Badger Coulee 345 kV Transmission Line Project

Construction and Mitigation Plan (CMP)

Segment 5

CONSTRUCTION and MITIGATION PLAN

Badger Coulee 345 kV Transmission Line Project – Segment 5

American Transmission Company LLC, by its corporate manager, ATC Management Inc. (ATC); Dairyland Power Cooperative (DPC); Northern States Power Company, a Wisconsin corporation (NSPW); SMMPA Wisconsin, LLC (SMMPA Wisconsin), and WPPI Energy (WPPI) (the Applicants) were granted a Ch. 30.025 utility permit by the Wisconsin Department of Natural Resources (WDNR) for work in and adjacent to wetlands and waterways for the Badger Coulee 345 kV Transmission Line Project (Permit #IP-WC/SC-2015-N20001 through N20273)(Attachment 3). This permit requires the Applicants prepare a Construction and Mitigation Plan (CMP) for work in wetlands and waterways for WDNR approval prior to beginning work in these features (General Conditions #9 and 11). As the Project Construction Manager, ATC has prepared this CMP for Segment 5, which outlines construction methods and procedures that will be followed to minimize impacts to these features. Segment 5 is located in Monroe and Juneau Counties and is 27.8 miles long.

The components of this CMP follow those outlined in General Condition #11 of the WDNR utility permit.

A. Environmental Access Plan

An Environmental Access Plan (EAP) for Segment 5 is provided in Appendix A. This EAP shows the location of wetlands and waterways, pole locations, temporary clear span bridge (TCSB) crossings, construction access, and other pertinent information.

Field work was conducted in 2012 to delineate wetlands and characterize other natural resource features along the majority of Segment 5; however, access to the cross-county portion of this segment or the entire corridor width along the interstate was not available. The project corridor was re-evaluated during field visits in 2016 after access to the entire corridor width was gained (although access to several parcels was still unavailable for this field work).

The following six new wetlands were identified in 2016:

- N-W118a – between structures 137265-137266
- N-W123a – between structures 137289-137294
- N-W123b – between structures 137294-137297
- N-W154a – near structure 137366
- N-W157a – near structure 137368
- N-W178a – between structures 137403-137404.

These newly identified wetlands are either due to an alignment adjustment (N-W118a, N-W123a and N-W123b) or a change in site conditions (N-W154a, N-W157a and N-W178a).

The boundaries of several wetlands were also adjusted during the 2016 field work. Wetland boundary adjustments often reduced larger wetlands into several smaller, discrete areas (e.g., several upland areas were identified in wetland N-W143 and this feature was divided into smaller areas and re-labelled

as N-W143 through N-W143c). Two previously identified wetlands (N-W113 and N-W150) were determined to be upland based on topography and a predominance of non-hydrophytic vegetation, and several wetlands were merged due to an observed connection within the ROW (Appendix B). Wetlands N-W124, N-W125 and N-W126 no longer occur within the proposed ROW due to an ordered alignment adjustment. The adjusted wetland boundaries are shown on the EAP and a description summarizing the rationale for the boundary adjustments are provided in Appendix B.

As shown on the EAP, sixty-six new structures will be placed in wetlands along Segment 5, requiring 0.12 acre of wetland fill. The wetlands in which these structures occur and their associated EAP map pages are included in Appendix B. New structure placement in these wetlands was approved in the Joint Application except for nine structures in N-W123a and N-W123b which occur along an ordered re-route, and one structure in N-W154a which is a newly identified wetland. The placement of 101 structures in wetlands along Segment 5, requiring 0.23 acre of wetland fill, was approved in the utility permit. This reduction in number of structures in wetlands is primarily due to refining wetland boundaries particularly in larger wetland complexes (e.g., N-W112, N-W119, N-W138 and N-W143), re-spanning during final design, and because structures occurring within 50 feet of a wetland were conservatively included in wetland fill calculations in the Joint Application.

Up to thirty temporary poles will be placed in wetlands to protect road crossings during construction (refer to the EAP for temporary pole locations). These temporary poles are needed from a public safety perspective in case the wires fall during stringing. These poles will be directly embedded into the ground surface which will result in approximately 0.08 acre of temporary wetland fill. The poles will be removed and the area restored to existing grade with topsoil replacement when complete. Revegetation of the disturbed areas will follow the Revegetation and Monitoring Plan (Attachment 2). Attempts to minimize the number of temporary poles in wetlands will be made; however complete avoidance is unlikely due to the position of the wetlands in the transmission line ROW at proposed road crossing locations.

Up to twenty-six TCSBs will be required along Segment 5 (Appendix A), which includes one TCSB for off-ROW access (N-R78). The TCSBs are required over the following waterways:

N-R47	N-R48	N-R49	N-R50	N-R51	N-R53	N-R54
N-R55	N-R56	N-R57	N-R58	N-R59	N-R59a	N-R61a
N-R62a	N-R67b	N-R68	N-R68a	N-R70	N-R71	N-R72
N-R77	N-R78 (for off ROW access)	N-R79	N-R80	N-R81		

All of these TCSBs were approved in the WDNR utility permit except for N-R49, N-R59a, N-R61a, N-R62a, N-R67b and N-R72. The crossings of N-R59a, N-R61a and N-R62a are due to an ordered re-route. Waterway N-R67b is a newly identified waterway, and the crossings of N-R49 and N-R72 are due to adjusted access plans. The applicants will attempt to gain alternate access from private property owners to eliminate the need for some of these TCSBs; however, at this point it is assumed all of the TCSBs will be required.

Waterways N-R73 and N-R75 are back channels of the Lemonweir River (EAP map pages 38 and 39). Temporary bridges requiring the placement of construction matting below the Ordinary High Water Mark (OHWM) of these features for support will be required due to the waterway widths and position within the ROW (refer to Appendix D for a typical plan and profile drawing of these crossings). The bridge across N-R75 will be used during clearing and construction, while the bridge across N-R73 will only be used during clearing. The placement of miscellaneous structures (e.g., construction matting) below the OHWM of N-R75 was approved in the WDNR utility permit. This activity in N-R73 was not included in the application but has now been determined to be necessary to allow for clearing on the adjacent wooded peninsula. As such, we are requesting approval for the placement of miscellaneous structures below the OHWM of N-R73.

Approximately 28.5 acres of forested wetland clearing will be required along Segment 5 (which includes 0.75 acre of temporary clearing for off-ROW access). This amount of clearing along Segment 5 is less than the 34.8 acres provided in the Joint Application. This reduction is mainly due to the adjustment of wetland boundaries during the 2016 field evaluations and route adjustments (e.g., shifting to the south side of the interstate on EAP map pages 13-16, and changing a 90 degree interstate crossing to a diagonal crossing on EAP map 42).

Construction access along Segment 5 is presented on the EAP (Appendix A). Access through wetlands has been avoided where feasible (e.g., N-W118a, N-W155 and N-W157a), or minimized by crossing only portions of wetlands (e.g., N-W110, N-W112, N-W138b, and N-W146). However, access through other wetlands along this segment is necessary due to equipment access constraints, project alignment and the configuration of these wetlands. (Note: *While most construction equipment will be limited in wetlands where access is not shown, small-track vehicles or all-terrain vehicles <u>may</u> still be used to pull the conductor through these portions of wetlands).*

Construction matting may be used to facilitate access and minimize impacts in wetlands. The table below identifies the anticipated approximate area of matting in each wetland along the proposed ROW.

