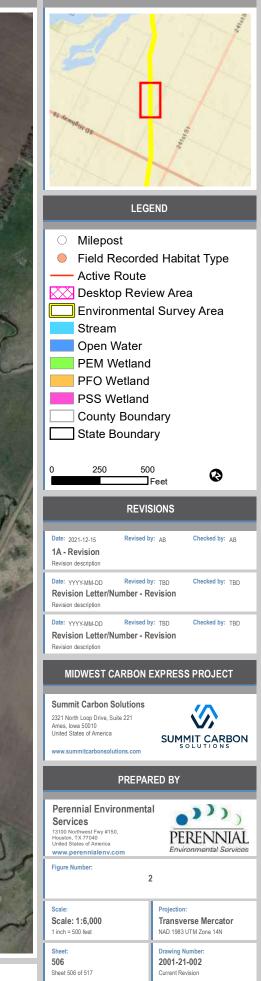


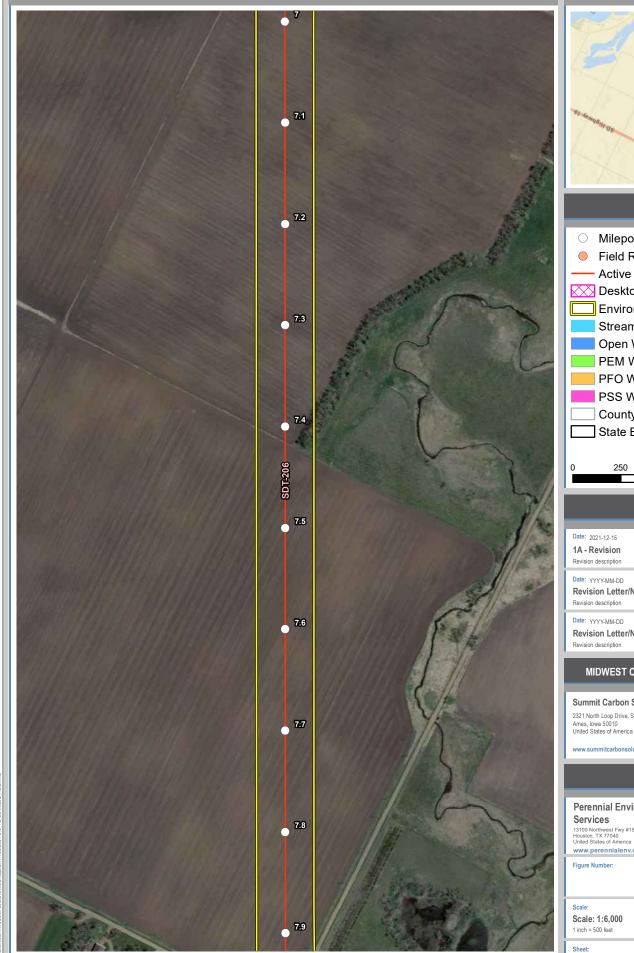


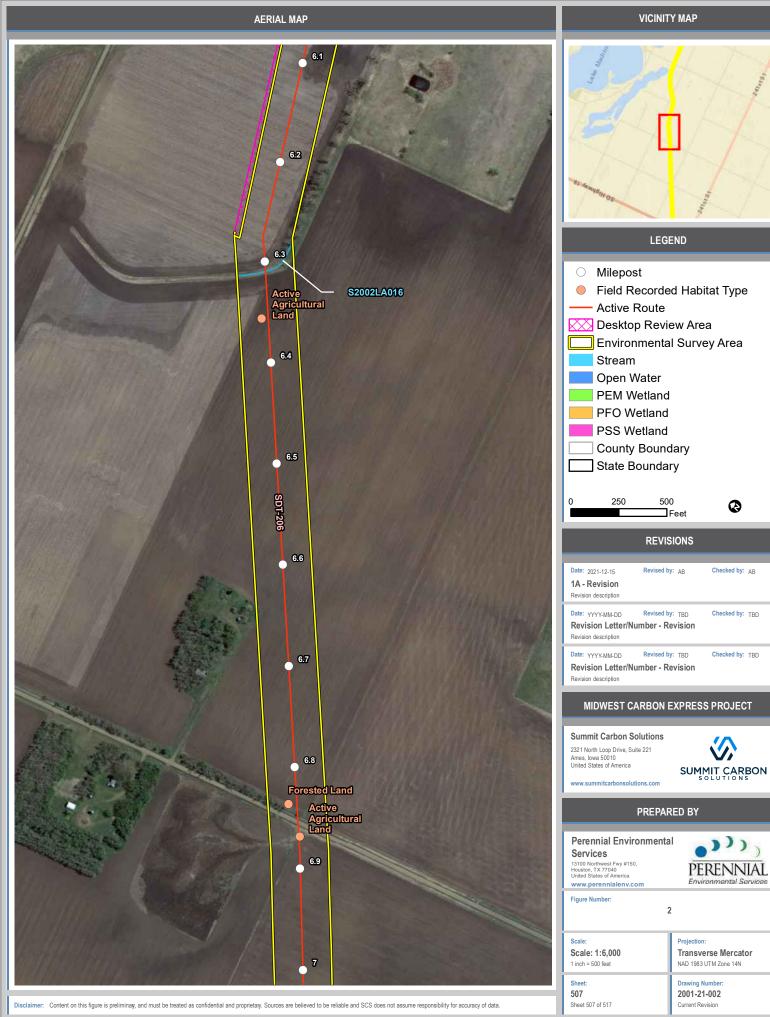


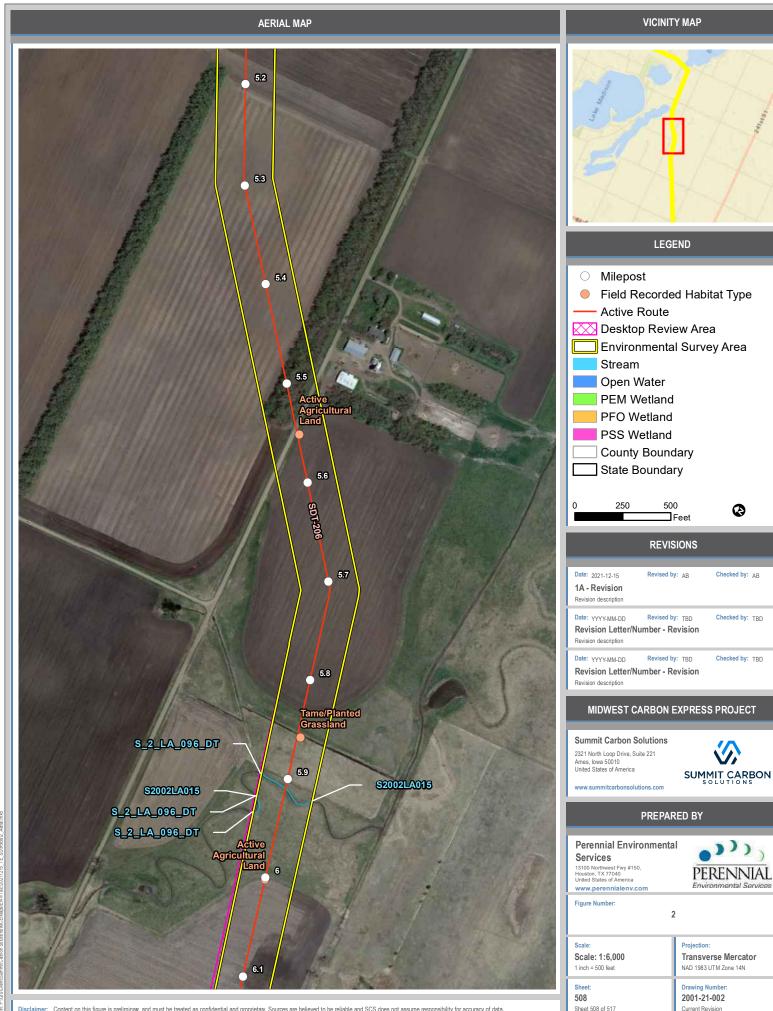


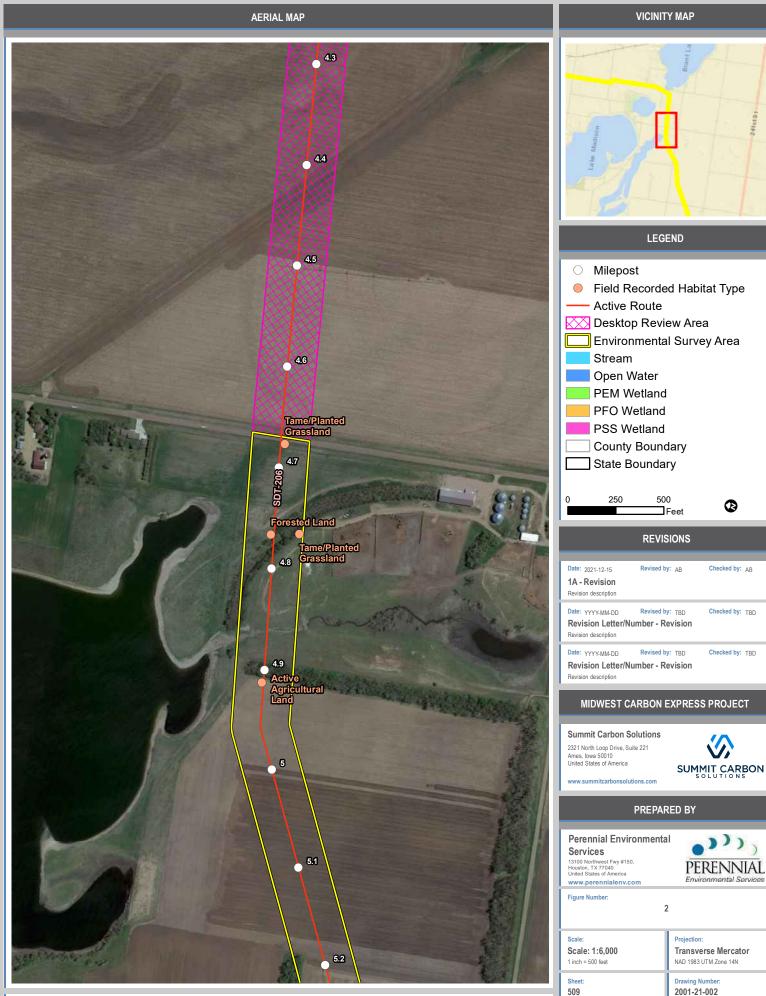






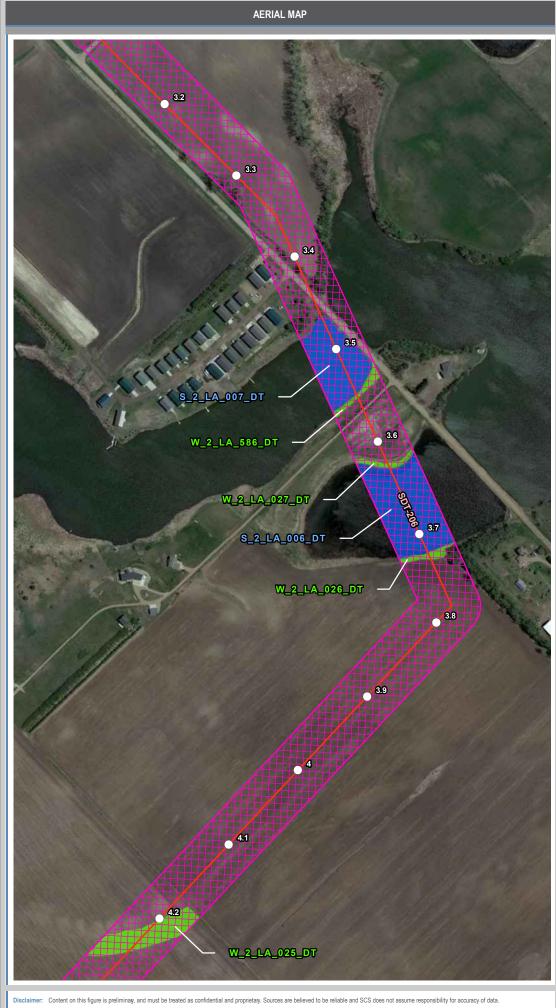


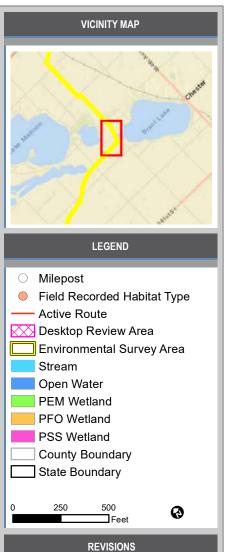




Sheet 509 of 517

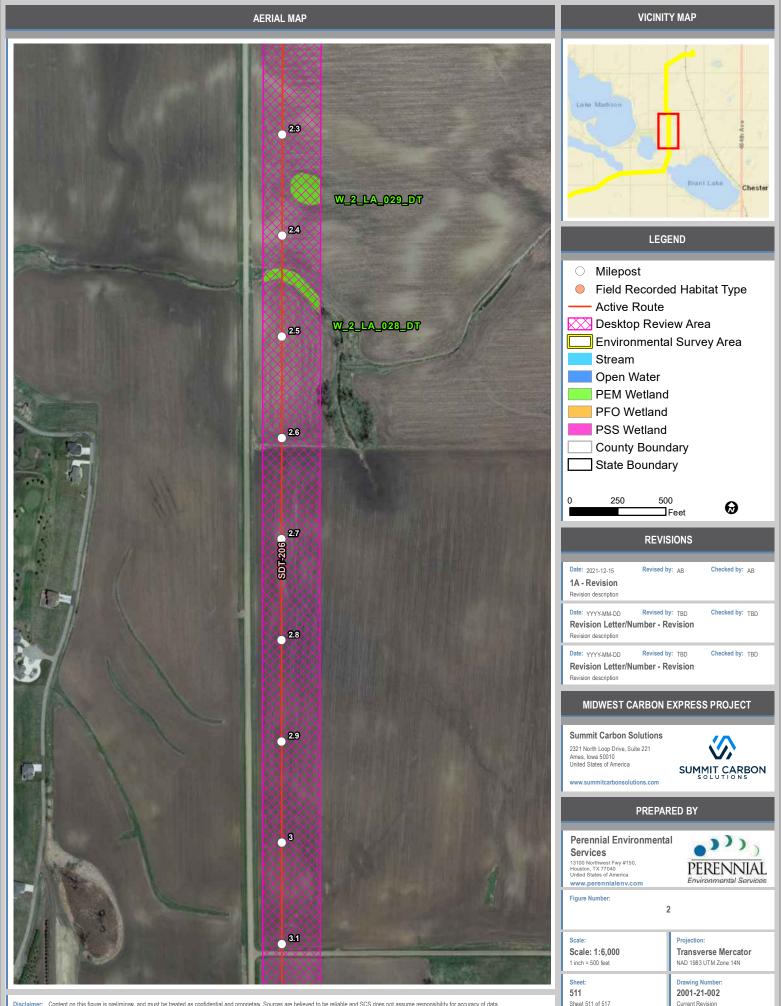
Current Revision



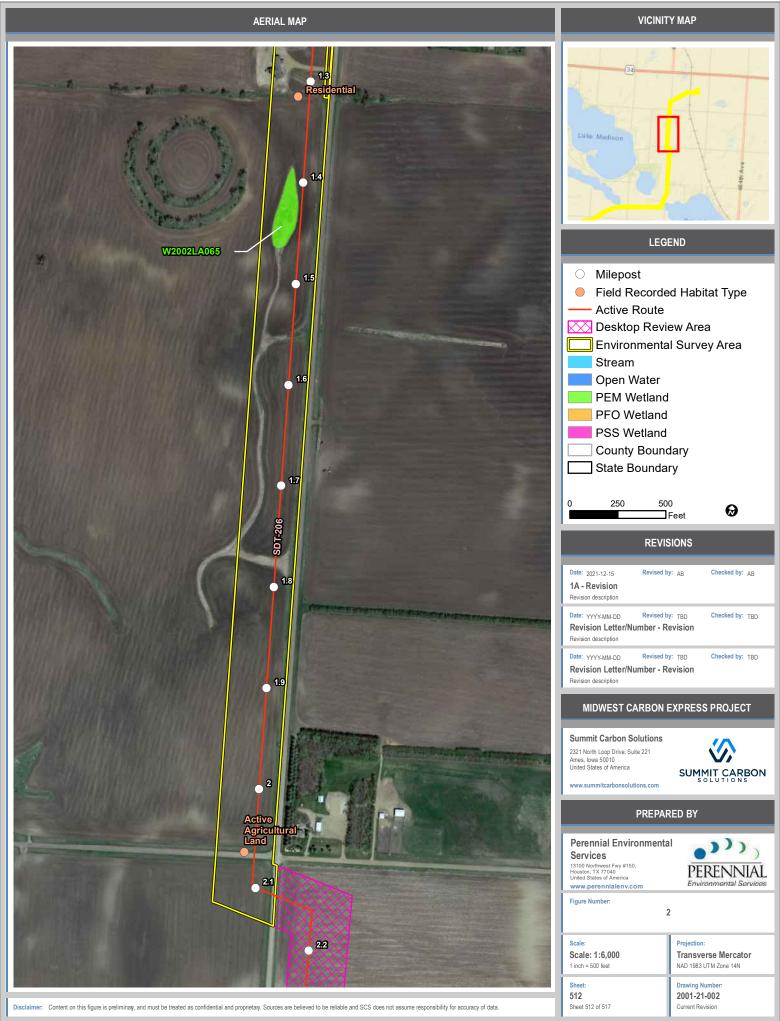


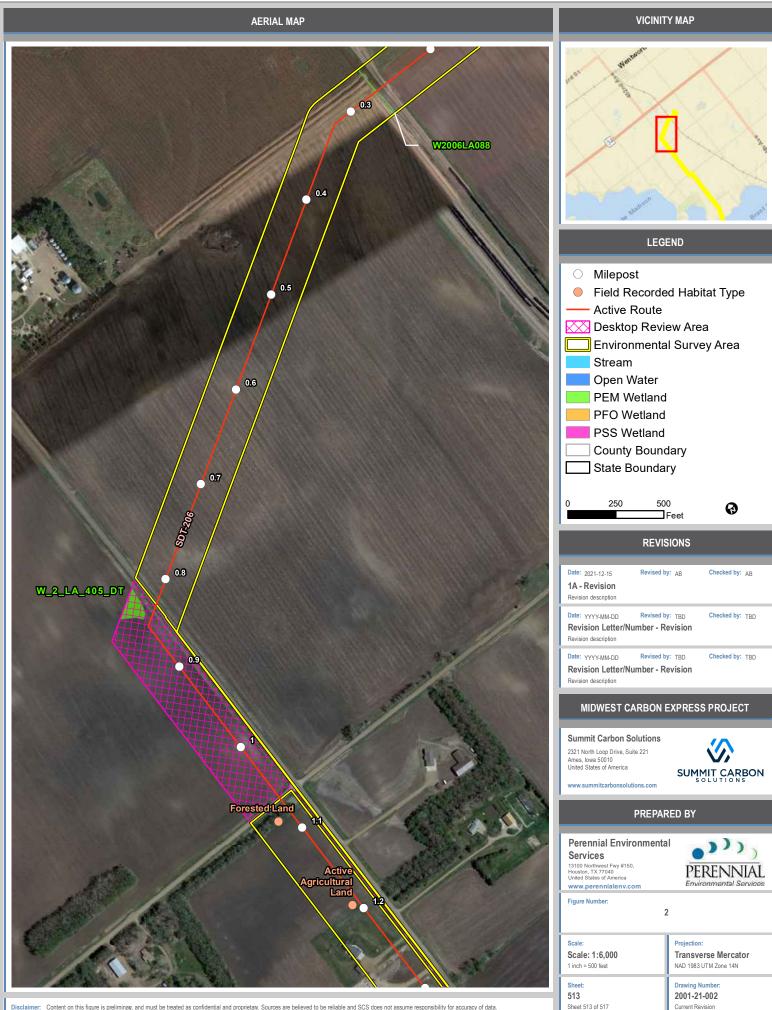
Date: 2021-12-15	Revised by:	AB	Checked by:	AB
1A - Revision Revision description				
Date: YYYY-MM-DD Revision Letter/Nur	Revised by:		Checked by:	TBD
Revision description	nder - Kev	rision		
Date: YYYY-MM-DD	Revised by:		Checked by:	TBD
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www.summitcarbonsolutio	ns.com	s o	LUTIONS	5

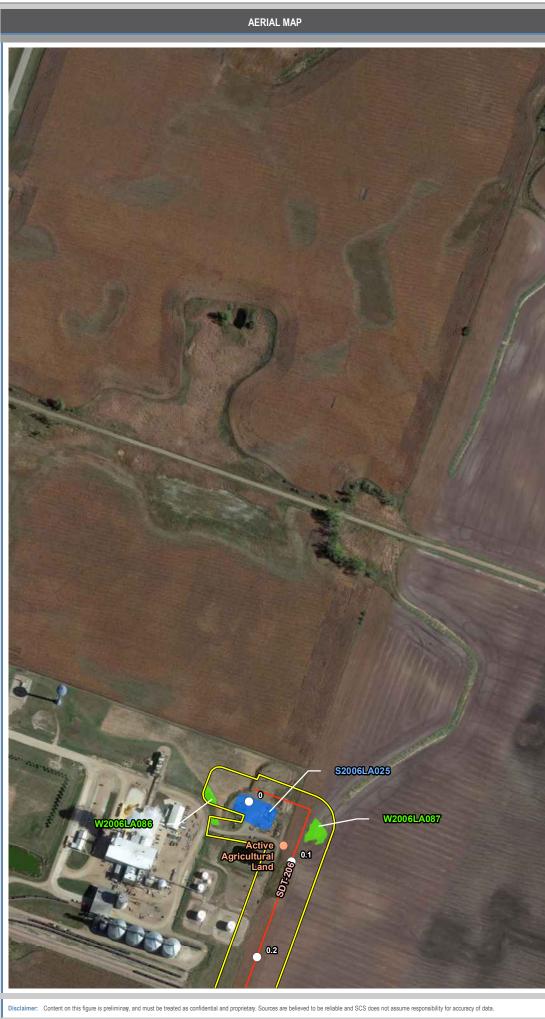


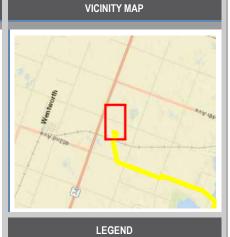


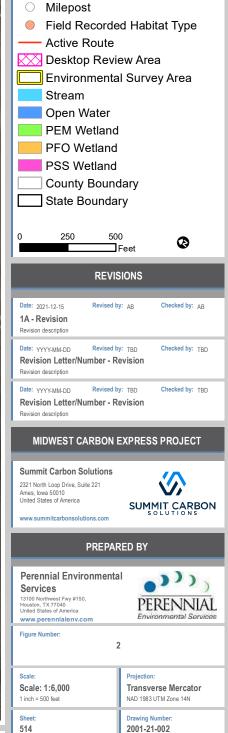
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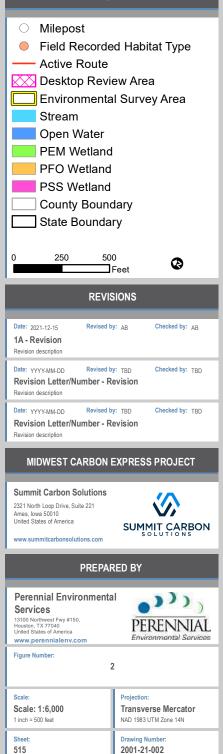
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Current Revision

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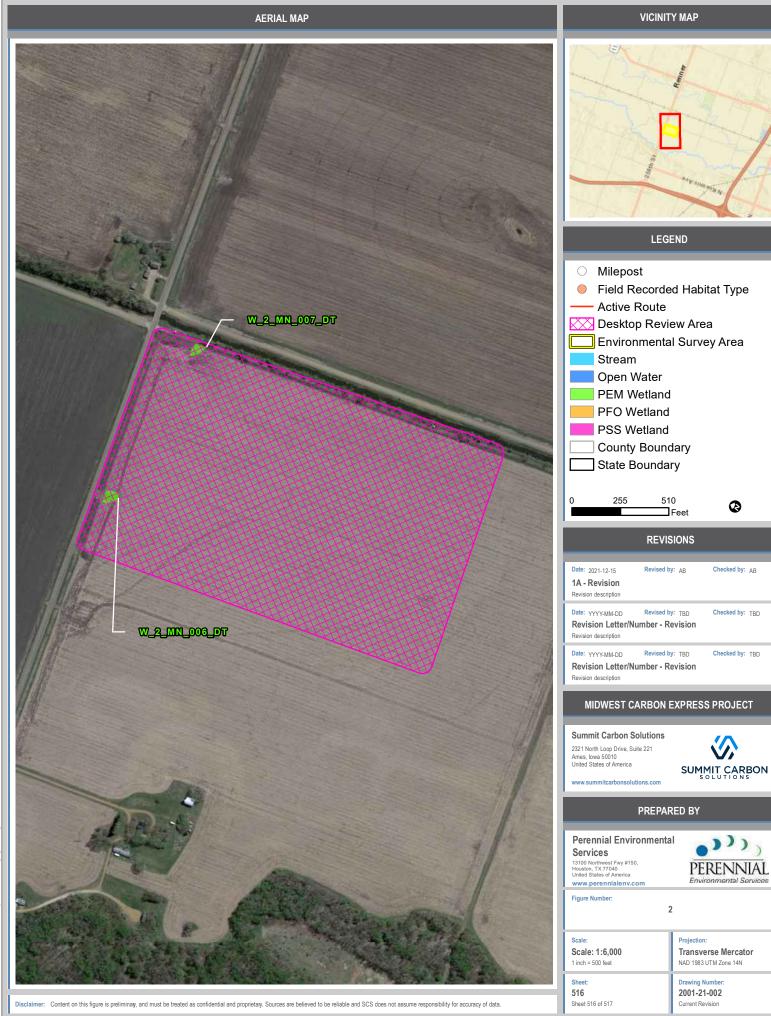


VICINITY MAP



Current Revision

Sheet 515 of 517



NAD 1983 UTM Zone 14N Drawing Number: 2001-21-002

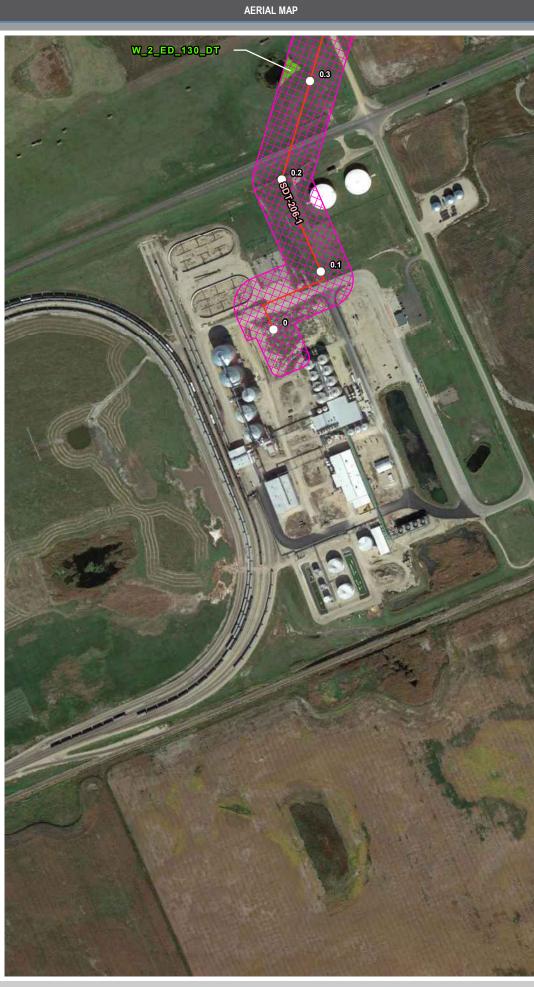
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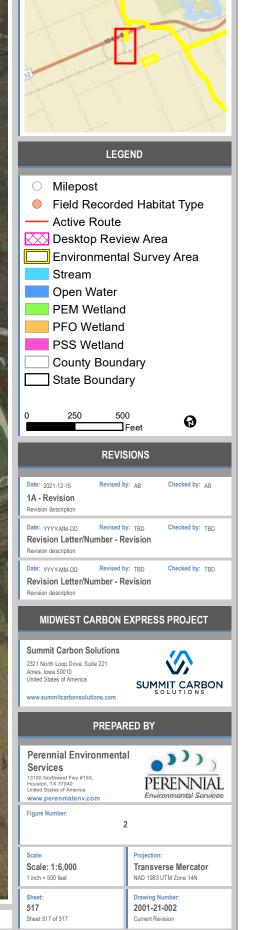
Checked by: AB

Checked by: TBD

Checked by: TBD

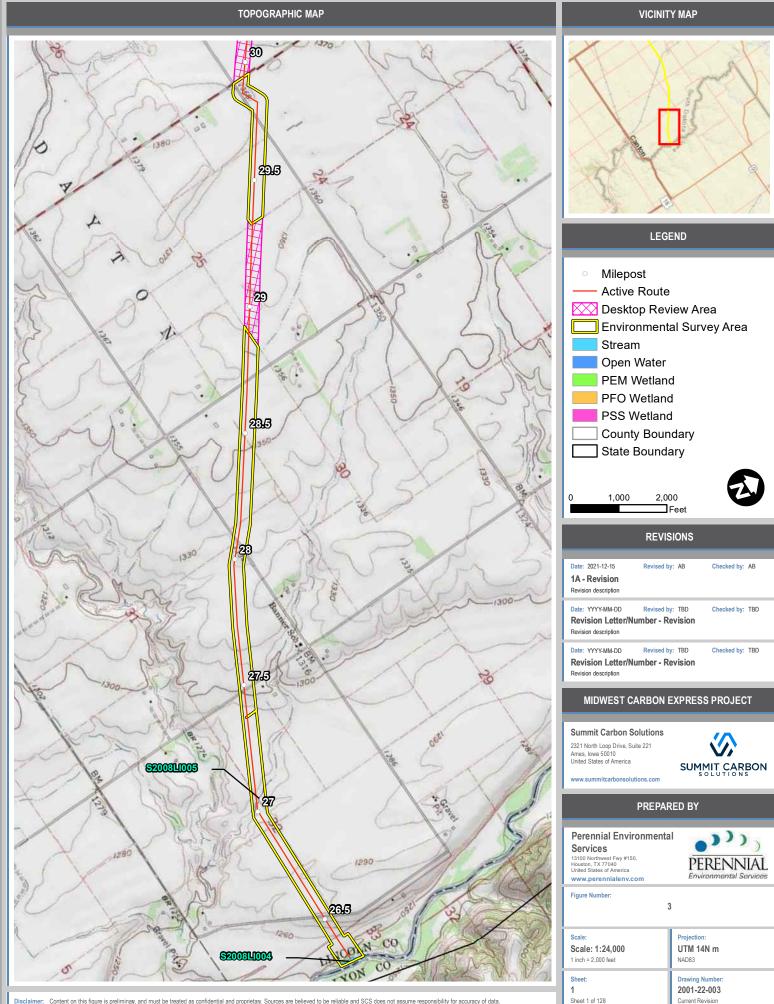
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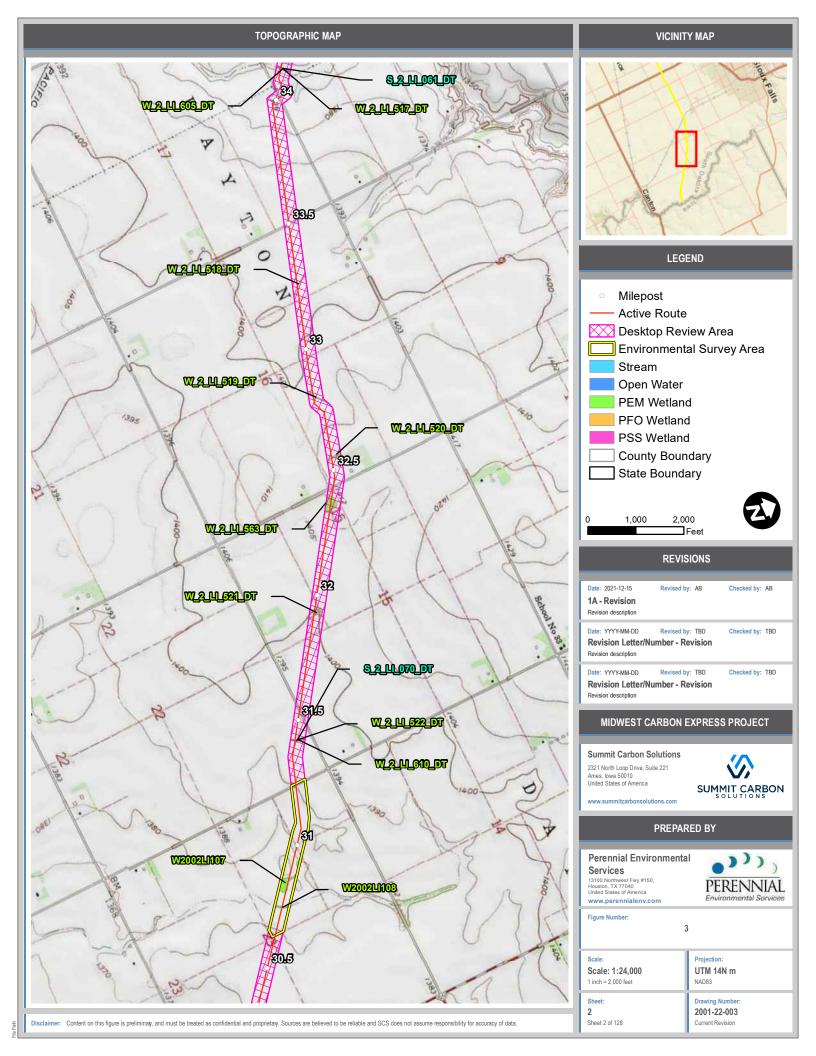


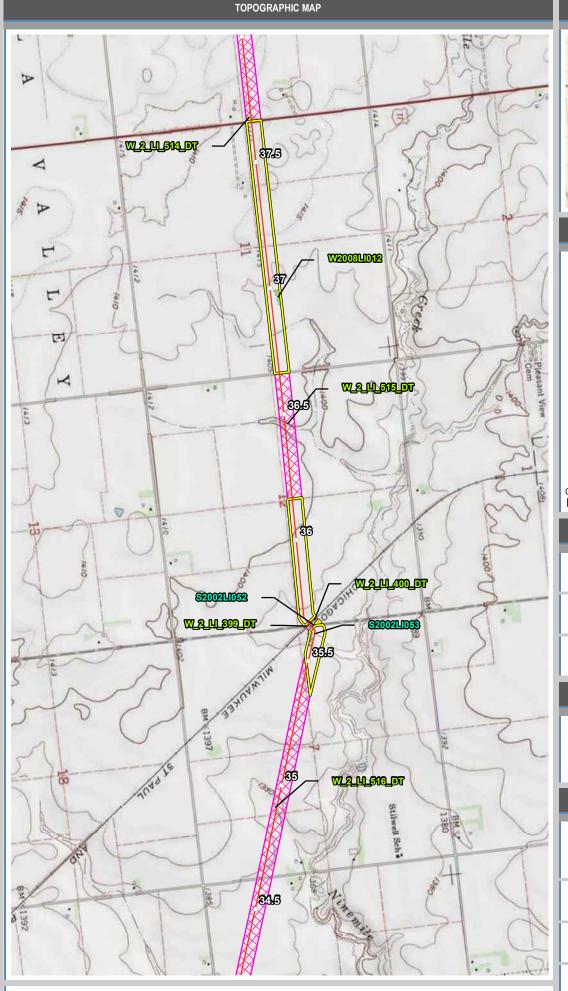


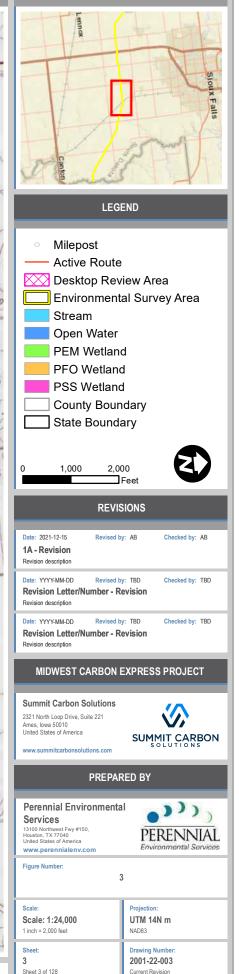
VICINITY MAP

Topographical Map

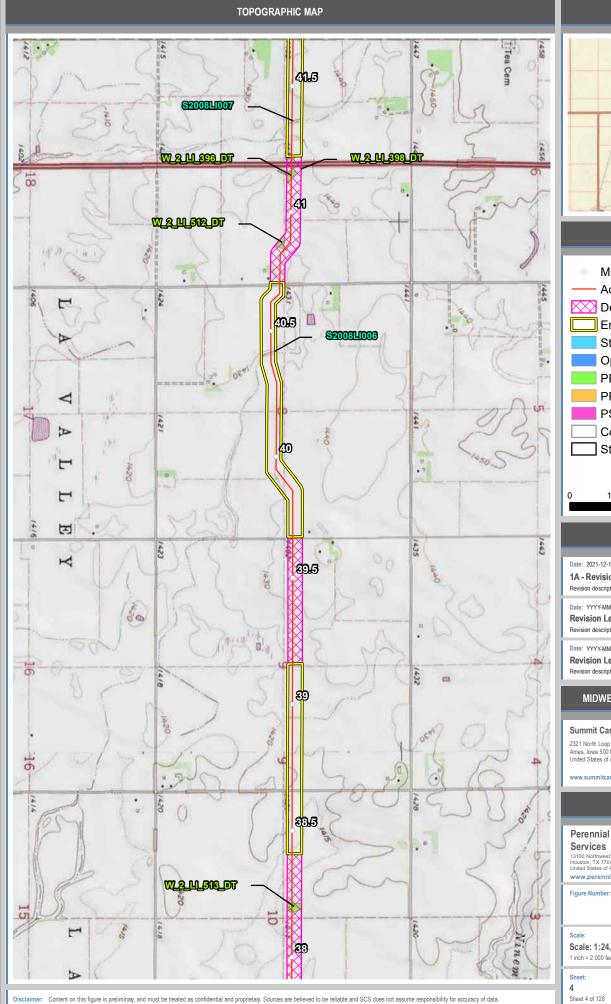


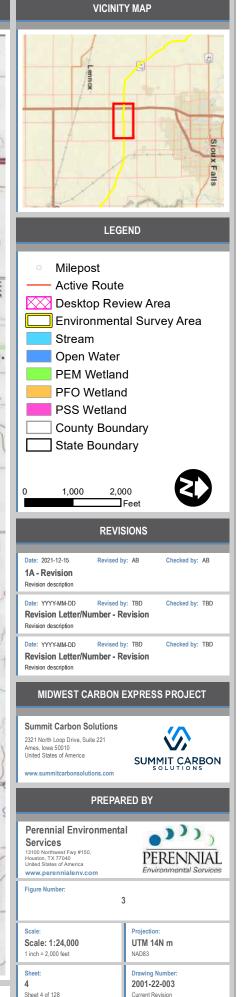


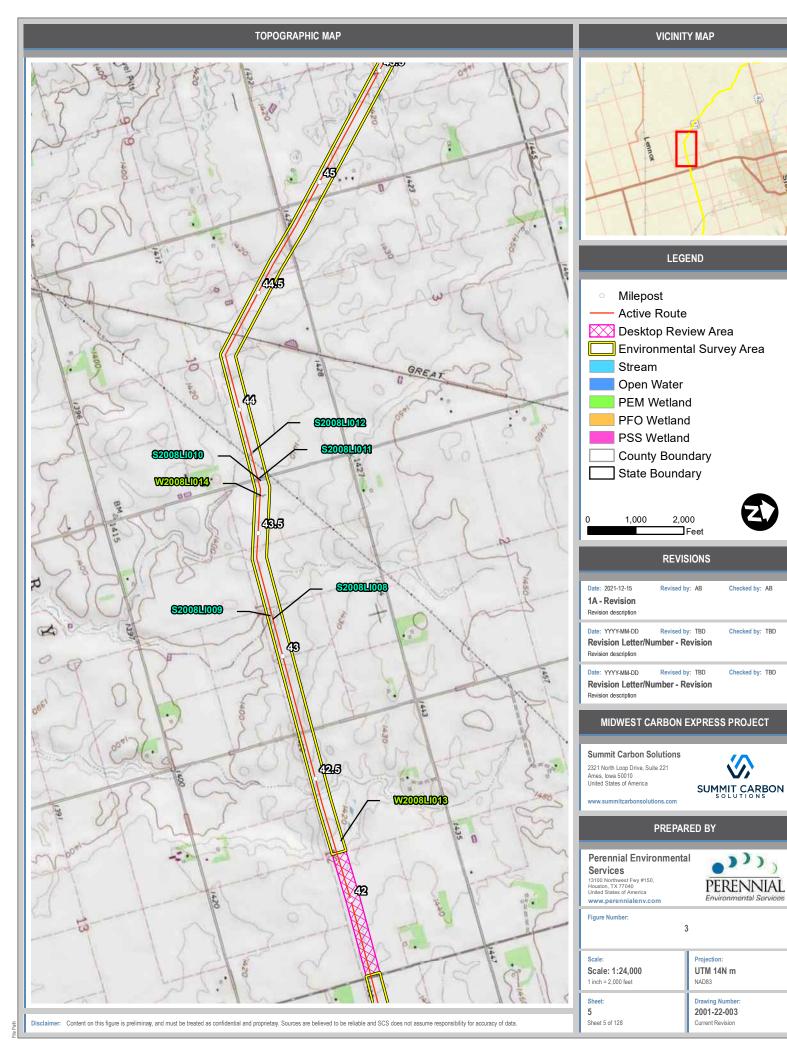


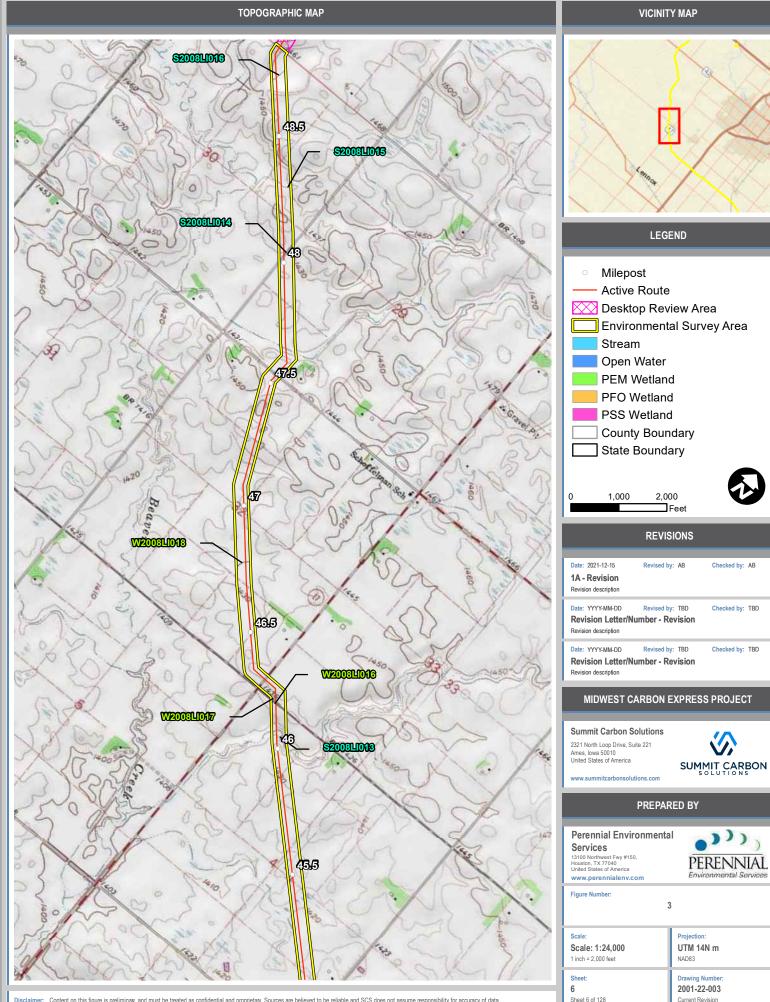


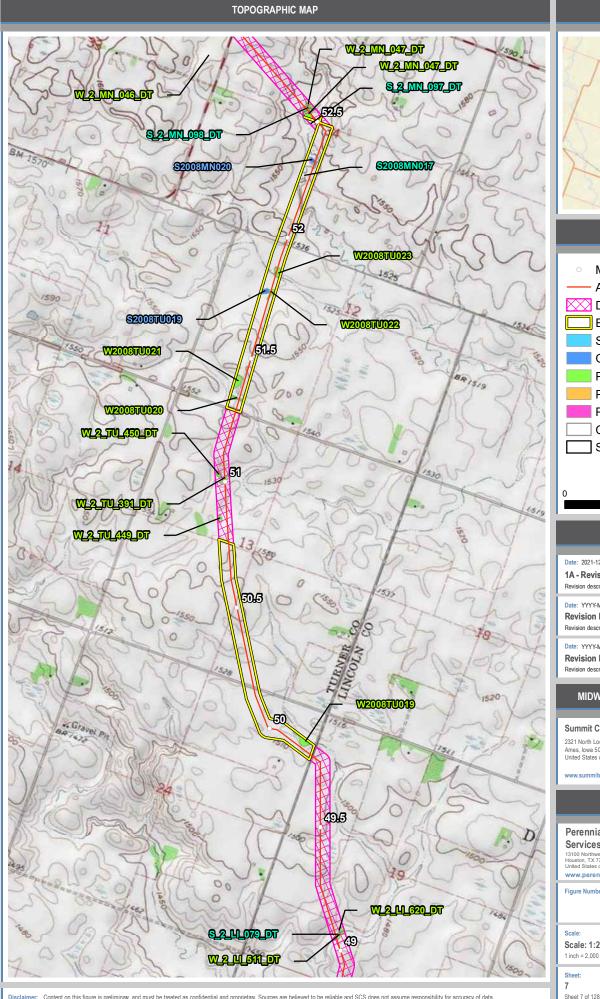
VICINITY MAP

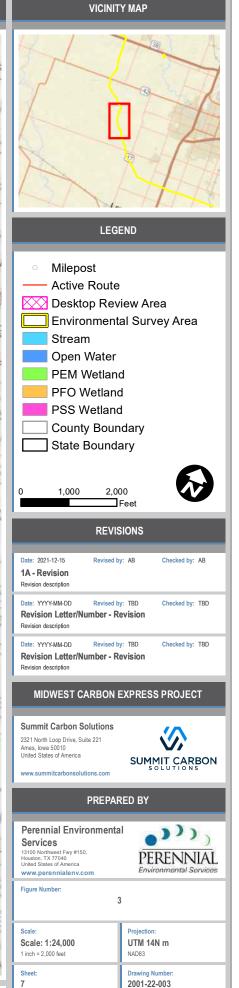


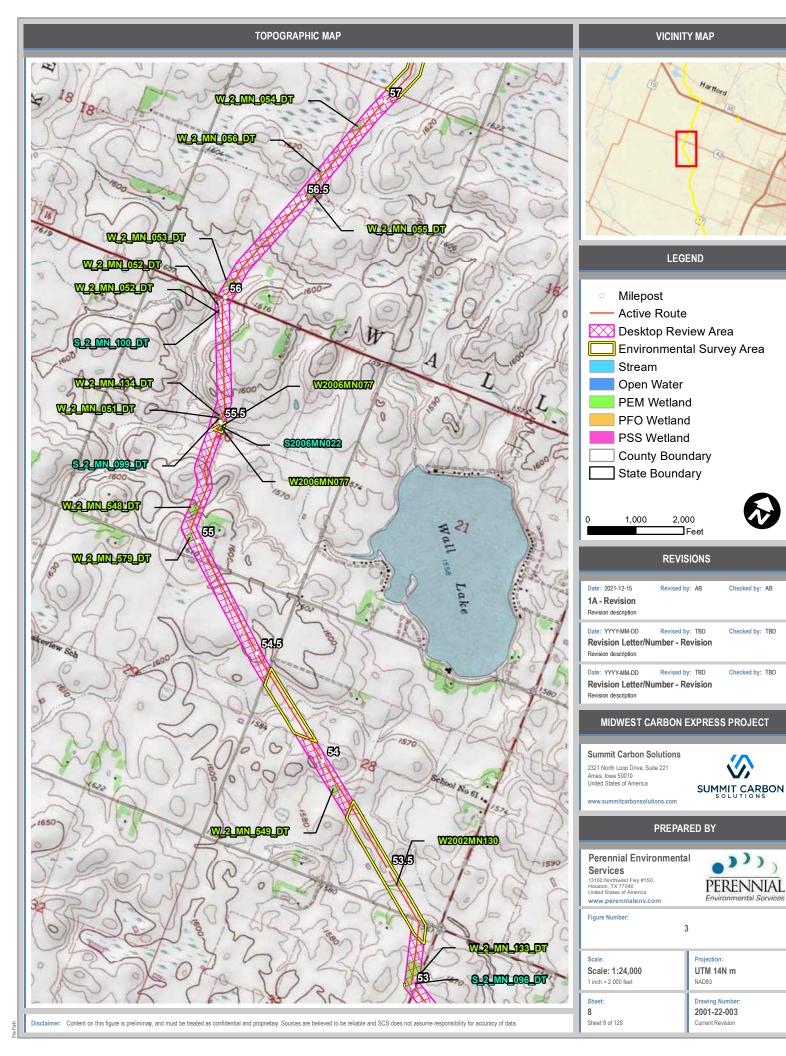


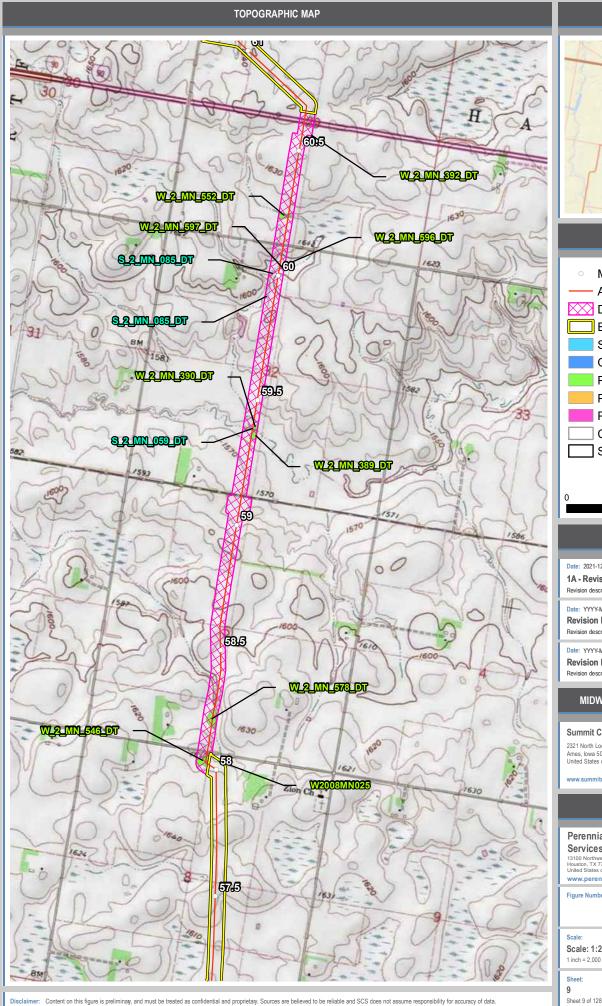


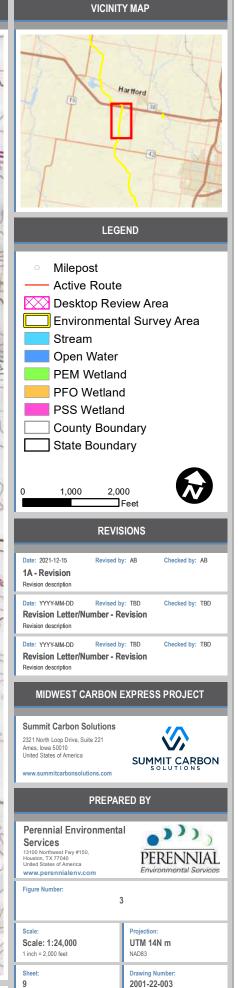


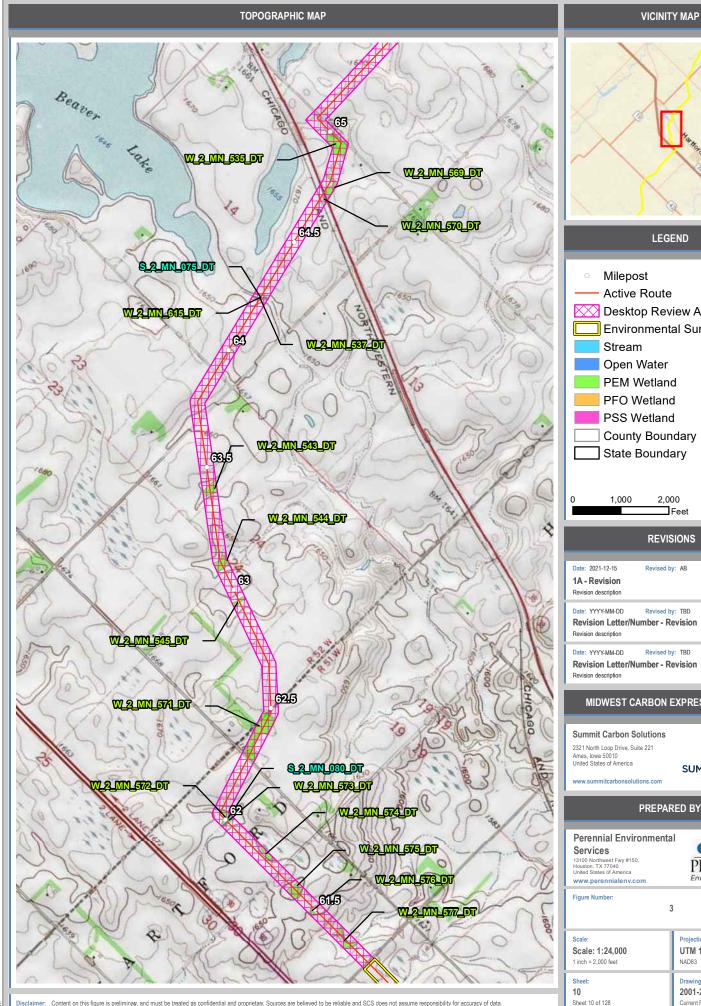


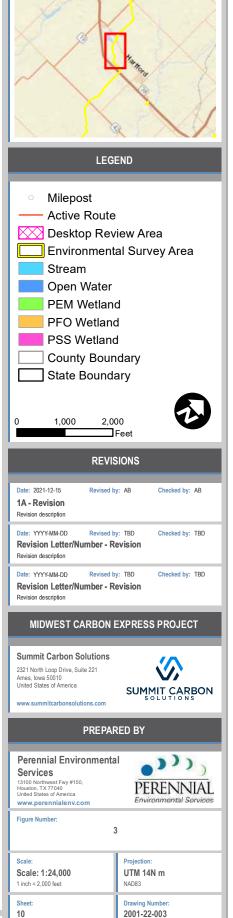


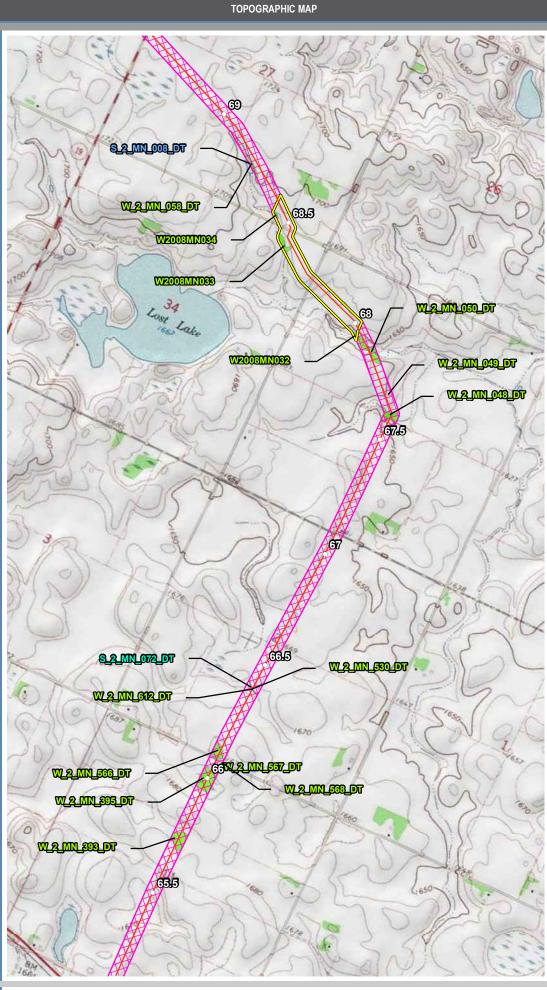


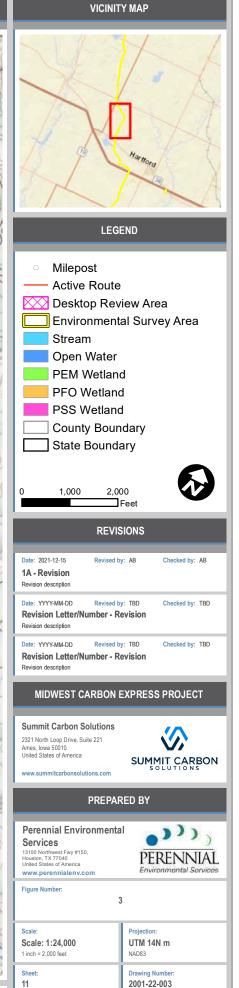








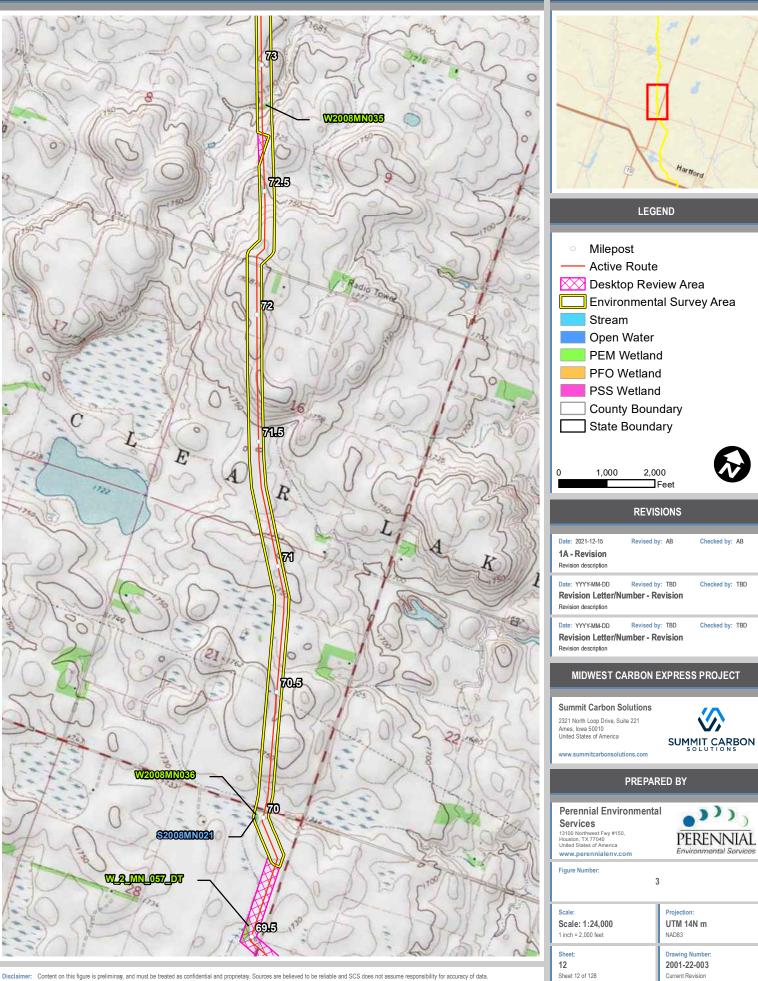




Sheet 11 of 128

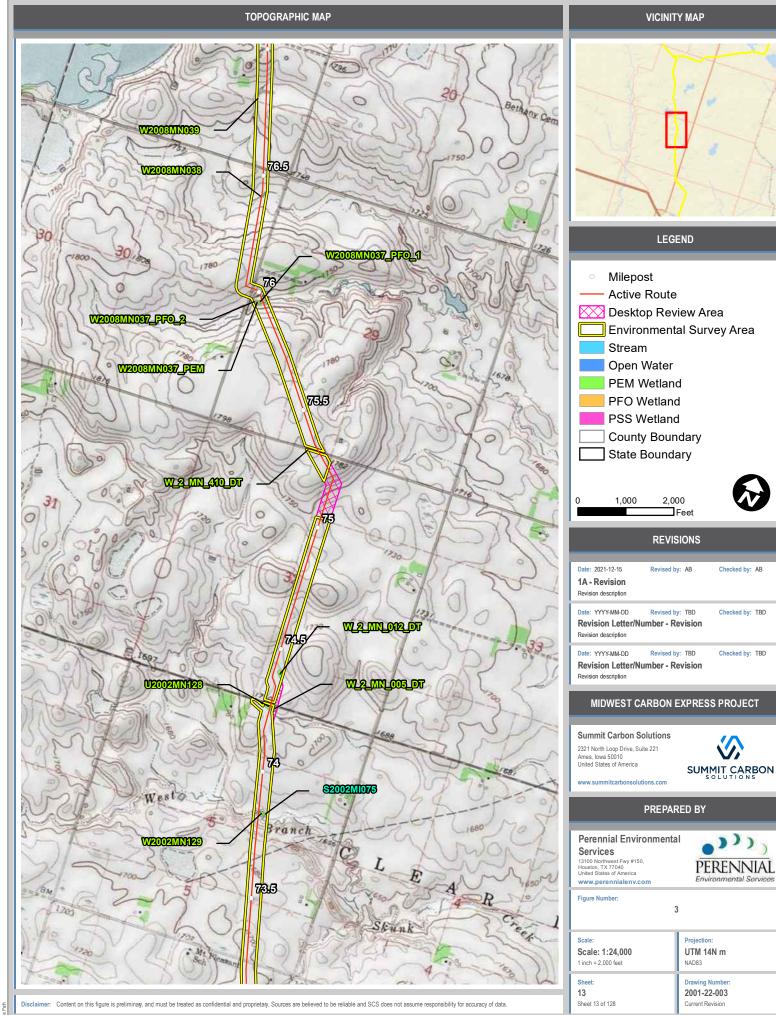
## TOPOGRAPHIC MAP

## VICINITY MAP



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Drawing Number 2001-22-003 Current Revision

Checked by: AB

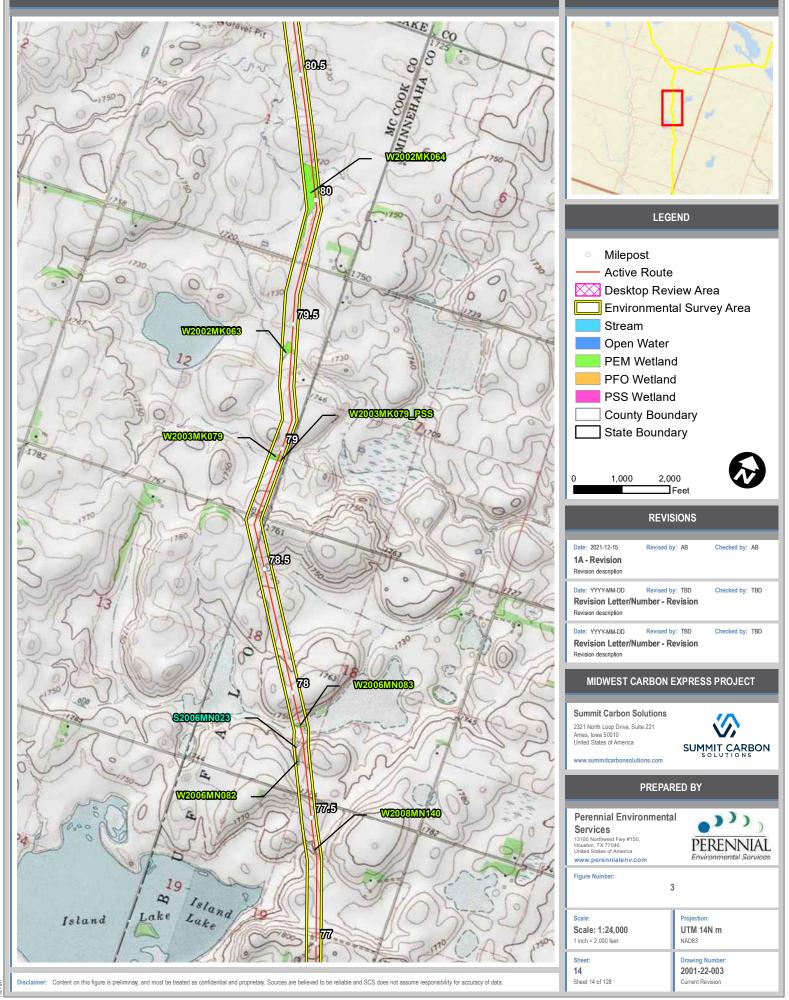
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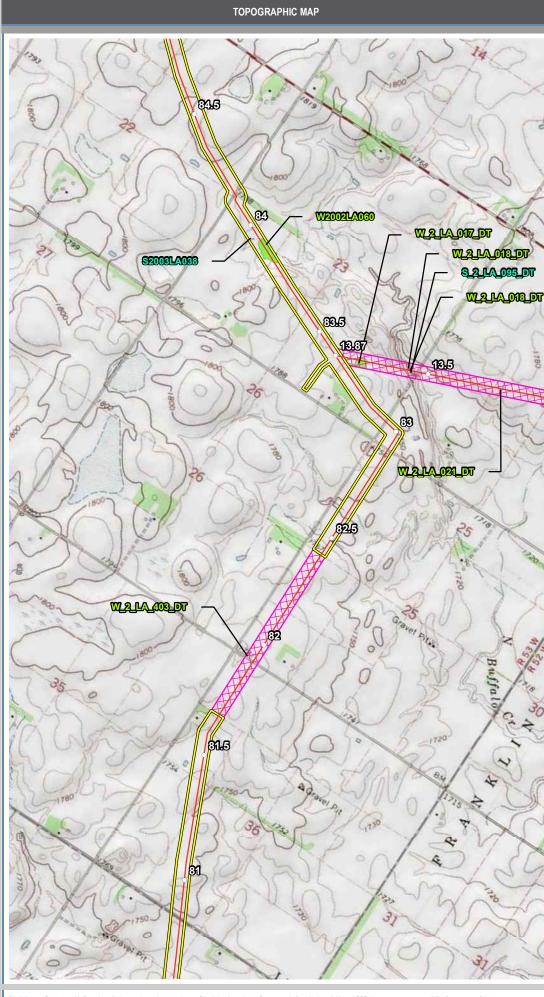
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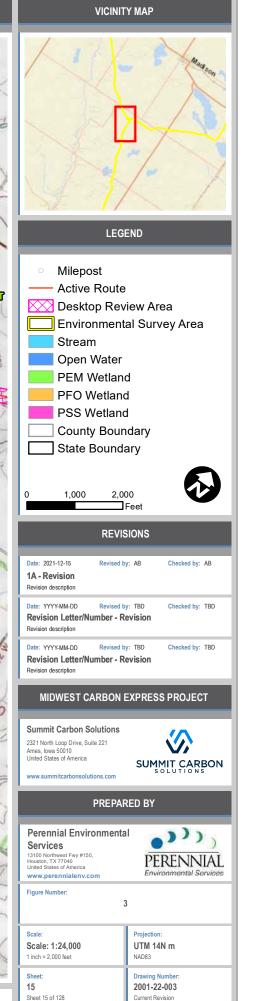
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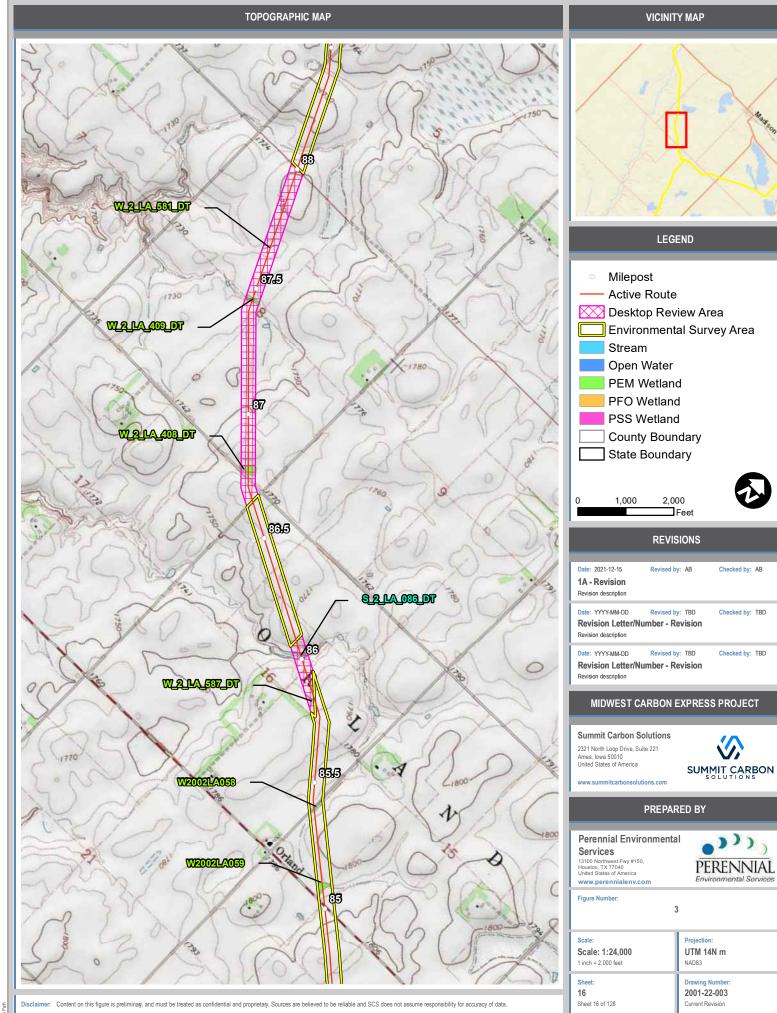
## TOPOGRAPHIC MAP

## VICINITY MAP









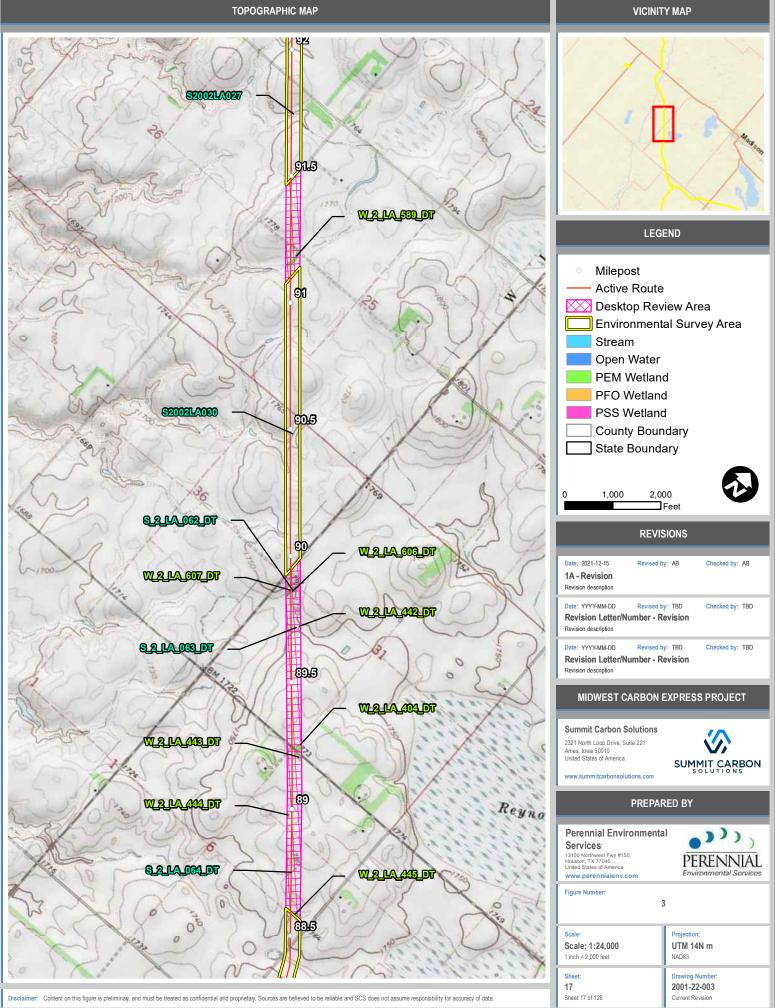
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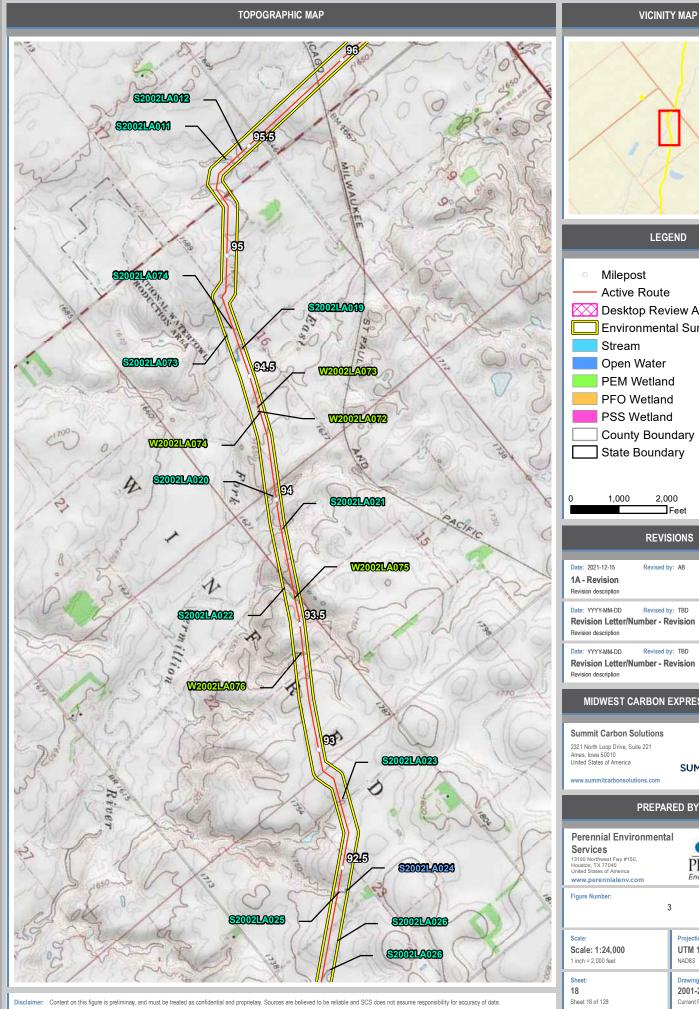
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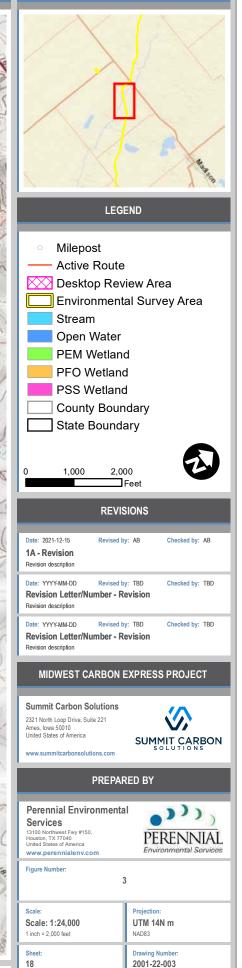
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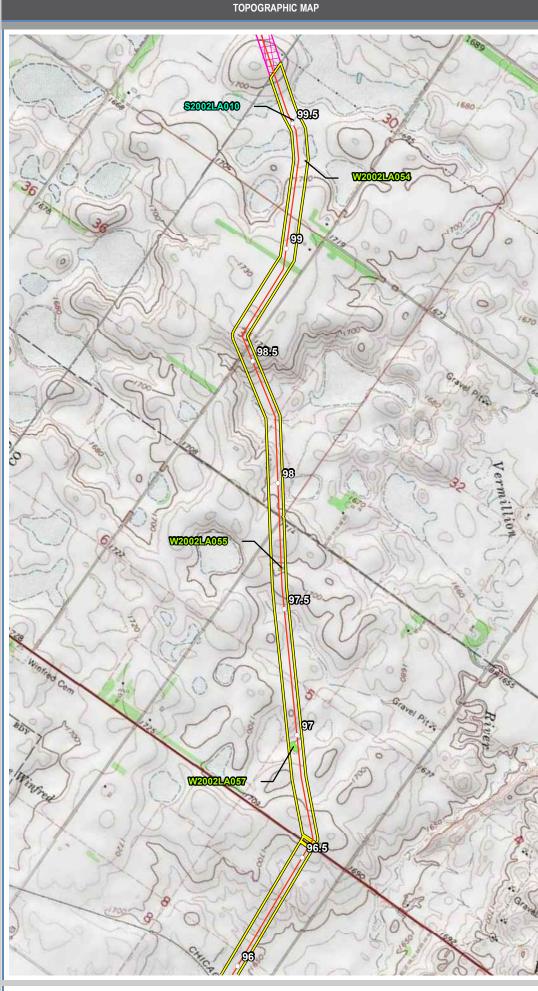


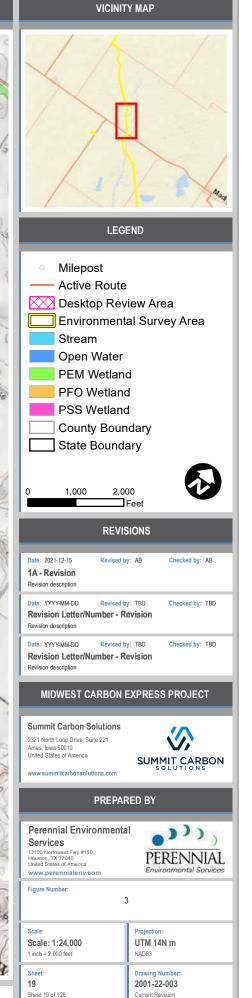
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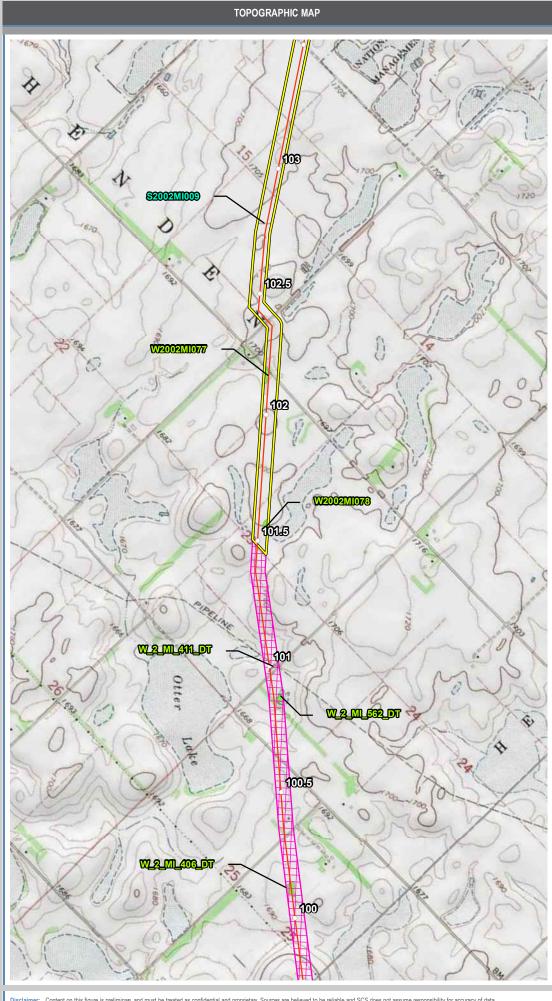


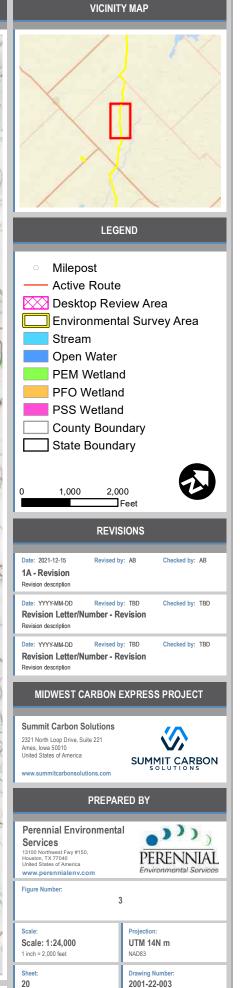
Current Revision





Current Revision

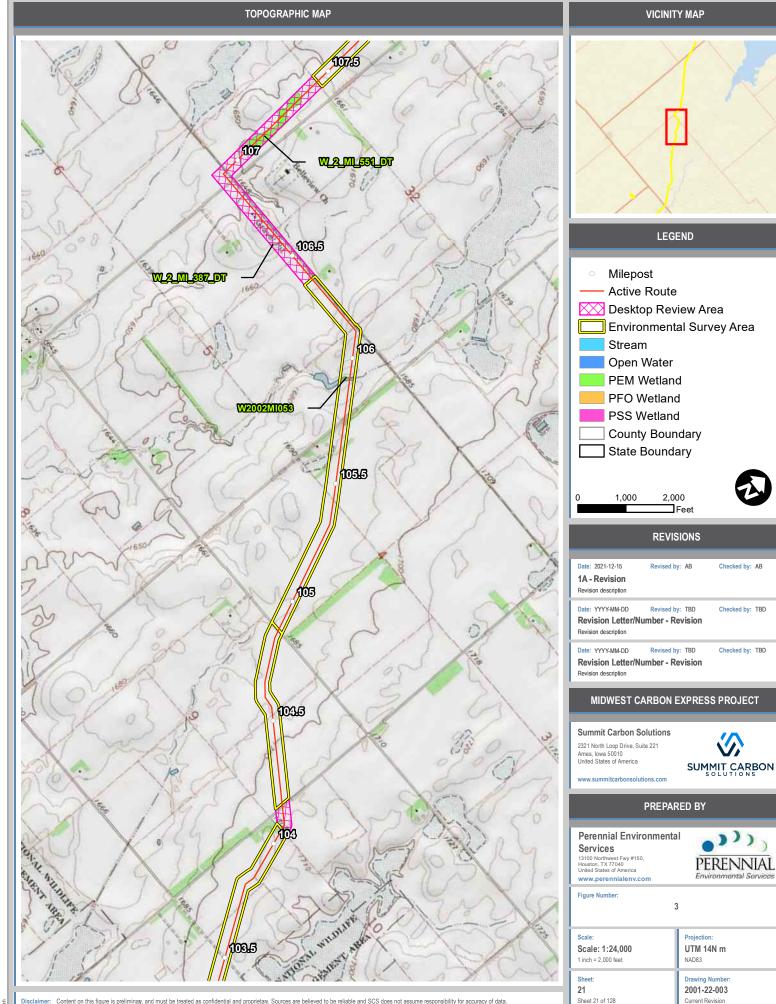




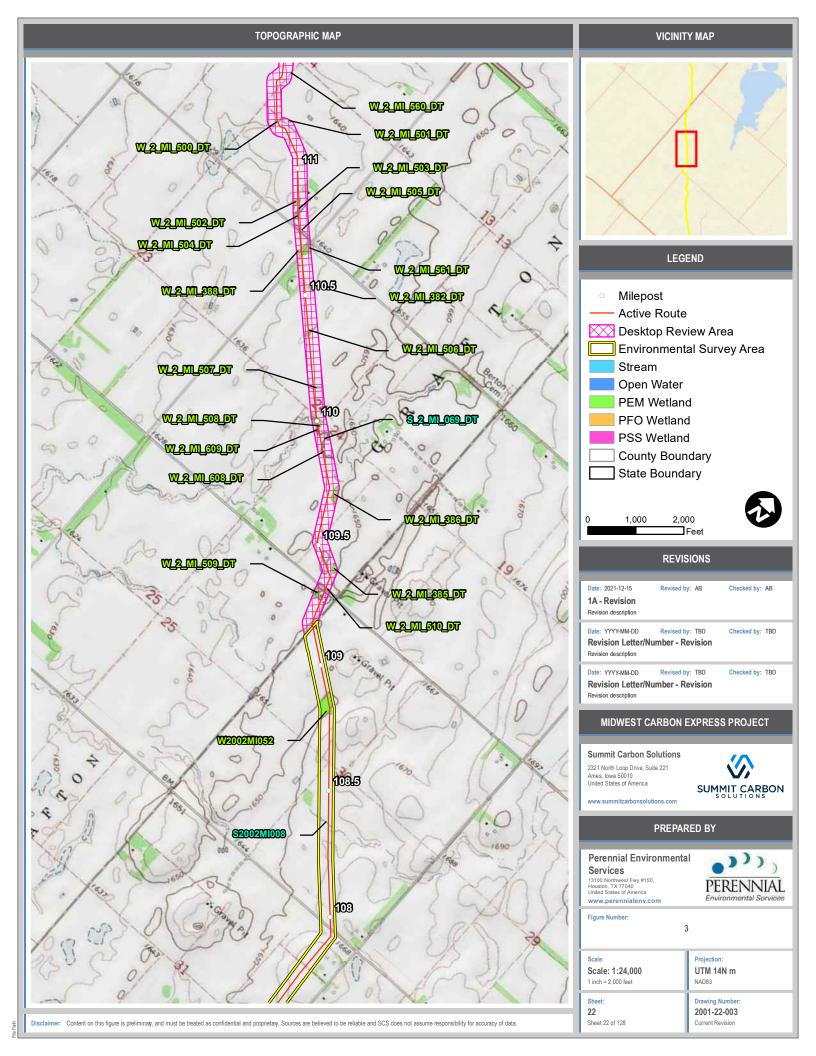
Sheet 20 of 128

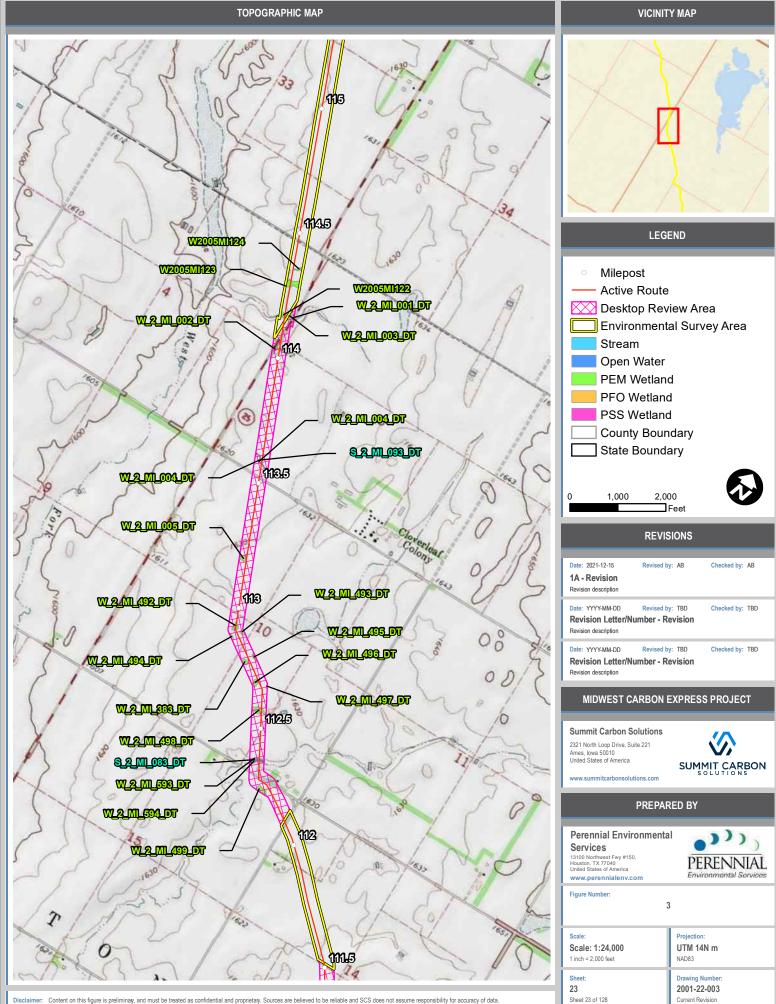
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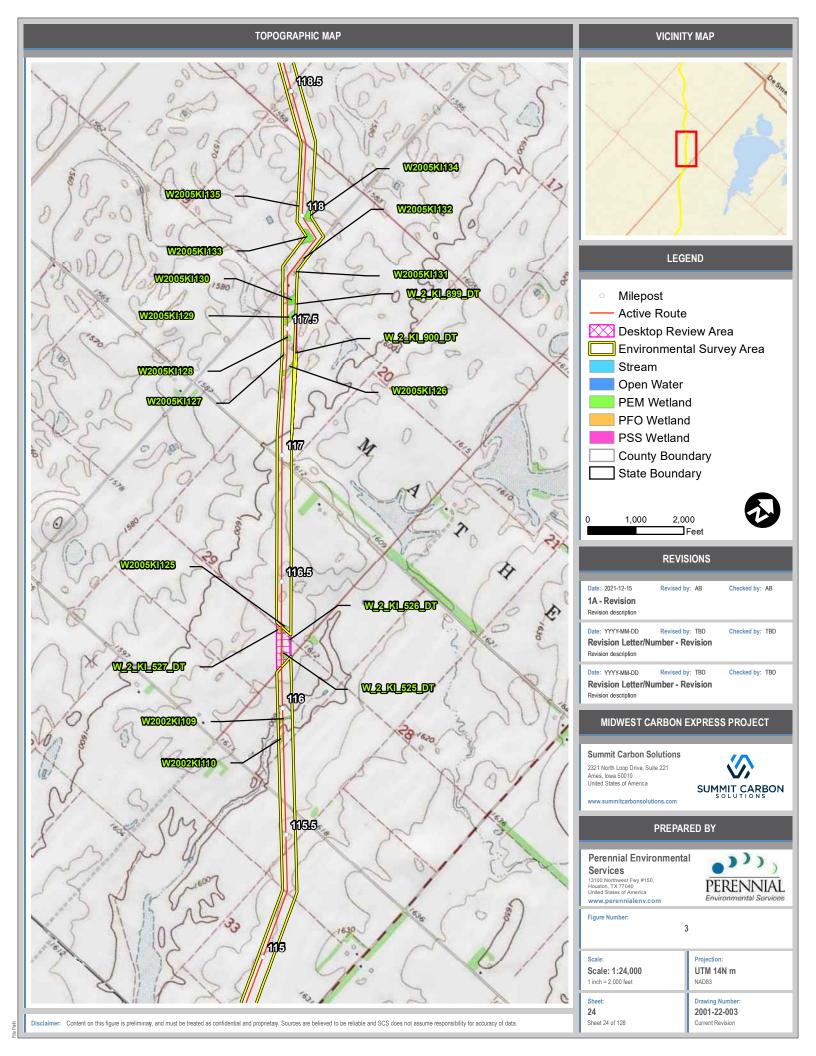
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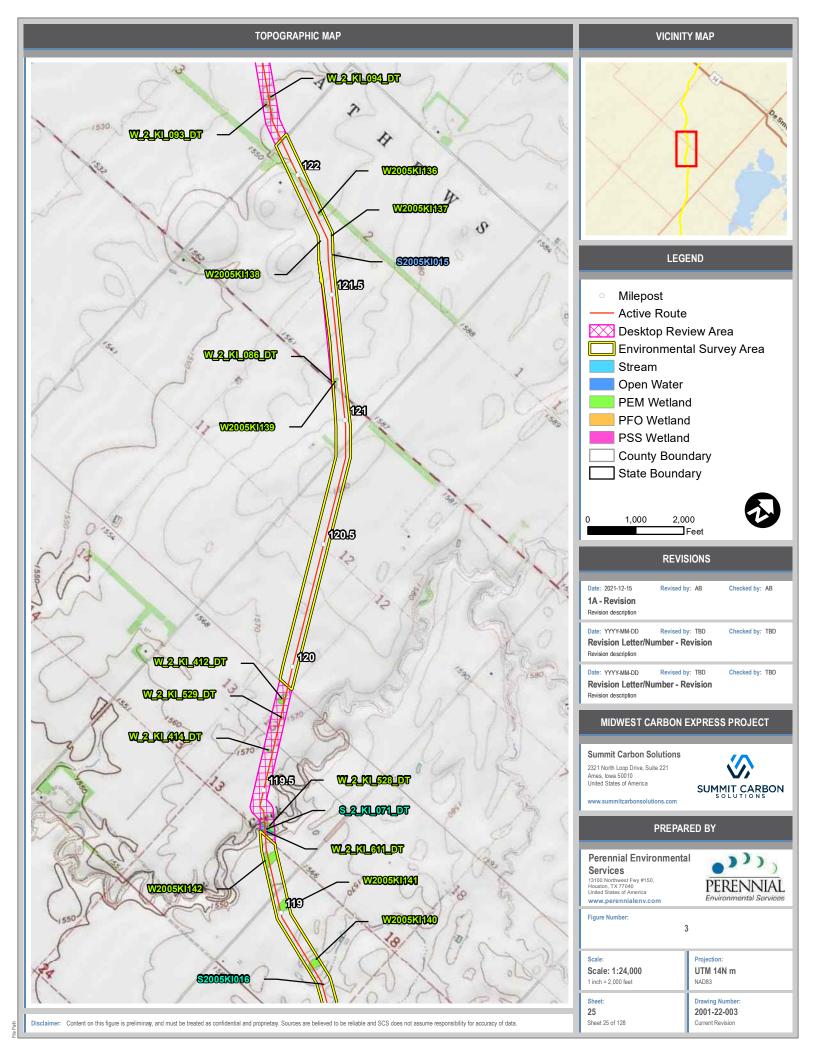