Wetland Identifier	**Acreage of mats**	**Wetland Identifier**	**Acreage of mats**	**Wetland Identifier**	**Acreage of mats**	**Wetland Identifier**	**Acreage of mats**
N-W110	1.06	N-W130	0.065	N-W143c	0.05	N-W163	1.24
N-W112	0.38	N-W131	0.20	N-W144	0.14	N-W164	0.25

Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats
N-W112a	0.07	N-W132	0.16	N-W145	0.59	N-W165	0.05
N-W114	0.87	N-W133	0.03	N-W146	0.42	N-W166	1.29
N-W115	0.06	N-W134	0.05	N-W147	0.61	N-W167	0.21
N-W116	0.14	N-W135	0.42	N-W148	0.24	N-W168	0.38
N-W117	0.48	N-W136	0.62	N-W149	0.14	N-W169	0.08
N-W118	1.71	N-W138	0.71	N-W151	0.07	N-W170	0.15
N-W119	0.88	N-W138a	0.14	N-W153	2.01	N-W171	0.28
N-W119a	0.37	N-W138b	0.003	N-W154	0.22	N-W172	0.25
N-W120	3.86	N-W139	1.05	N-W154a	0.17	N-W173	1.01
N-W121	0.38	N-W139a	0.59	N-W156	0.04	N-W174	0.03
N-W122	0.47	N-W140	0.43	N-W158	0.04	N-W175	0.09
N-W123	0.63	N-W141	0.26	N-W159	0.38	N-W176	0.75
N-W123a	3.86	N-W142	0.14	N-W160	0.06	N-W178	0.38
N-W123b	1.30	N-W143	0.24	N-W161	0.09	N-W179	0.42
N-W127	0.47	N-W143a	0.18	N-W162	0.27	N-W180	0.02
N-W129	0.094	N-W143b	0.67	N-W162a	0.42	N-W181	0.28

Most off-ROW access paths occur in upland areas; however, several paths cross wetlands (refer to the EAP for these locations). Wetland boundaries in off-ROW areas were determined from aerial photographs, Wisconsin Wetland Inventory, and NRCS soil mapping, although a couple were also viewed during site walk downs. About 2.3 acres of wetland matting may be required for these off-ROW access paths, which include a wire set up area near structure 137289 (EAP map page 13). Four of these off-ROW access paths occur in/adjacent to forested wetlands (EAP map pages 3, 31 and 38), requiring approximately 0.75 acre of temporary forested wetland clearing. These off-ROW access paths are generally required due to long stretches of project corridor that do not have access to roadways or to provide an alternate path to the ROW.

In addition, the following off-ROW access paths not identified in the Joint Application will require upland clearing / trimming:

- Access to structure 137297 (EAP map page 16) – clearing approximately 0.17 acre along a woodland edge;
- Access to structure 137328 (EAP map pages 28 and 29) – clearing approximately 0.35 acre to widen an existing logging road;
- Access to structure 137335 (EAP map page 31) – clearing approximately 0.09 acre to widen an existing two-track path (0.24 acre of forested wetland will also be cleared and is included in the total in the preceding paragraph);
- Access to structure 137352 (EAP map page 36)– clearing approximately 0.05 acre for access to the structure;
- Access to structure 137366 (EAP map page 40)– clearing approximately 0.04 acre along a woodland edge; and
- Access to structure 137381 (EAP map page 45 inset) – clearing approximately 0.02 acre to widen an existing access path.

A wire set up area near structure 137289 (EAP map page 13) may also require up to approximately 0.69 acre of upland shrub/sapling clearing outside of the project ROW.

Attempts will be made to find alternate access that does not impact wetlands or upland forest; however, at this point it is assumed these routes will be required.

Additional measures to minimize wetland and waterway impacts along Segment 5 are outlined in other sections of this CMP (e.g. *Invasive Species Management Plan* and *Wetland Restoration and Revegetation Plan*).

B. Photographs of Pre-Construction Site Conditions (Wetlands and Waterways)

Pre-construction photographs of wetlands and waterways along the Segment 5 ROW are provided in Appendix C.

C. Waterway Impacts

As discussed above, up to twenty-six TCSB crossings will be required along Segment 5. In addition, temporary bridges with support elements (i.e. construction matting) below the OHWM of N-R73 and N-R75 (Lemonweir River back channels) will be required. Final plan and cross-sectional view drawings for each bridge crossing are provided in Appendix D. As required in General Condition #51 of the utility permit, the TCSBs will incorporate measures to minimize soil reaching the waterways.

The approved route and off-ROW access along Segment 5 crosses eleven waterways identified in the WDNR 24K hydrology layer that do not have defined bed and banks based on 2016 field observations. These features are shown on the EAP (map pages 14, 24, 25, 41, 42, 45, 47, 48 and 51) and labelled as "non-regulated-WDNR confirmed (pending)", and a recent photo is presented in Appendix E (some photographs are from Pictometry due to access limitations). In addition, there are several drainage features not identified in the WDNR 24k hydrology layer labelled as "non-regulated drainage feature-WDNR confirmed (pending)" (EAP map pages 8, 11, 15, 17, 43 and 51). These excavated features (with no stream history) are typically adjacent to agricultural land and eventually connect to regulated waterway features (see photographs from the field or Pictometry in Appendix E). We are requesting WDNR concurrence that theses feature would not be considered navigable and therefore not subject to provisions of Chapter 30 (Wis. Stats.).

During construction of concrete foundations, water is often pumped into the borehole to maintain the integrity of the excavation. Suitable surface waters adjacent to the ROW may be used as a source of this water. Several waterways along this segment may be utilized for withdrawals; however, a final determination has not been made at this time. If surface water withdrawals are required, they will meet the following conditions outlined in the Utility Structure, Bridge and Wetland General Permit (WDNR-GP3-2013):

- Pump intakes and discharges shall be placed to prevent impacts to fisheries, wildlife, and their habitat; and
- Pump intakes and discharges shall be placed to prevent the disturbance, removal and scour of bed material.

In addition, water withdrawals from public waterways must avoid placement of a structure on the bed of the waterway unless prior authorization under ch. 30.12 (Wis. Stats.) is granted from the WDNR. The WDNR will be notified if surface water withdrawals occur along Segment 5.

<u>Clearance Waiver</u>

General Condition #46 of the WDNR utility permit indicates: *All bridges across navigable waterways shall either maintain a clearance of not less than 5 feet, or comply with requirements of s. NR 320.04 (Wis. Admin. Code)*. Wisconsin Admin. Code Chapter NR 320.04(3) indicates the department may allow less than 5 feet of navigation clearance when all of the following apply:

- The waterway is known to have little or no navigation or snowmobile use;
- The waterway is not anticipated to have navigational use by other than lightweight craft;
- The owner provides a portage over or around the bridge or culvert; and
- The reduced clearance would not be detrimental to the public interest.

The Applicants would allow a portage over or around a TCSB if necessary; however, given the waterway dimensions and/or other characteristics (e.g. location adjacent to the interstate) at the twenty-six TCSB crossings, these waterways likely have infrequent or no watercraft use. The Applicants believe the other

conditions specified in Wis. Admin. Code Chapter NR 320.04(3) are met at each waterway crossing and therefore, a five-foot clearance is not required at any of the twenty-six TCSB locations.

Fishery Waiver

General Condition #44 of the WDNR utility permit indicates that: *All bridges must be placed and removed in compliance with timing restrictions, unless authorized by the local DNR fisheries biologist. For trout streams and navigable tributaries to those trout streams, placement and removal is prohibited from September 15 through May 15, annually. On all other waterways, placement and removal of the bridges is prohibited from March 1 through June 15, annually*. As discussed above, TCSBs will be required over twenty-six waterways and construction matting will be required below the OHWM of two Lemonweir River back channels. All of the waterways requiring a bridge crossing are classified as warm water streams. The Applicants requested a waiver of the March 1 through June 15 timing restriction for these waterways from Mr. Jordan Weeks (Monroe County Fisheries Manager) and Ms. Jennifer Bergman (Juneau County Fisheries Manager). Their responses will be provided to the Office of Energy when received.

D. Endangered Resources Plan

ATC worked with the WDNR to develop a Certified Endangered Resources (ER) Review as part of the Joint Application. The Certified ER Review identified and summarized endangered resources known to occur along each proposed segment. Upon receiving the ordered route, the Certified ER has been amended in coordination with WDNR as construction details have been developed. The amendment table identified which state-listed species have required follow-up actions and the specific areas along Segment 5 where measures are needed to avoid and minimize direct or indirect impacts to state-listed species. Furthermore, the amendment table identified voluntary measures recommended to avoid and minimize impacts to other sensitive state-listed species or resources (e.g. natural communities). The amendment table serves as a communication and coordination tool to be used among the Applicants, WDNR, and construction contractor(s). For federally listed species, the Applicants prepared a Biological Evaluation/Assessment in coordination with the USFWS that outlines a determination of affects for federally listed species that may occur along Segment 5, as well as the necessary conservation measures to protect them. The USFWS issued a Biological Opinion for the project July 11, 2016. Where necessary, specific areas and protection measures will be documented on the EAP for state- and federally listed species known or assumed to be present along the segment.

E. Invasive Species Management Plan

Plant communities and dominant vegetation within the ROW of Segment 5 were documented during field evaluations in 2012, and additional field visits in 2016. The presence (i.e. general location and density) of Restricted and Prohibited species defined in *Wis. Admin Code* Ch. NR 40 within the ROW were identified during these assessments.

Segment 5 extends along I-90/94 from south of Foley Avenue in Tomah to north of STH 82 in Mauston. The majority of this segment shares ROW with the interstate, although an approximate 7.7-mile stretch near Camp Douglas traverses cross-country. When sharing interstate ROW, this segment crosses woodland, wetland, agricultural land including some cranberry operations, commercial properties, as well as the Lemonweir River and associated floodplain near the south end. The cross-country portion traverses woodland, agricultural lands, and wetlands.

The following summarizes invasive species observed along the Segment 5 project corridor. Numerous Restricted species were identified, as well as one Prohibited species. All species identified below in this section are classified as Restricted, unless otherwise noted.

In general, the interstate ROW along Segment 5 is regularly mowed and is commonly dominated by invasive species. Eurasian cool season grasses such as smooth brome (*Bromus inermis*), an invasive species not included in NR 40, are common. Additionally, a number of other invasive species not included in NR 40 are also present within the interstate ROW including bird's-foot trefoil (*Lotus conriculata*), reed canary grass (*Phalaris arundinacea*), and white and yellow sweet-clover (*Melilotus alba, M. officinalis*). A variety of other invasive species included in NR 40 are also present throughout the interstate ROW within areas subject to regular mowing including wild parsnip (*Pastinaca sativa*), Canada thistle (*Cirsium arvense*), spotted knapweed (*Centaurea stoebe*), leafy spruge (*Euphorbia esula*), narrow-leaf cattail (*Typha angustifolia*), and crown vetch (*Coronilla varia*). Common woody species observed within the interstate ROW, typically along fence lines, include Siberian elm (*Ulmus pumila*), glossy buckthorn (*Frangula alnus*), and invasive honeysuckle shrubs (*Lonicera* spp.), with some scattered oriental bittersweet (*Celastrus orbiculatus*).

Extensive woodlands, some of which are higher quality, are common along Segment 5 often extending well beyond the Project ROW. Invasive species such as glossy buckthorn, honeysuckle shrubs, Japanese barberry (*Berberis thunbergii*), and black locust (*Robinia pseudoacacia*) were often observed along the edges with their abundance ranging from scattered to common. Garlic mustard (*Alliaria petiolata*) and dame's rocket (*Hesperis matronalis*) were also occasionally observed in various woodlands.

Agricultural lands consist primarily of corn and soybean row crops, hay fields and some areas in cranberry production. Invasive species were commonly observed along the boundaries between fields and along the interstate ROW fence line. Invasive species observed along agricultural lands are similar to those observed within the interstate ROW, including species such as glossy buckthorn, honeysuckle shrubs, wild parsnip, spotted knapweed, and Canada thistle.

Wetland communities observed along Segment 5 include wet meadow, degraded wet meadow, hardwood swamp, floodplain forest, shrub-carr, alder thicket, shallow marsh, sedge meadow, degraded sedge meadow, and farmed wetlands. Some of the wetlands along this segment contain higher quality communities, but invasive species are commonly present in most wetland areas. Reed canary grass (not included in NR 40), glossy buckthorn and narrow-leaf cattail were commonly observed within many of these wetlands. Honeysuckle shrubs, Canada thistle, and wild parsnip are also scattered in many

locations, typically at the wetland edge. Common reed grass (*Phragmites australis*), a Prohibited species in Juneau and Monroe Counties, was observed within wetlands N-W118 and N-W119.

Location-Specific BMP's

Location-specific BMP's should be applied to the following locations:

- Common reed grass is present within wetland N-W118 east of structure 137262, and wetland N-W119 west of structure 137268. Attempts will be made to avoid or minimize work activities in these areas. If these areas cannot be avoided, vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area.
- Wild parsnip and crown vetch are abundant on the CTH N embankments between structure 137278 and the west edge of wetland N-W121. If these areas cannot be avoided, the vehicles should be inspected and cleaned before leaving the area.
- Spotted knapweed is common between the east end of wetland N-W123 and CTH PP, and west of structure 137388. Vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area.
- Garlic mustard is abundant just east of structure 137324 and along the Omaha County Trail between structures 137330 and 137331. Vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area.
- Black locust trees and dame's rocket are common just east of structure 137352, and black locust saplings and spotted knapweed are common just west of Hog Island Road (west of structure 137365). Vehicles should stay on construction matting, or vehicles will be inspected and cleaned before leaving the area. In addition, where clearing is required, a layer of wood chips will be left on the ground after clearing activities (if allowed by the landowners) which will act as a barrier between vehicles and the ground surface.
- Wild parsnip and spotted knapweed are common near structure 137372. If this area cannot be avoided, vehicles should stay on matting or the vehicles will be inspected and cleaned before leaving the area.

Location-specific BMPs may be implemented elsewhere within Segment 5 if ATC encounters a localized population of an invasive species other than those discussed above during future field visits.

General BMP's

The following general BMPs will be utilized during construction along Segment 5 to comply with *Wis. Admin Code* Ch. NR 40. The intent of these practices is to limit the spread of invasive species.

- Construction equipment and material
    - Minimize soil disturbance and utilize gravel roads or established equipment access paths to the extent practicable.

- To the extent practicable, avoid localized populations of invasive species through construction timing and alternate access.
- When working in areas infested with invasive species, clean mud and plant material from construction matting and equipment.

- Managing soil and vegetative material

  - Avoid movement of invasive material to non-infested areas. If possible, invasive material should be left within the ROW. For example, when clearing areas dominated by honeysuckle or buckthorn shrubs, cut material should be left in generally the same place and not spread off-site or to uninfested areas.
  - If infested soil or vegetative material must be transported from the ROW, transport to a designated area for appropriate disposal. Prior to transporting material, manage the load to limit potential spread to uninfested areas.
  - Manage stockpiles onsite to prevent the spread to adjacent areas.
  - In areas requiring clearing, a layer of wood chips should be left on the ground (if approved by the landowner) to act as a barrier between vehicles and the ground surface.

- Restoration and landscaping

  - Seed mixes have been developed for the Project and will be installed in accordance with the Revegetation and Monitoring plan (Attachment 2).
  - Revegetate disturbed soils as soon as possible with an appropriate temporary cover crop to minimize invasive species establishment. As appropriate, a perennial seed mix shall be installed during the appropriate seeding window.

- Aquatic invasive species

  - Water may be withdrawn from waterways for foundation construction, and materials will be placed below the OHWM of the two Lemonweir River back channels. All equipment used for withdrawing water or to facilitate construction access (i.e. mats, pumps, hoses, vehicles, boats/barges, turbidity curtains, machinery, etc.) will be adequately decontaminated/disinfected for aquatic invasives. Decontamination / disinfection can be accomplished by allowing equipment to dry thoroughly for at least 5 days or by utilizing another appropriate method identified in NR 329.04, prior to being used in non-infested waters of the state.

F. Wetland Compensatory Mitigation Plan

As compensation for unavoidable impacts to wetlands associated with the Project, the applicants propose wetland compensatory mitigation. Unavoidable temporary and permanent impacts to wetlands occur within Segment 5, which is located within the Lower Wisconsin Bank Service Area (BSA).

The total wetland impacts and proposed compensatory mitigation acres for Segment 5 are identified in the Mitigation Summary Table (Appendix G).

Temporary Impacts

Temporary wetland impacts along Segment 5 are associated with temporary matting of non-degraded sedge meadow, which is identified as a difficult to replace (DTR) wetland community, and the temporary clearing of hardwood swamp and floodplain forest along off-ROW access routes where woody vegetation will be allowed to regenerate. Temporary matting will impact 0.27 acre of non-degraded sedge meadow within the ROW. Temporary conversion of hardwood swamp wetland accounts for 0.71 acre and temporary conversion of floodplain forest accounts for 0.04 acre along off-ROW access routes.

Permanent Impacts

Permanent impacts due to structure placement in wetlands have been minimized to a total of 0.12 acre. The following community types are impacted by structure placement and acreages of impact by community type are provided in Appendix G: shallow marsh, sedge meadow, farmed wetland (seasonally flooded basin), wet meadow, and hardwood swamp.

Permanent conversion of shrub and forested wetland within the project corridor of Segment 5 totals 36.65 acres, which excludes acreage associated with structure impacts within these communities. Specifically, permanent conversion of shrub-carr is 8.84 acres, alder thicket is 0.04 acre, hardwood swamp is 27.65 acres, and floodplain forest totals 0.11 acre.