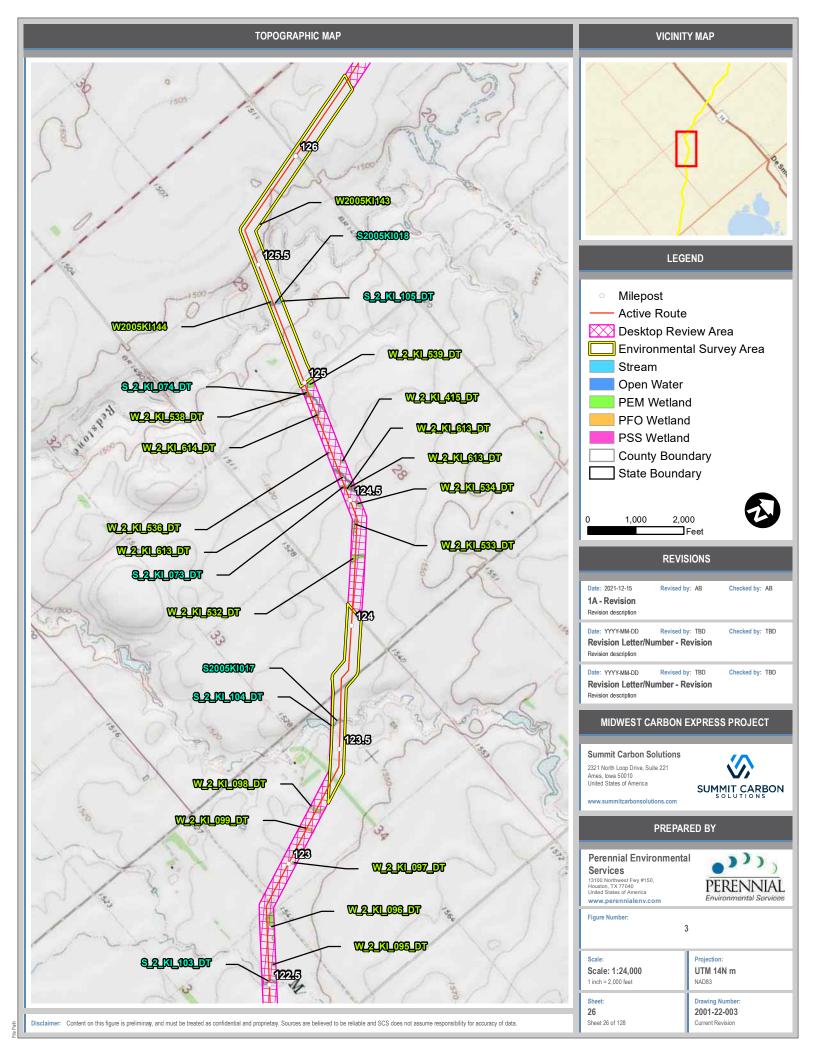
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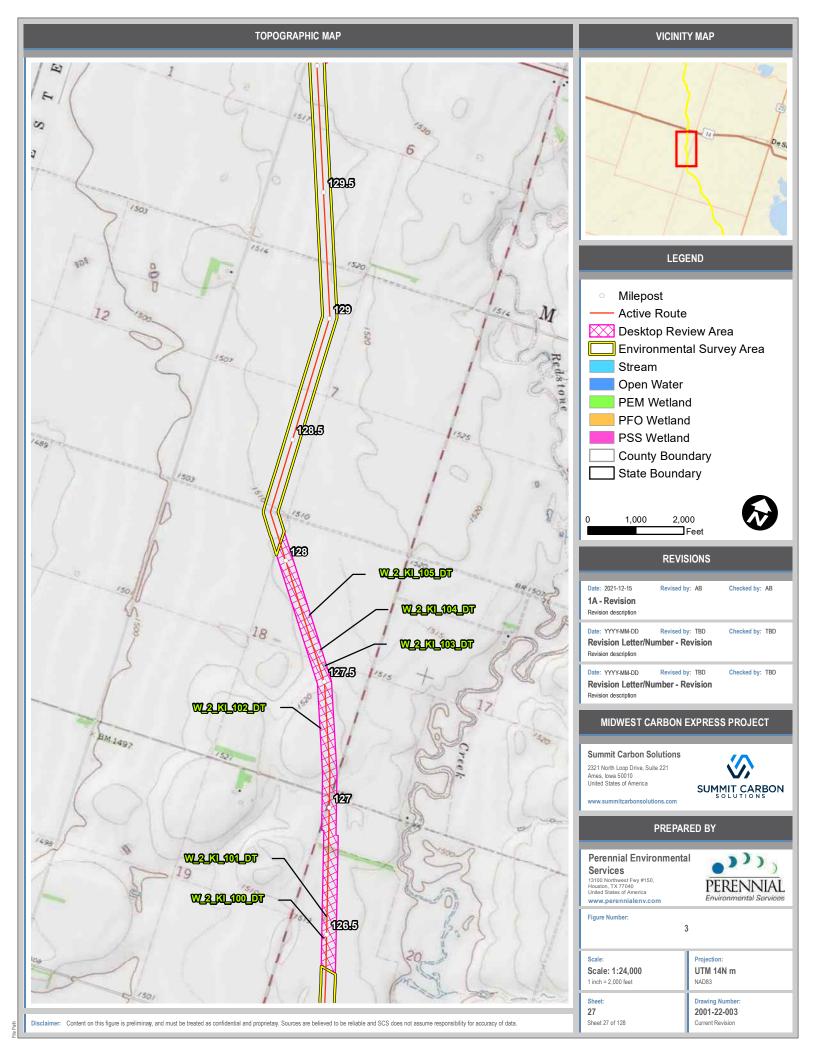


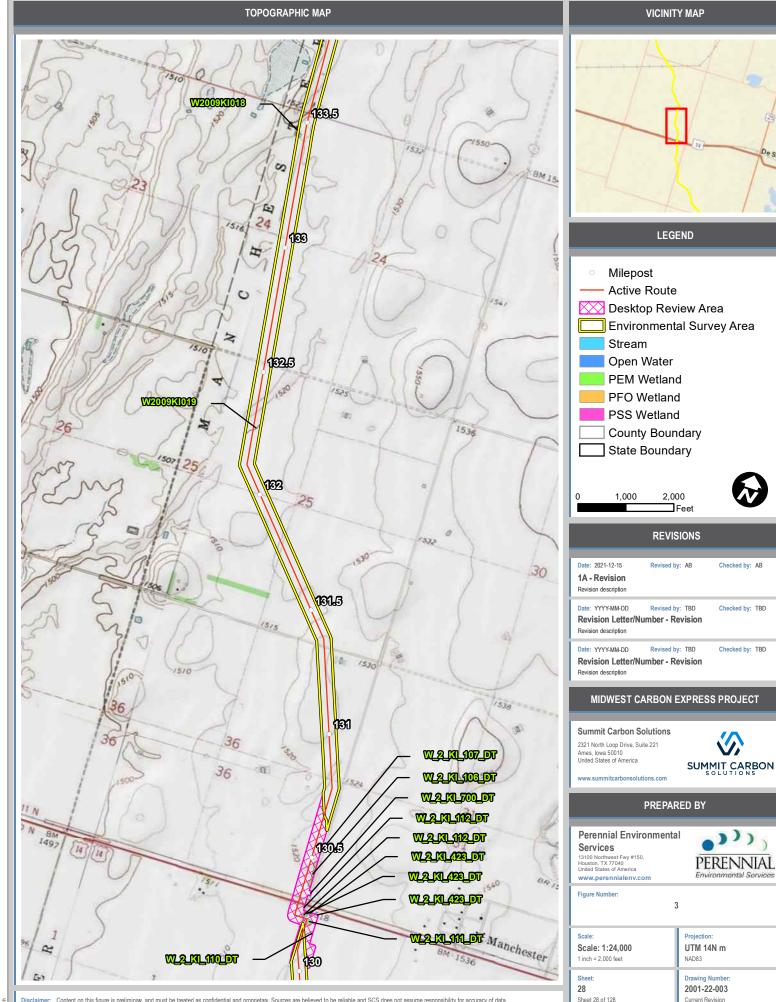






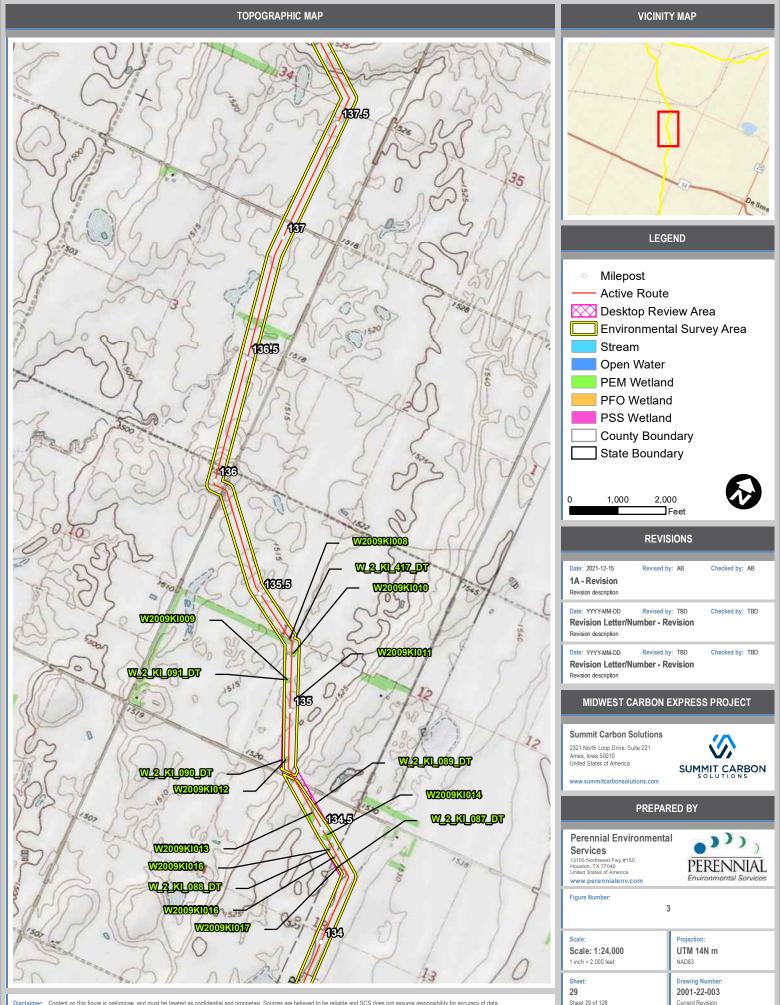




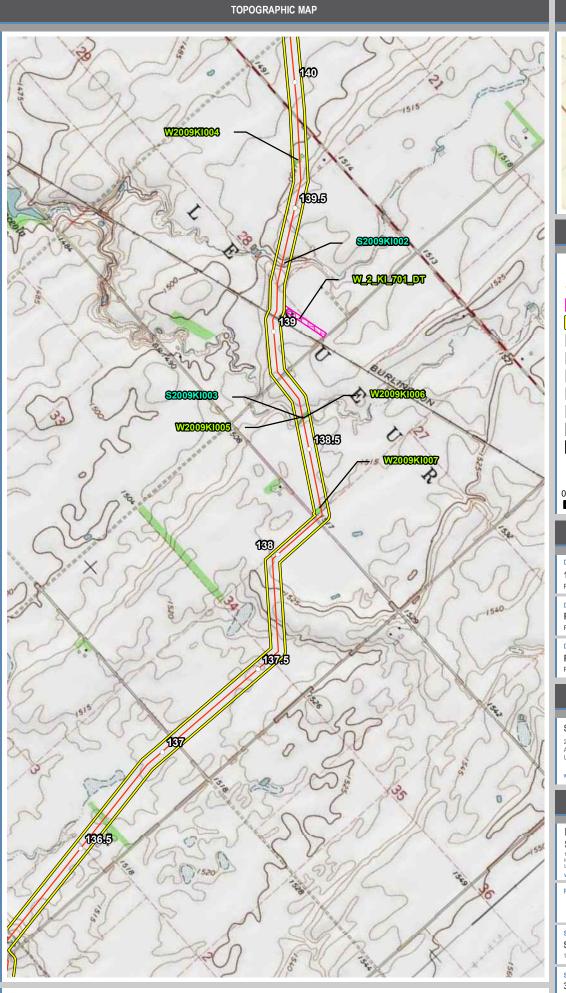


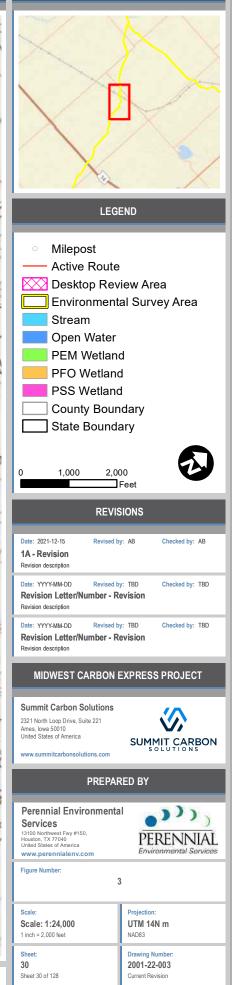
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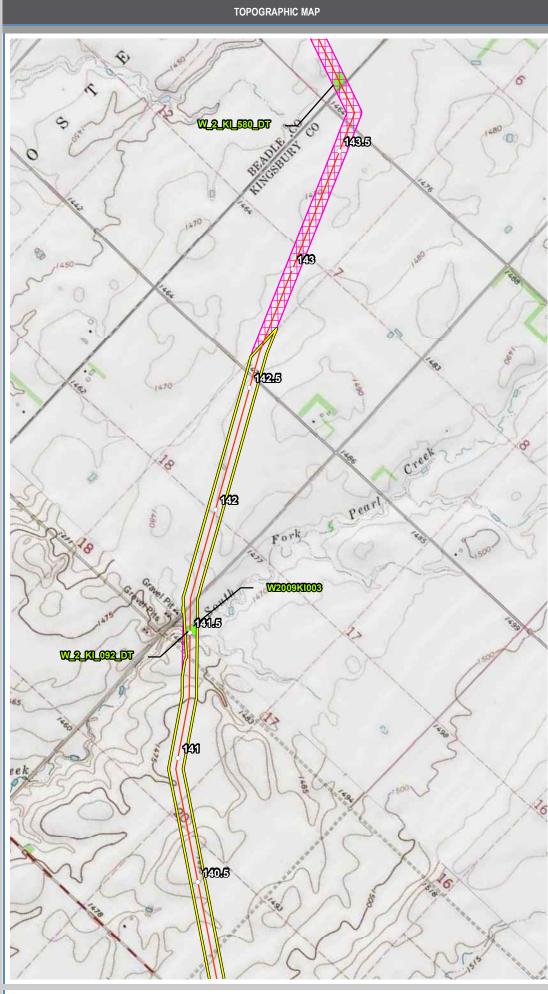
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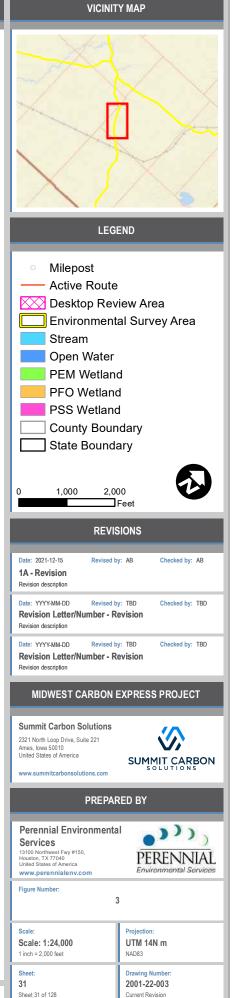


Content on this figure is preliminary, and must be treated as confidential and proprietary. Sources are believed to be reliable and SCS does not assume responsibility for accuracy of data.

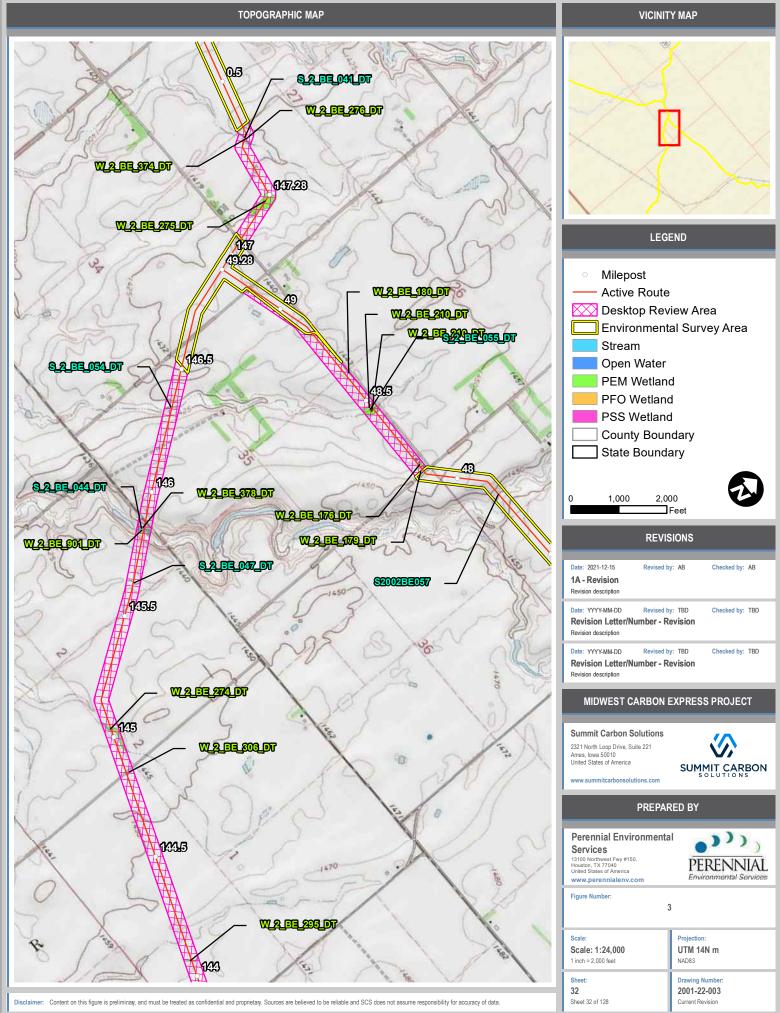


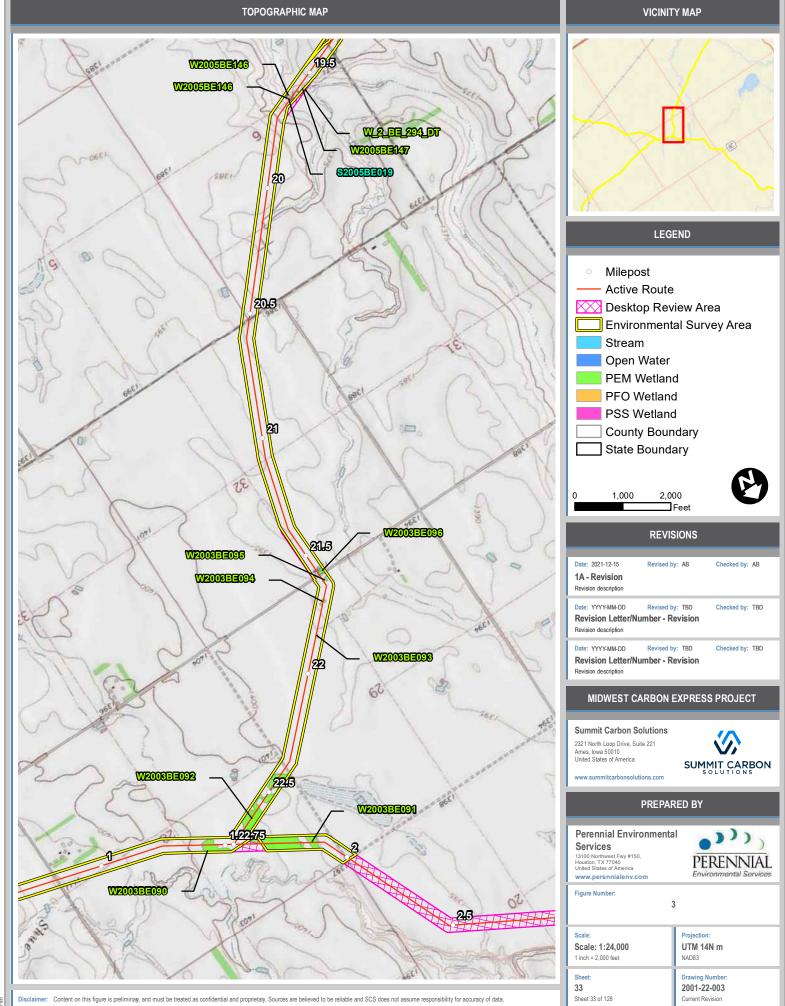


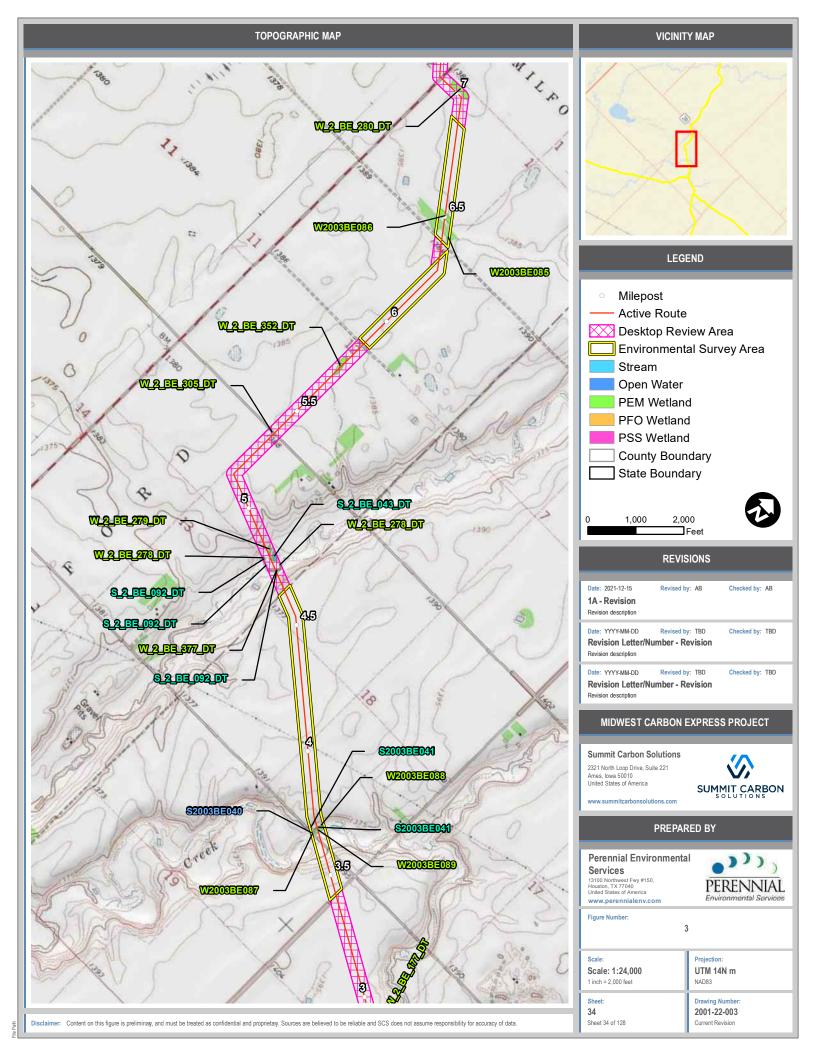


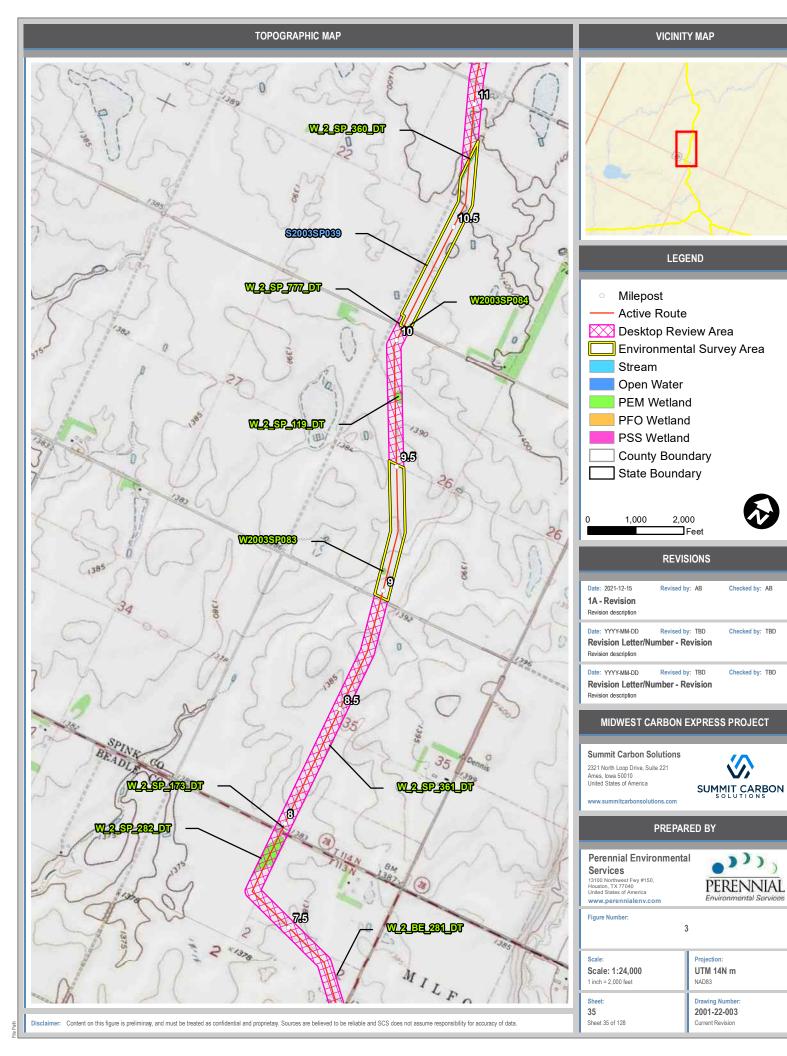


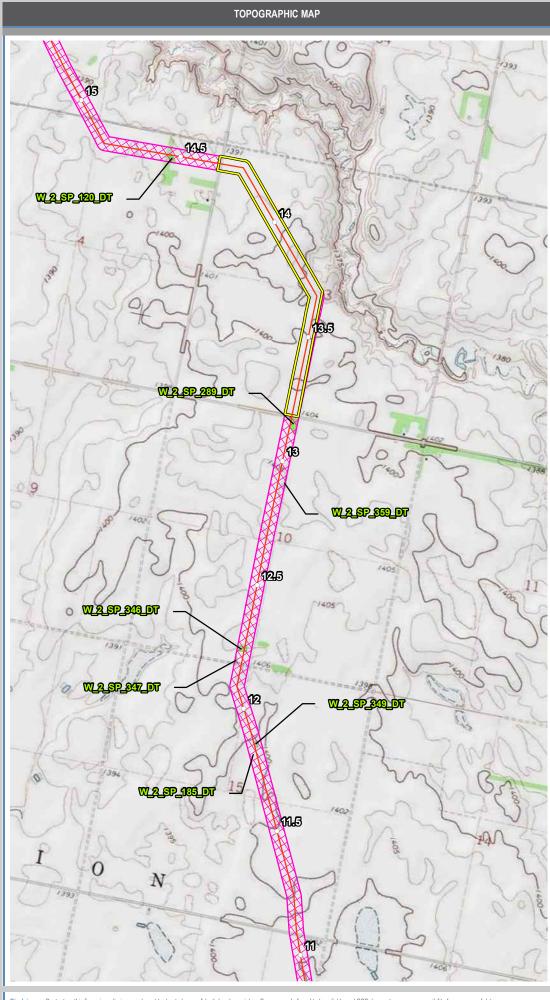
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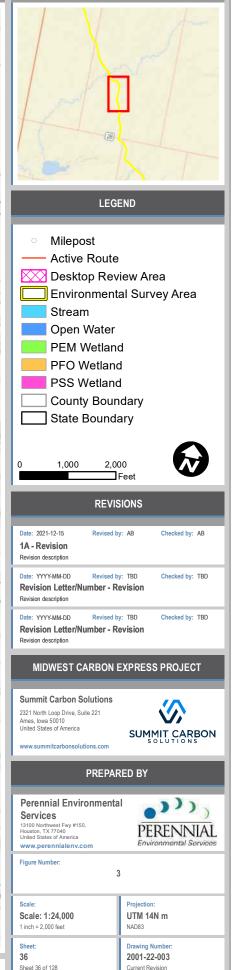


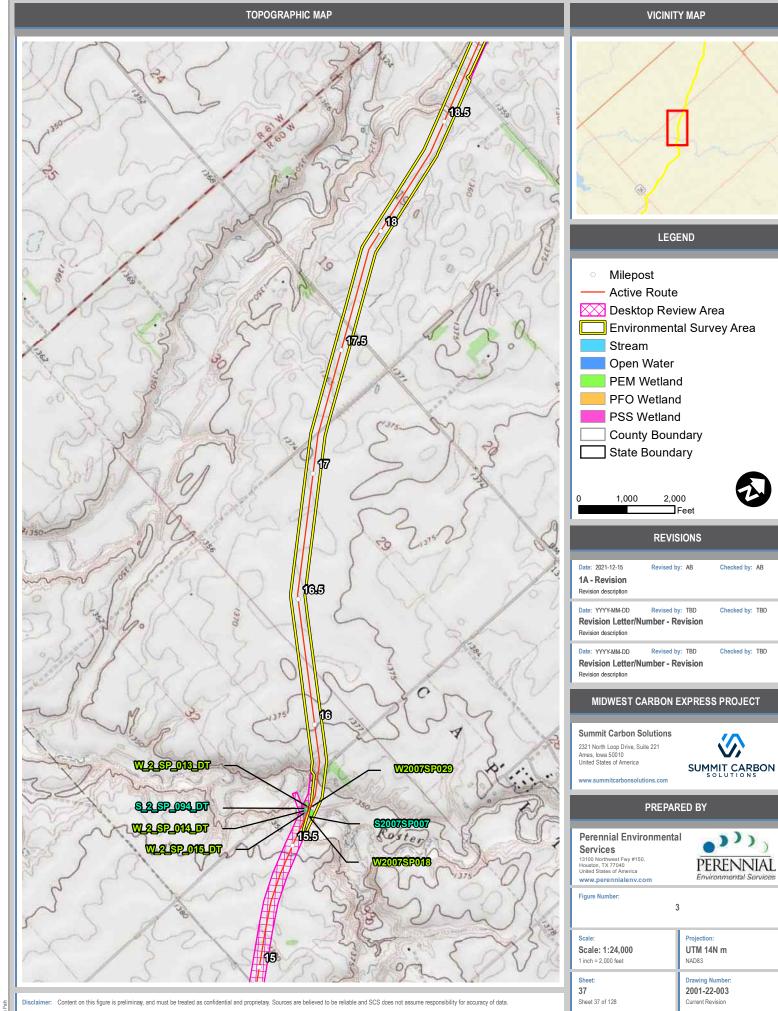


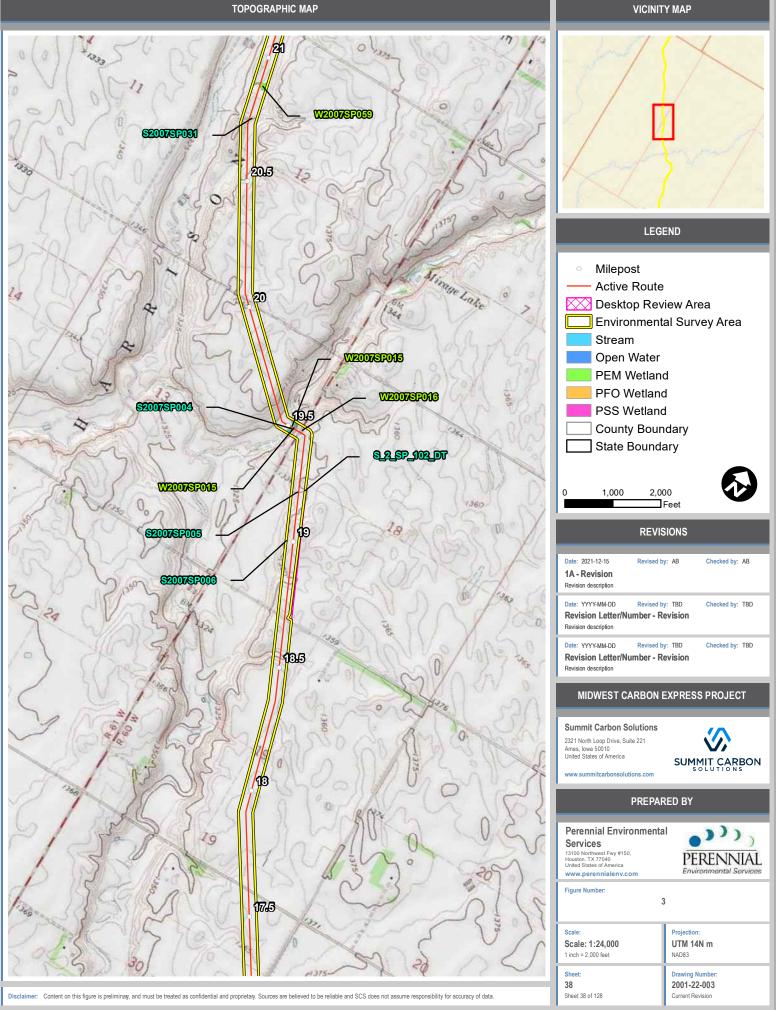




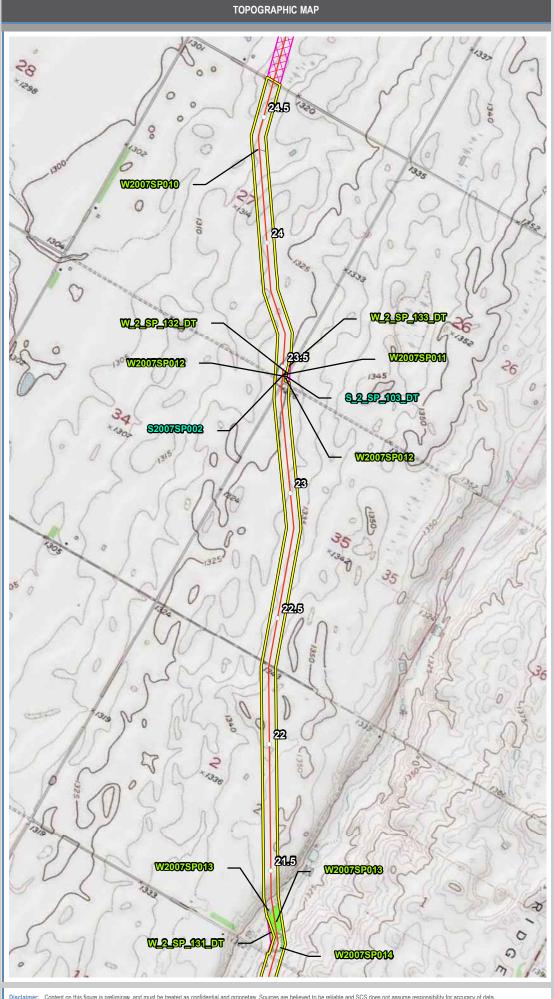


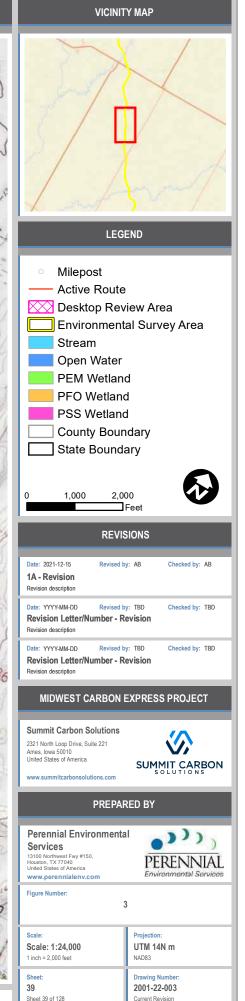


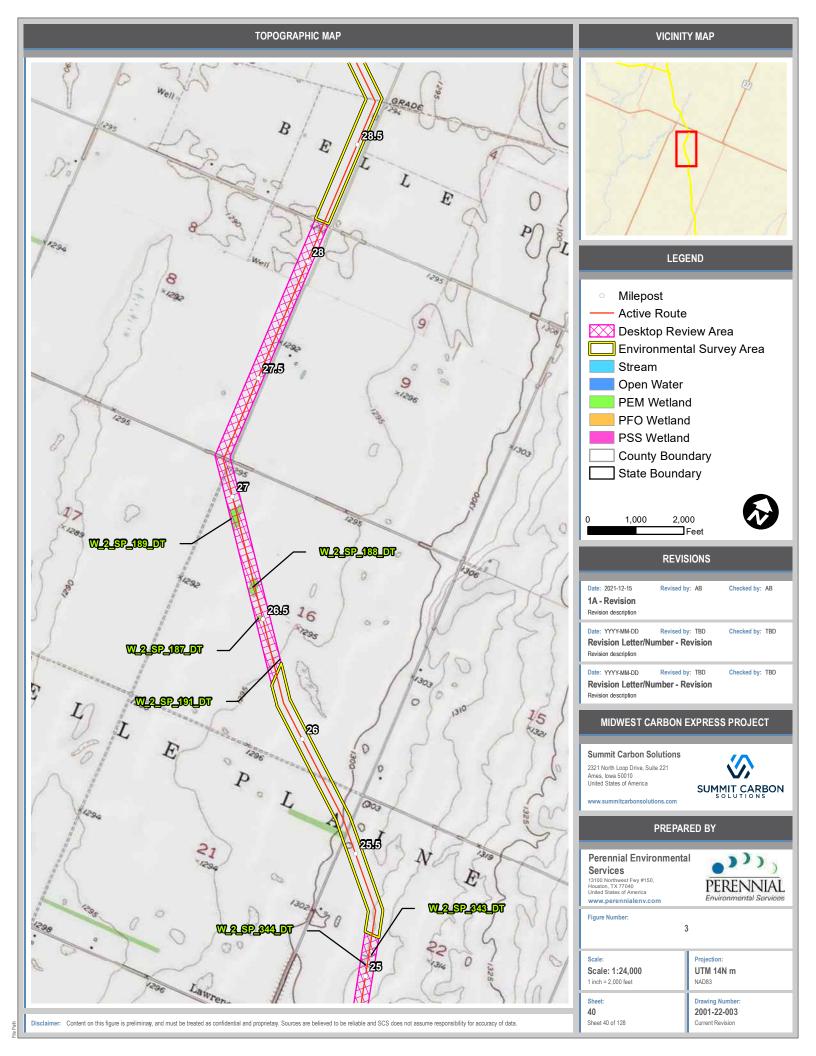


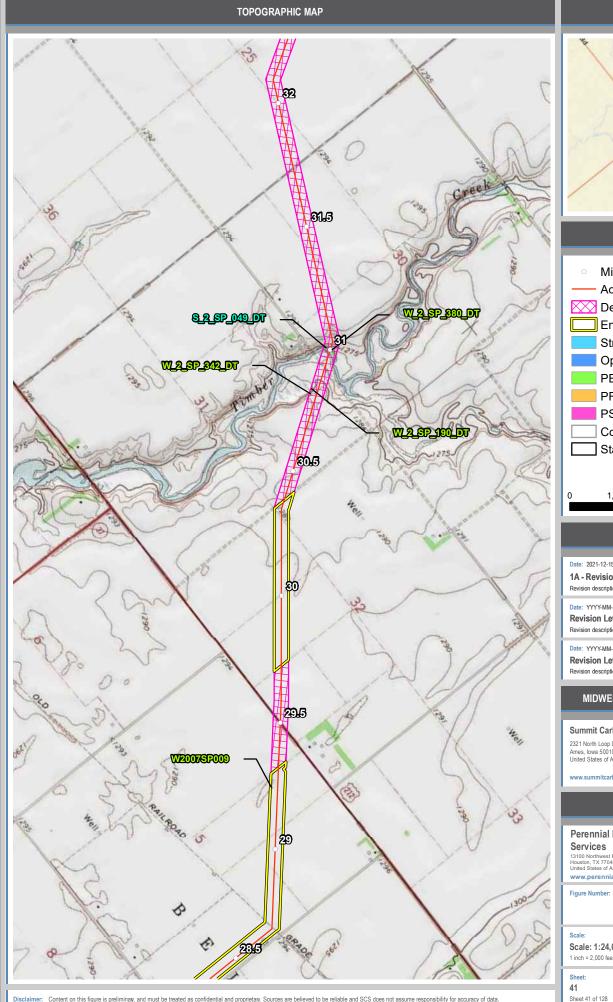


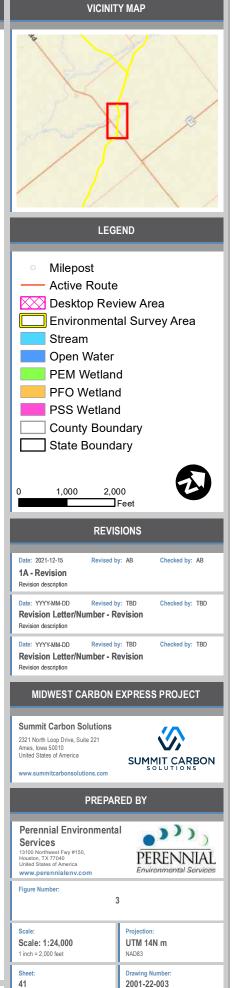
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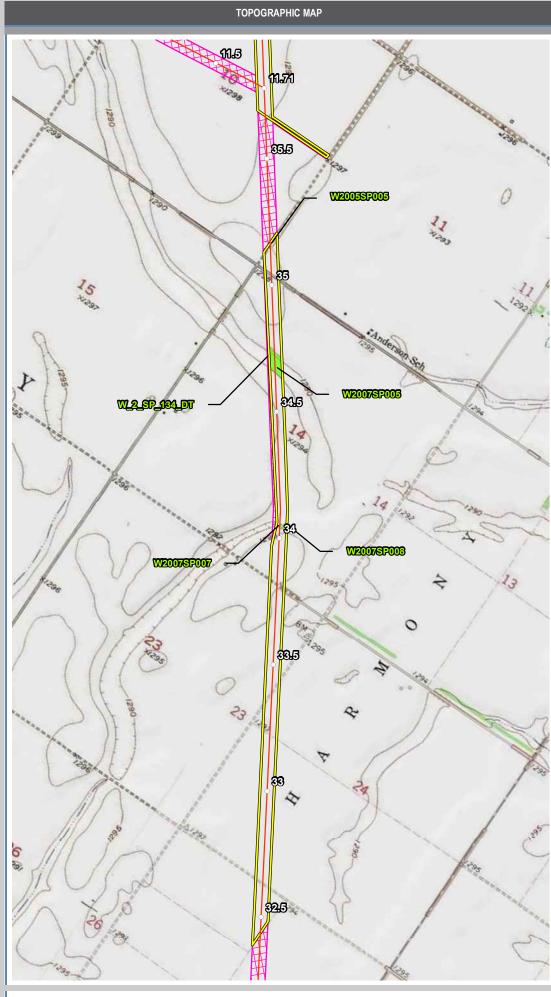