Mitigation Credits

The applicants propose the use of the Wisconsin in-lieu fee program, Wisconsin Wetland Conservation Trust (WWCT), to compensate for wetland impacts. It is our understanding that credits required for compensation are available for this project through the Wisconsin in-lieu fee program. Mitigation credits are based on mitigation ratios agreed upon by the WDNR and the USACE and are as follows: 1.45:1 for permanent impacts related to structure placement; 0.5:1 for permanent conversion of shrub-carr, alder thicket, hardwood swamp, and floodplain forest; and 0.25:1 for temporary matting of non-degraded sedge meadow and temporary clearing of forest and shrub wetlands. At these ratios, a total of 18.76 credits are required to compensate for the unavoidable wetland impacts to Segment 5 within the Lower Wisconsin BSA.

G. Wetland Restoration and Revegetation Plan

A general summary of wetland community characteristics within the ROW of Segment 5 is presented in Appendix B. This characterization is based on field observations from 2012 and 2016. In summary, wetland communities present within this segment include wet meadow, degraded wet meadow, floodplain forest, hardwood swamp, sedge meadow, degraded sedge meadow, shallow marsh, shrub-carr, alder thicket, and farmed wetland. Many wetland communities are degraded to a certain degree with typically one or more invasive species present. Construction within wetlands shall comply with the segment-specific Erosion Control Plan (ECP). Revegetation of wetlands is presented in the project

specific Revegetation and Monitoring Plan (Attachment 2). A summary of wetland restoration and revegetation guidelines for Segment 5 is provided below.

Restoration / Revegetation

- Restoration within wetland areas will include removal of all construction-related materials (e.g. timber matting) and the restoration of significant ruts and depressions.
- The ROW will be restored to pre-existing topography as much as practicable.
- Areas with significant rutting in wetlands will be repaired using hand tools, back dragging, or other appropriate means to restore topography while minimizing additional disturbance.
- Wetland areas where disturbance is minimal, as anticipated along matted access routes, will generally be allowed to revegetate naturally. These locations will be monitored to determine if supplemental seeding is necessary.
- A temporary cover crop may be installed over disturbed soils following ground disturbance. A project-specific permanent native wetland seed mix may be installed within disturbed wetland areas that have a native component but are not high-quality wetlands (see Revegetation and Monitoring Plan for seed mixes and installation specifications, Attachment 2).
- Farmed wetlands will not be re-seeded due to their current land use.

Other /Miscellaneous

- Fertilizers will not be used within 100 feet of wetlands, streams and rivers.
- Cover such as erosion blankets or other weed-free devices may be applied after seeding and final restoration has occurred in wetland areas disturbed by the construction activities. All erosion control measures utilized will conform to WDNR Technical Standards.
- Installed soil erosion and sedimentation control measures will be maintained until the disturbed areas are permanently stabilized.

H. Wooded Riparian and Wetland Management Plan

Approximately 28.5 acres of wooded wetlands will be impacted by construction along Segment 5. This primarily includes hardwood swamps (some of which are associated with smaller waterways) and floodplain forest associated with the Lemonweir River. In addition, upland wooded riparian areas occur along several narrow waterways.

In general, the entire ROW width will be cleared for safe construction equipment access in wooded areas. In riparian areas, efforts will be made to retain low-growing vegetation on/near stream banks for erosion control, where it currently exists. In areas where a TCSB will be installed, the amount of clearing will be kept to a minimum, which will reduce the impacts to riparian corridors.

Trees cut in wetland areas will generally be removed from the wetland and windrowed or chipped in upland areas. Some of the woody vegetation that is cleared may remain in the wetland areas. This includes lop and scatter of tree limbs, and thin scatter of wood chips and vegetation fragments resulting

from mowing the shrub and sapling layer. Wood left in the wetland will be scattered in a manner that does not impede vegetation growth, water flow, or alter the bottom elevation of the wetland.

Areas disturbed by construction will be restored as described in the *Wetland Restoration and Re-Vegetation Plan* section.

I. Final Sequencing and Scheduling Plan

Clearing along Segment 5 is anticipated to begin in October 2016. The following summarizes the anticipated timing of construction along Segment 5:

- ROW Clearing – Oct. 2016 – Apr. 2017
- Structure Foundations – Apr. 2017 – Jun. 2017
- Install Structures – Jun. 2017 – Oct. 2017
- Install Conductor – Jun. 2017 – Nov. 2017

ROW cleanup and restoration is scheduled to occur in the spring following completion of construction, although actual dates for restoration will be weather dependent. Permanent restoration within any given area will be properly implemented within 30 days of final construction; however, if restoration is delayed due to weather or soil conditions, the area will be protected until permanent restoration can be completed.

J. Post-Construction Monitoring Plan

Wetland and waterway monitoring will be required for this project. Weekly monitoring will occur during and after construction until disturbed areas are stabilized and annual post-construction monitoring will be conducted as discussed below.

In accordance with Condition #38 of the WDNR utility permit, ATC will conduct frequent monitoring (e.g., weekly and after a significant rainfall event) of erosion and sediment controls during and after construction, which may include areas within and adjacent to wetlands and waterways. This monitoring will occur until the areas are stabilized as defined in Condition #38 of the utility permit.

ATC will also conduct annual post-construction monitoring of the portions of wetlands and waterways impacted by construction, as outlined in Condition #70 of the utility permit. This monitoring shall continue for a minimum of 5 years after construction unless compliance is achieved and documented earlier. Refer to the Revegetation and Monitoring Plan (Attachment 2) for more detail regarding wetland and waterway monitoring, and the associated reporting.

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix A

Environmental Access Plan

Environmental Access Plan – Segment 5

Graphic Index for Badger Coulee Project

SEGMENT HIGHLIGHTS

- **26 Temporary Clear Span Bridges will be required over waterways**
- **Construction matting will be installed below the OHWM of N-R73 and N-R75 (back channels of the Lemonweir River) for construction access.**
- **A total of 66 poles will be constructed in the following wetlands (parenthetic value refers to number of structures within the feature):**
  - **W110(1), N-W114(2), N-W117(1), N-W118(4), N-W119(1), N-W119a(1), N-W120(8), N-W122(1), N-W123(1), N-W123a(6), N-W123b(3), N-W127(1), N-W131(1), N-W132(1), N-W136(1), N-W138(2), N-W138a(1), N-W139(3), N-W139a(1), N-W140(1), N-W141(1), N-W143b(1), N-W146(1), N-W147(1), N-W153(4), N-W154a(1), N-W159(1), N-W162(1), N-W162a(1), N-W163(3), N-W166(3), N-W168(1), N-W172(1), N-W173(2), N-W176(2), N-W179(1).**
- **A total of 30 temporary poles will be placed in the following wetlands (2 poles in each wetland):**
  - **N-W110, N-W116, N-W123a, N-W127, N-W128, N-W129, N-W136, N-W137, N-W138, N-W141, N-W142, N-W151, N-W161, N-W162, N-W178**
- **Invasive Species Caution: Invasive species locations are identified on pages 6, 7, 10, 13, 27, 29, 36, 40, 42, 47 and 52. Refer to these pages for instructions on how to proceed in these areas.**
- **Rare Species Caution: Rare species locations are identified on pages 2, 4, 38 and 39. Refer to these pages for instructions on how to proceed in these areas.**

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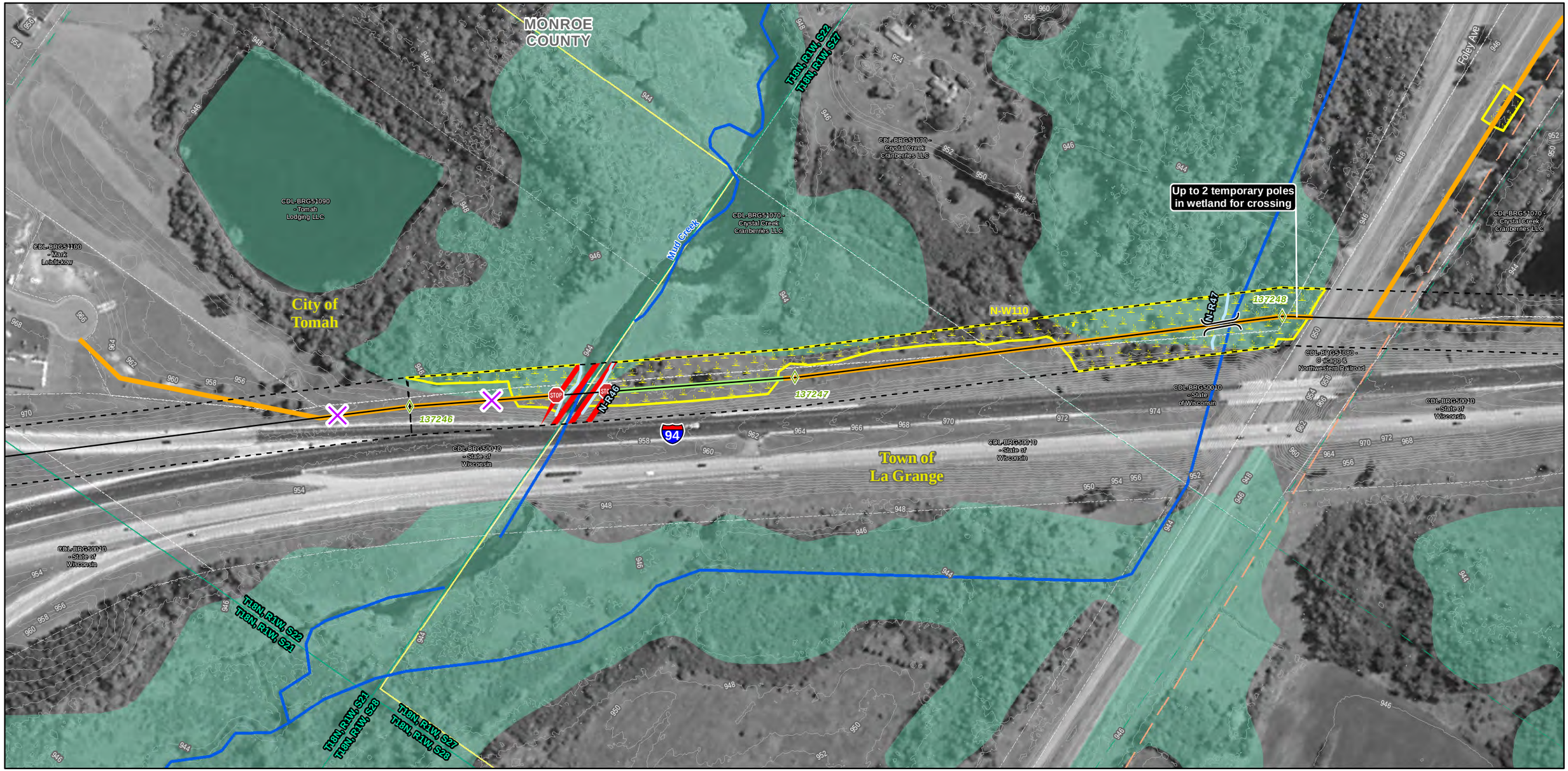

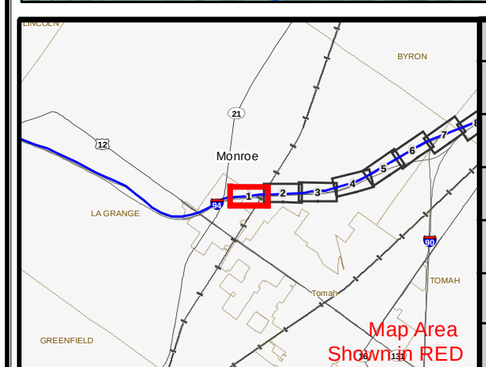

- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
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- Existing Pole
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- Existing Non-ATC Transmission Line
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- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
- DATCP Identified Soils - Difficult to Decompact
- Property Line (Shown with: Parcel Number and Owner Name)
- City/Village/Town Boundary

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Caution: Railroad crossing

CDL-BRG50010 - State of Wisconsin

CDL-BRG51070 - Crystal Creek Cranberries LLC

Foley Ave

PROTECTED SPECIES:
No activities or access with motorized vehicles from March 15 - October 31 unless exclusion fence is in place (May 15 - September 15) or a qualified biological monitor is present (March 15 - May 14 and September 16 - October 31)

MONROE COUNTY

Town of La Grange

N-W112

N-W112a

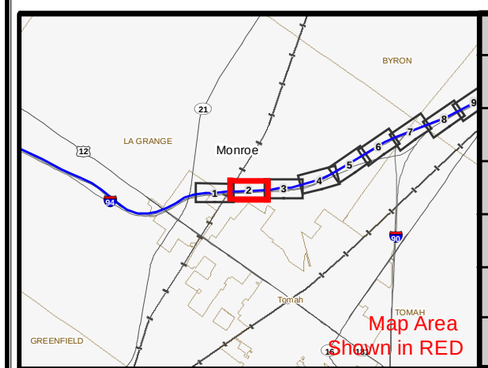
N-R48

137249

137250

137251

94



Proposed Centerline	Transmission Right-of-Way* *Right-of-Way shown on this map is approximate and is shown for guidance only	Possible Wetland (WDNR Wetland)	City/Village/Town Boundary
Proposed Pole DIRECT EMBED; Proposed Pole FOUNDATION; Proposed Pole VIBRATORY	TCSB Temporary Clear Span Bridge	Delineated Wetland	
Vehicle Construction Access; Potential Vehicle Construction Access	STOP - NO VEHICLE ACCESS FOOT TRAFFIC ONLY	Field Located Waterway	
Clearing Access Only	Approximate wire set up area (Dimensions: Approximately 200' X 400')	WDNR Perennial Stream; WDNR Intermittent Stream	
Graded Construction Access and Structure Pads	200 Topographic Line, Elevation	DATCP Identified Soils - Difficult to Decompact	
Existing Pole to be Removed; Existing Pole; Existing Substation	Protected or Sensitive Resource - Construction Technique Protocol Needed	Property Line (Shown with: Parcel Number and Owner Name)	
Existing ATC Transmission Line; Existing Non-ATC Transmission Line	Invasive Species - Construction Technique Protocol Needed		