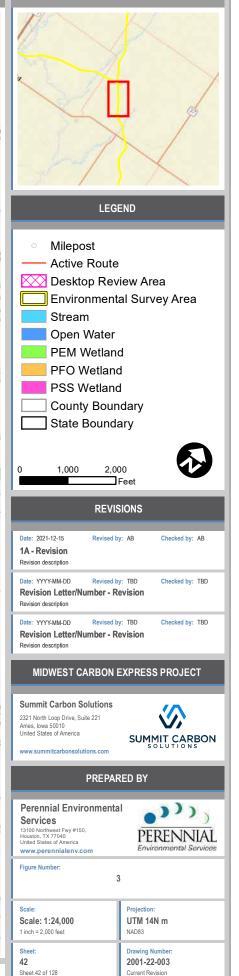


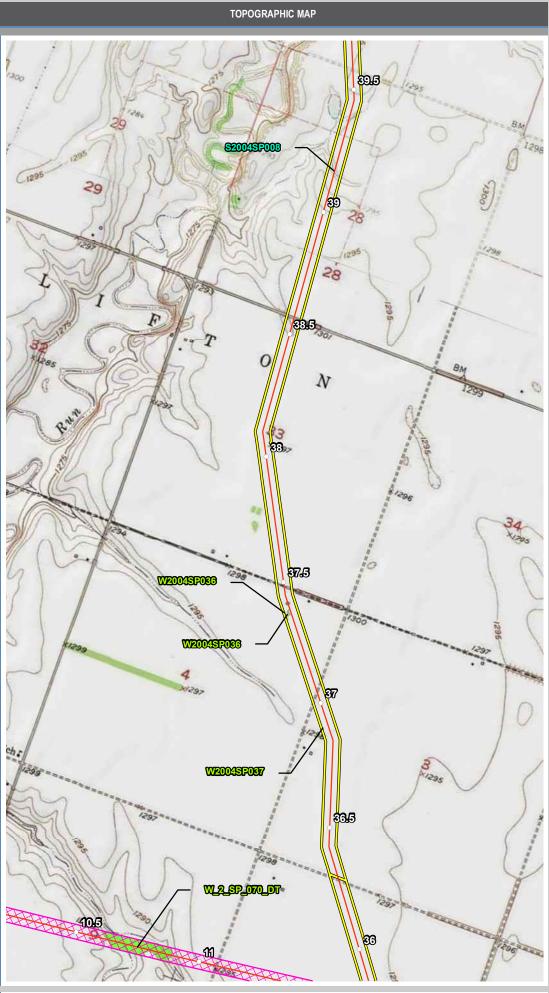


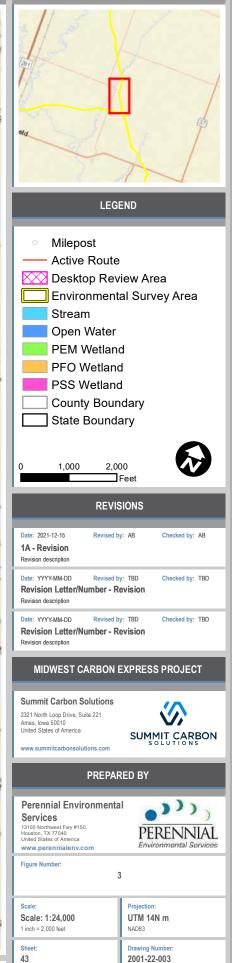
Current Revision

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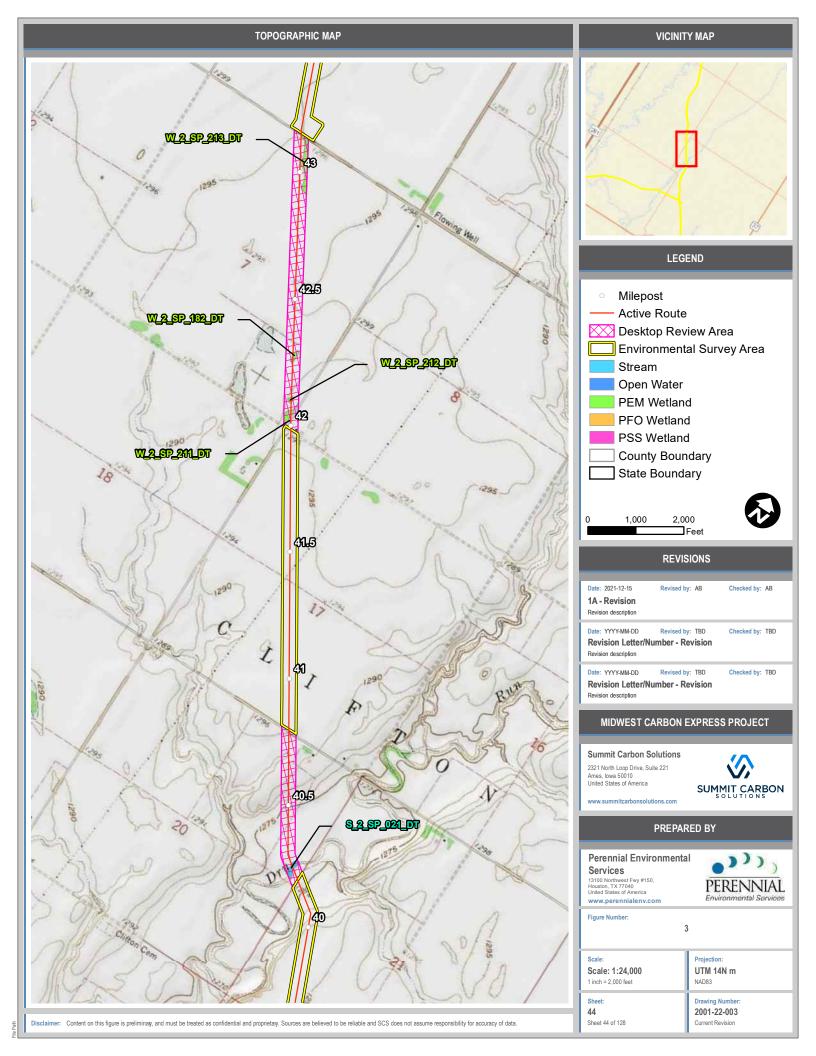


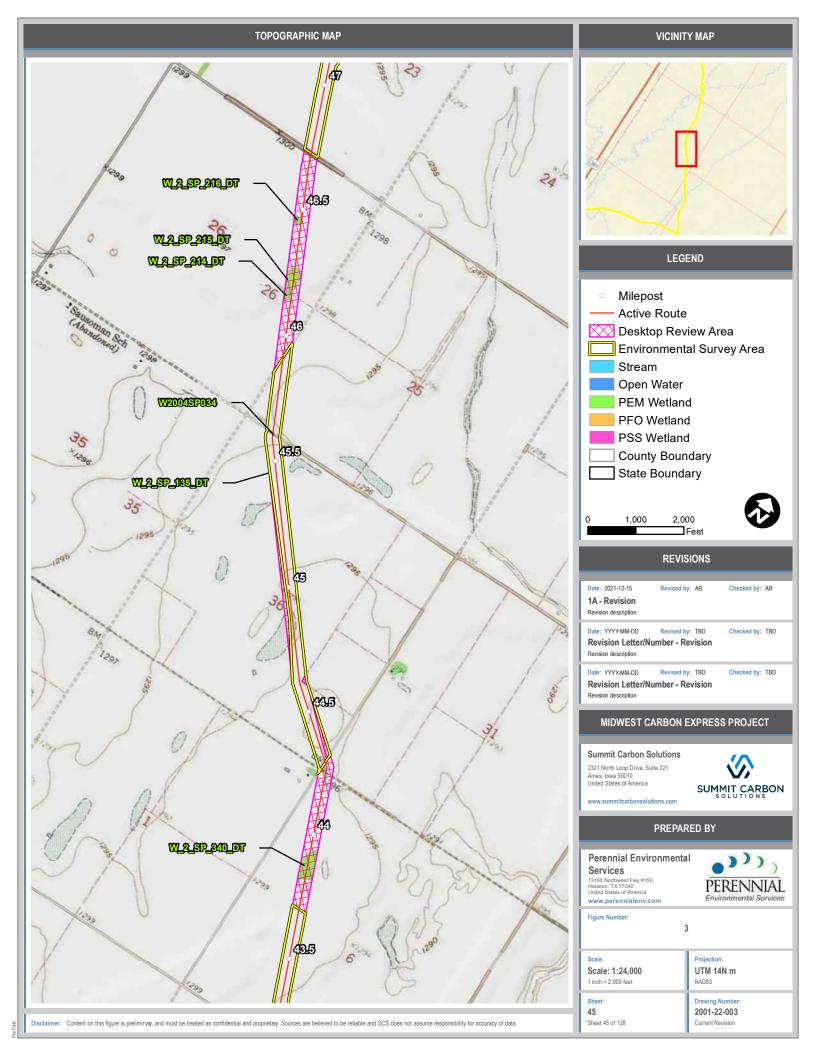


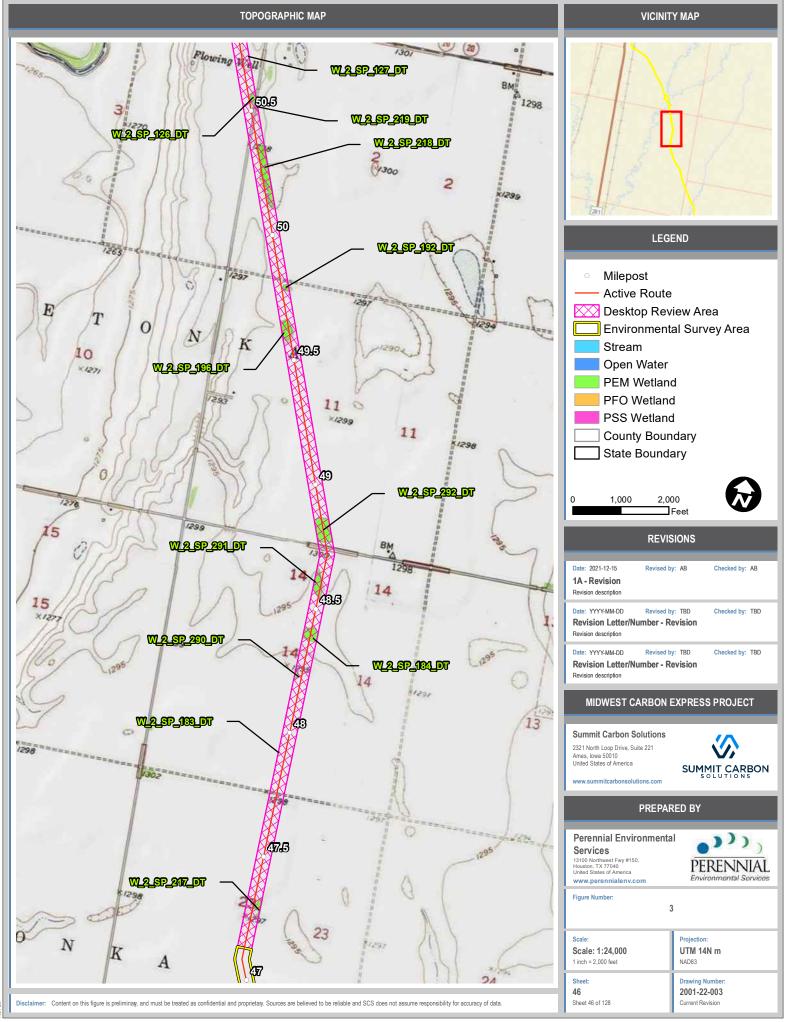


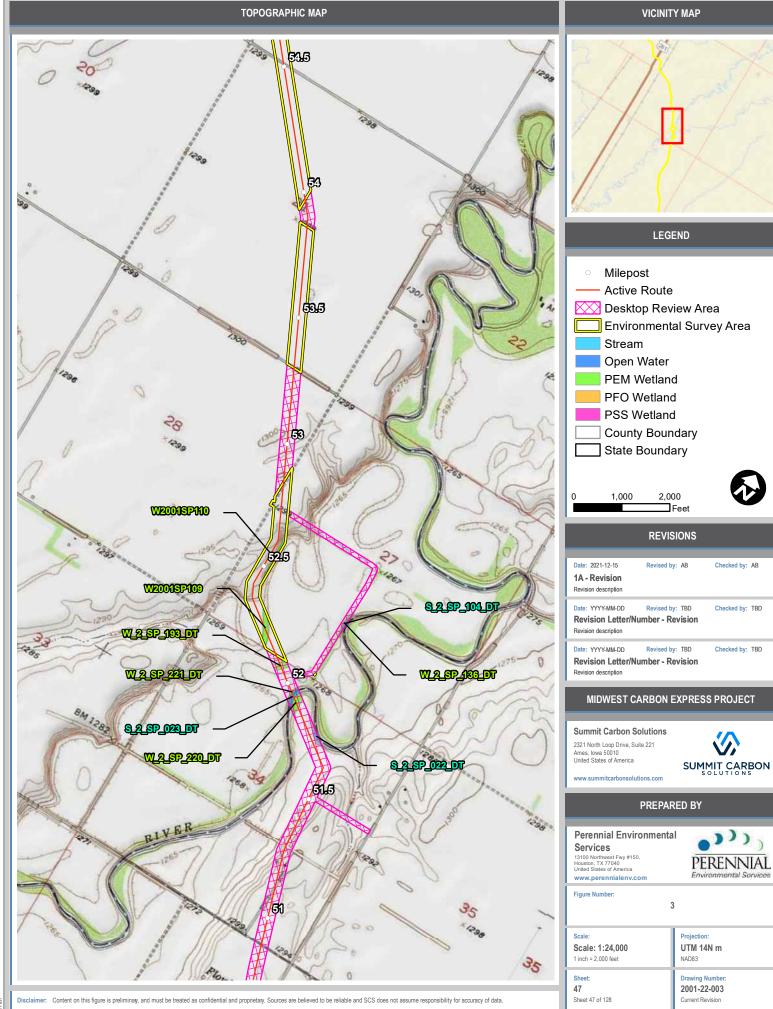
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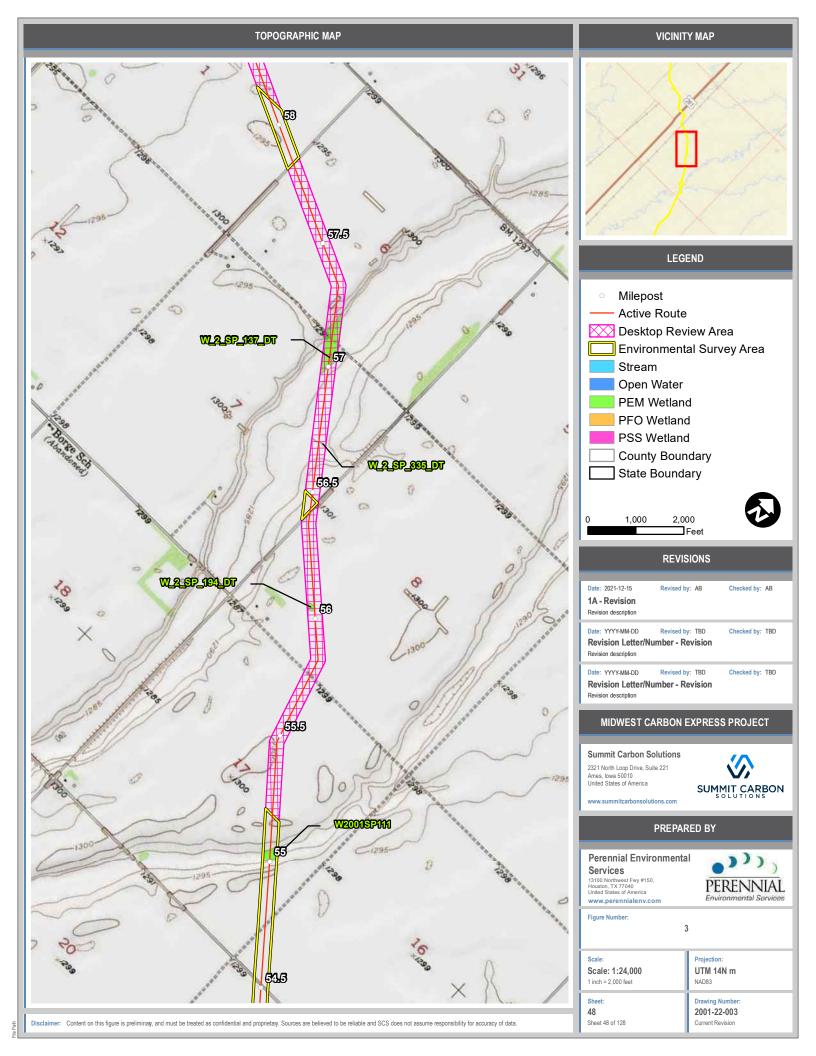
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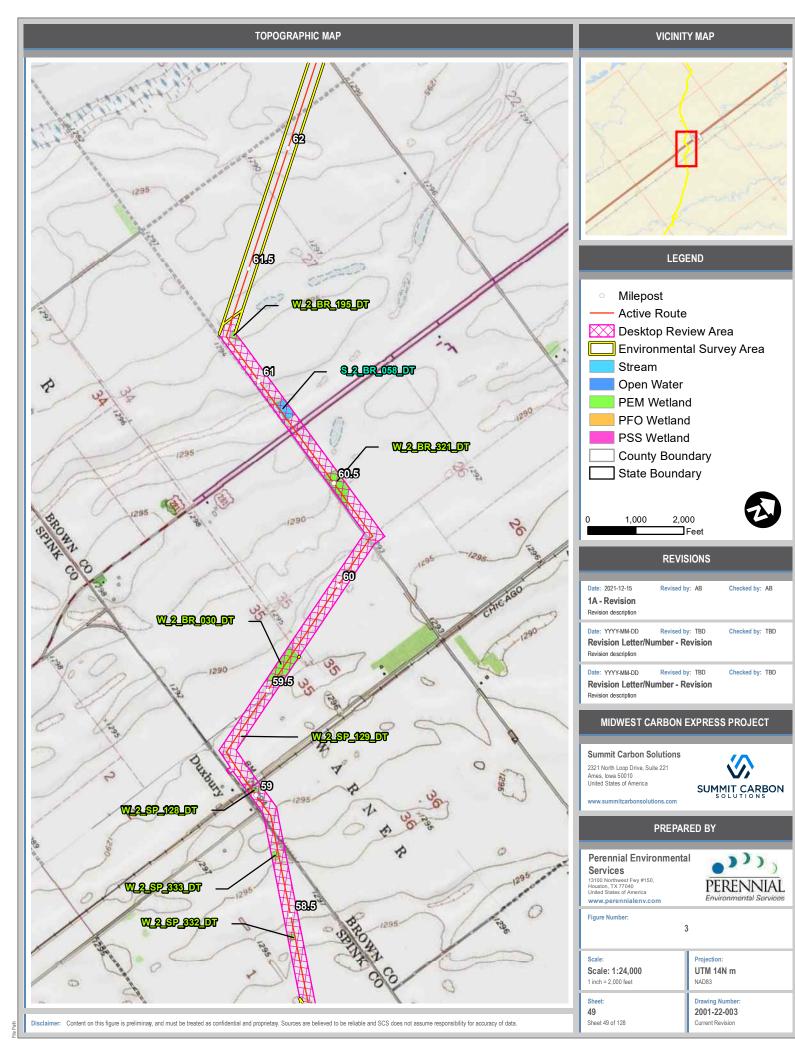


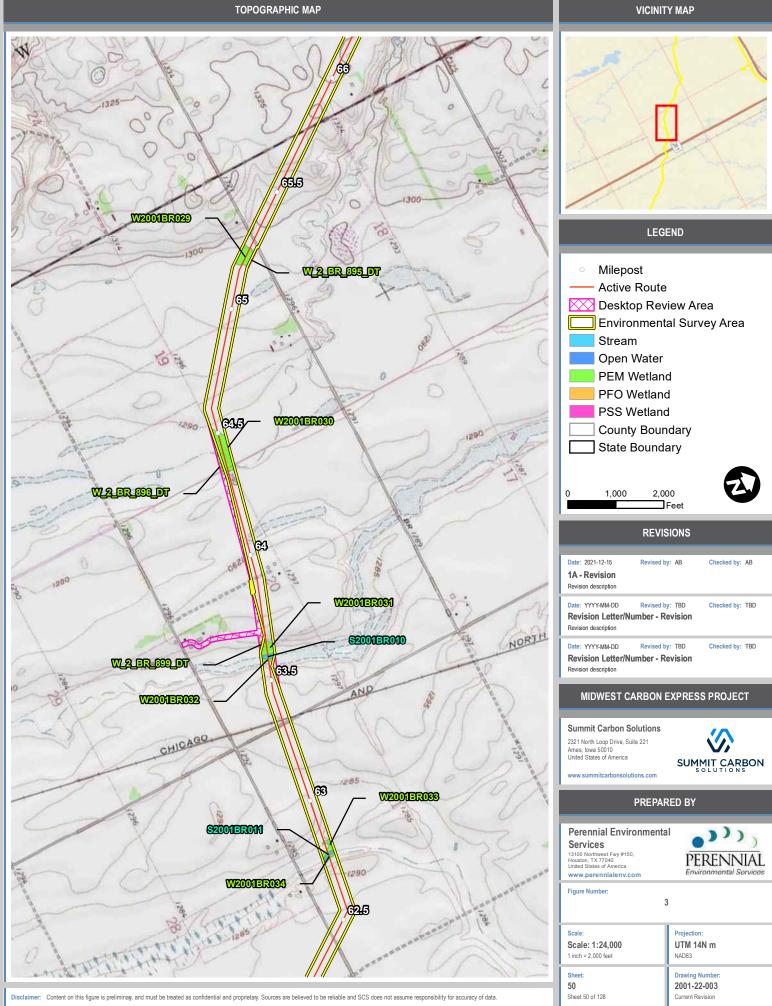




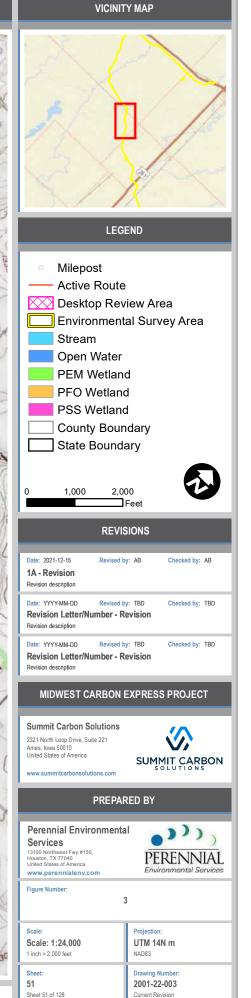


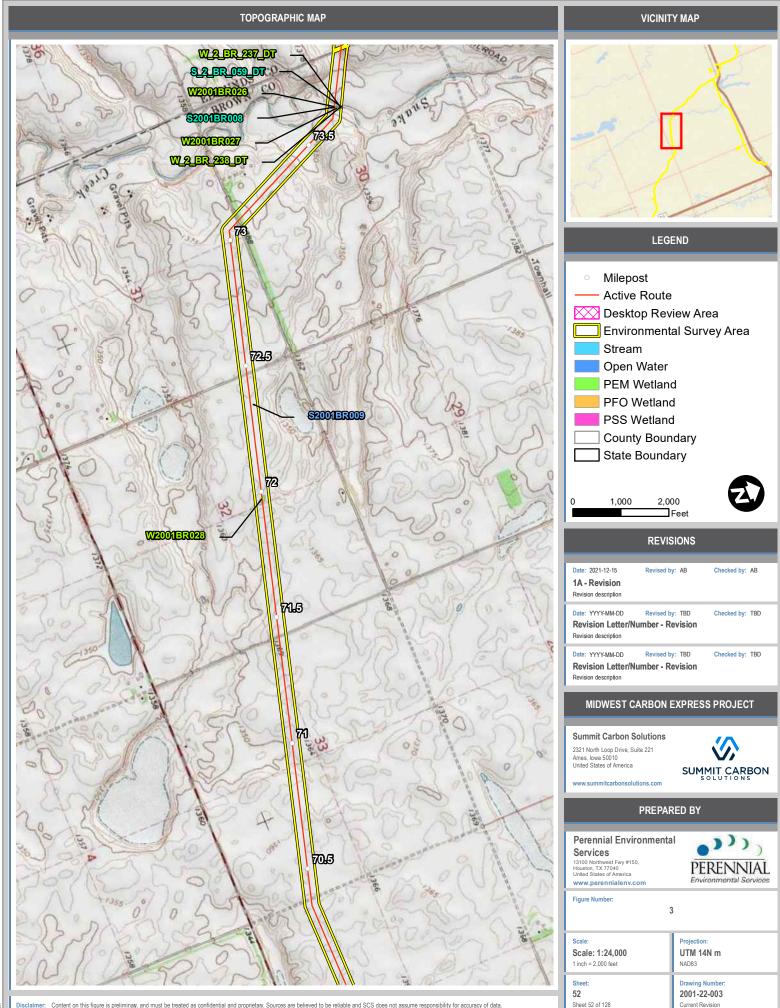


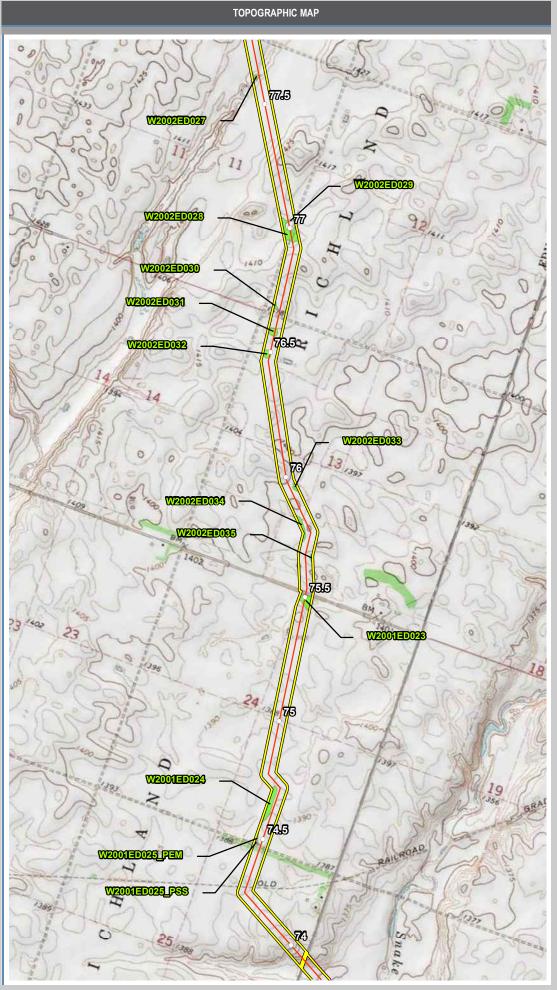


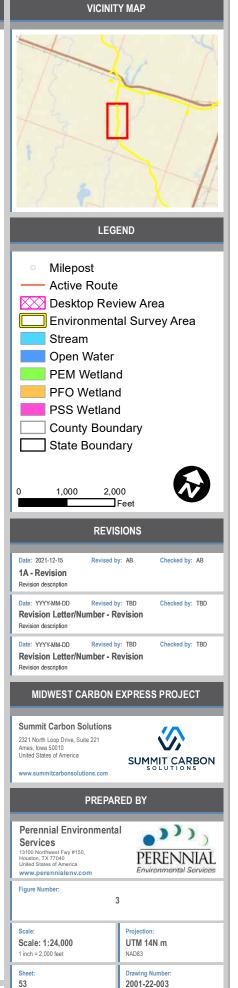










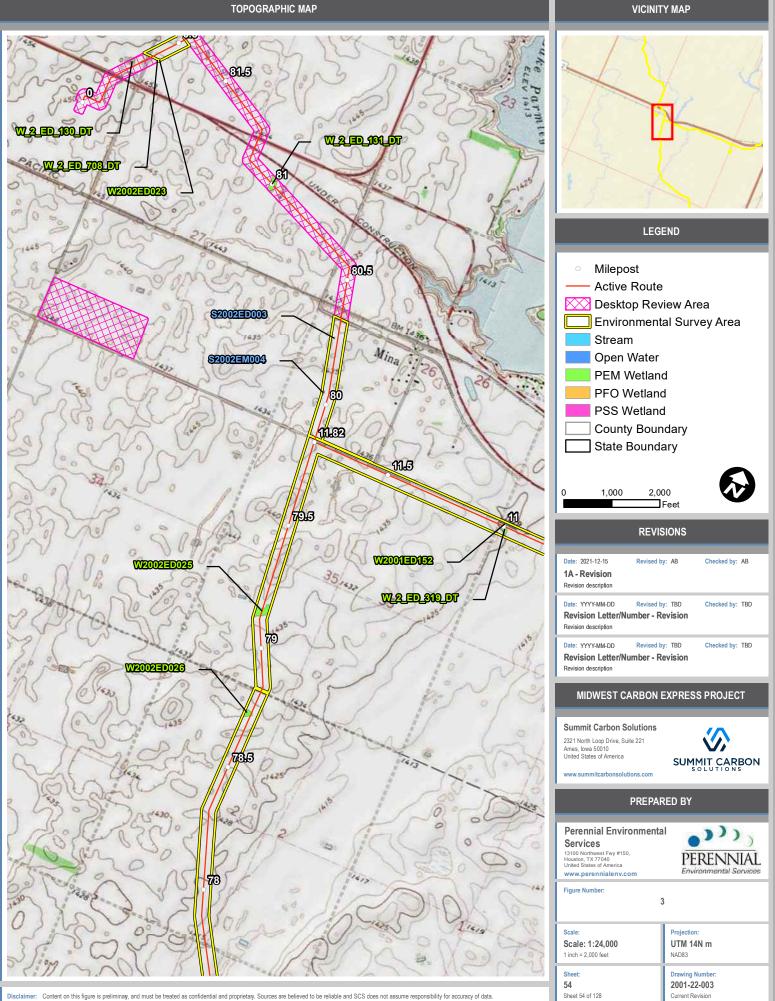


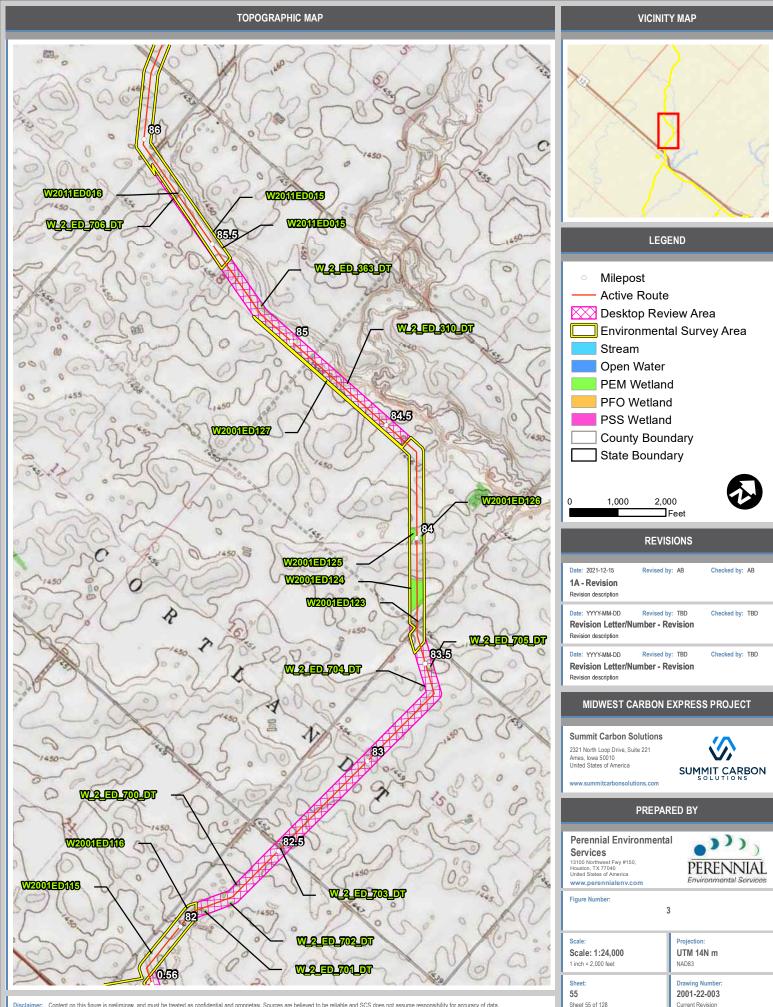
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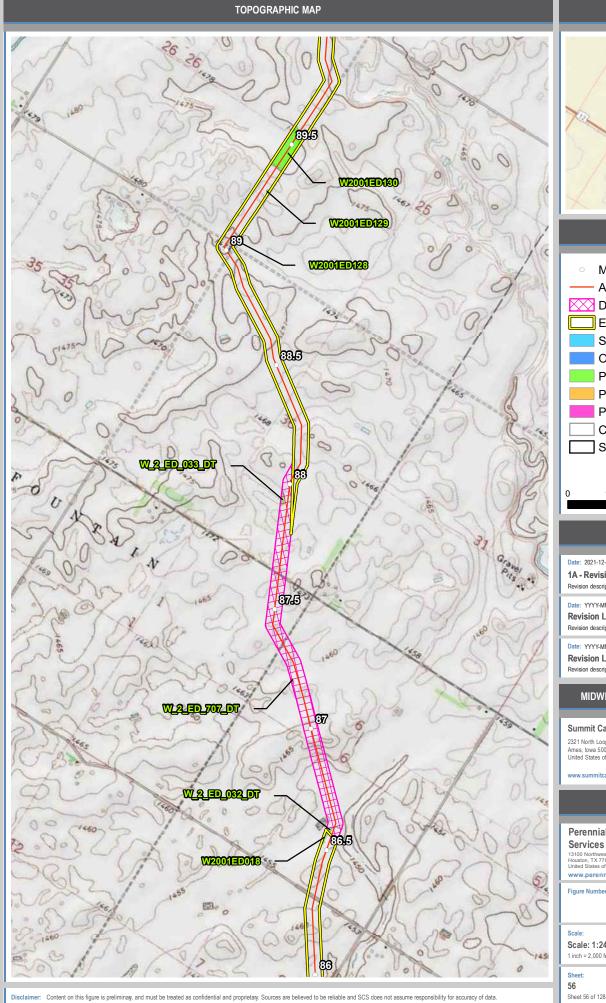
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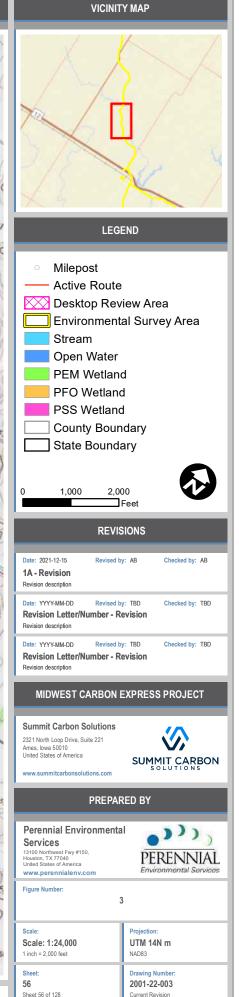
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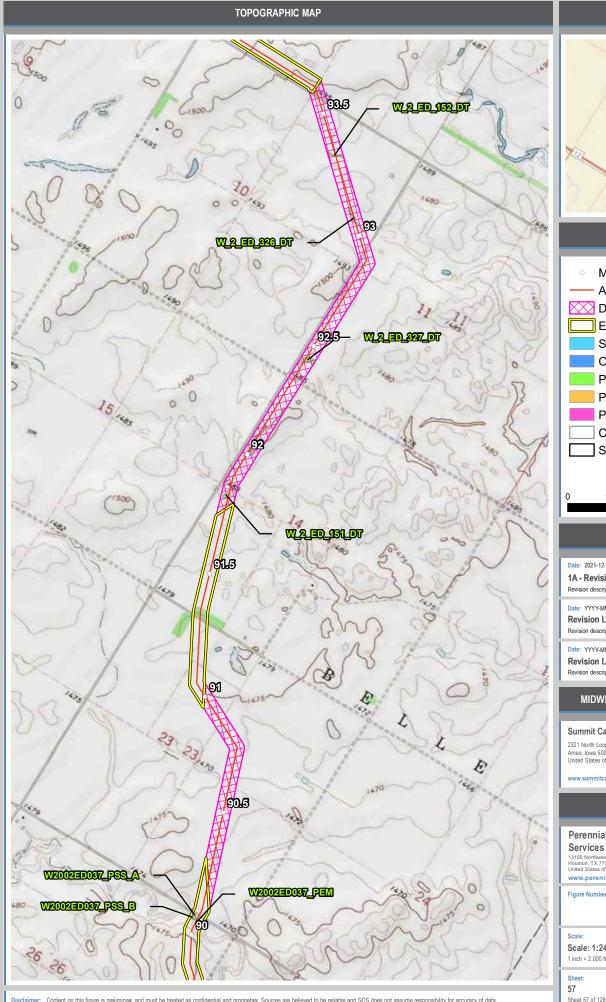
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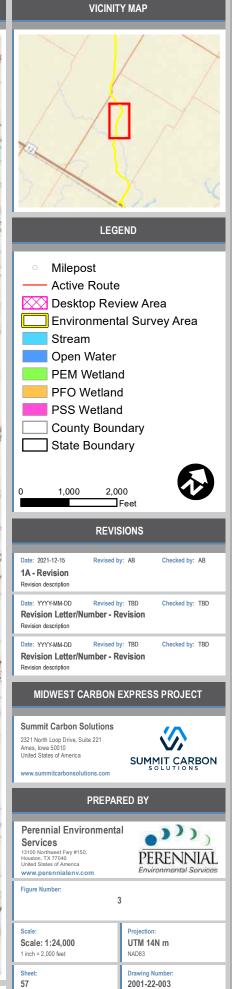




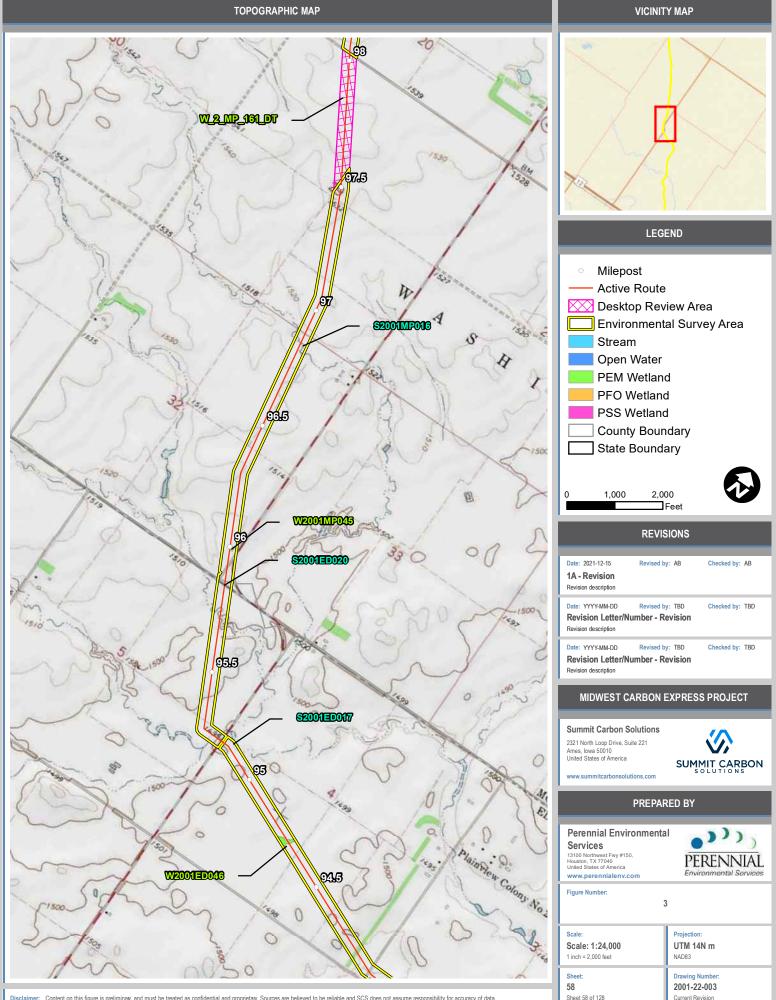


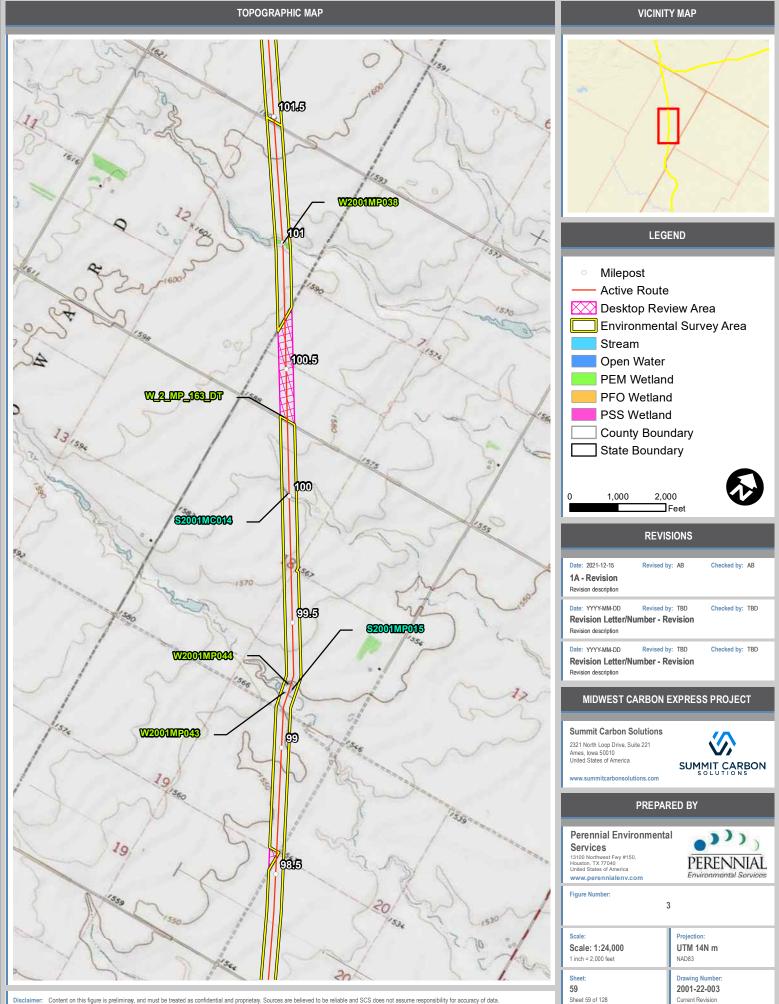


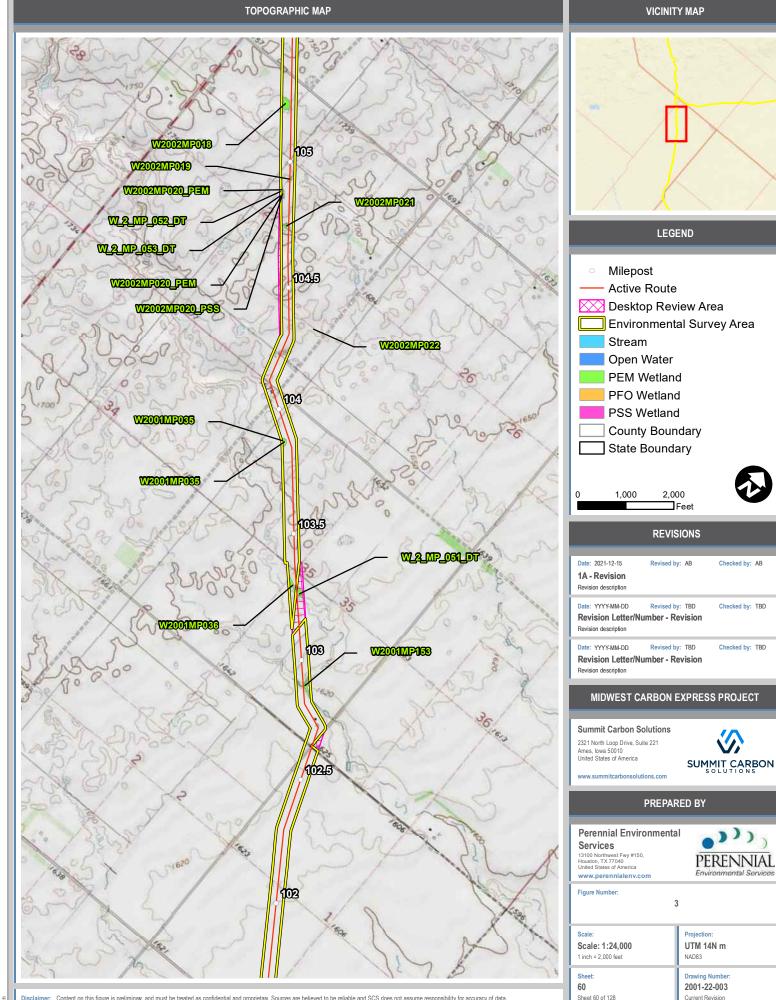




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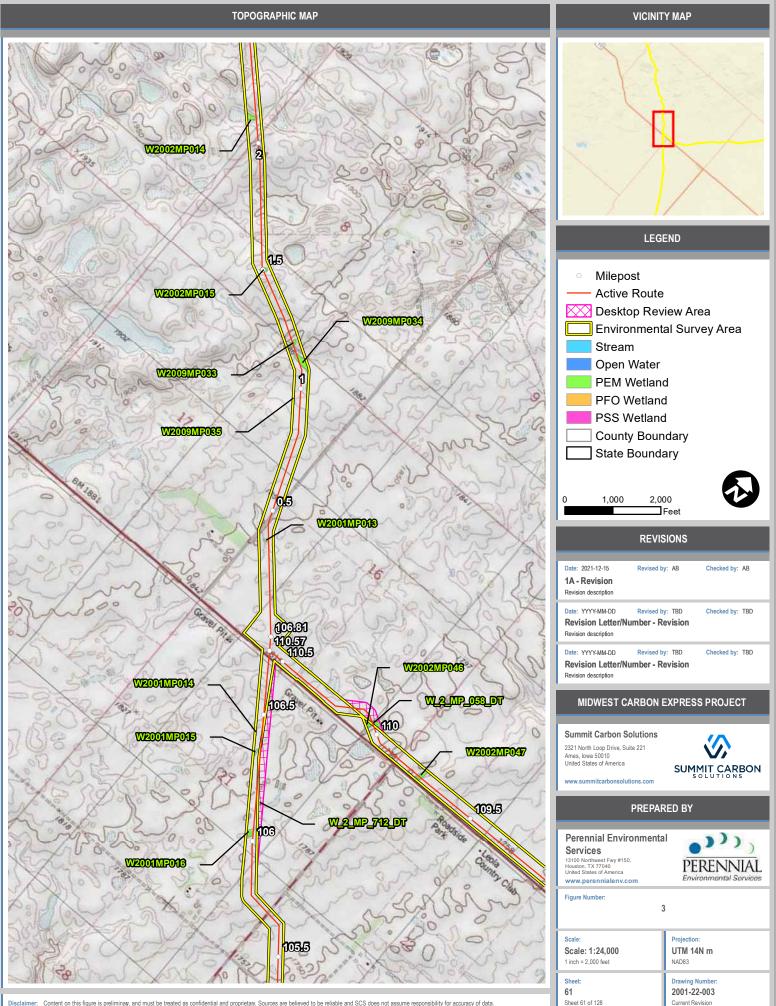