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

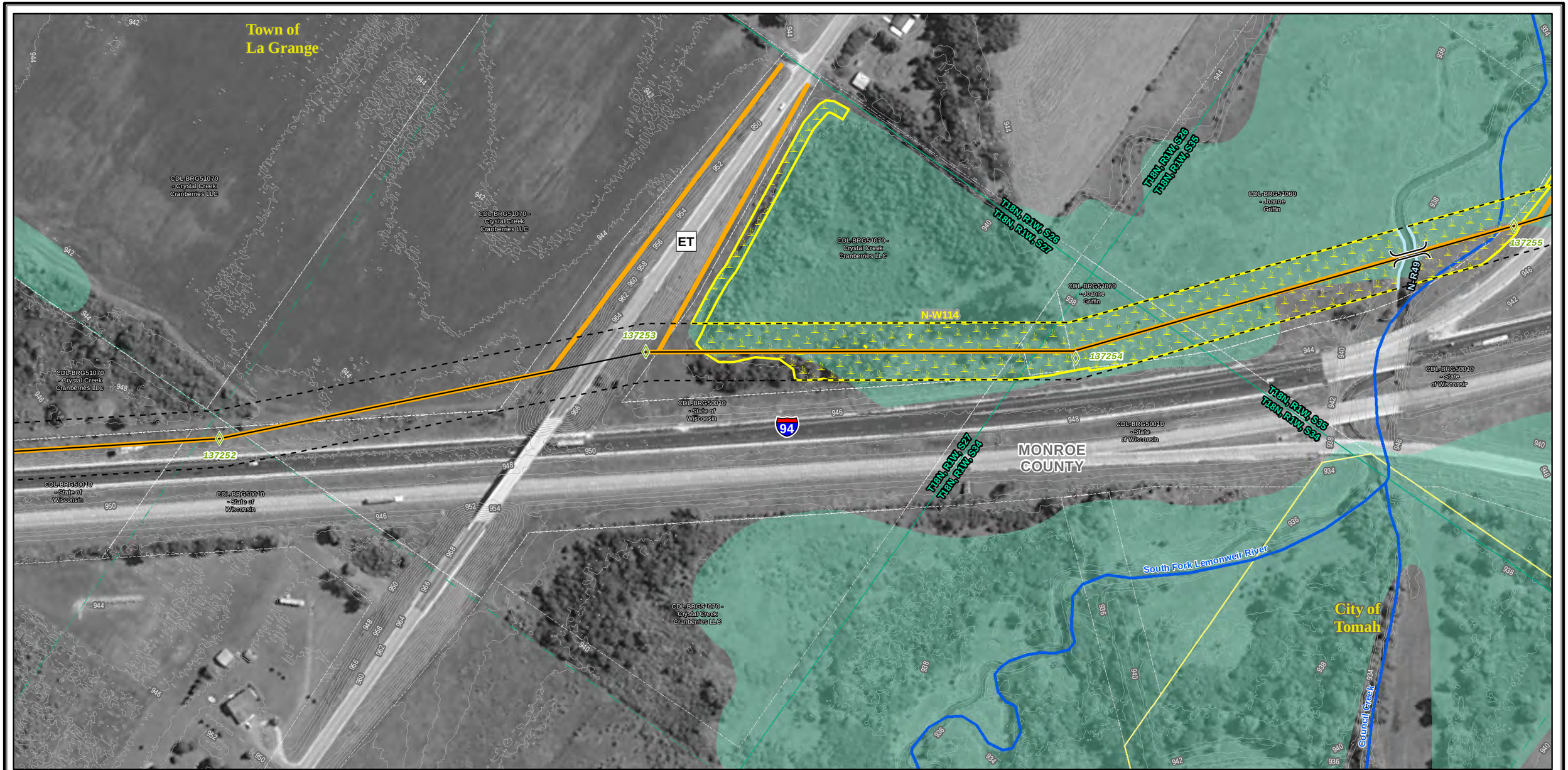
Orthophotography: NAIP 2010

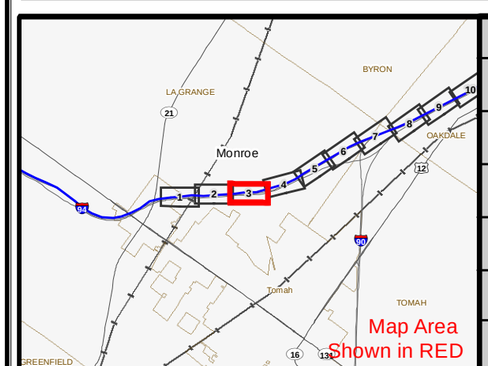
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

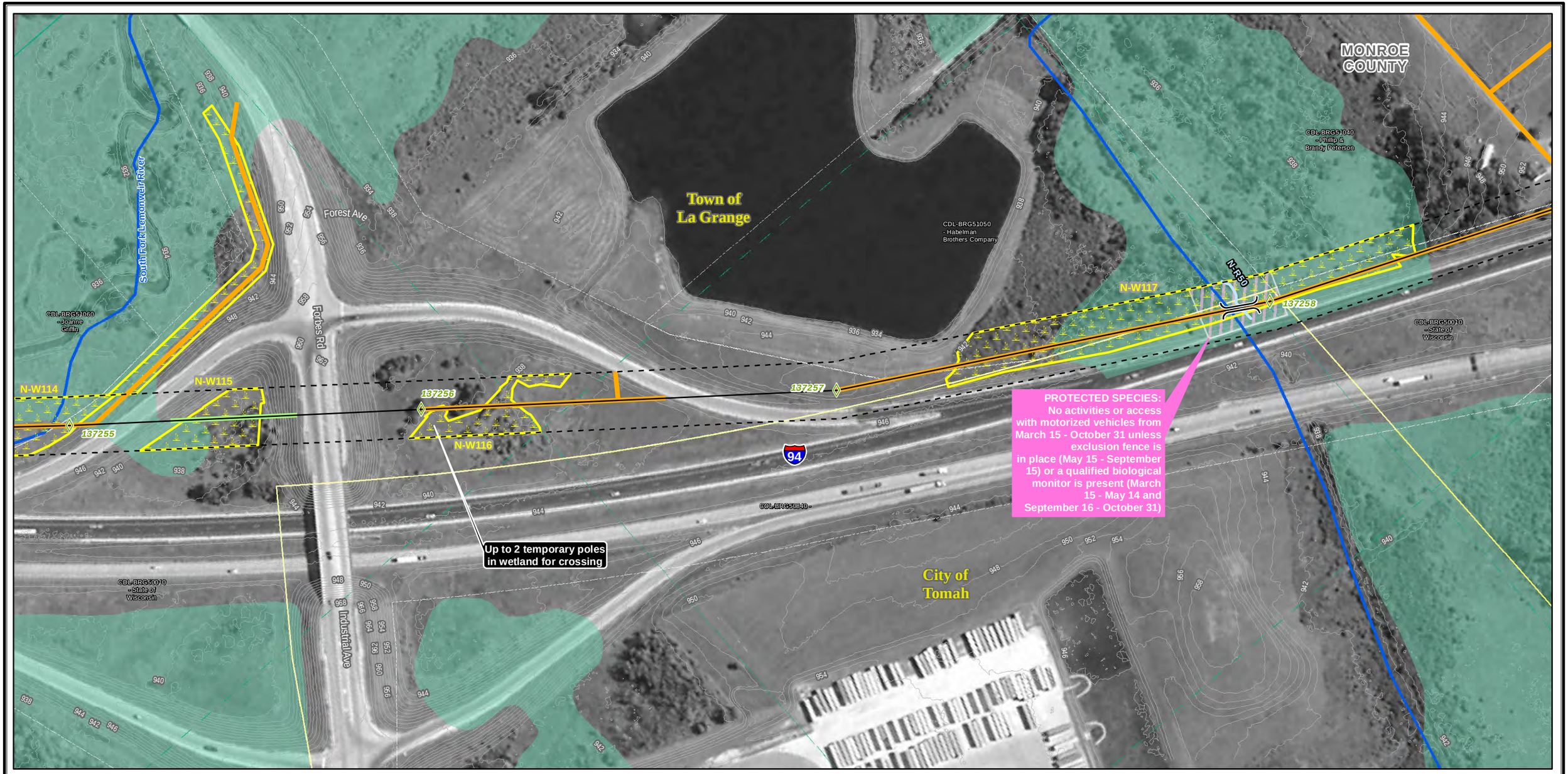
Orthophotography: NAIP 2010

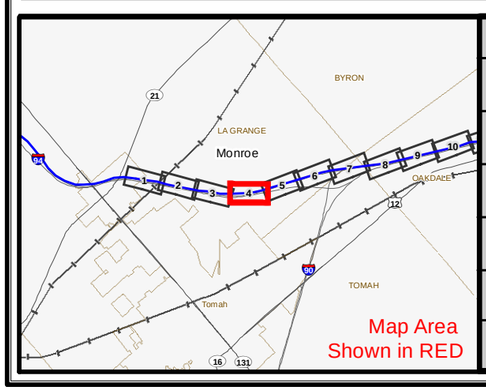
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Town of La Grange

N-W117

137259

137260

137261

N-W118

N-R51

STOP

CDL-BRG51040 - Phillip & Brandy Peterson

CDL-BRG51030 - The Basshard Residence

CDL-BRG50010 - State of Wisconsin

MONROE COUNTY

T18N, R1W, S36
T18N, R1W, S35

94

90

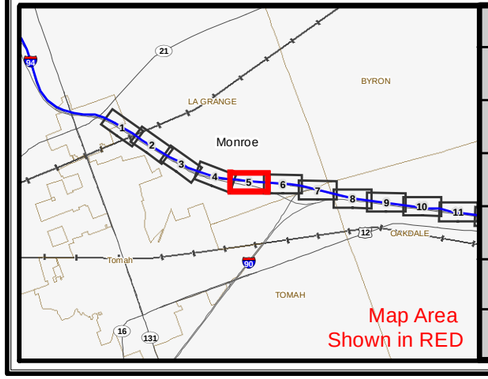
South Fork Lemonweir River

Forest Ave

Kreyer Creek

Grapevine Ave

0 750 1,500
Feet



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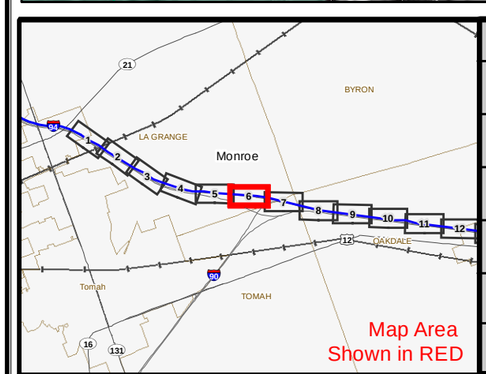
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200
Feet