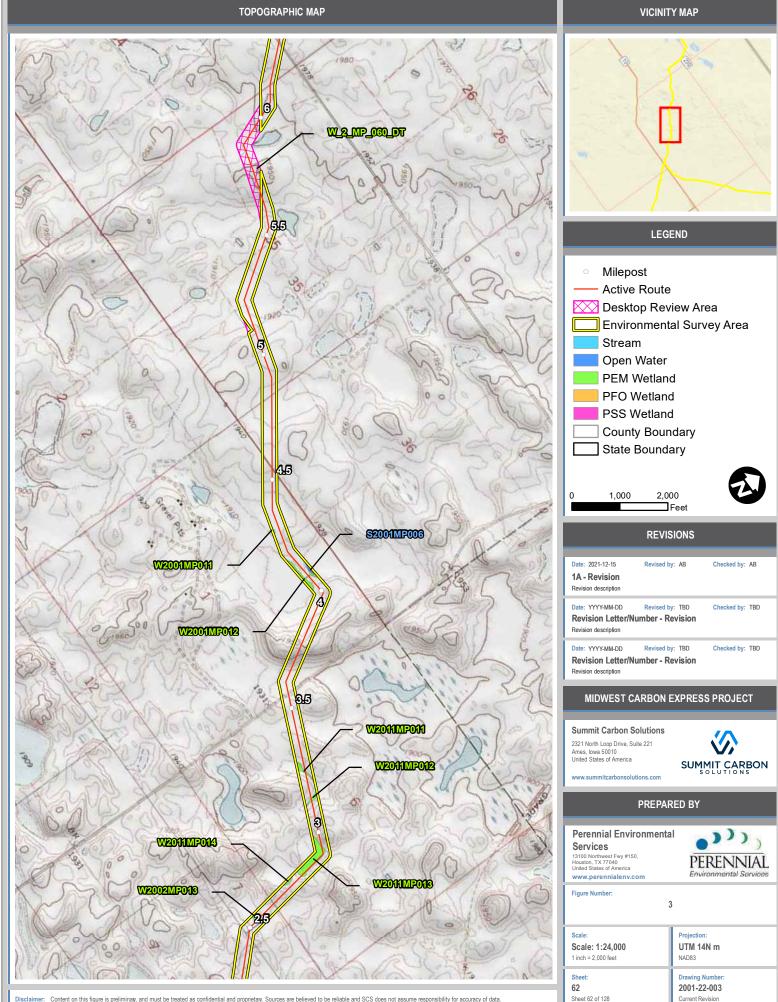
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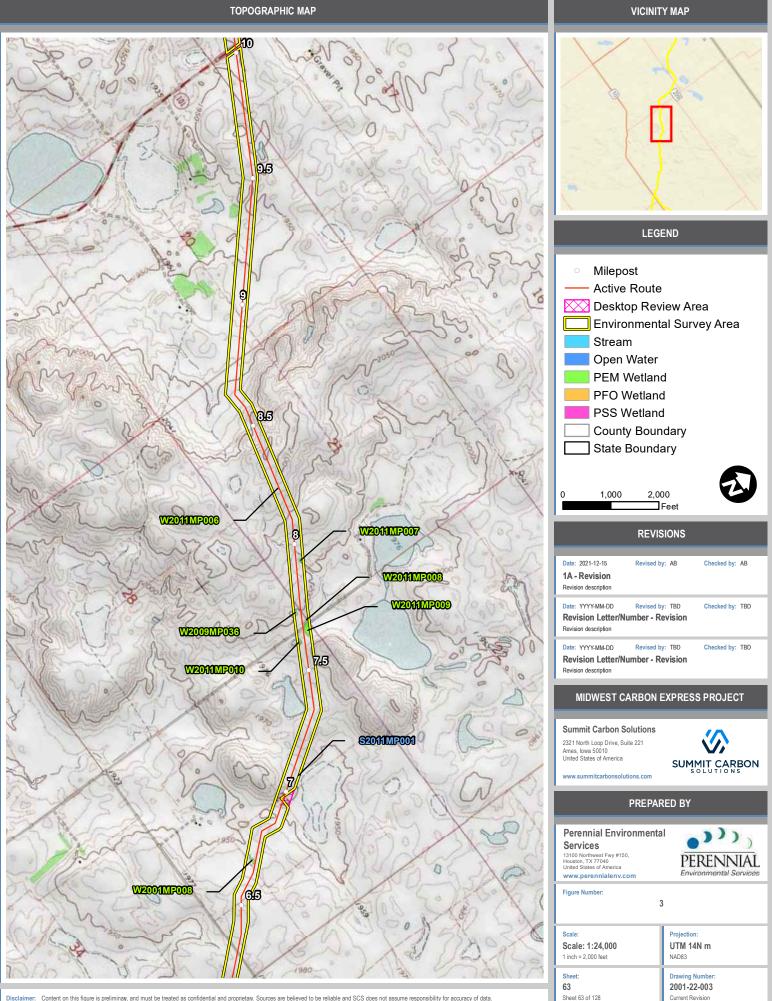
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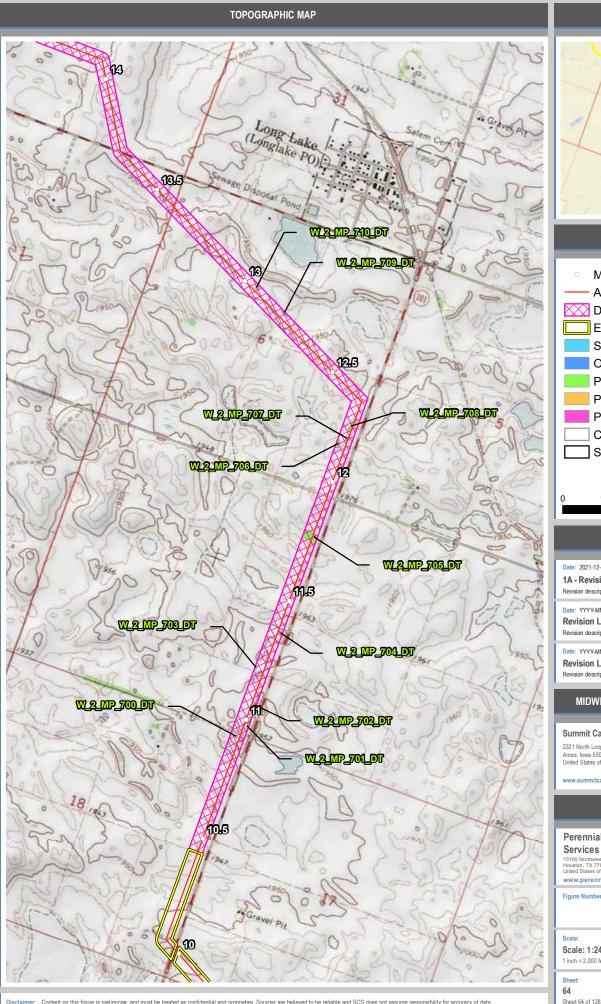
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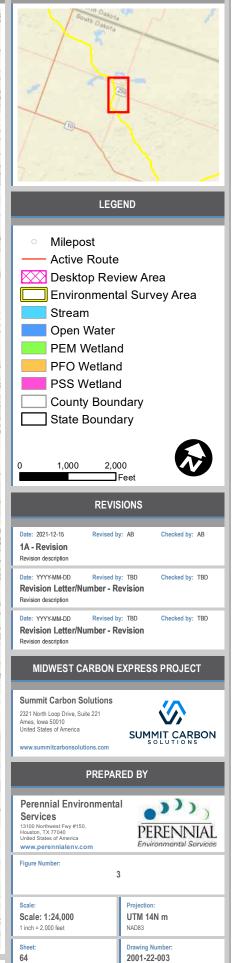
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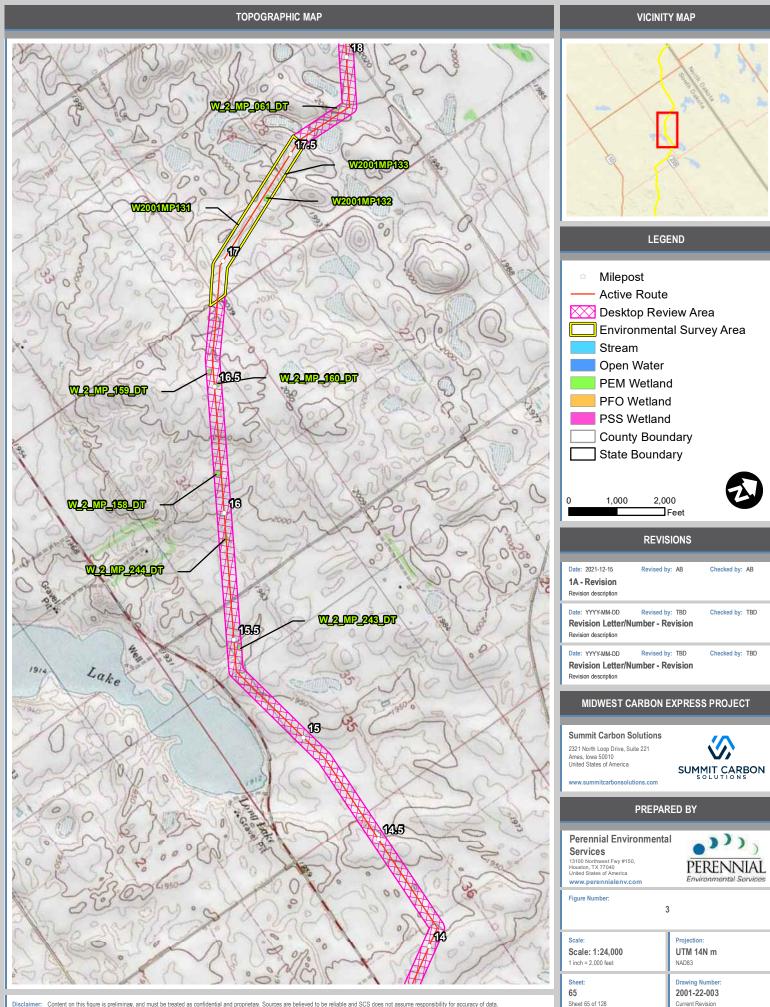


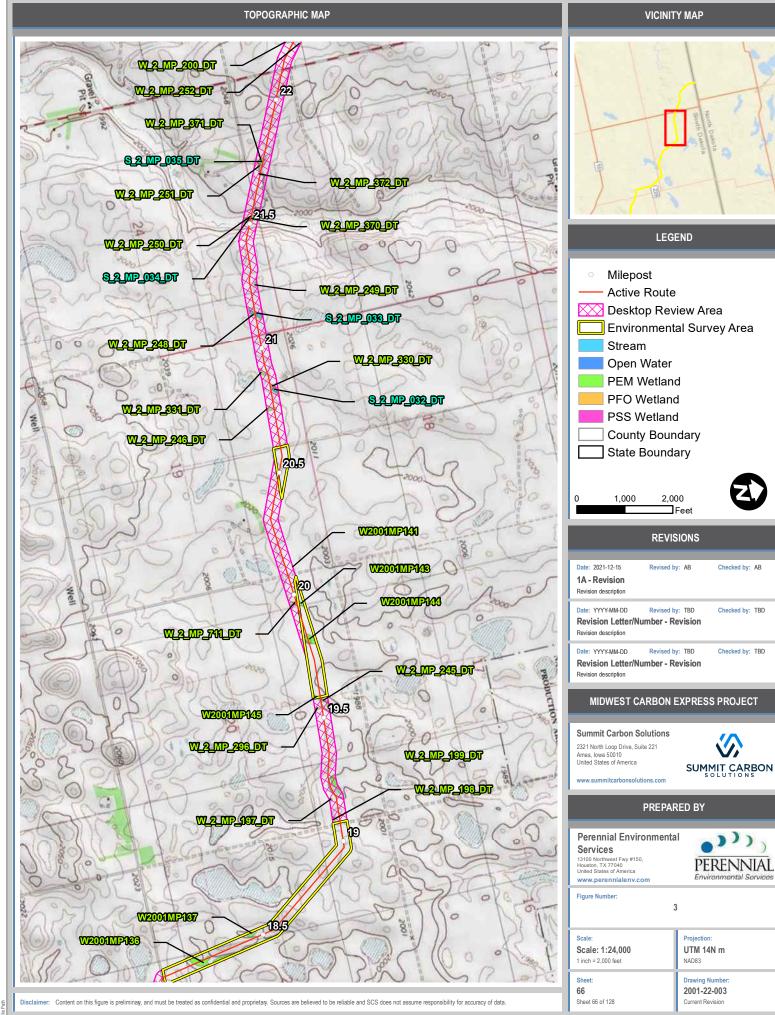


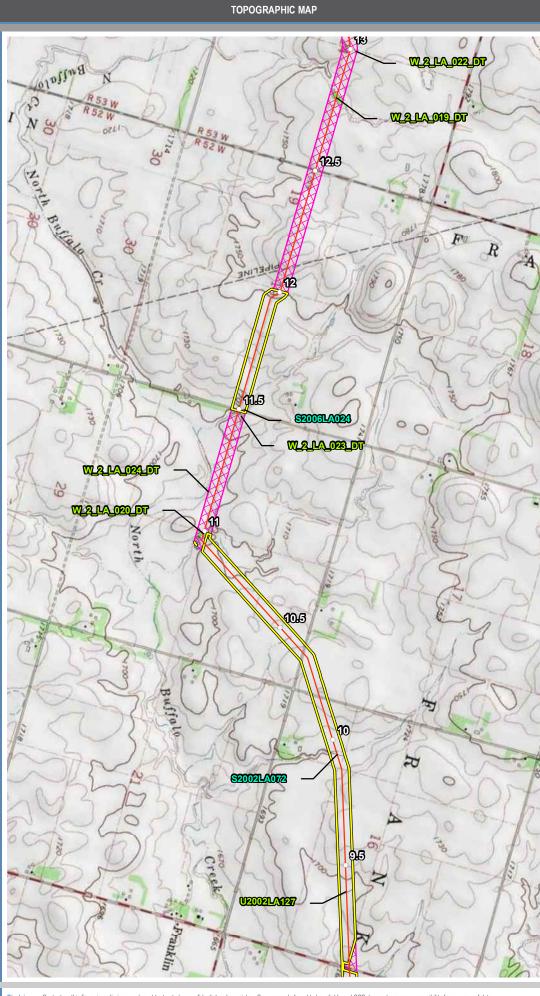


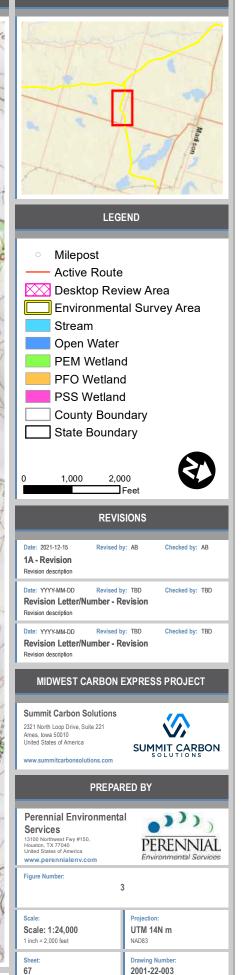
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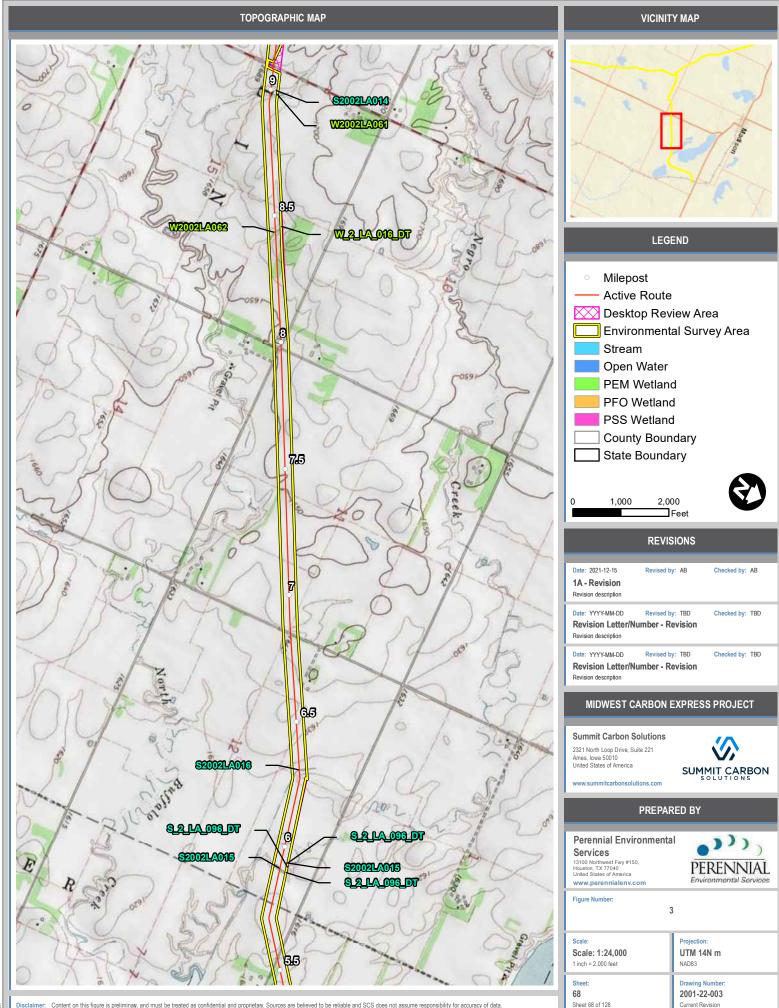
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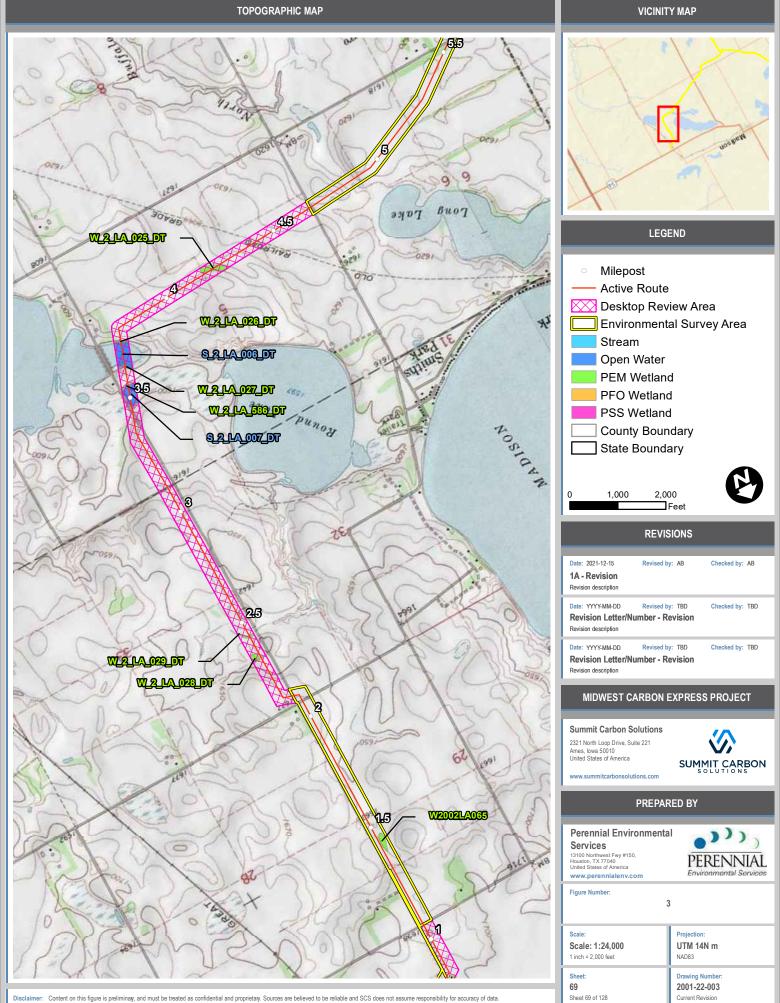
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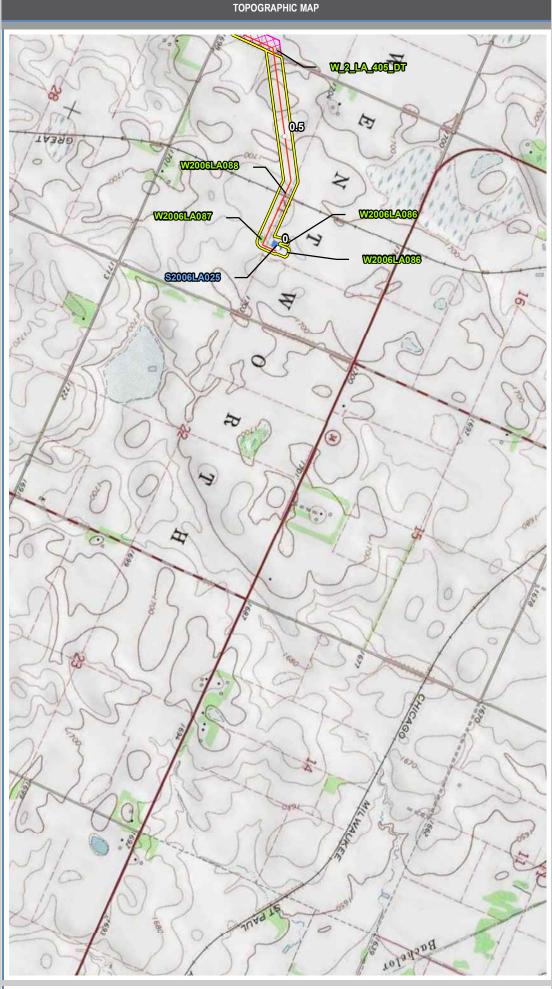
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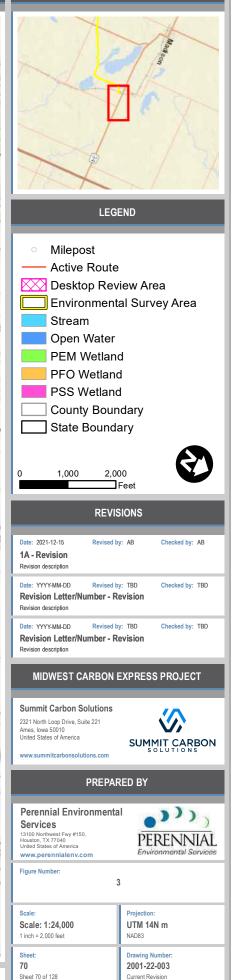
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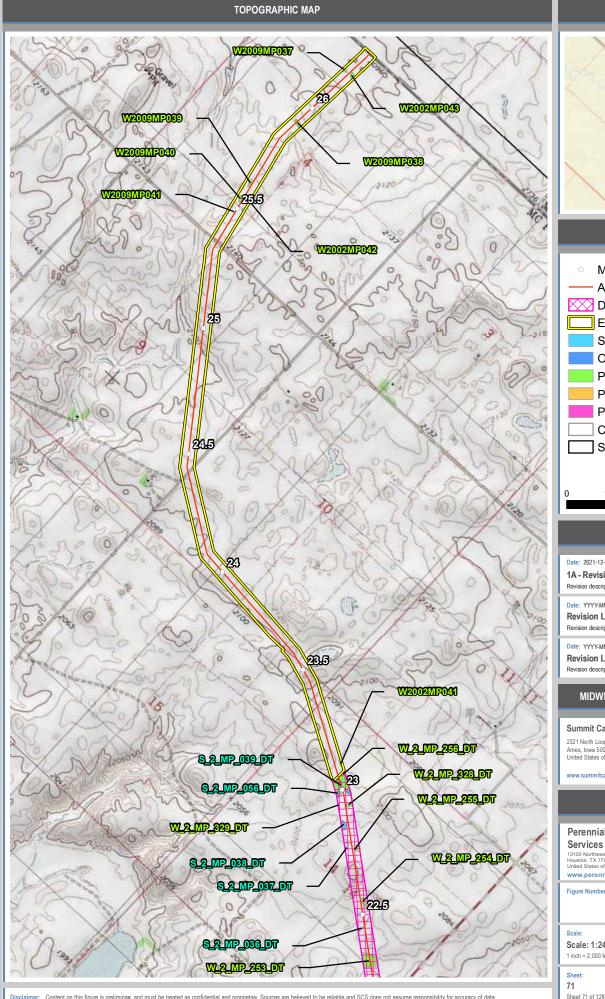


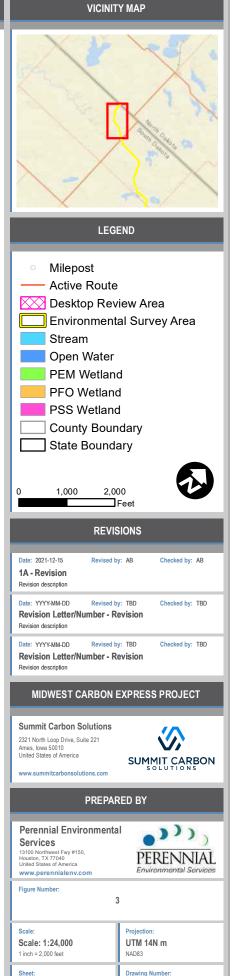




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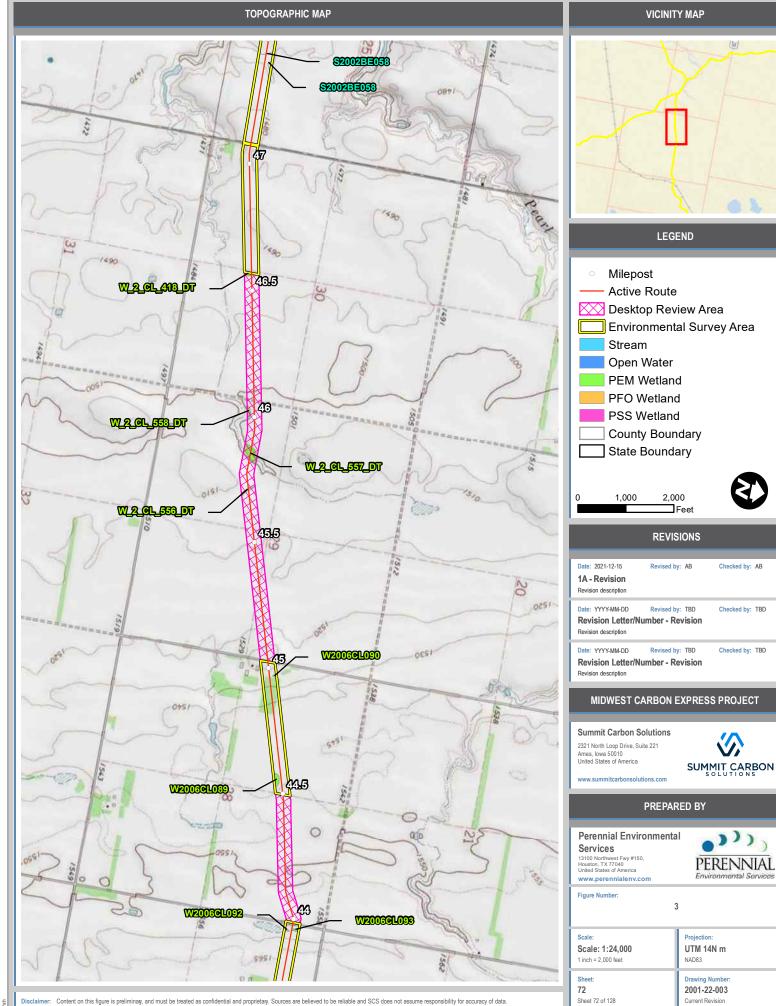
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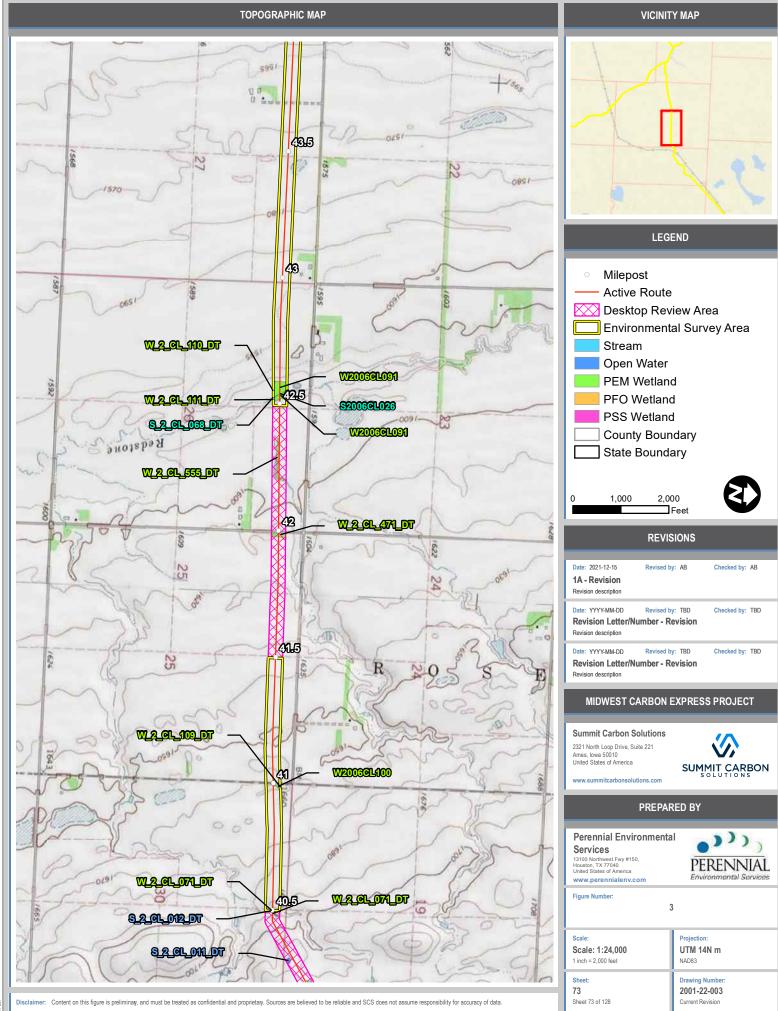


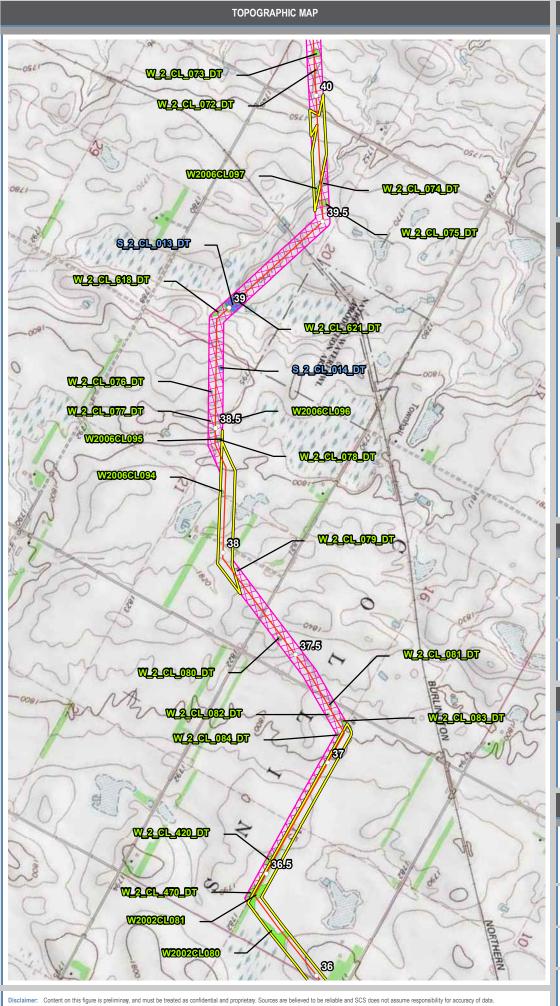


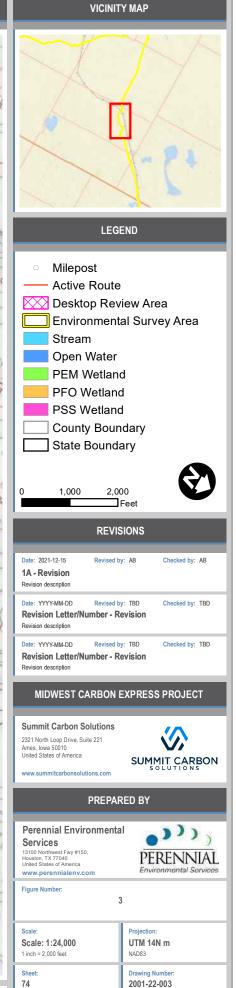
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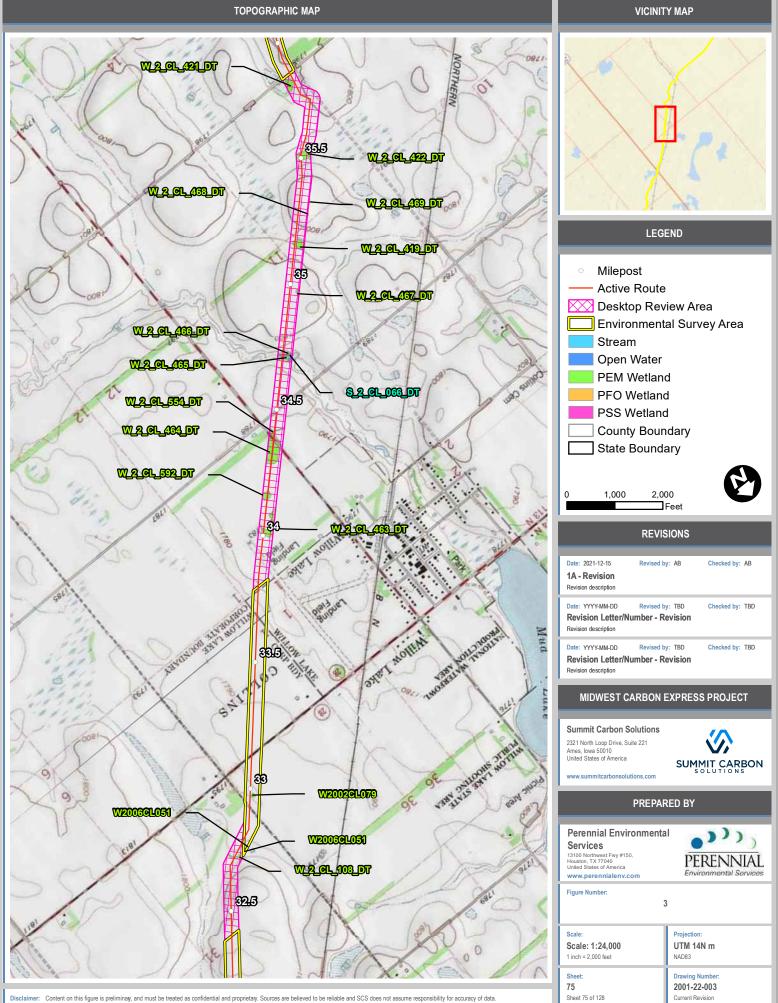


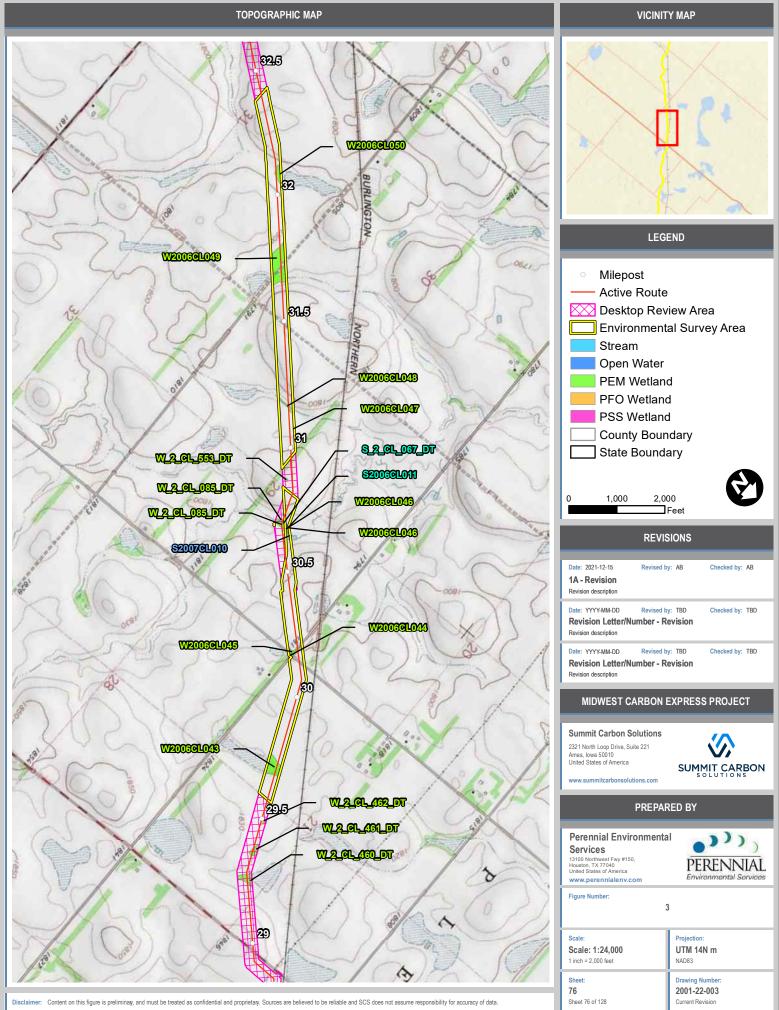


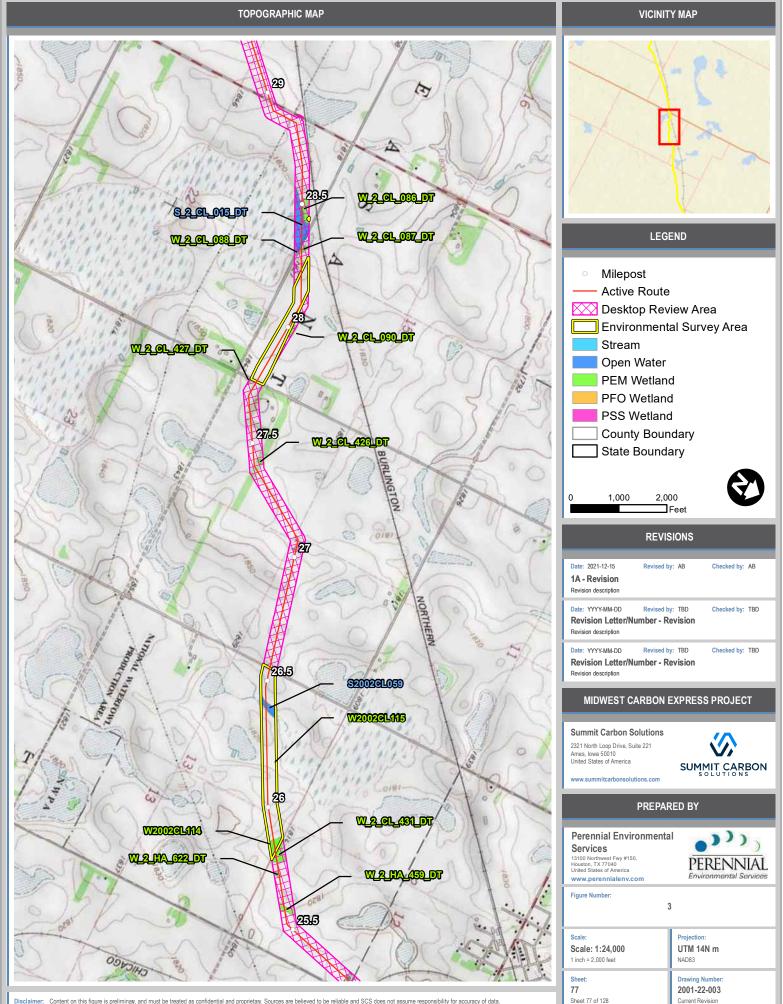


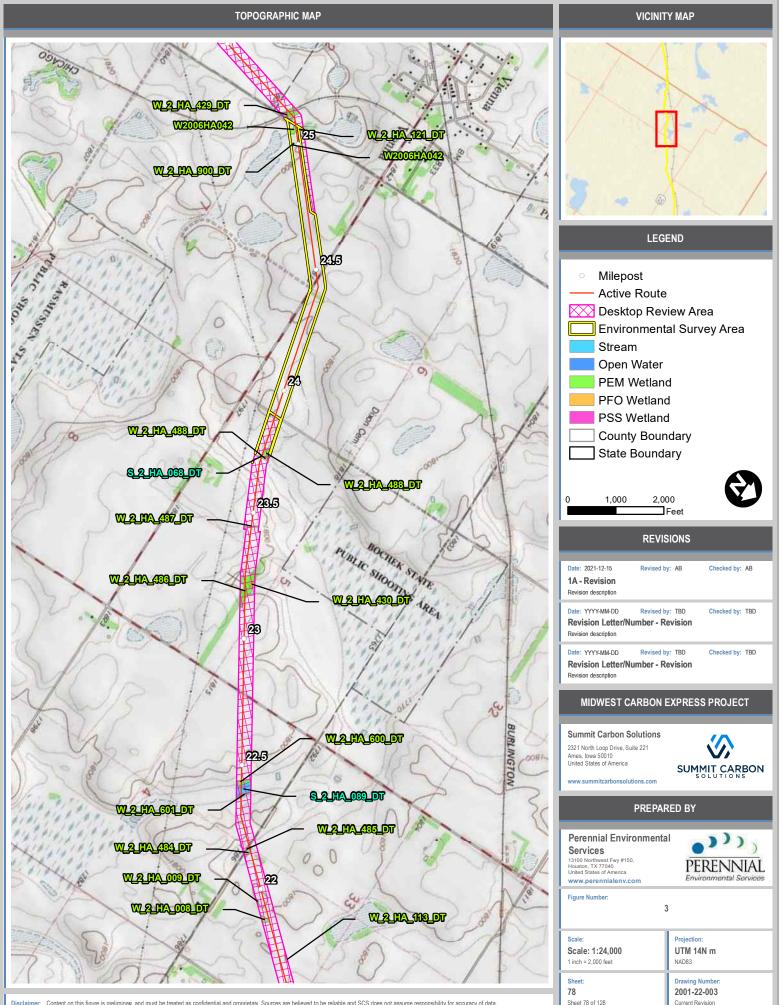
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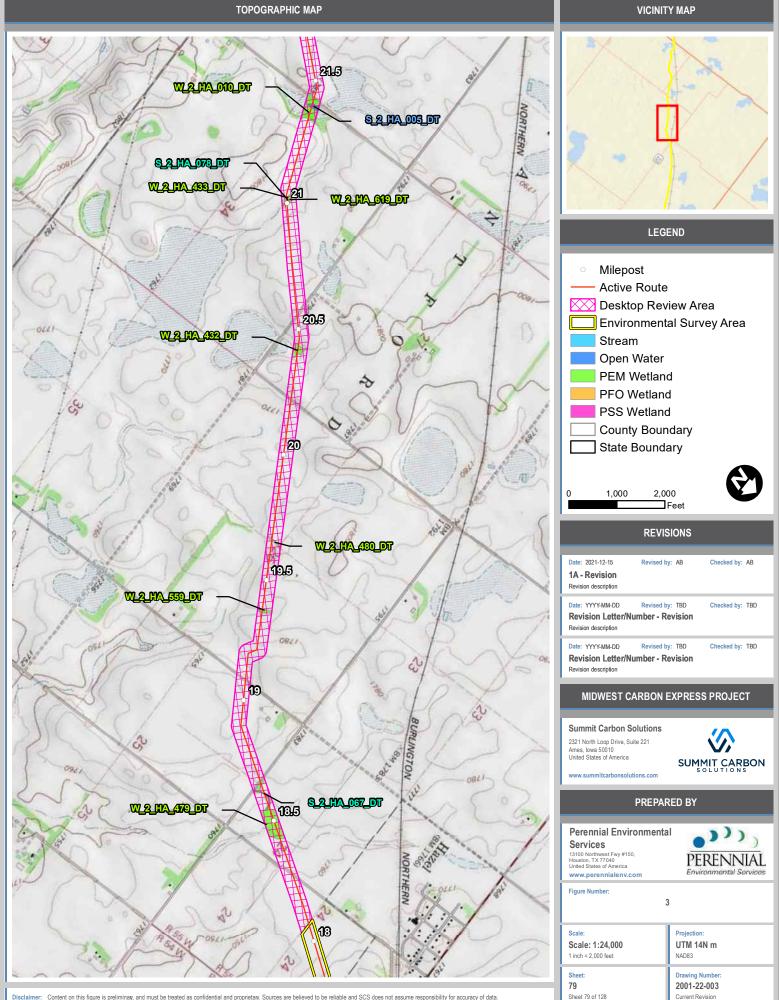
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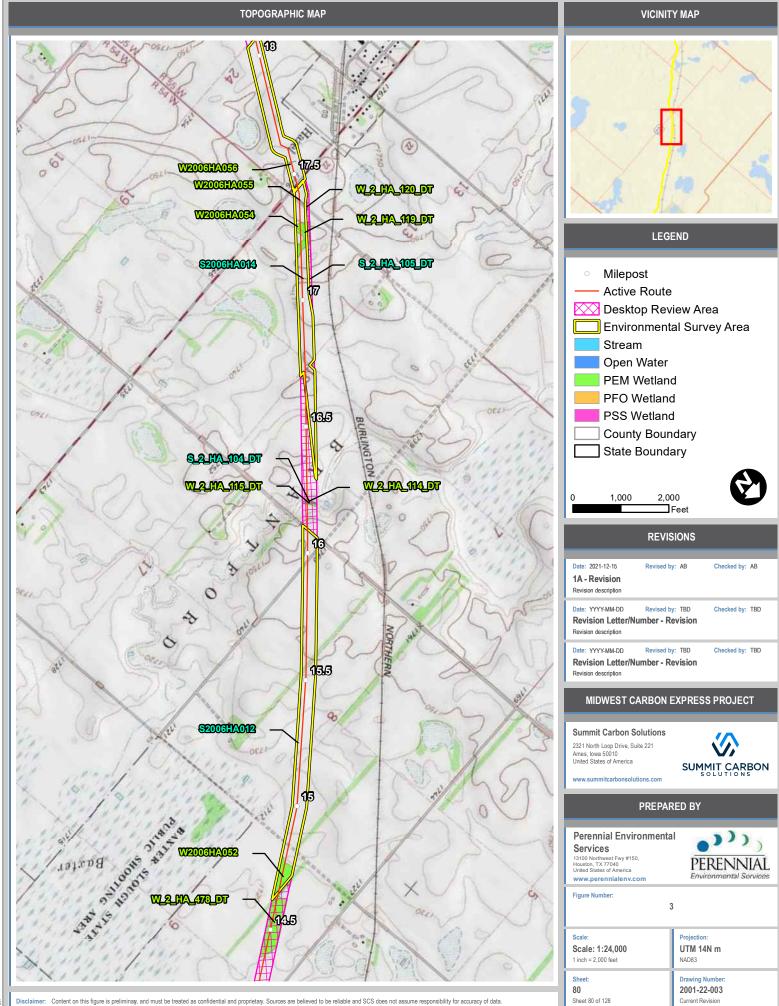