8/1/2016



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Orthophotography: NAIP 2010

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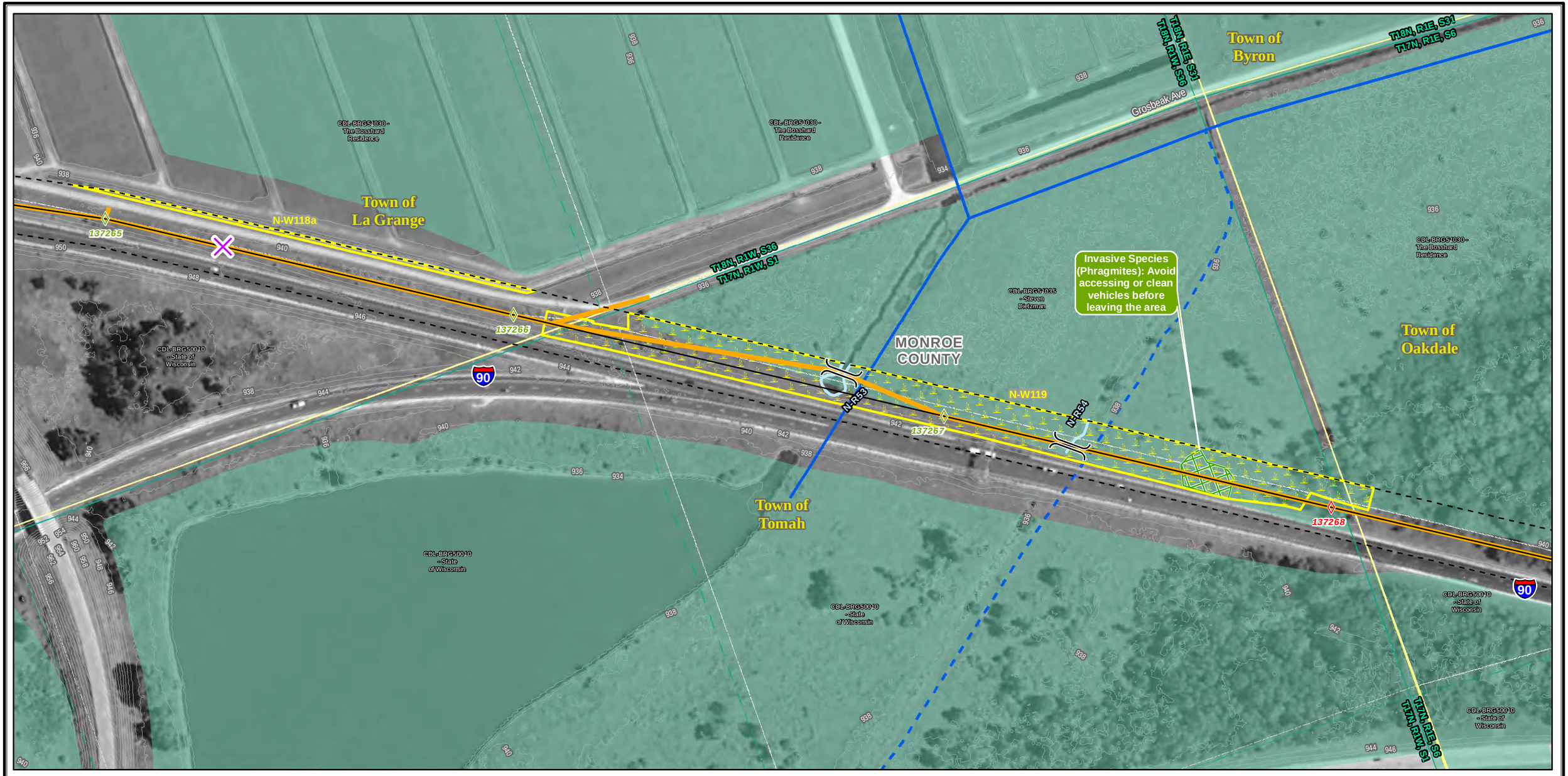
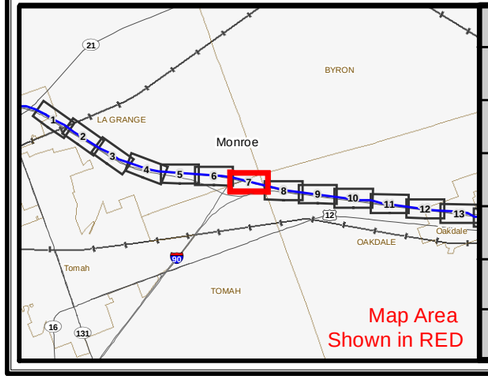
ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

NON-REGULATED DRAINAGE FEATURE - DNR CONFIRMED (PENDING)

CDL-BRGS1030 - The Bosshard Residence

CDL-BRGS1020 - Holiday Lodge of Wyeville, Inc.

CDL-BRGS0010 - State of Wisconsin

CDL-BRGS6910 - State of Wisconsin

137269

N-W119a

137270

N-W120

137271

N-R55

X-40-138.W

MONROE COUNTY

Town of Oakdale

Grosbeak Ave

0 750 1,500 Feet

Map Area Shown in RED

Proposed Centerline

Proposed Pole DIRECT EMBED

Proposed Pole FOUNDATION

Proposed Pole VIBRATORY

Vehicle Construction Access

Potential Vehicle Construction Access

Clearing Access Only

Graded Construction Access and Structure Pads

Existing Pole to be Removed

Existing Pole

Existing Substation

Existing ATC Transmission Line

Existing Non-ATC Transmission Line

Transmission Right-of-Way*

*Right-of-Way shown on this map is approximate and is shown for guidance only

TCSB Temporary Clear Span Bridge

STOP - NO VEHICLE ACCESS FOOT TRAFFIC ONLY

Approximate wire set up area (Dimensions: Approximately 200' X 400')

Topographic Line

Elevation

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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