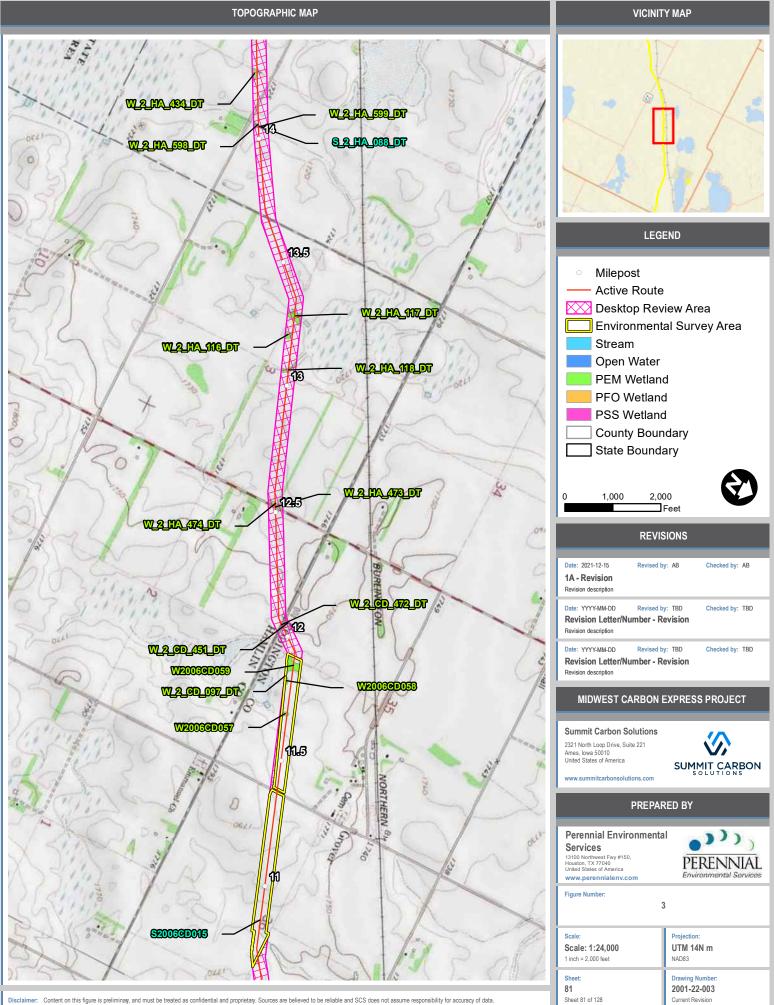


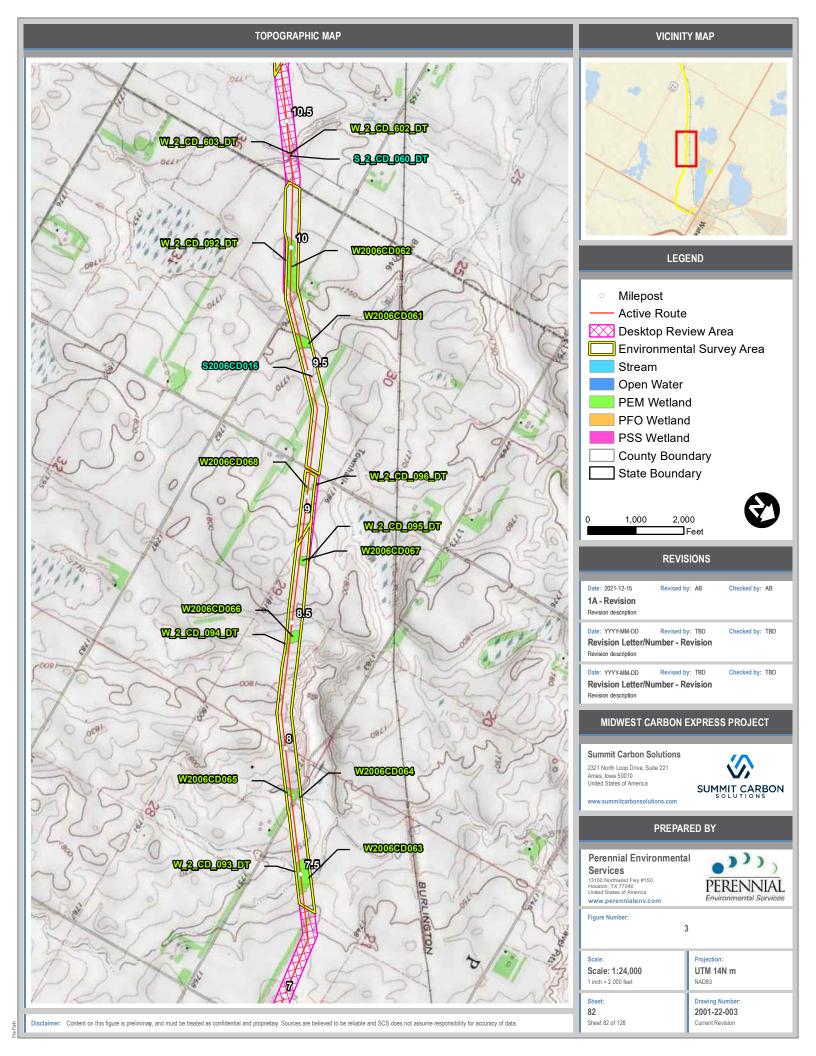


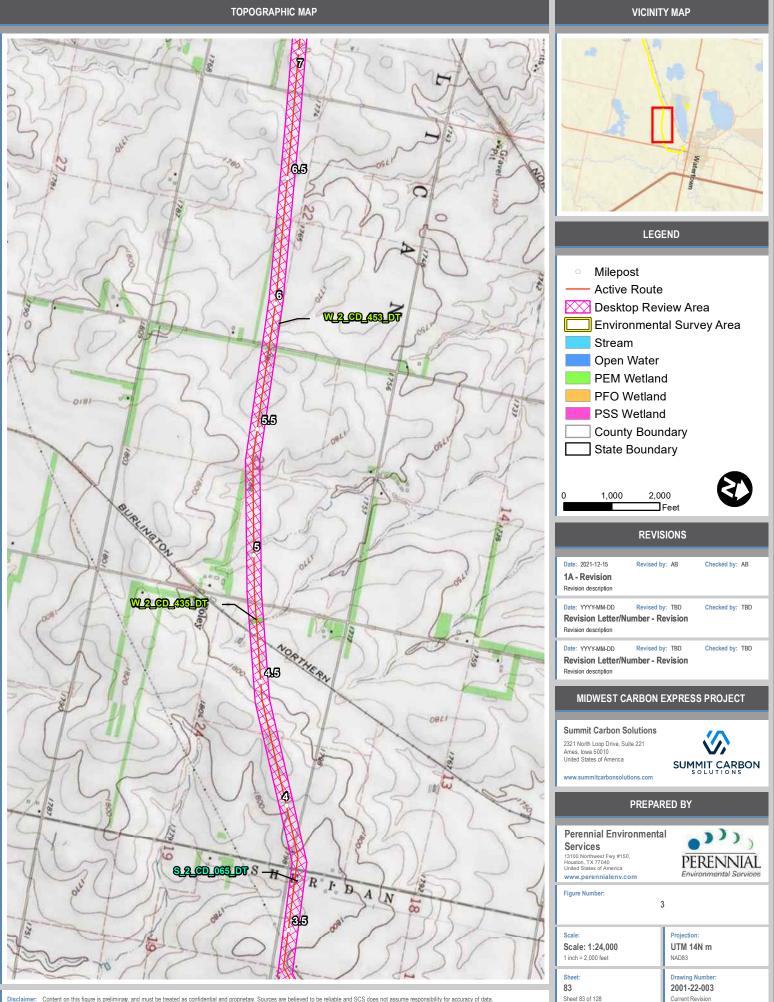


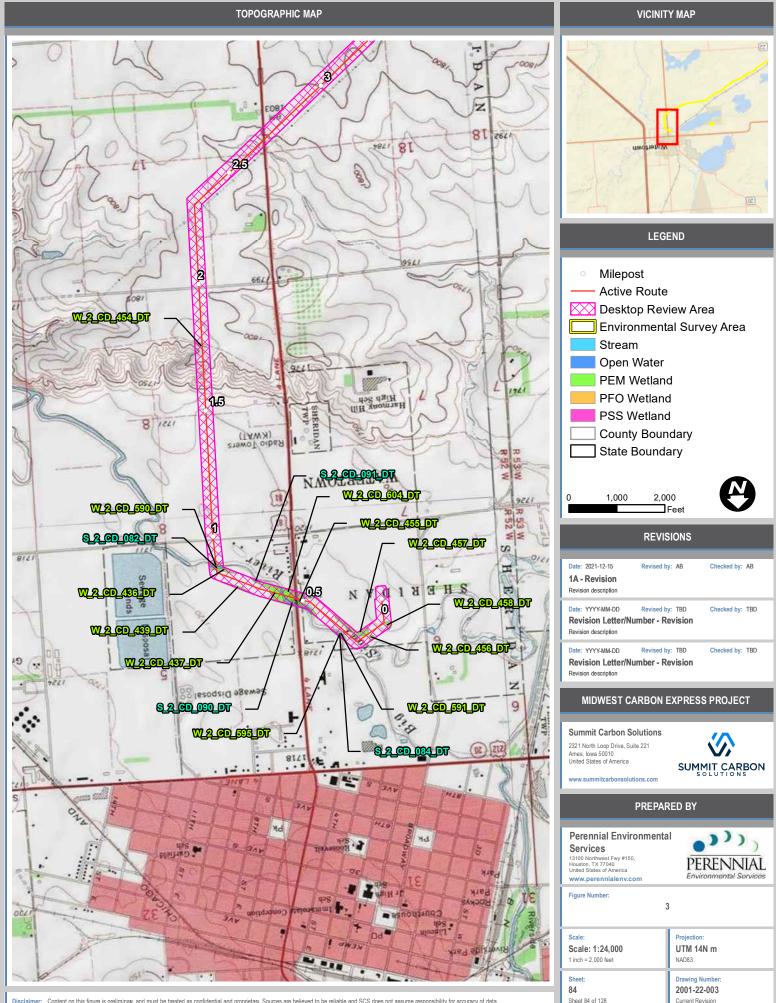


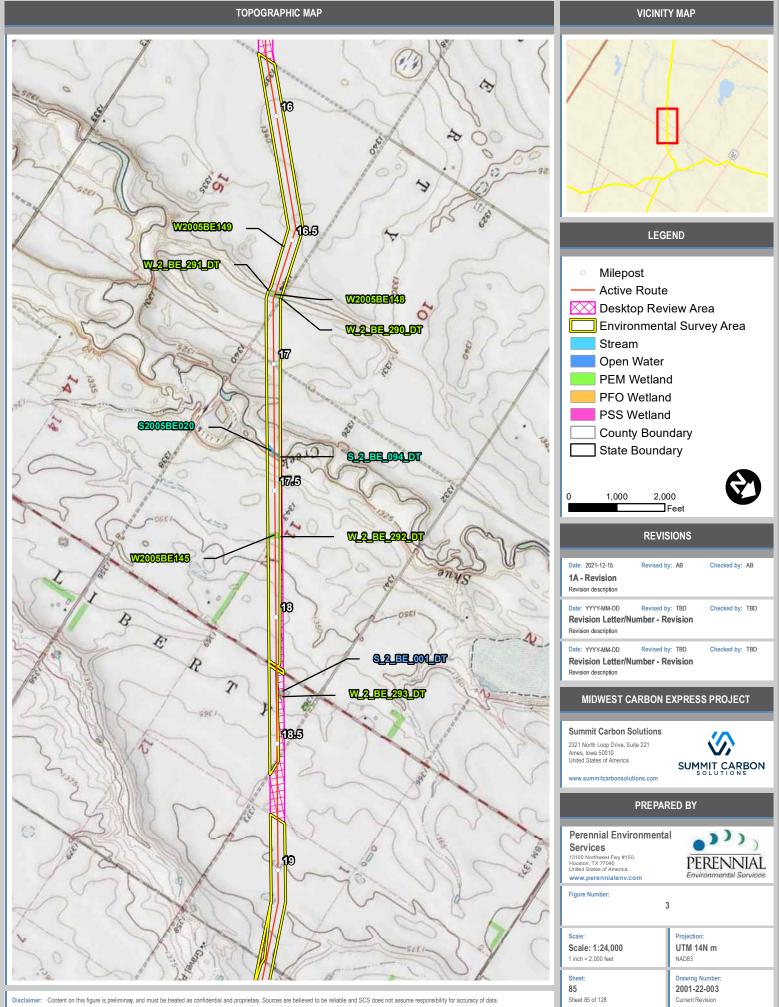




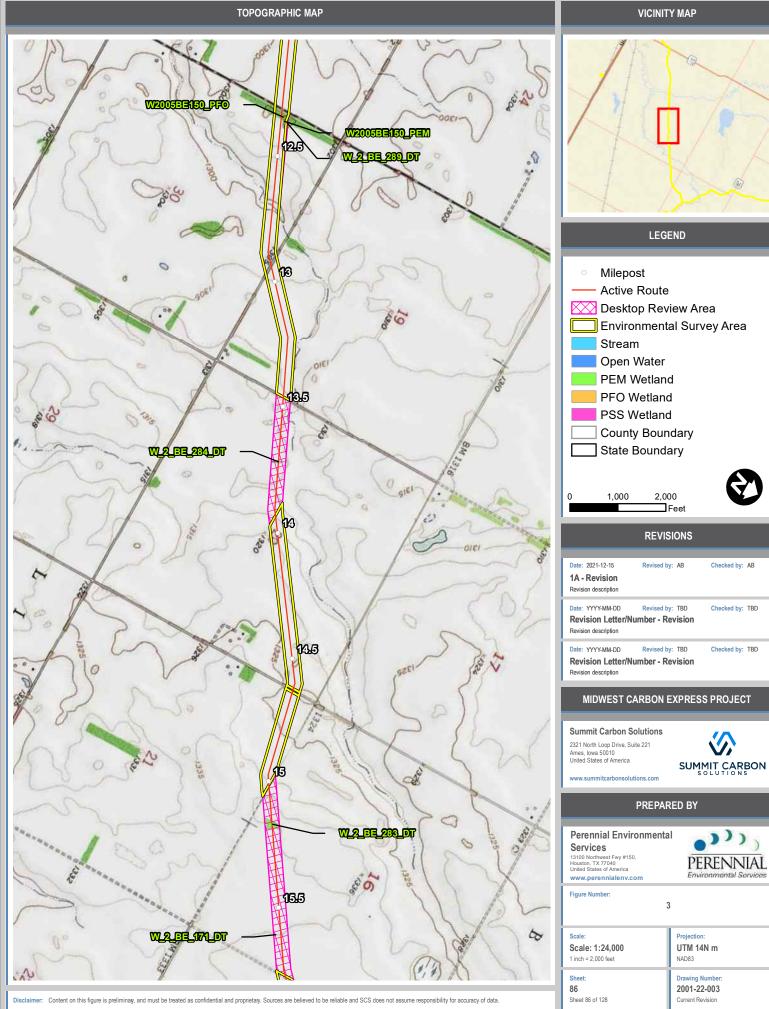


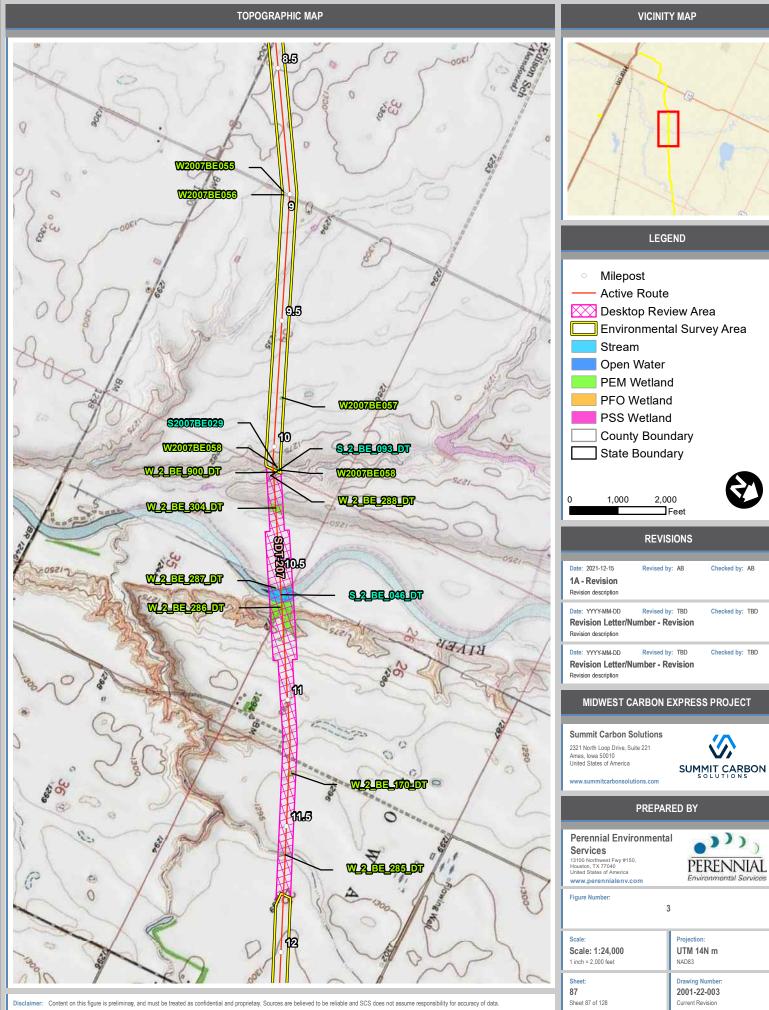




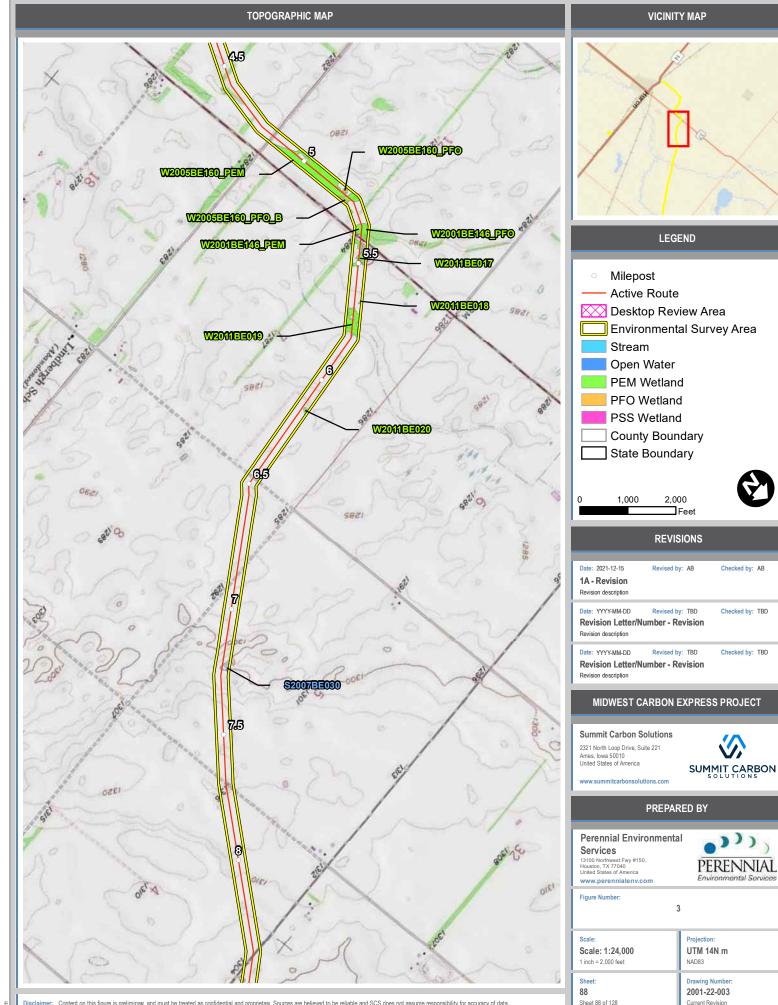


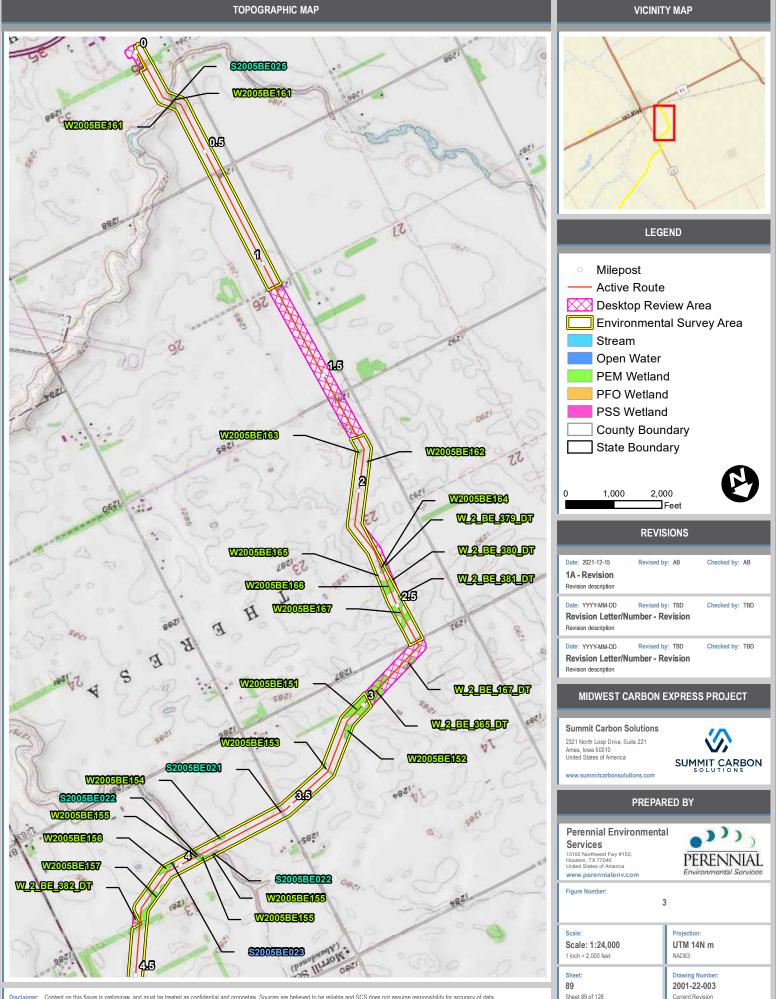
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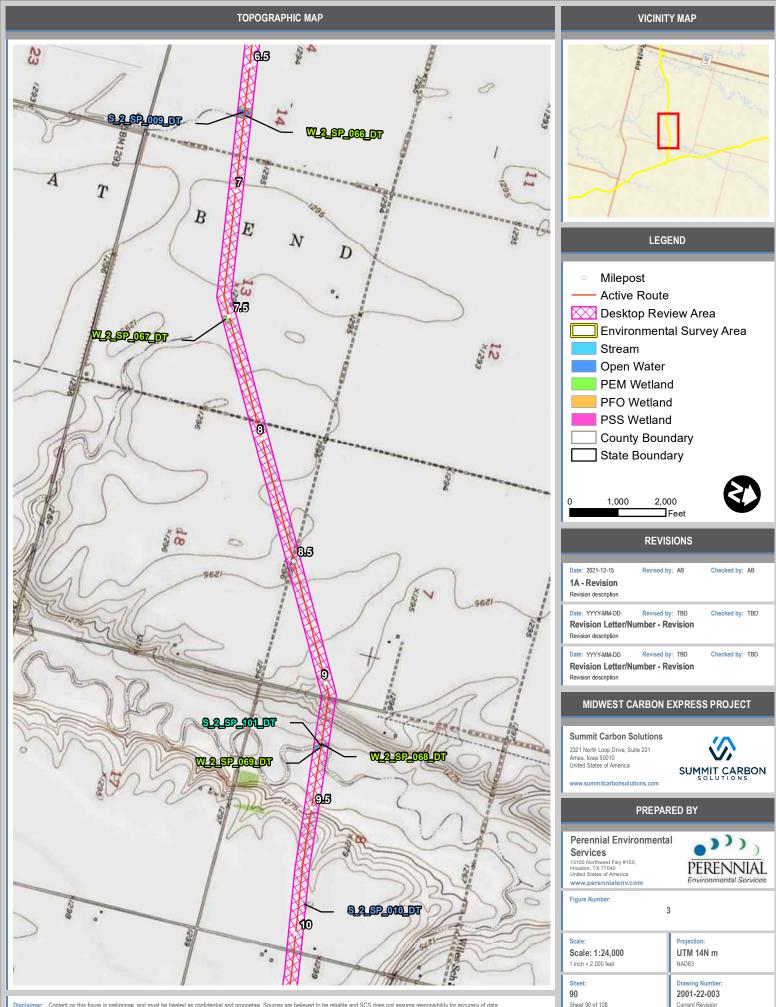


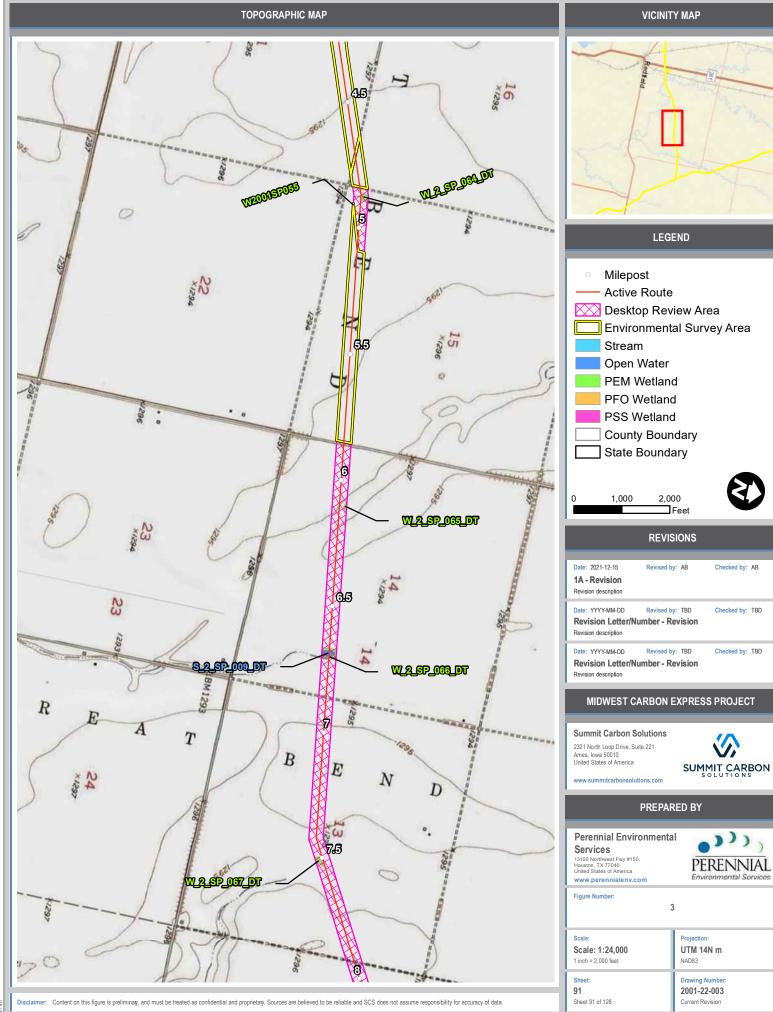


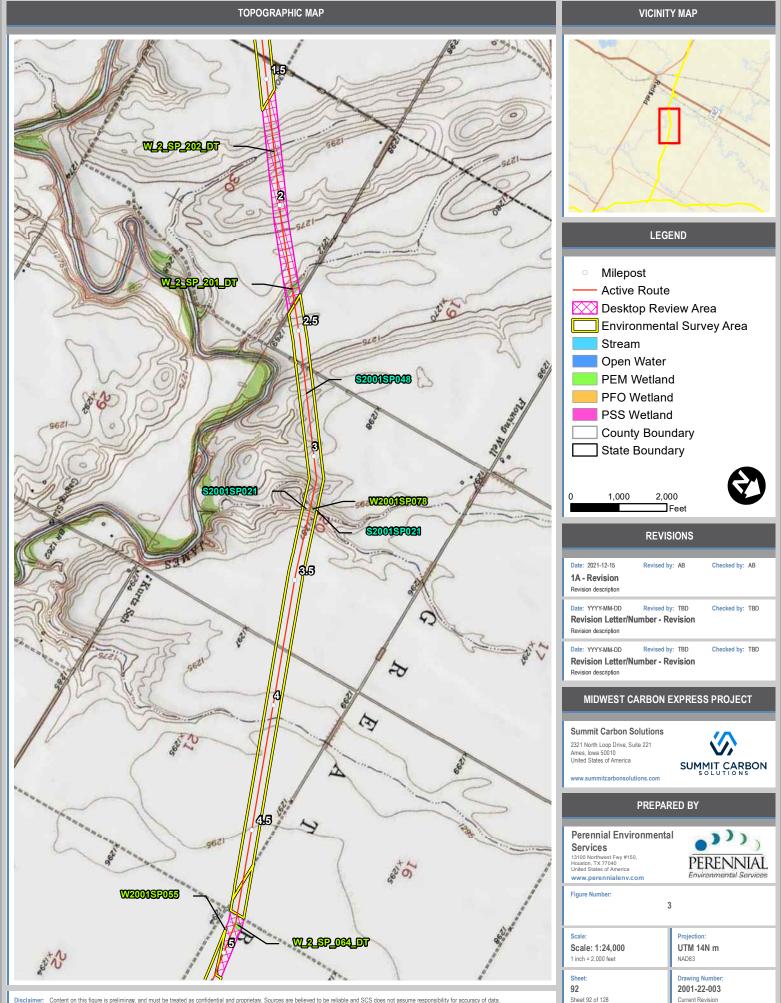
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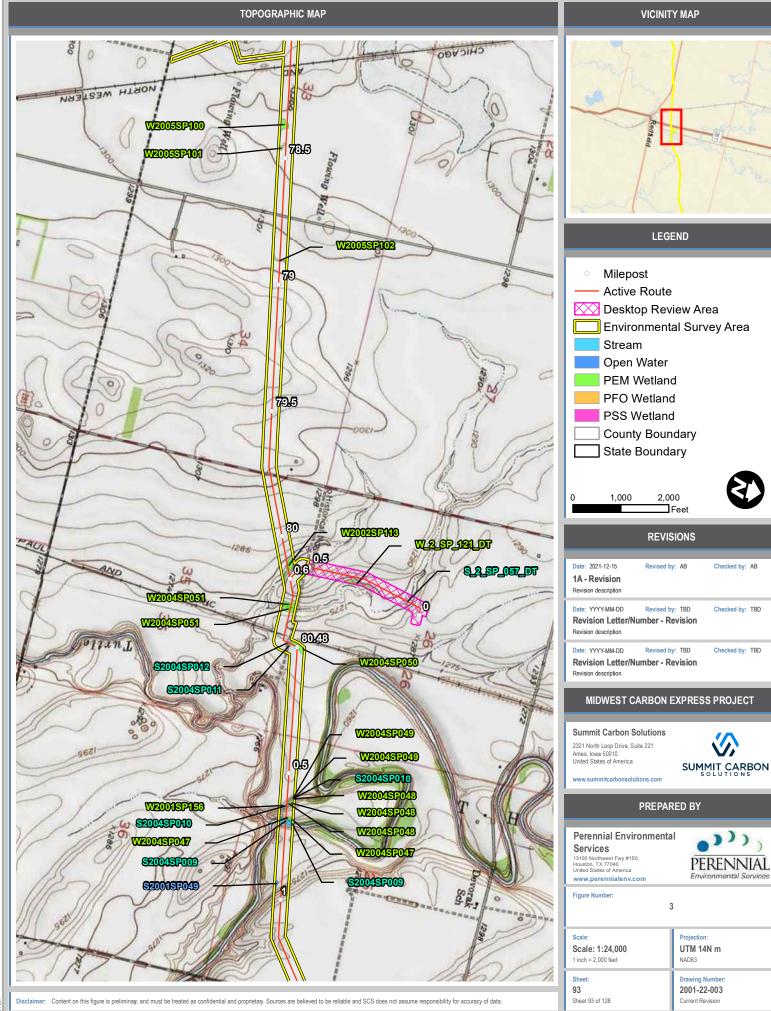


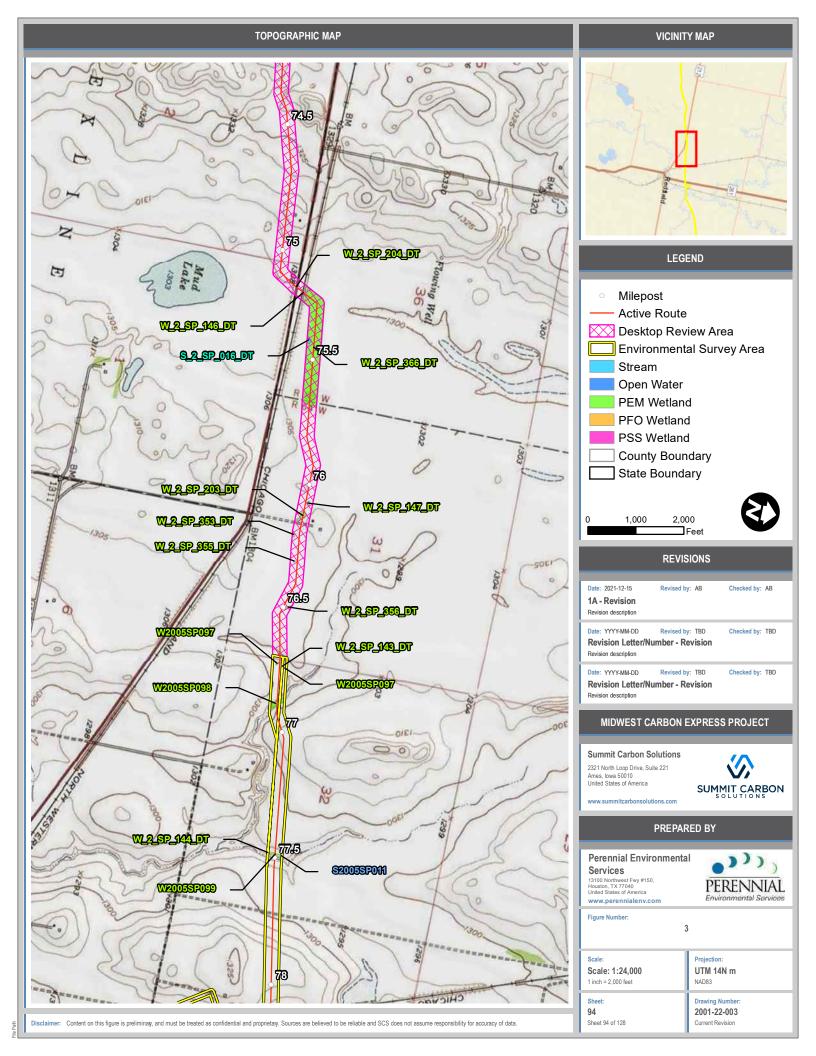


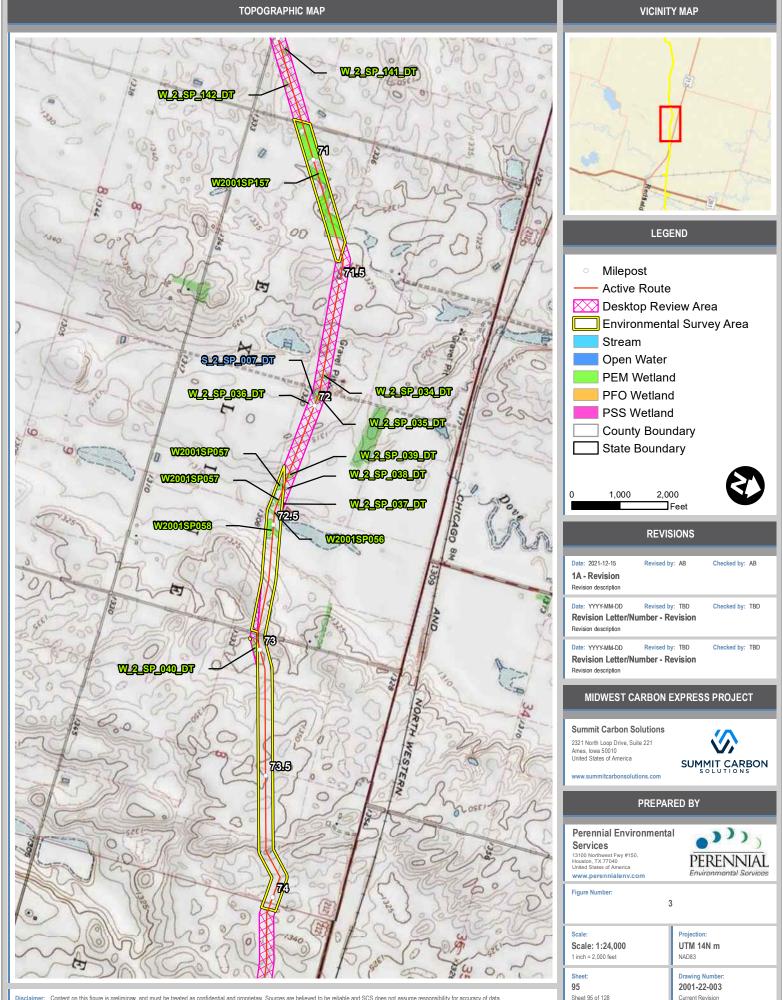


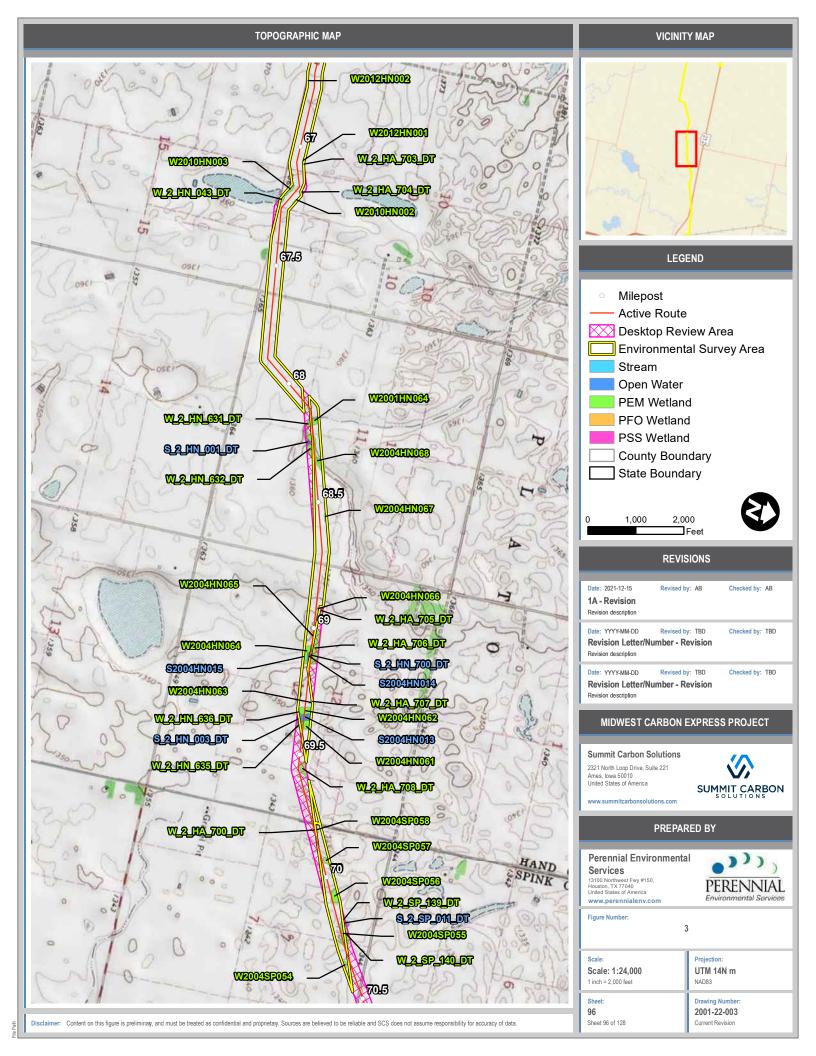


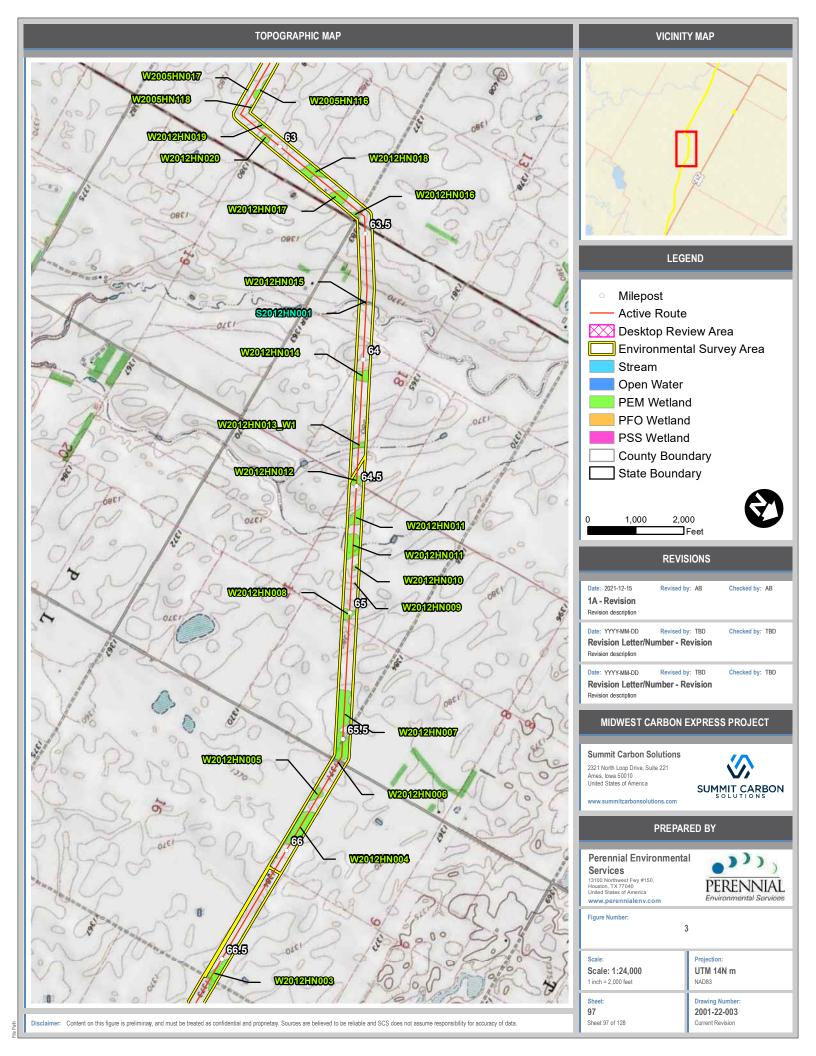


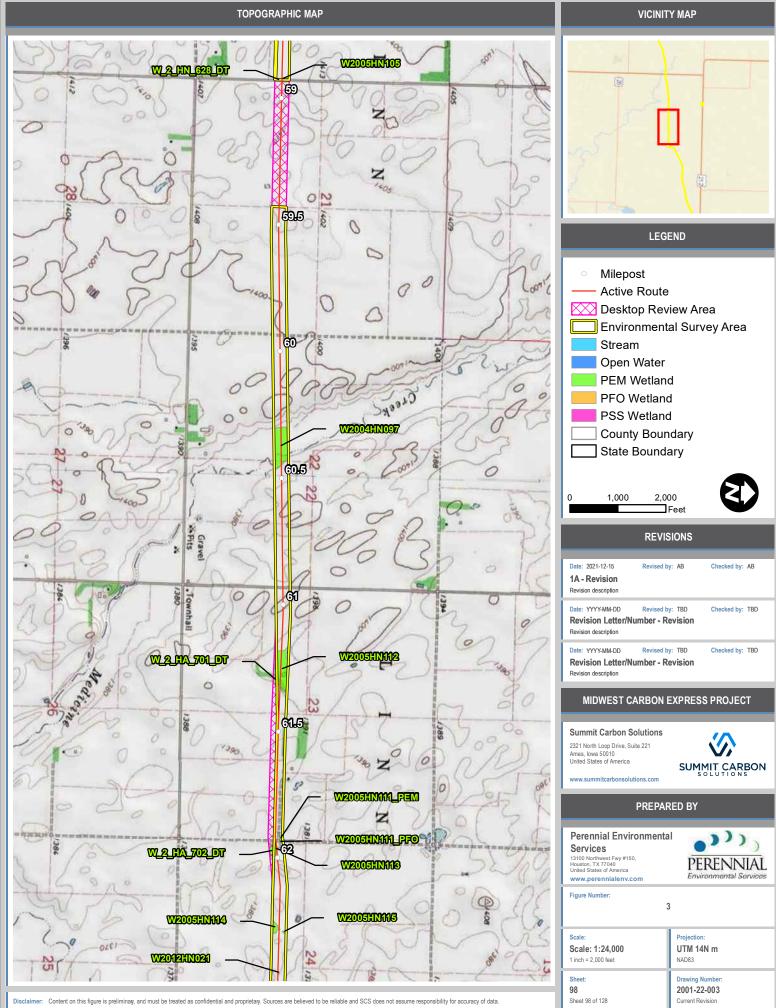




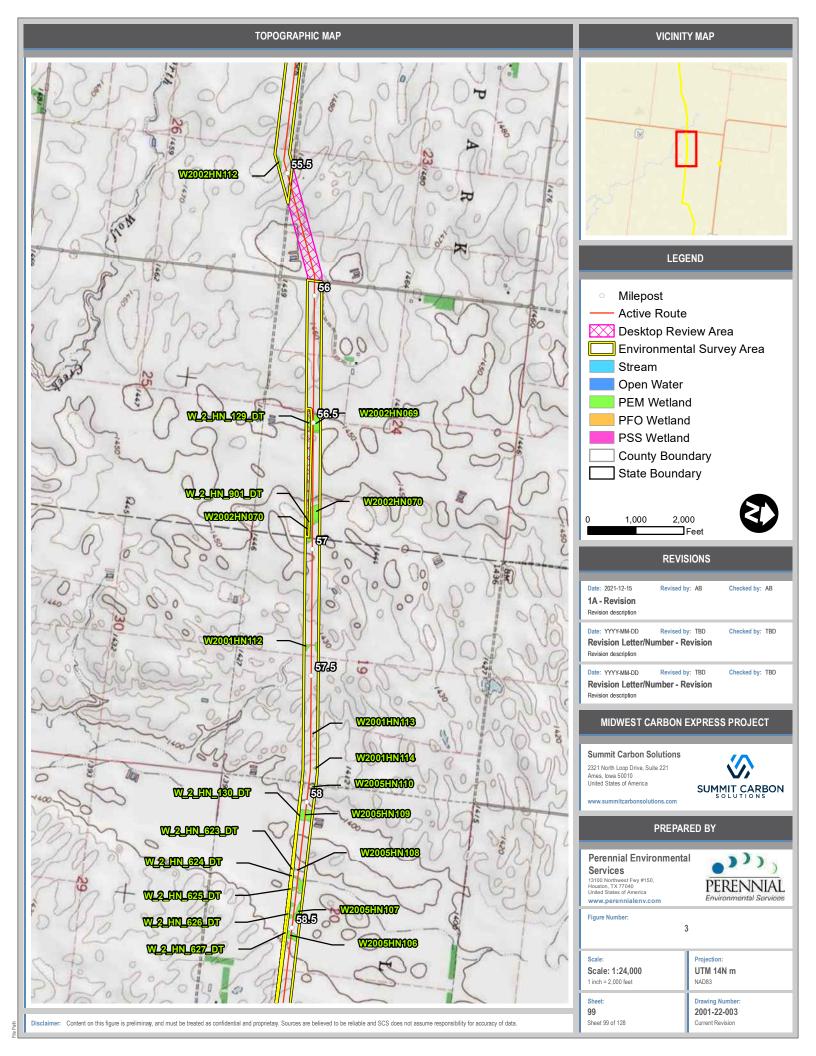


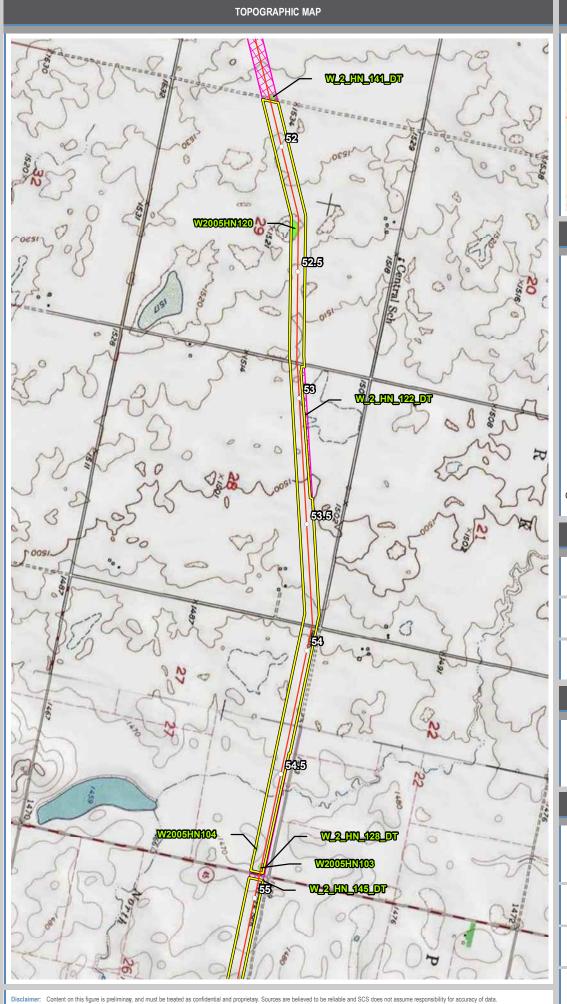


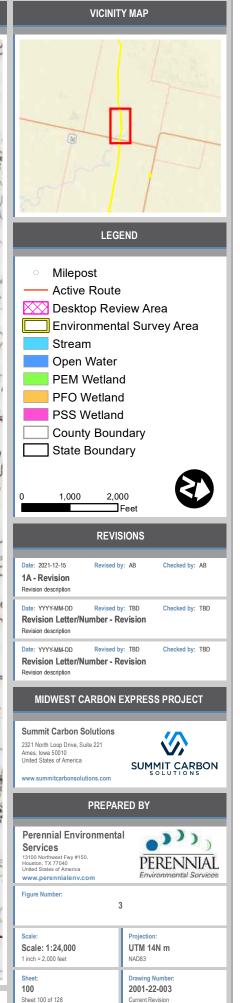




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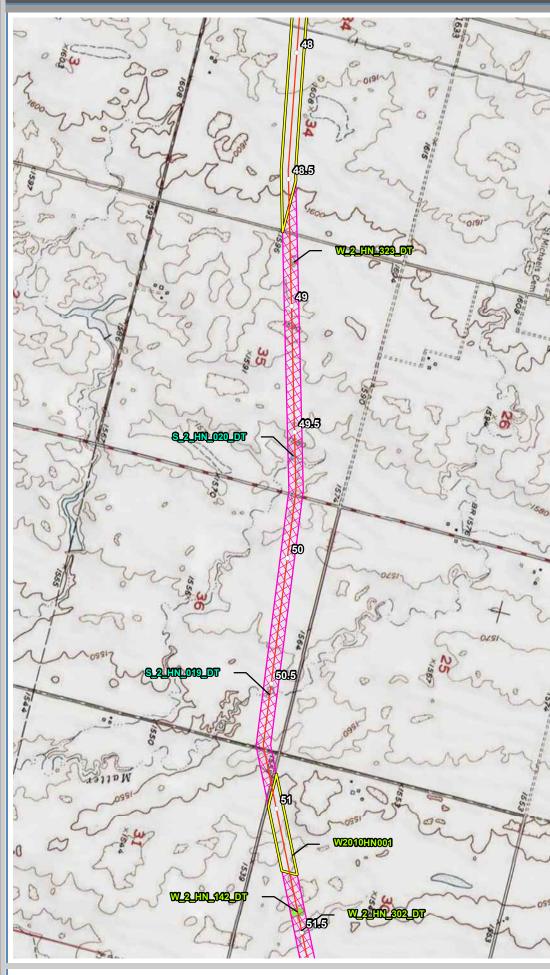


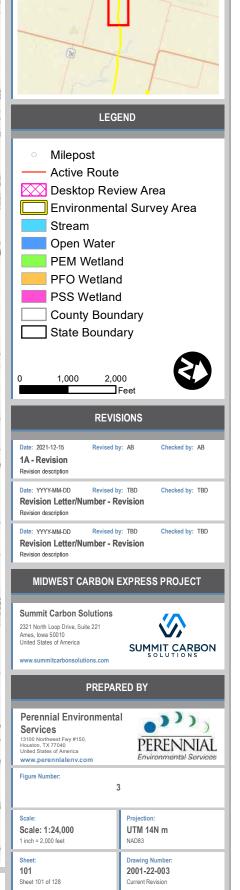


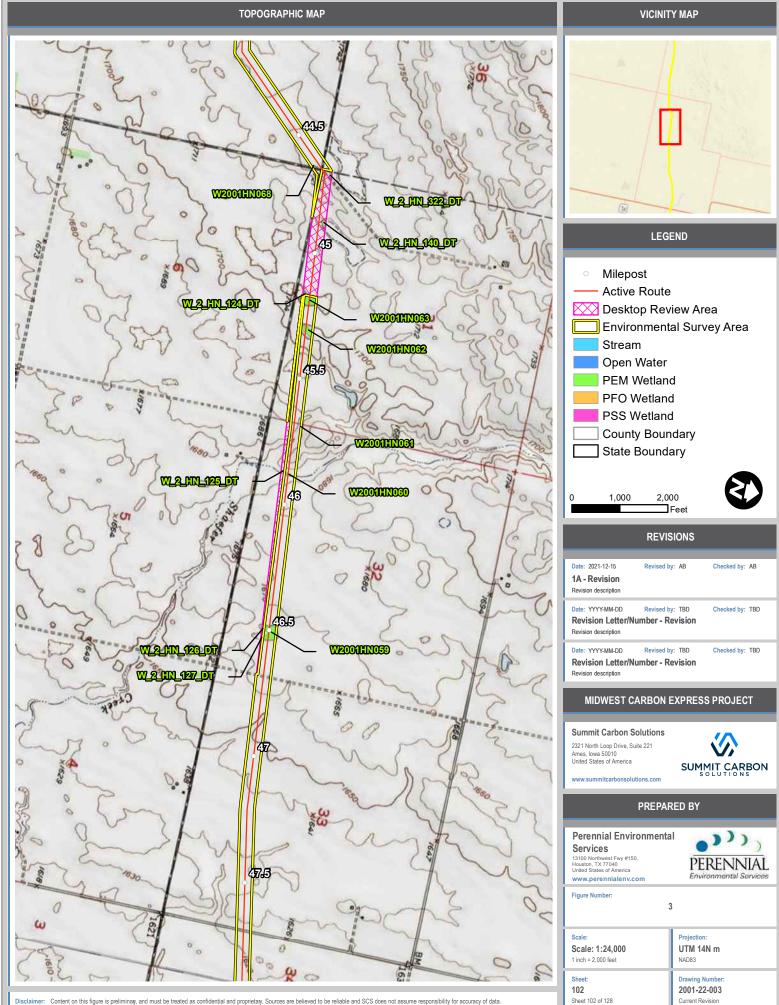


## TOPOGRAPHIC MAP

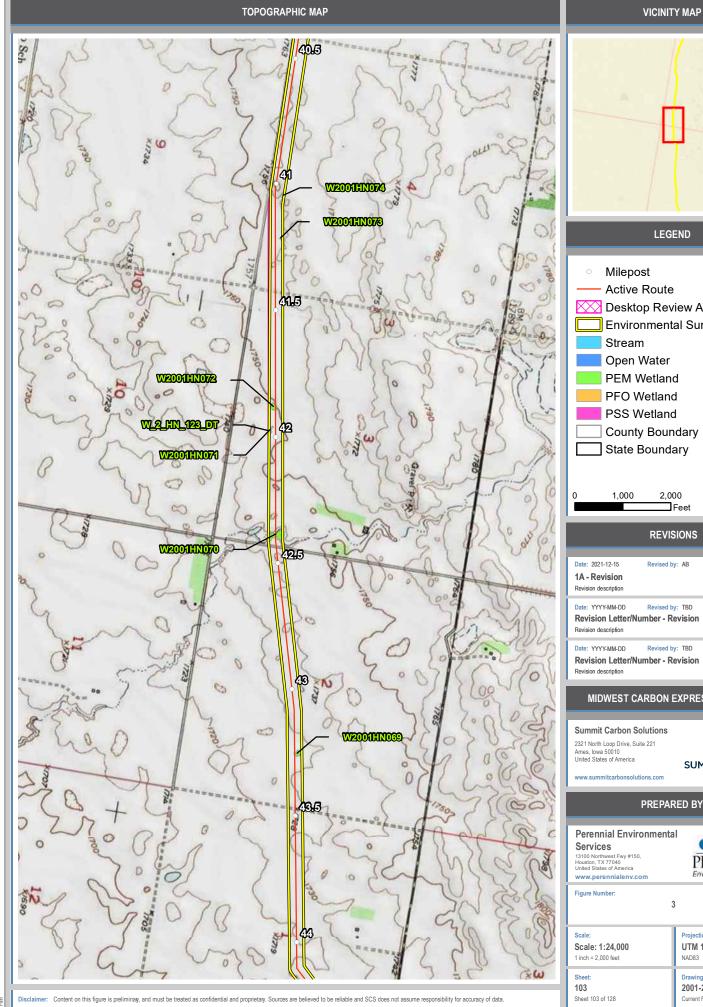


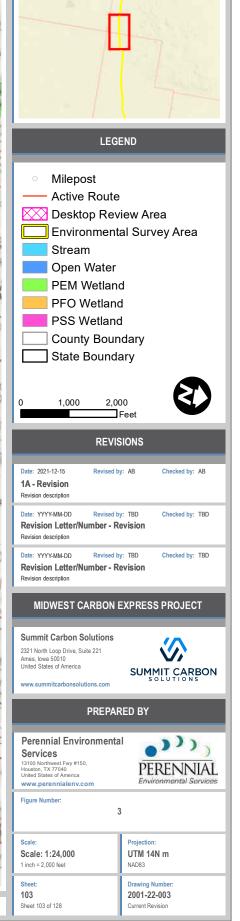


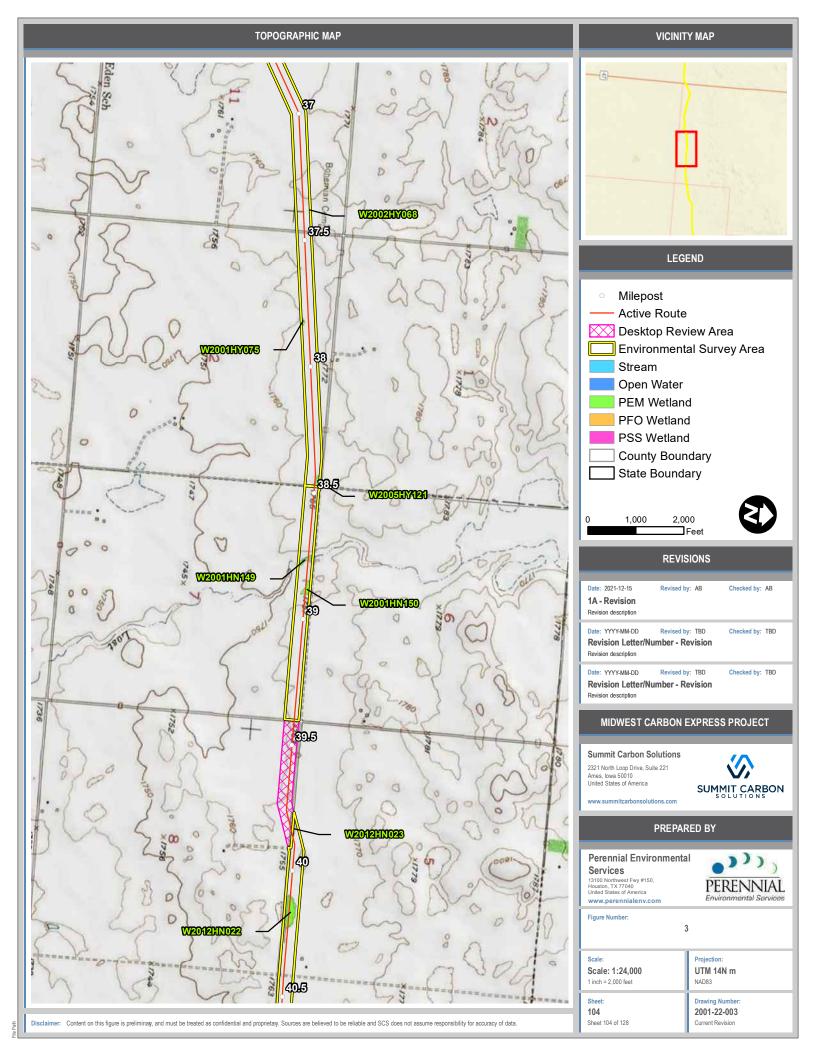


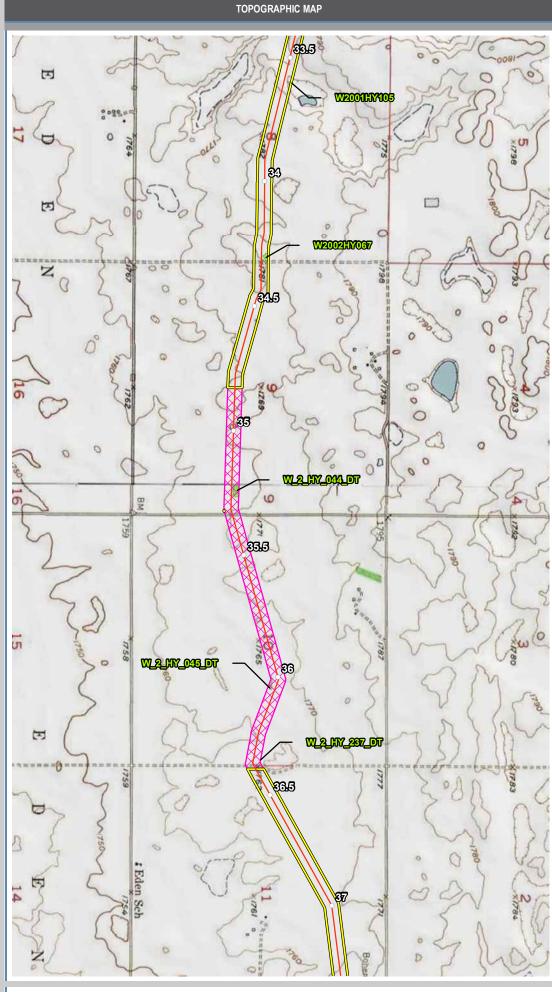


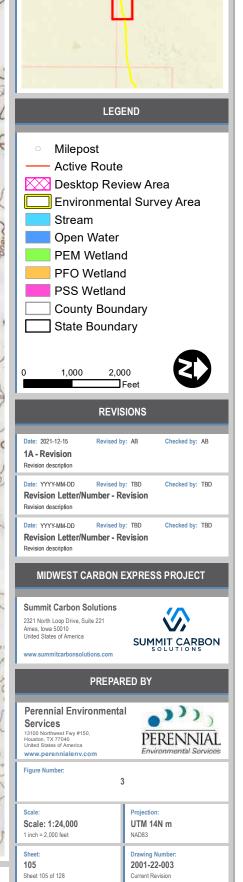
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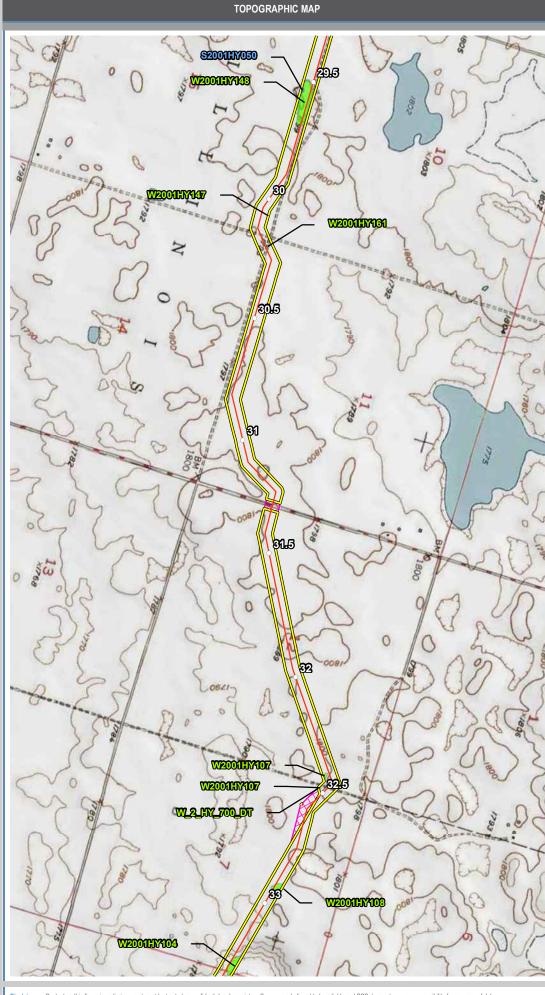


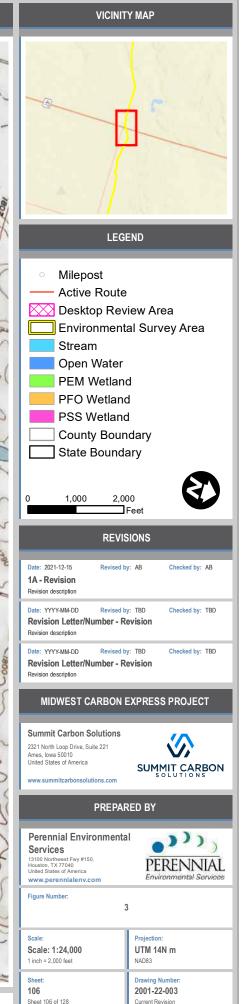




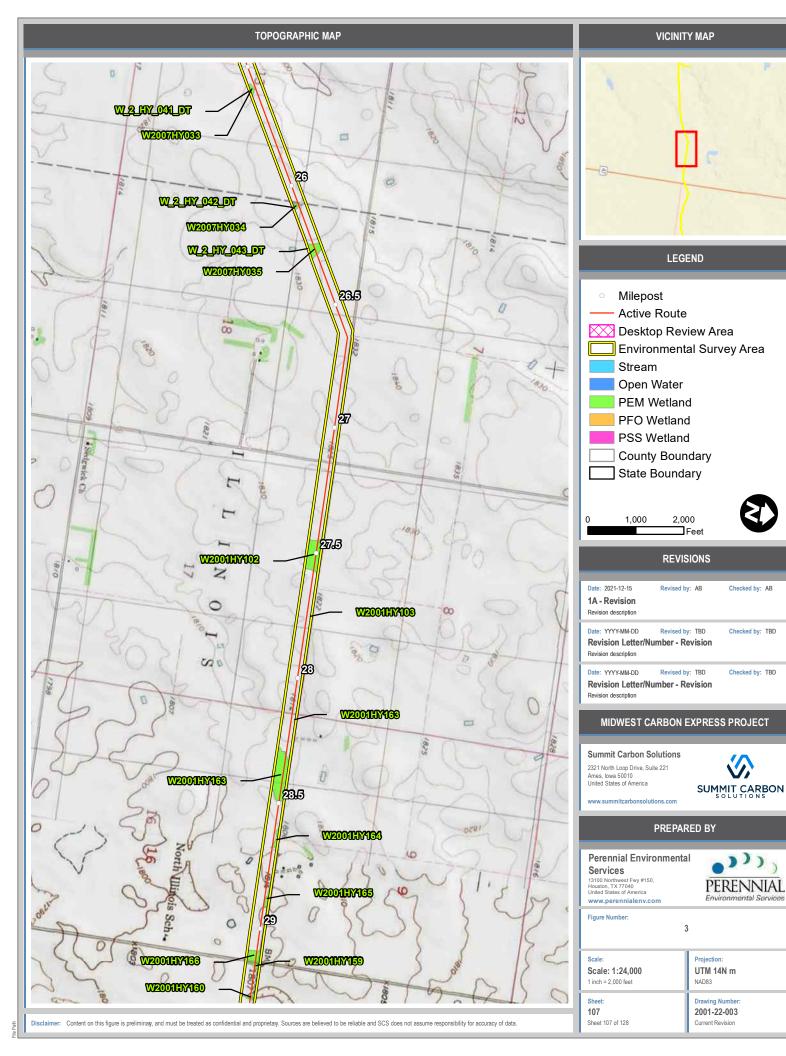


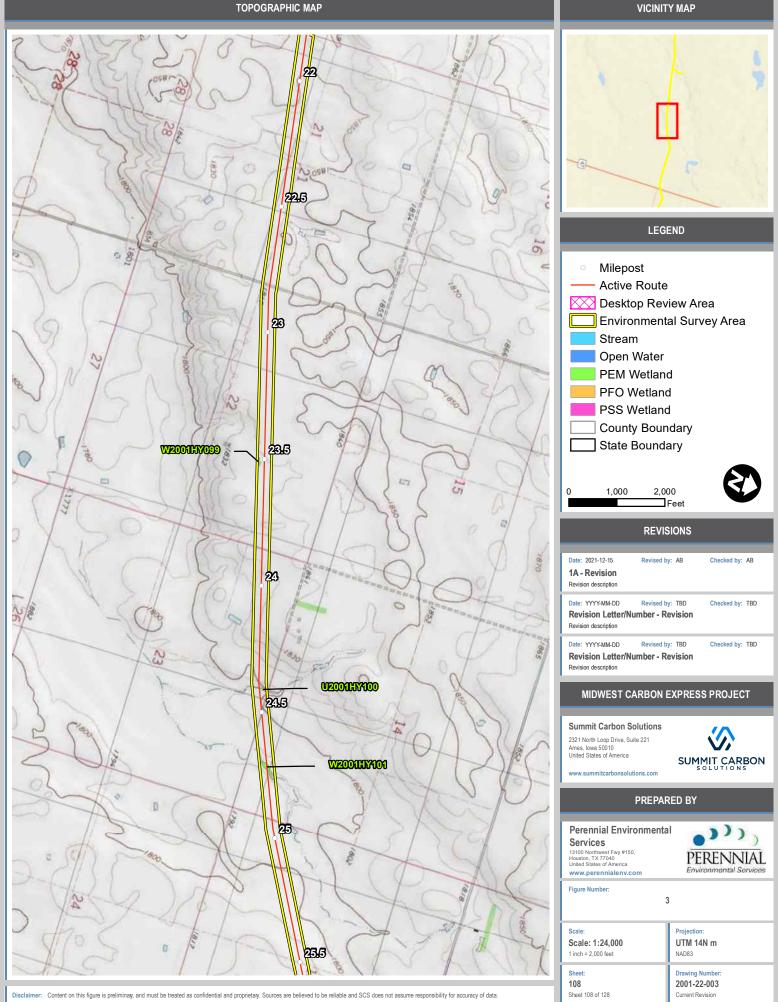
VICINITY MAP

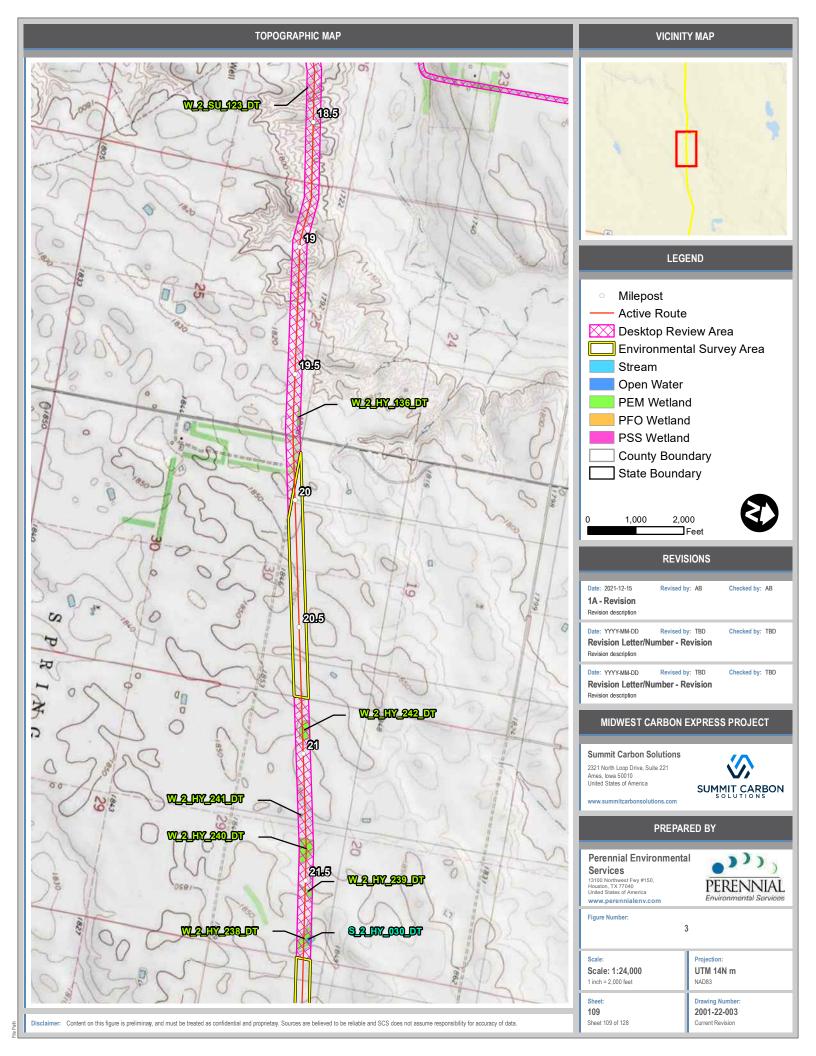


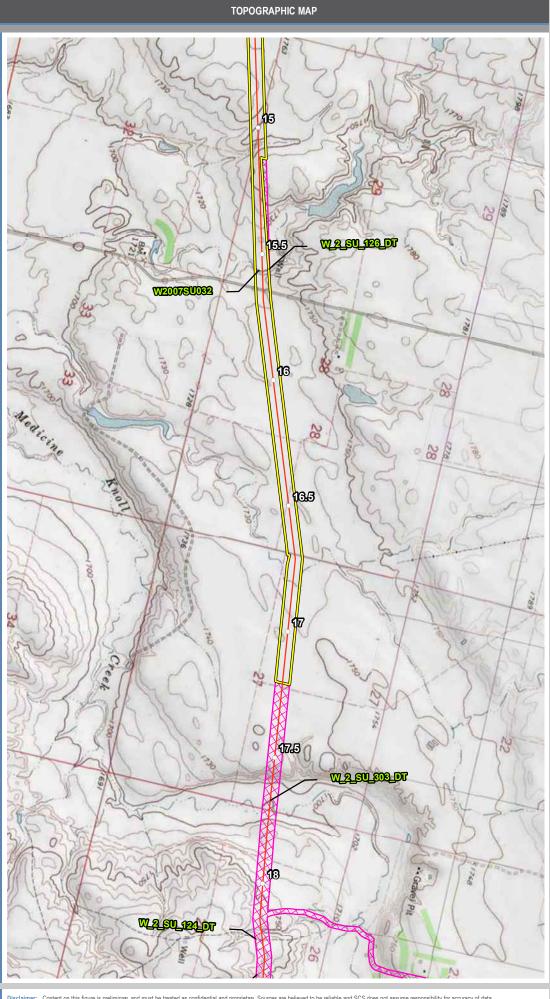


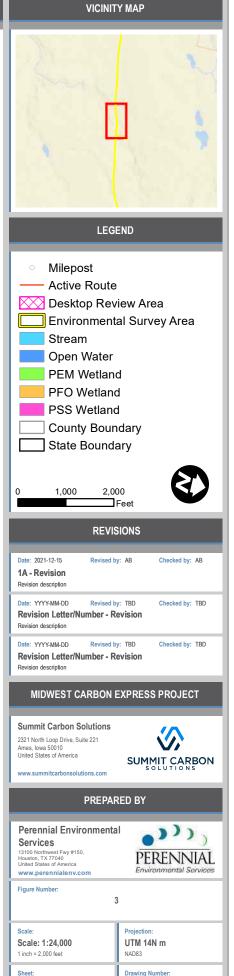
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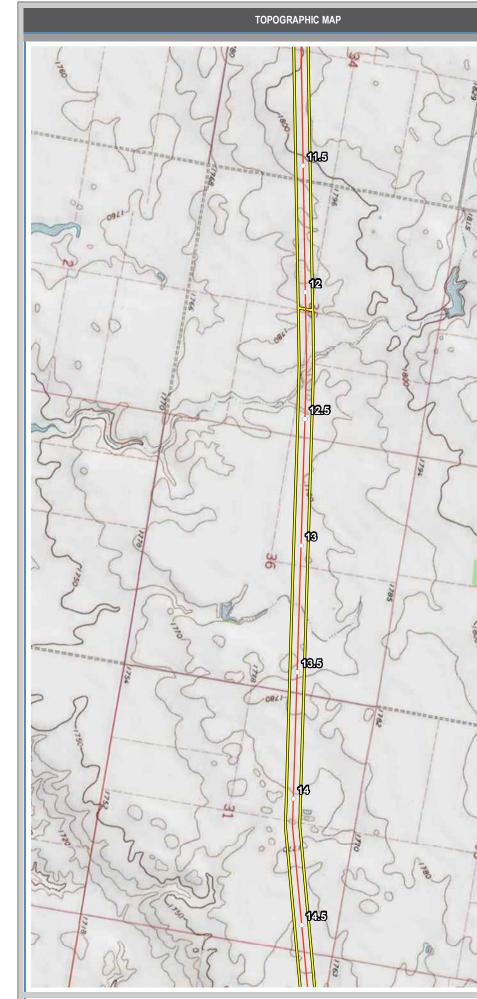


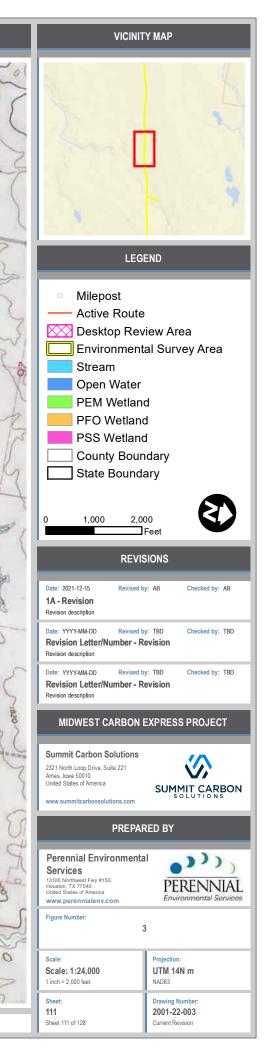


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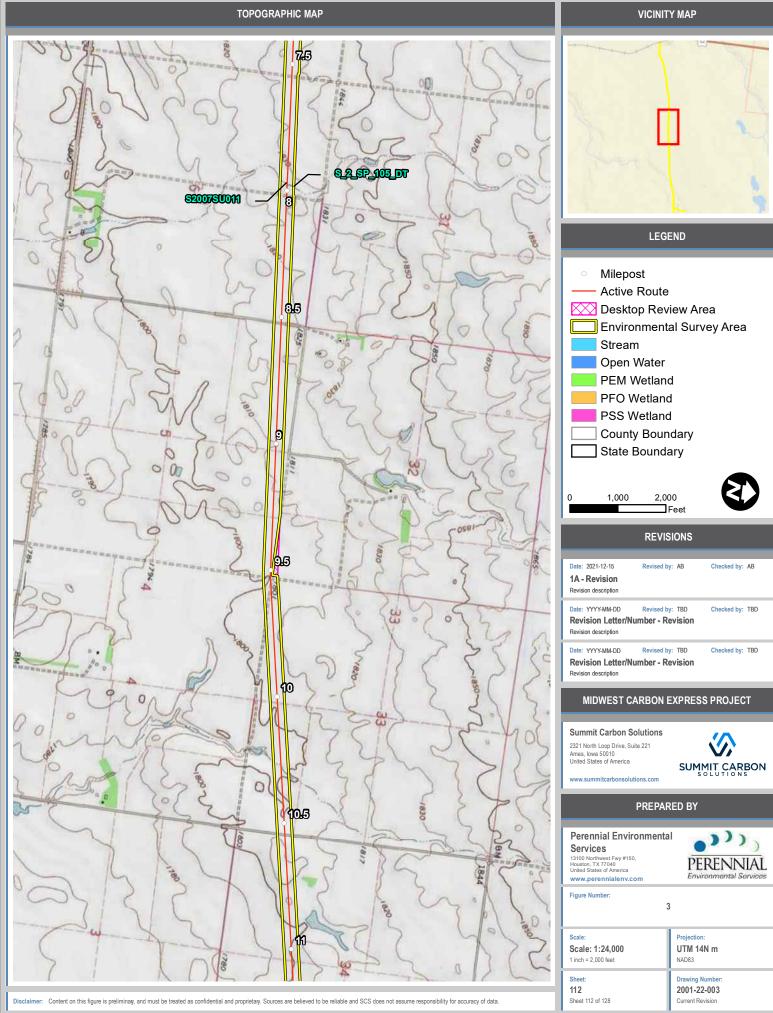
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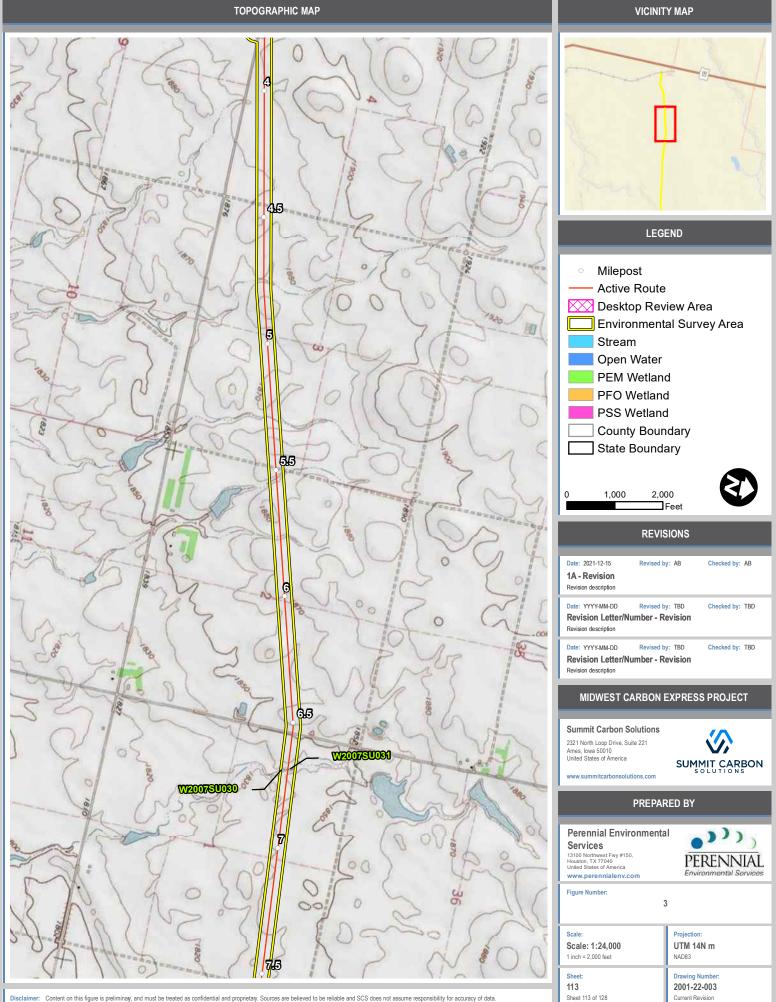
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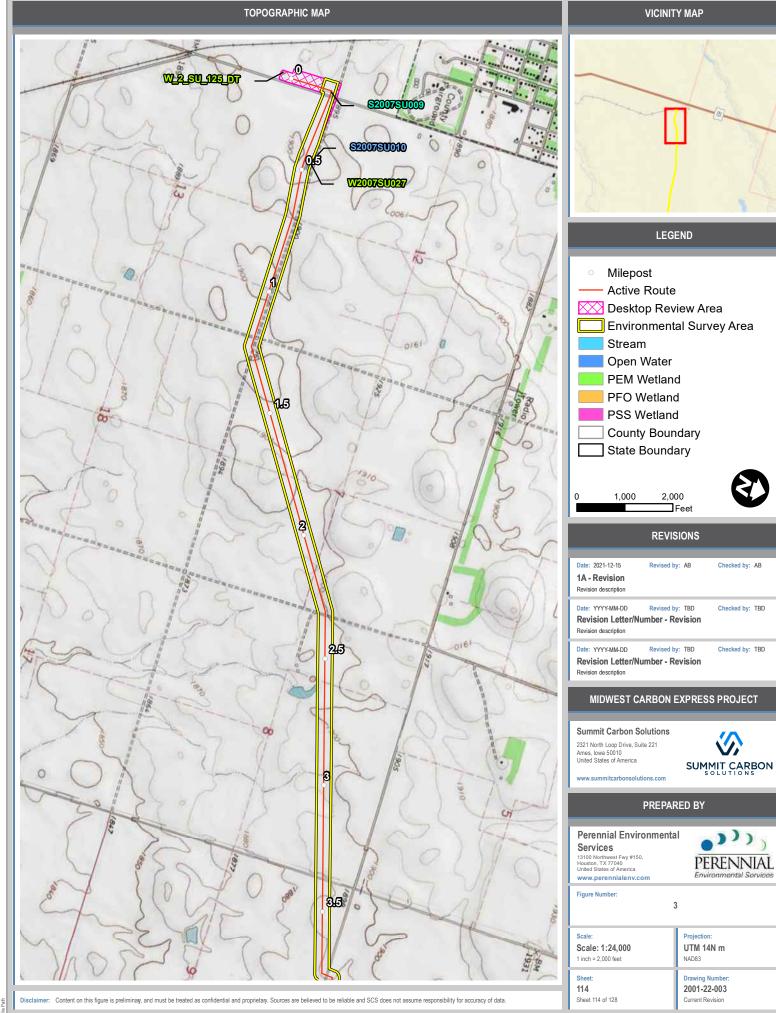


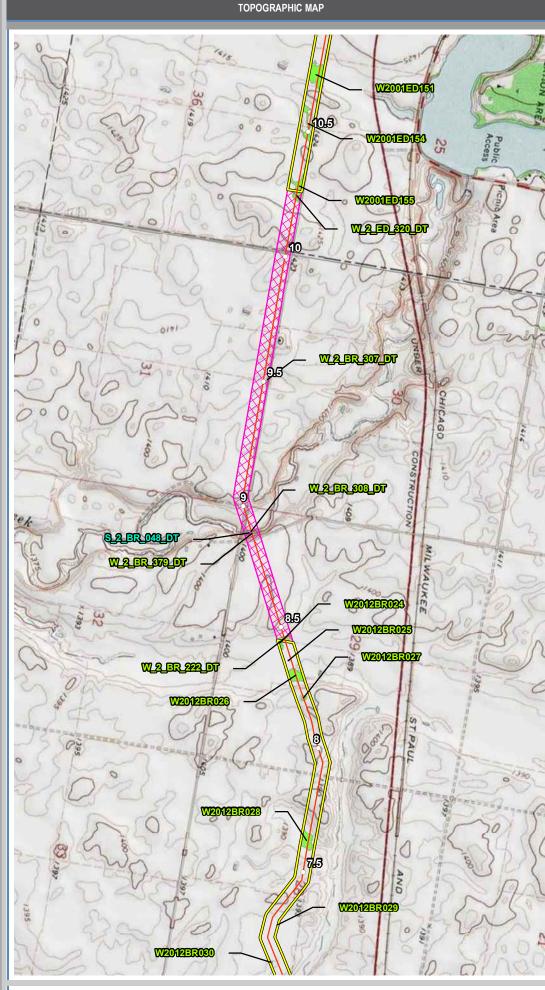


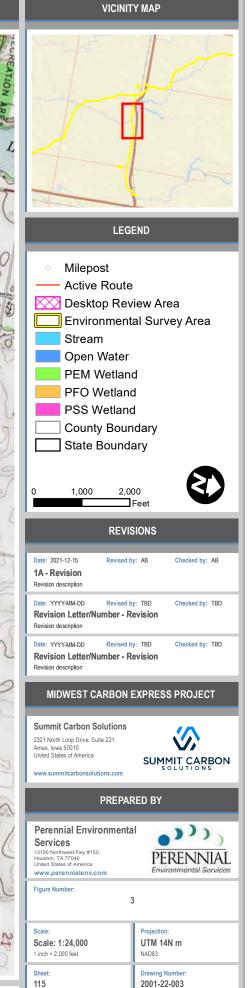
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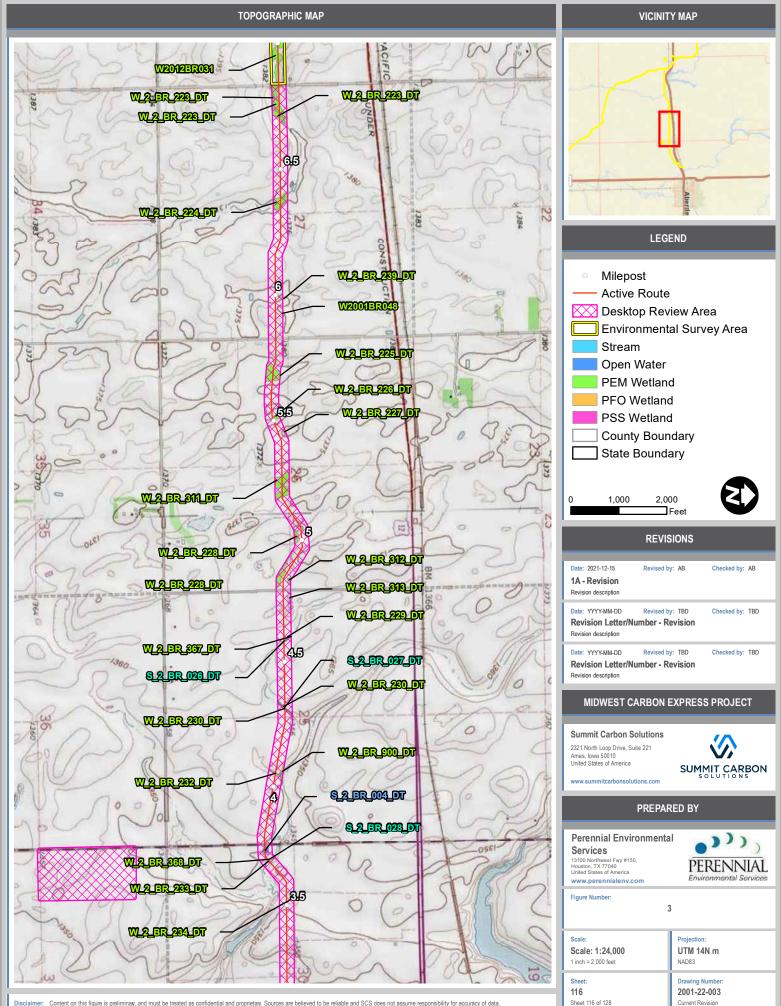


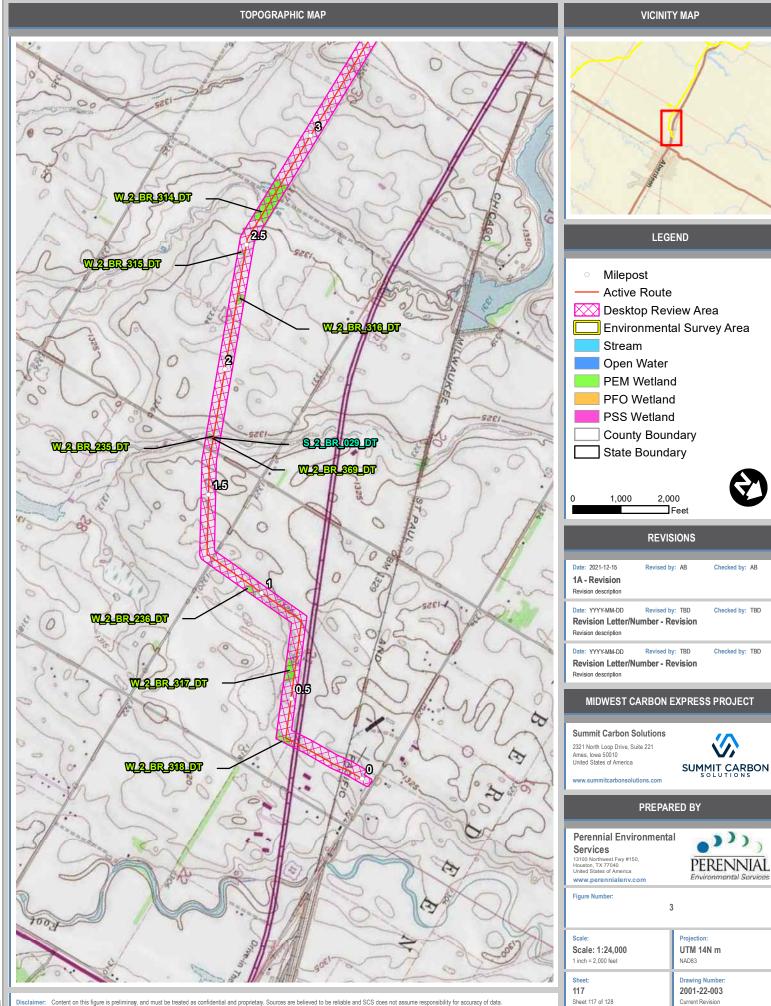


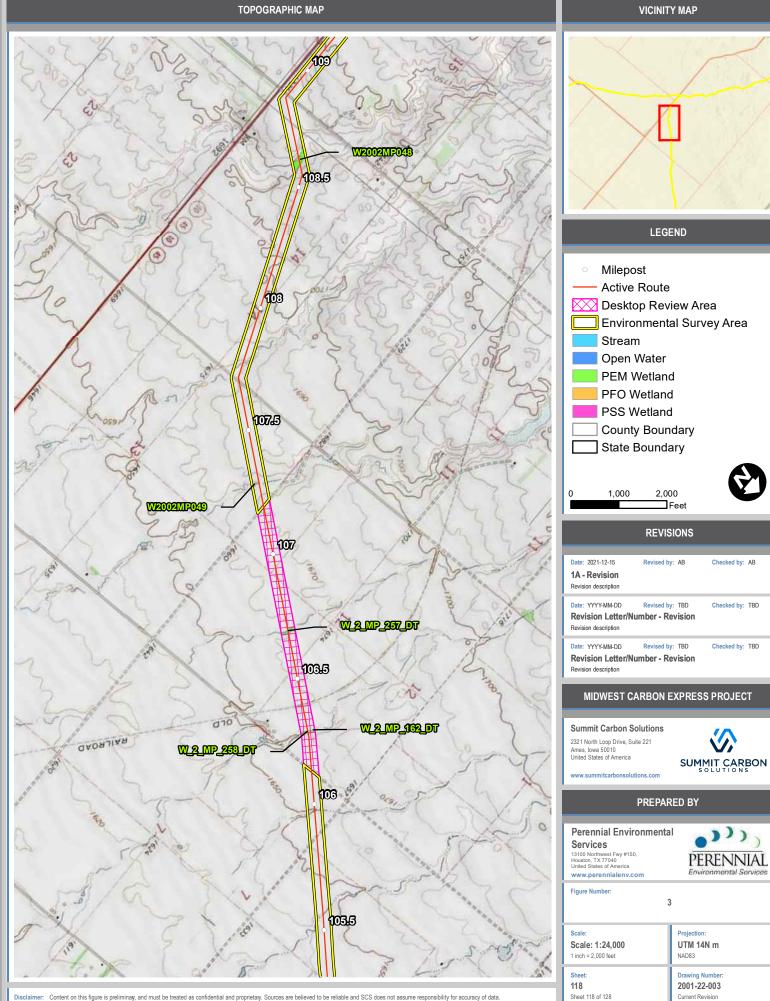


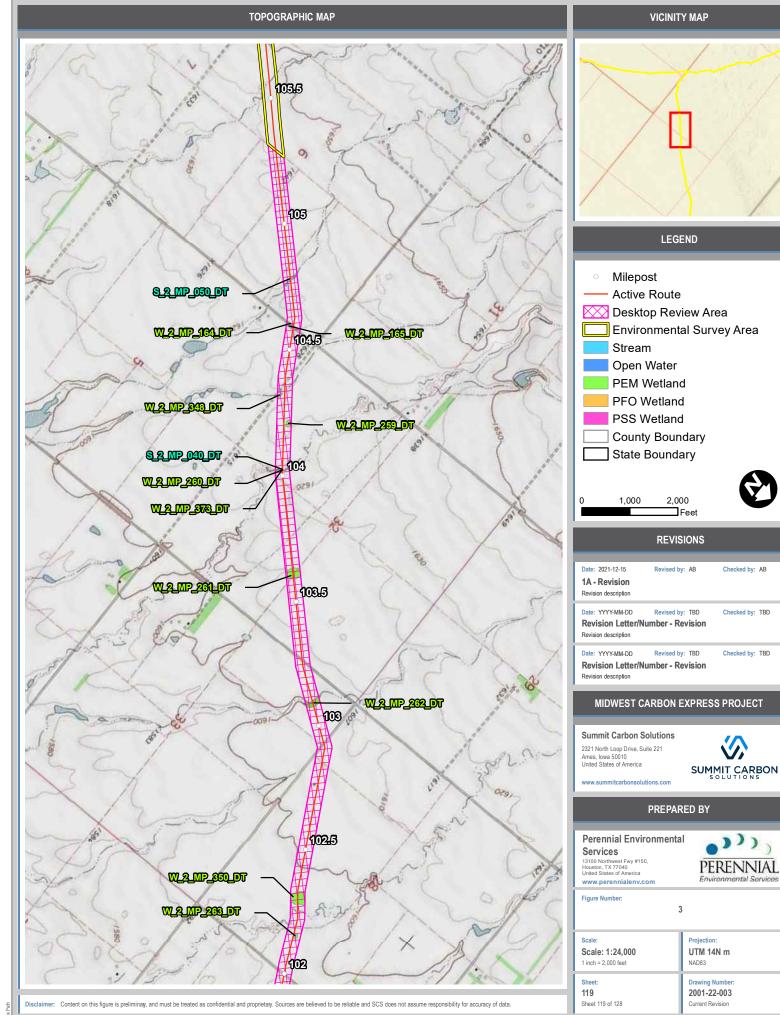
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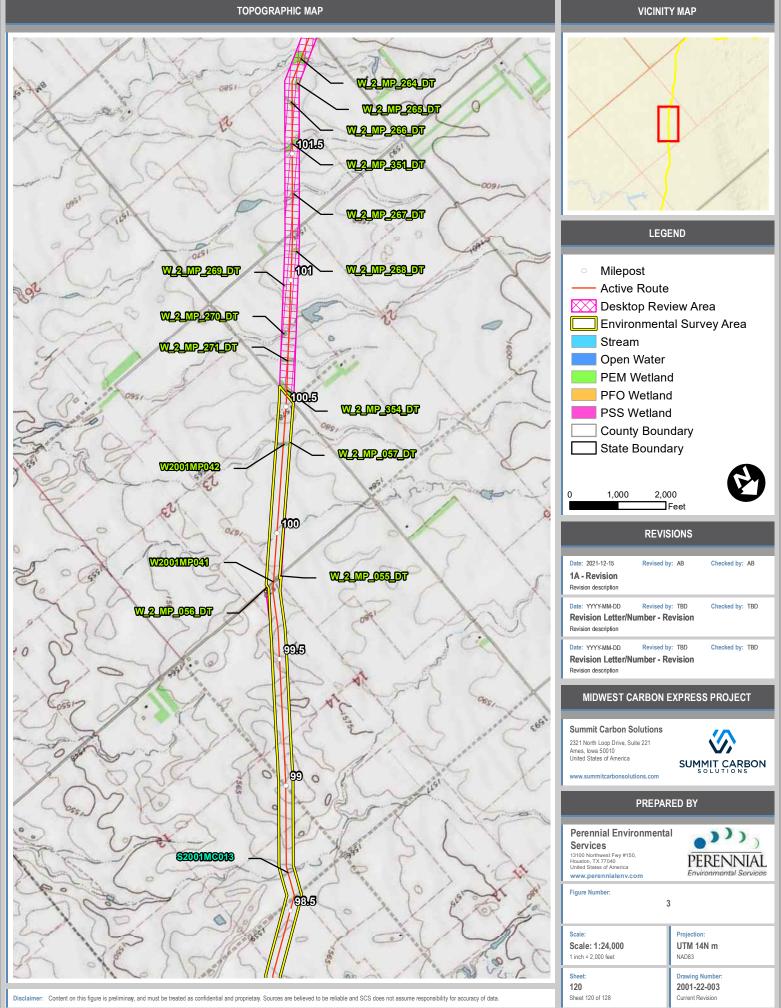
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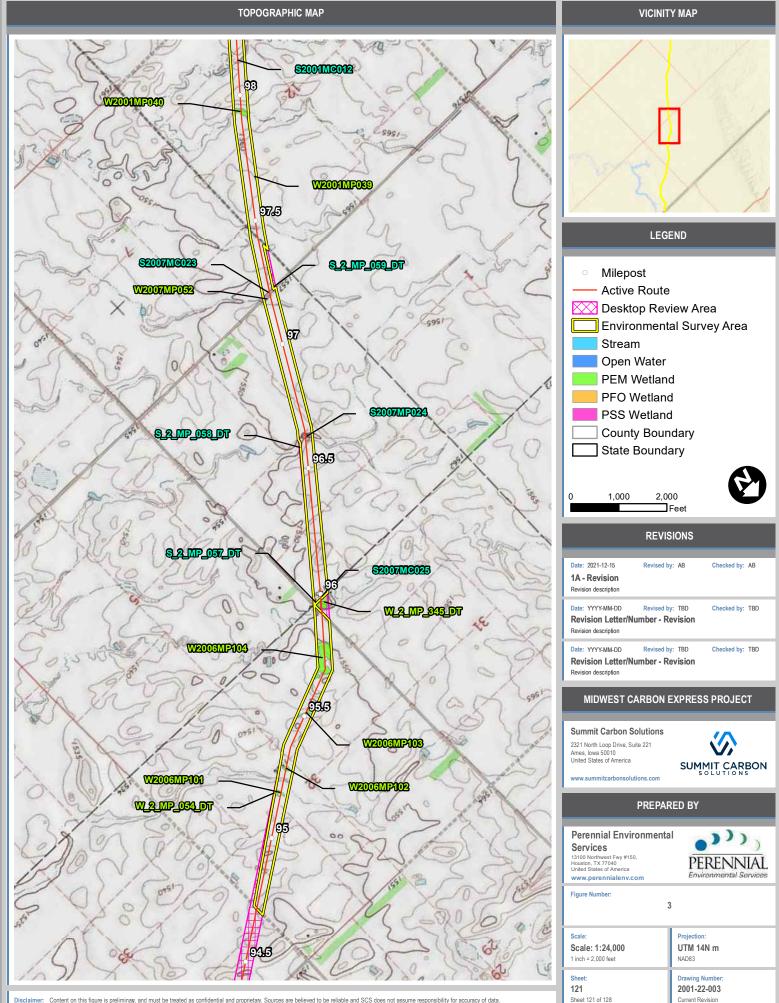
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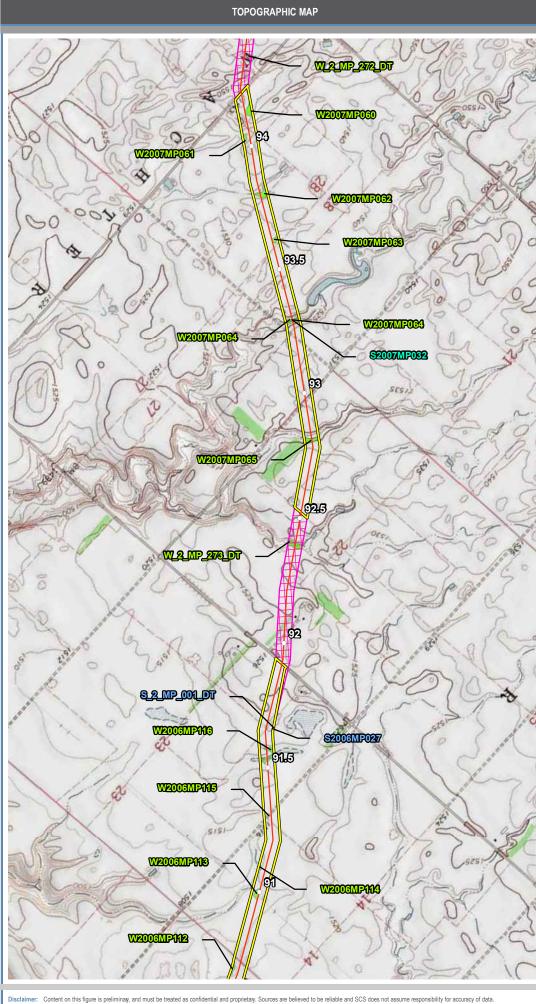
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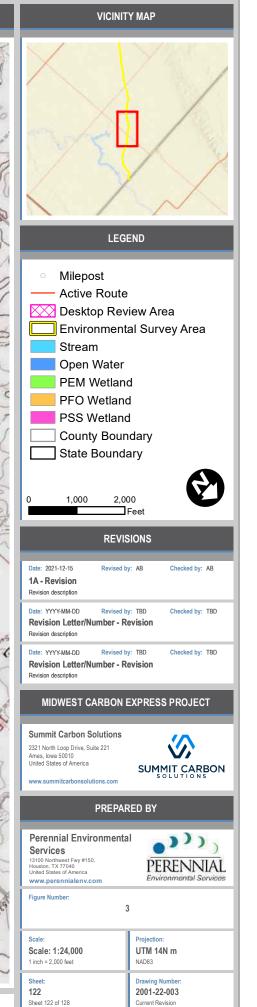


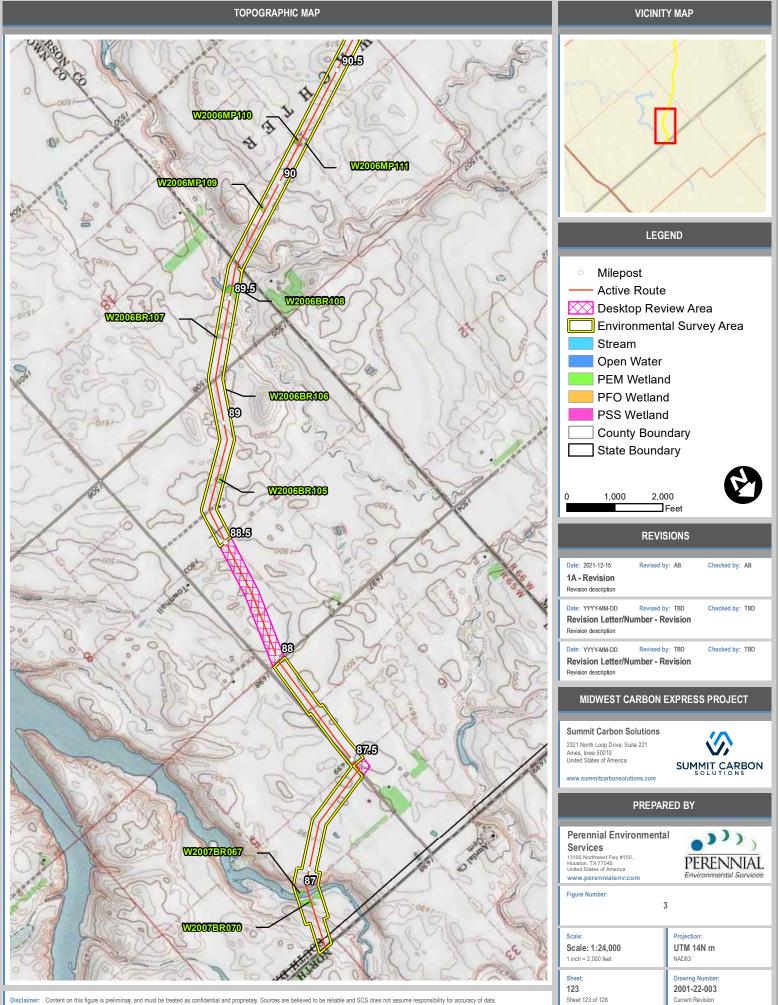
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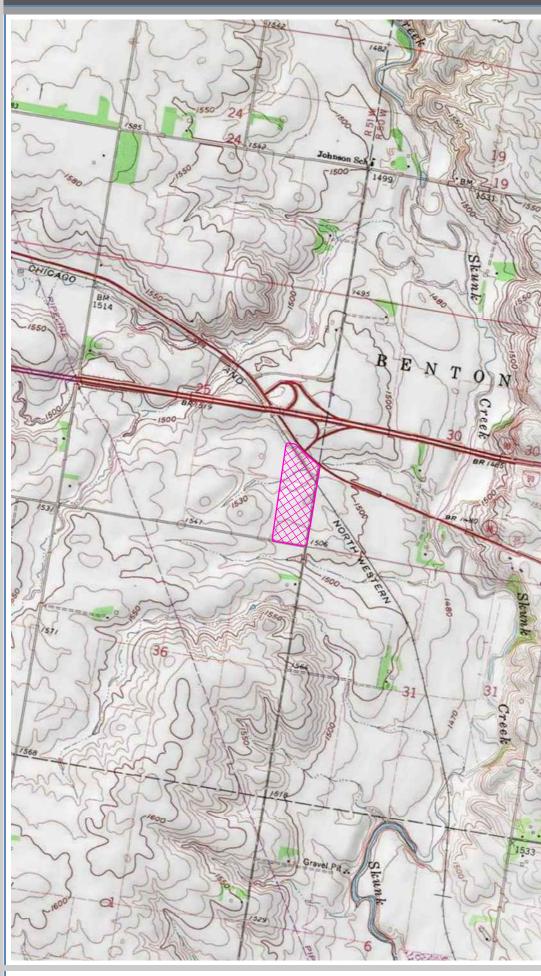


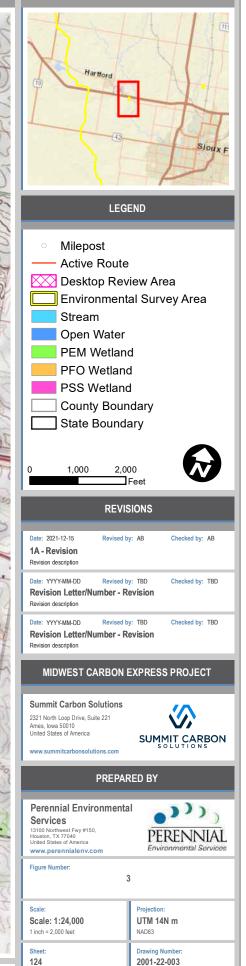




## TOPOGRAPHIC MAP

## VICINITY MAP

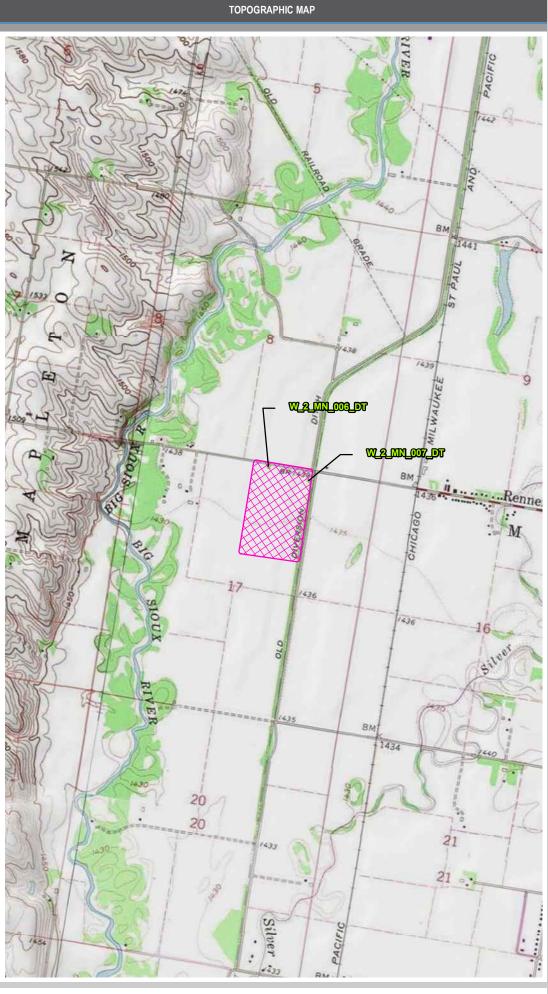


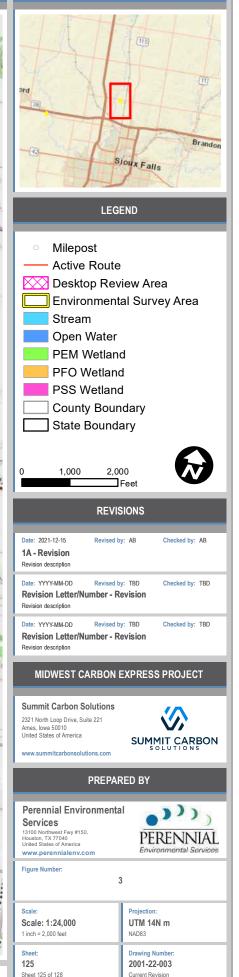


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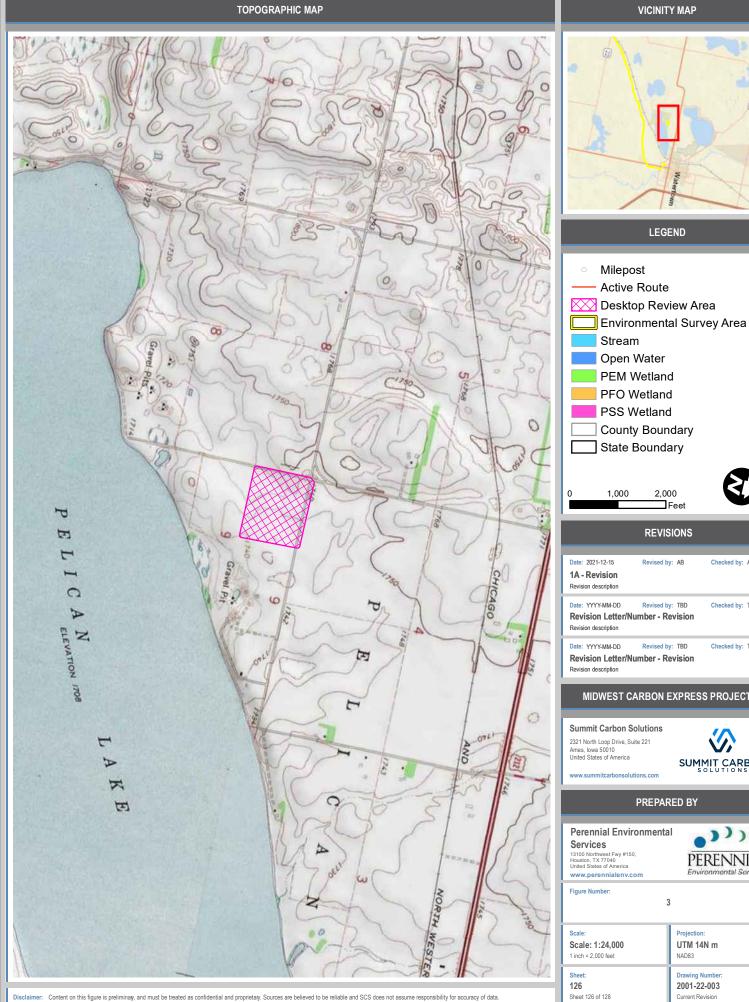
Current Revision

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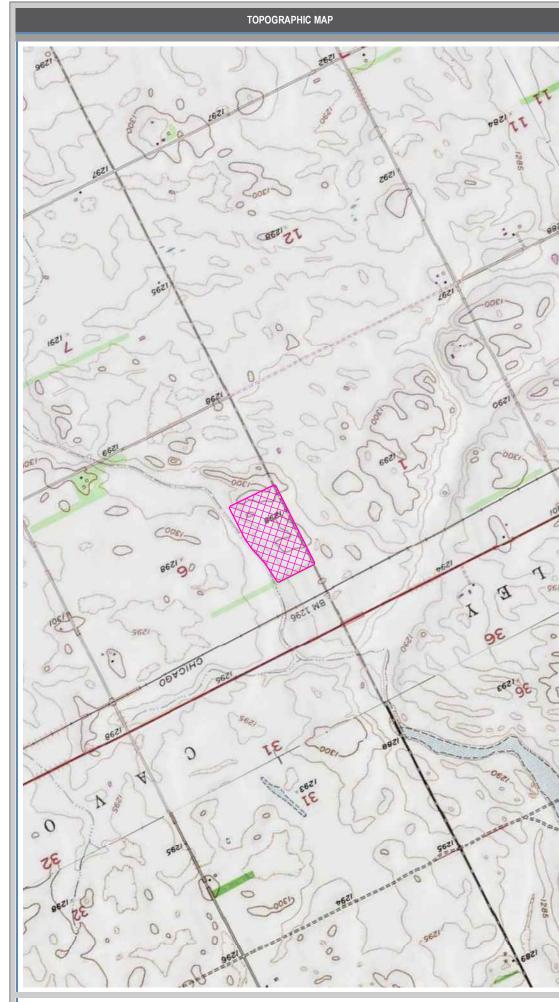


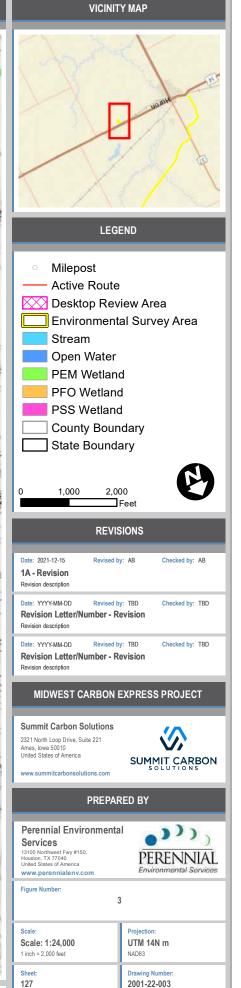


VICINITY MAP



Checked by: AB Checked by: TBD Checked by: TBD MIDWEST CARBON EXPRESS PROJECT SUMMIT CARBON PREPARED BY ,,,,, PERENNIAL Projection: UTM 14N m Drawing Number 2001-22-003





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Current Revision



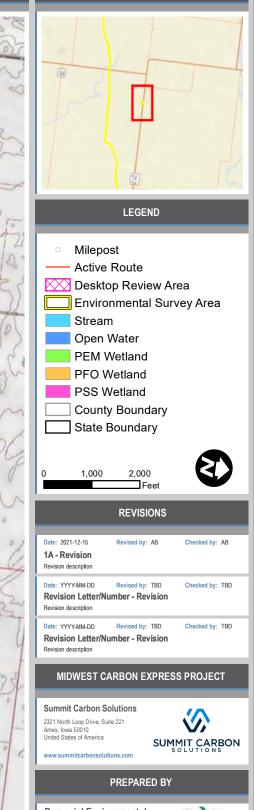
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VICINITY MAP

Perennial Environmenta Services 13100 Northwest Fwy #150, Houston, TX 77040 United States of America www.perennialenv.com	PERENNIAL Environmental Services			
Figure Number: 3				
Scale:	Projection:			
Scale: 1:24,000	UTM 14N m			
1 inch = 2,000 feet	NAD83			
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Sheet 128 of 128	Current Revision			



Appendix B – USFWS IPaC Results



## United States Department of the Interior

FISH AND WILDLIFE SERVICE South Dakota Ecological Services Field Office 420 South Garfield Avenue, Suite 400 Pierre, SD 57501-5408 Phone: (605) 224-8693 Fax: (605) 224-1416 http://www.fws.gov/southdakotafieldoffice/



In Reply Refer To: Consultation Code: 06E14000-2022-SLI-0188 Event Code: 06E14000-2022-E-00492 Project Name: Midwest Carbon Express Project December 07, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

#### http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Migratory Bird Treaty Act (16 U.S.C. §§ 703-712, as amended), as well as the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may benefit from the development of an Eagle Conservation Plan (ECP), see guidance at this website (http://www.fws.gov/windenergy/ eagle\_guidance.html). An ECP can assist developers in achieving compliance with regulatory requirements, help avoid "take" of eagles at project sites, and provide biological support for eagle permit applications. Additionally, we recommend wind energy developments adhere to our Land-based Wind Energy Guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

We have recently updated our guidelines for minimizing impacts to migratory birds at projects that have communication towers (including meteorological, cellular, digital television, radio, and emergency broadcast towers). These guidelines can be found at:

#### http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm http://www.towerkill.com

According to National Wetlands Inventory maps, (available online at http://wetlands.fws.gov/) wetlands exist adjacent to the proposed construction corridor. If a project may impact wetlands or other important fish and wildlife habitats, the U.S. Fish and Wildlife Service (Service), in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible. If this is not possible, attempts should be made to minimize adverse impacts. Finally if adverse impacts are unavoidable, measures should be undertaken to replace the impacted areas. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted, and the methods of replacement should be prepared and submitted to the resource agencies for review.

Please check with your local wetland management district to determine whether Service interest lands exist at the proposed project site, the exact locations of these properties, and any additional restrictions that may apply regarding these sites. The Offices are listed below. If you are not sure which office to contact, we can help you make that decision.

U.S. Fish and Wildlife Service, Huron Wetland Management District, Federal Building, Room 309, 200 4th Street SW, Huron, SD 57350; telephone (605) 352-5894. Counties in the Huron WMD: Beadle, Buffalo, Hand, Hughes, Hyde, Jerauld, Sanborn, Sully.

U.S. Fish and Wildlife Service, Lake Andes Wetland Management District, 38672 291st Street, Lake Andes, South Dakota; telephone (605) 487-7603. Counties in the Lake Andes WMD: Aurora, Bon Homme, Brule, Charles Mix, Clay, Davison, Douglas, Hanson, Hutchinson, Lincoln, Turner, Union, Yankton.

U.S. Fish and Wildlife Service, Madison Wetland Management District, P.O. Box 48, Madison, South Dakota, 57042, telephone (605) 256-2974. Counties in the Madison WMD: Brookings, Deuel, Hamlin, Kingsury, Lake, McCook, Miner, Minnehaha, Moody.

U.S. Fish and Wildlife Service, Sand Lake Wetland Management District, 39650 Sand Lake Drive, Columbia, South Dakota, 57433; telephone (605) 885-6320. Counties in the Sand Lake WMD: Brown, Campbell, Edmunds, Faulk, McPherson, Potter, Spink, Walworth.

U.S. Fish and Wildlife Service, Waubay Wetland Management District, 44401 134A Street, Waubay, South Dakota, 57273; telephone (605) 947-4521. Counties in the Waubay WMD: Clark, Codington, Day, Grant, Marshall, Roberts.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

You are welcome to contact our office at the address or phone number above for more information.

Thank you.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

#### South Dakota Ecological Services Field Office

420 South Garfield Avenue, Suite 400 Pierre, SD 57501-5408 (605) 224-8693

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following offices, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

#### **Illinois-Iowa Ecological Services Field Office**

Illinois & Iowa Ecological Services Field Office 1511 47th Ave Moline, IL 61265-7022 (309) 757-5800

#### North Dakota Ecological Services Field Office

3425 Miriam Avenue Bismarck, ND 58501-7926 (701) 250-4481

## **Project Summary**

Consultation Code:	06E14000-2022-SLI-0188
Event Code:	Some(06E14000-2022-E-00492)
Project Name:	Midwest Carbon Express Project
Project Type:	OIL OR GAS
Project Description:	The Midwest Carbon Express Project involves the construction of new
	pipelines of various diameters to transfer captured carbon dioxide to
	proposed locations for permanent sequestration in North Dakota.

#### Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@43.97742715,-97.39495215499511,14z</u>



Counties: Iowa, North Dakota, and South Dakota

## **Endangered Species Act Species**

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

#### Mammals

NAME	STATUS		
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	Threatened		
Birds			
NAME	STATUS		
<ul> <li>Piping Plover Charadrius melodus</li> <li>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.</li> <li>There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <u>https://ecos.fws.gov/ecp/species/6039</u></li> </ul>	Threatened		
Red Knot Calidris canutus rufa       Threatened         There is proposed critical habitat for this species. The location of the critical habitat is not available.       The critical habitat is not available.         Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a> Threatened			
Whooping Crane <i>Grus americana</i> Population: Wherever found, except where listed as an experimental population There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <u>https://ecos.fws.gov/ecp/species/758</u>	Endangered		

#### **Fishes**

NAME	STATUS	
Pallid Sturgeon Scaphirhynchus albus No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/7162</u>	Endangered	
Topeka Shiner Notropis topeka (=tristis) Population: Wherever found, except where listed as an experimental population There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <u>https://ecos.fws.gov/ecp/species/4122</u>	Endangered	
Insects NAME	STATUS	
Dakota Skipper <i>Hesperia dacotae</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <u>https://ecos.fws.gov/ecp/species/1028</u>	Threatened	
Monarch Butterfly <i>Danaus plexippus</i>	Candidate	

Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9743</u>

#### Poweshiek Skipperling Oarisma poweshiek Endangered There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: <u>https://ecos.fws.gov/ecp/species/9161</u>

### **Flowering Plants**

NAME	STATUS
Prairie Bush-clover Lespedeza leptostachya	Threatened
No critical habitat has been designated for this species.	
Species profile: <u>https://ecos.fws.gov/ecp/species/4458</u>	
Western Prairie Fringed Orchid Platanthera praeclara	Threatened
No critical habitat has been designated for this species.	
Species profile: <u>https://ecos.fws.gov/ecp/species/1669</u>	

### **Critical habitats**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
CLARK COUNTY WATERFOWL PRODUCTION AREA https://www.fws.gov/refuges/profiles/index.cfm?id=64590	0
EDMUNDS COUNTY WATERFOWL PRODUCTION AREA https://www.fws.gov/refuges/profiles/index.cfm?id=64570	13,209.26
HYDE COUNTY WATERFOWL PRODUCTION AREA https://www.fws.gov/refuges/profiles/index.cfm?id=64110	3,480.857
LAKE COUNTY WATERFOWL PRODUCTION AREA OF SD https://www.fws.gov/refuges/profiles/index.cfm?id=64560	83.16

## **Migratory Birds**

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the <u>USFWS</u> <u>Birds of Conservation Concern</u> (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ <u>below</u>. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data</u> <u>mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Baird's Sparrow Ammodramus bairdii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/5113</u>	Breeds May 20 to Aug 15

BREEDING SEASON
Breeds Oct 15 to Aug 31
Breeds May 15 to Aug 20
Breeds May 15 to Oct 10
Breeds May 20 to Jul 31
Breeds May 1 to Aug 10
Breeds Jun 1 to Aug 31
Breeds May 1 to Aug 20
Breeds May 1 to Jul 31
Breeds Jan 1 to Aug 31
Breeds May 1 to Jul 20
Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA Au and Alaska.	reeds Jun 1 to 1g 15 reeds sewhere
0 01 1	
-	eeds Apr 1 to l 31
8	eeds Mar 1 to l 15
·	eeds May 1 to l 31
	eeds May 10 Sep 10
5 1	eeds sewhere
5 1 5	eeds sewhere
5	eeds sewhere
	eeds May 10 Aug 31
5	eeds Apr 20 Aug 5

NAME	BREEDING SEASON
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA	Breeds May 10 to Aug 31
and Alaska.	0

## **Probability Of Presence Summary**

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

#### **Probability of Presence** (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

#### Breeding Season (=)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

#### Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

#### No Data (-)

A week is marked as having no data if there were no survey events for that week.

#### **Survey Timeframe**

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Golden Eagle Non-BCC Vulnerable				• • • • •	• • • •	• • • • •						
Golden-winged Warbler BCC Rangewide (CON)	+			+-+	- <mark>1</mark> + +						+	++
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hudsonian Godwit BCC Rangewide (CON)			+	+ 1 1 +	11		+	+				
Le Conte's Sparrow BCC Rangewide (CON)			++++	++++	++++			+ • • +		•   +	++++	
Lesser Yellowlegs BCC Rangewide (CON)	++	- + + + +	+++∎	+111		++++	+	+	+   ++		++++	++
Long-billed Curlew BCC - BCR												
Long-eared Owl BCC Rangewide (CON)					• • • •							
Marbled Godwit BCC Rangewide (CON)		++	++++	+	11+1	<b>I-</b>	+		+			
Red-headed Woodpecker BCC Rangewide (CON)	++	+++	┼ᡎ┼┼	++++	1	∎+∔+	<b>¢I+I</b>	111+	<mark>  </mark> ++	++++	++++	+++
Ruddy Turnstone BCC - BCR			++++	++++	+11+		+	++	++	+++	+++-	
Rusty Blackbird BCC - BCR	++	+ + +	┼┼ᄈ║	▋▋┼₡	++++	+++	• + + - +	+++++	+++++	+++++	+	++
Short-billed Dowitcher BCC Rangewide (CON)					•]							
Sprague's Pipit BCC Rangewide (CON)						···	· • · ·					
Willet BCC Rangewide (CON)		++	++++	┼ <mark>╪</mark> ╏	111	<u>-</u>	<b>•</b> ••••	· · · · ·				
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Wood Thrush BCC Rangewide (CON)		+	++++	+++	<b>I</b> I:++	1						

Additional information can be found using the following links:

- Birds of Conservation Concern <u>http://www.fws.gov/birds/management/managed-species/</u> <u>birds-of-conservation-concern.php</u>
- Measures for avoiding and minimizing impacts to birds <u>http://www.fws.gov/birds/</u> <u>management/project-assessment-tools-and-guidance/</u> <u>conservation-measures.php</u>
- Nationwide conservation measures for birds <u>http://www.fws.gov/migratorybirds/pdf/</u> management/nationwidestandardconservationmeasures.pdf

### **Migratory Birds FAQ**

# Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

# What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern</u> (<u>BCC</u>) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian</u> <u>Knowledge Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

# What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

# How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab</u> of <u>Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

#### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

#### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS Integrative Statistical</u> <u>Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic</u> <u>Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

#### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT <u>HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML</u> OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION. Appendix C – Table 3: Dominant Wetland Vegetation

Table 3: Dominant Wetland Vegetation within the Midwest Carbon Express Project Survey Area – South Dakota						
Common Name	Scientific Name					
Palustrine Emerge	ent Wetlands (PEM)					
absinthium	Artemisia absinthium					
alkali cordgrass	Spartina gracilis					
American sloughgrass	Beckmannia syzigachne					
annual ragweed	Ambrosia artemisiifolia					
barnyardgrass	Echinochloa crus-galli					
bearded sprangletop	Leptochloa fusca					
bermudagrass	Cynodon dactylon					
biennial wormwood	Artemisia biennis					
blunt spikerush	Eleocharis obtusa					
boxelder	Acer negundo					
broadfruit bur-reed	Sparganium eurycarpum					
broadleaf cattail Typha latifolia						
brown flatsedge	Cyperus fuscus					
bull thistle	Cirsium vulgare					
burningbush	Bassia scoparia					
Canadian horseweed	Erigeron canadensis					
Canadian thistle	Cirsium arvense					
common duckweed	Lemna minor					
common plantain	Plantago major					
common reed	Phragmites australis					
common sheep sorrel	Rumex acetosella					
common snowberry	Symphoricarpos albus					
common spikerush	Eleocharis palustris					
common squarerush	Schoenoplectus pungens					
common sunflower	Helianthus annuus					
corn	Zea mays					
crack willow	Salix X fragilis					
creeping bentgrass	Agrostis stolonifera					
creeping meadow foxtail	Alopecurus arundinaceus					
Cuman ragweed	Ambrosia psilostachya					
curly dock	Rumex crispus					
curlycup gumweed	Grindelia squarrosa					

Table 3: Dominant Wetland Vegetation within the Midwest Carbon Express Project Survey Area – South Dakota		
Common Name	Scientific Name	
curlytop knotweed	Persicaria lapathifolia	
eastern cottonwood	Populus deltoides	
Emory's sedge	Carex emoryi	
field sowthistle	Sonchus arvensis	
fowl bluegrass	Poa palustris	
fox sedge	Carex vulpinoidea	
foxtail barley	Hordeum jubatum	
fragrant flatsedge	Cyperus odoratus	
green ash	Fraxinus pennsylvanica	
hardstem bulrush	Schoenoplectus acutus	
hybrid cattail	Typha X glauca	
Indiangrass	Sorghastrum nutans	
Indianhemp	Apocynum cannabinum	
inland rush	Juncus interior	
Kentucky bluegrass	Poa pratensis	
lambsquarters	Chenopodium album	
little hogweed	Portulaca oleracea	
longroot smartweed	Persicaria amphibia	
marsh bristlegrass	Setaria parviflora	
marshpepper knotweed	Persicaria hydropiper	
mat amaranth	Amaranthus blitoides	
meadow fescue	Schedonorus pratensis	
Mexican dock	Rumex triangulivalvis	
narrowleaf burreed	Sparganium emersum	
narrowleaf cattail	Typha angustifolia	
narrowleaf dock	Rumex stenophyllus	
narrowleaf willow	Salix exigua	
needle and thread	Stipa comata	
needle spikerush	Eleocharis acicularis	
Northwest Territory sedge	Carex utriculata	
Norwegian cinquefoil	Potentilla norvegica	
peachleaf willow	Salix amygdaloides	
Pennsylvania smartweed	Persicaria pensylvanica	

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Common Name	Scientific Name	
perennial ryegrass	Lolium perenne	
prairie cordgrass	Spartina pectinata	
prostrate knotweed	Polygonum aviculare	
prostrate pigweed	Amaranthus albus	
quackgrass	Elymus repens	
red goosefoot	Chenopodium rubrum	
redroot amaranth	Amaranthus retroflexus	
redtop	Agrostis gigantea	
reed canarygrass	Phalaris arundinacea	
rice cutgrass	Leersia oryzoides	
river bulrush	Schoenoplectus fluviatilis	
rough cockleburr	Xanthium strumarium	
roughfruit amaranth	Amaranthus tuberculatus	
saltgrass	Distichlis spicata	
sand spikerush	Eleocharis montevidensis	
scouringrush horsetail	Equisetum hyemale	
shining willow	Salix lucida	
shortbeak sedge	Carex brevior	
showy milkweed	Asclepias speciosa	
Siberian elm	Ulmus pumila	
sideoats grama	Bouteloua curtipendula	
smooth brome	Bromus inermis	
smoothcone sedge	Carex laeviconica	
snow on the mountain	Euphorbia marginata	
softstem bulrush	Schoenoplectus tabernaemontani	
soybean	Glycine max	
spotted ladysthumb	Persicaria maculosa	
Suckley's endolepis	Atriplex dioica	
Switchgrass	Panicum virgatum	
tall blue lettuce	Lactuca biennis	
thickspike wheatgrass	Elymus lanceolatus	
triangle orache	Atriplex prostrata	
uptight sedge	Carex stricta	

Table 3: Dominant Wetland Vegetation within the Midwest Carbon Express Project Survey Area – South Dakota	
Common Name	Scientific Name
wavyleaf thistle	Cirsium undulatum
wheat sedge	Carex atherodes
white panicle aster	Symphyotrichum lanceolatum
white willow	Salix alba
wild mint	Mentha arvensis
witchgrass	Panicum capillare
woolly sedge	Carex pellita
yellow foxtail	Setaria pumila
yellow nutsedge	Cyperus esculentus
Palustrine Shrub	-Scrub Wetlands (PSS)
broadleaf cattail	Typha latifolia
common lilac	Syringa vulgaris
narrowleaf willow	Salix interior
Pennsylvania smartweed	Persicaria pensylvanica
reed canarygrass	Phalaris arundinacea
white willow	Salix alba
Palustrine Fore	ested Wetlands (PFO)
bluejoint	Calamagrostis canadensis
common buckthorn	Rhamnus cathartica
crack willow	Salix X fragilis
eastern cottonwood	Populus deltoides
foxtail barley	Hordeum jubatum
green ash	Fraxinus pennsylvanica
Lombardy poplar	Populus nigra
narrowleaf dock	Rumex stenophyllus
peachleaf willow	Salix amygdaloides
Pennsylvania smartweed	Persicaria pensylvanica
reed canarygrass	Phalaris arundinacea
white willow	Salix alba
woolly sedge	Carex pellita