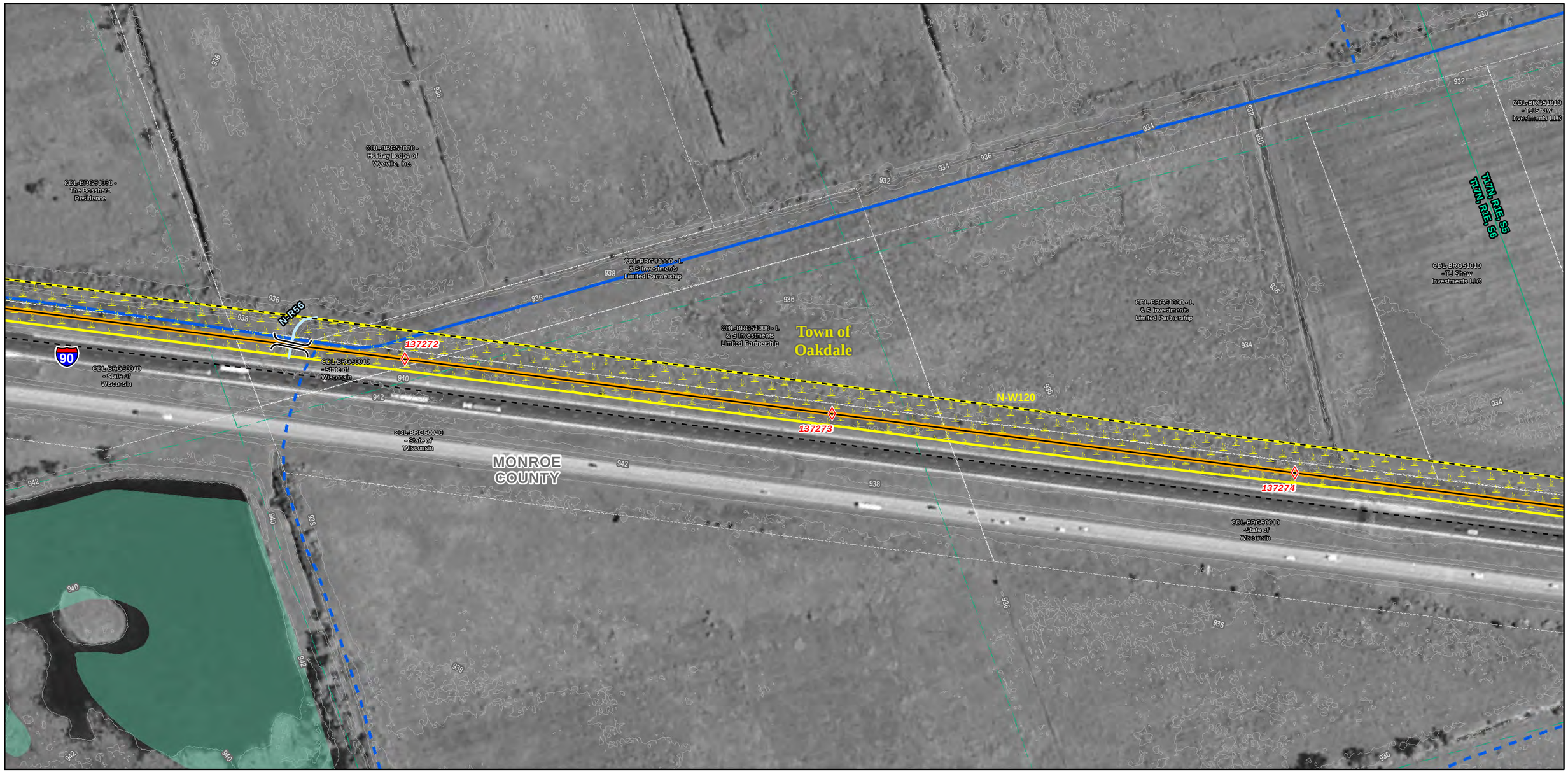
Orthophotography: NAIP 2010

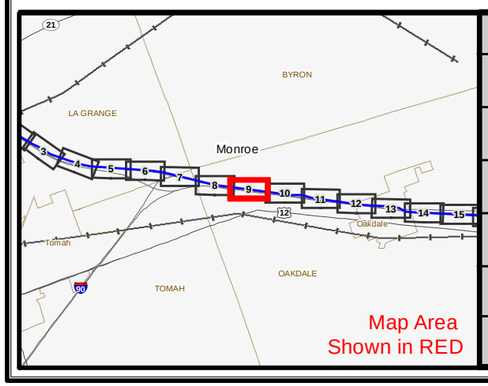
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

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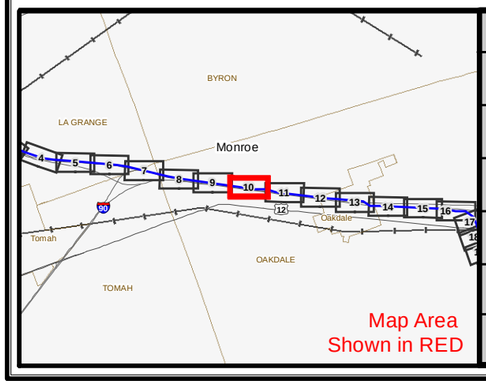

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

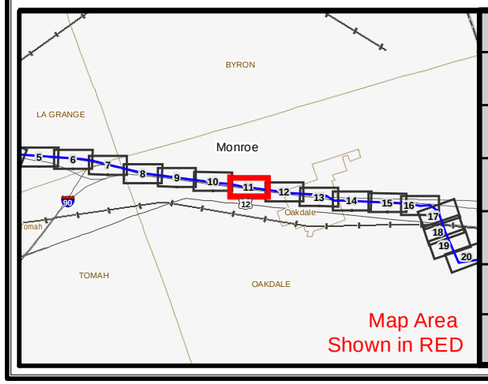
Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY

0 100 200 Feet

8/1/2016



- Proposed Centerline
- Proposed Pole DIRECT EMBED / Proposed Pole FOUNDATION / Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
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ATC AMERICAN TRANSMISSION COMPANY®

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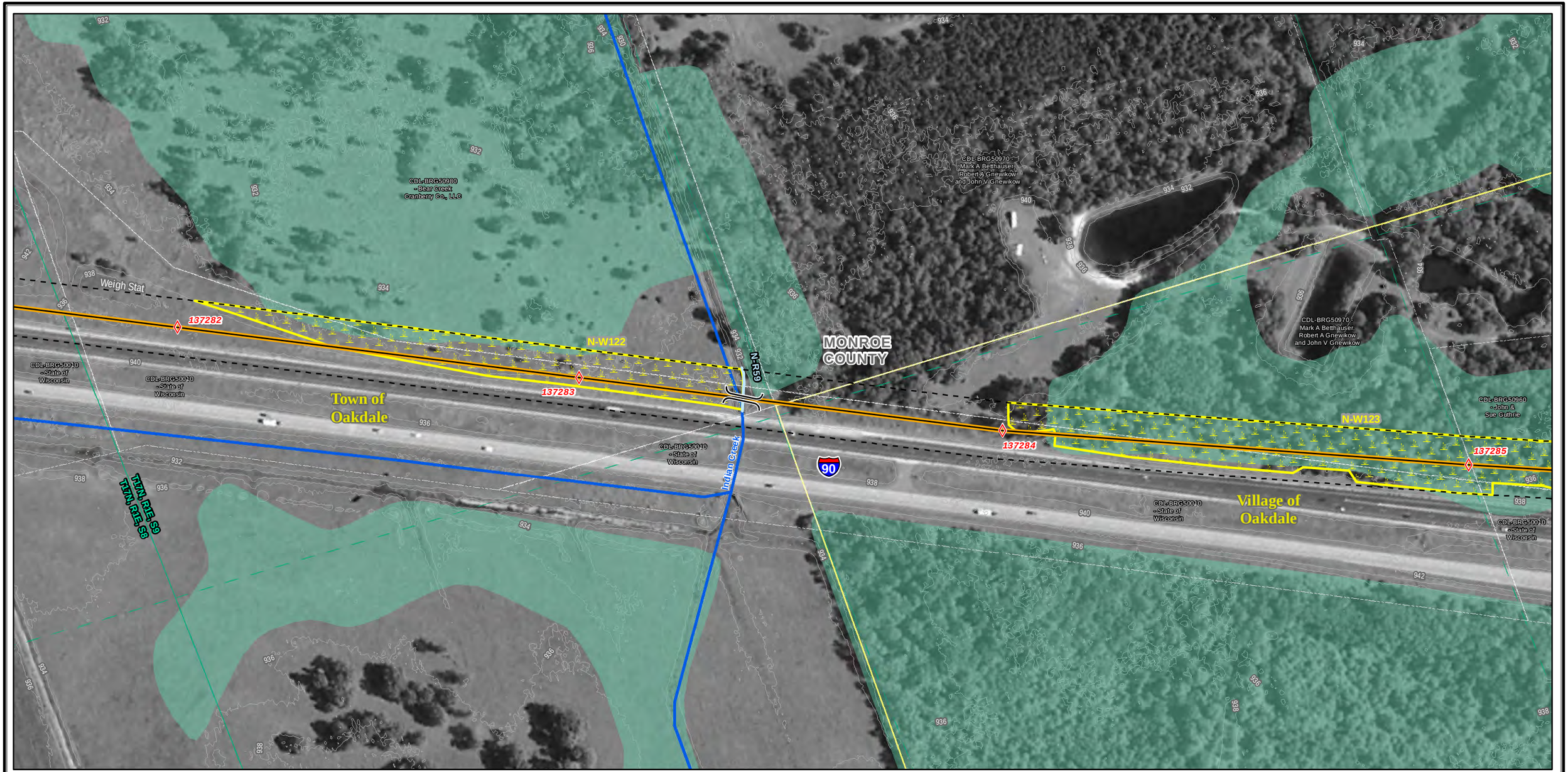

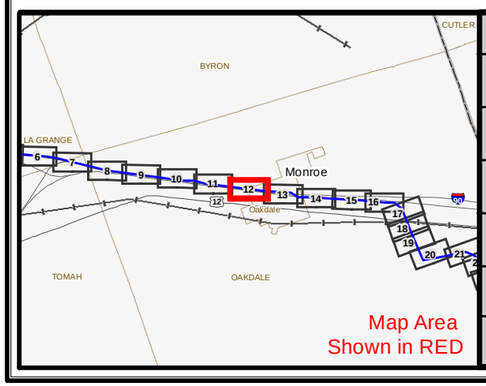

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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

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ATC AMERICAN TRANSMISSION COMPANY

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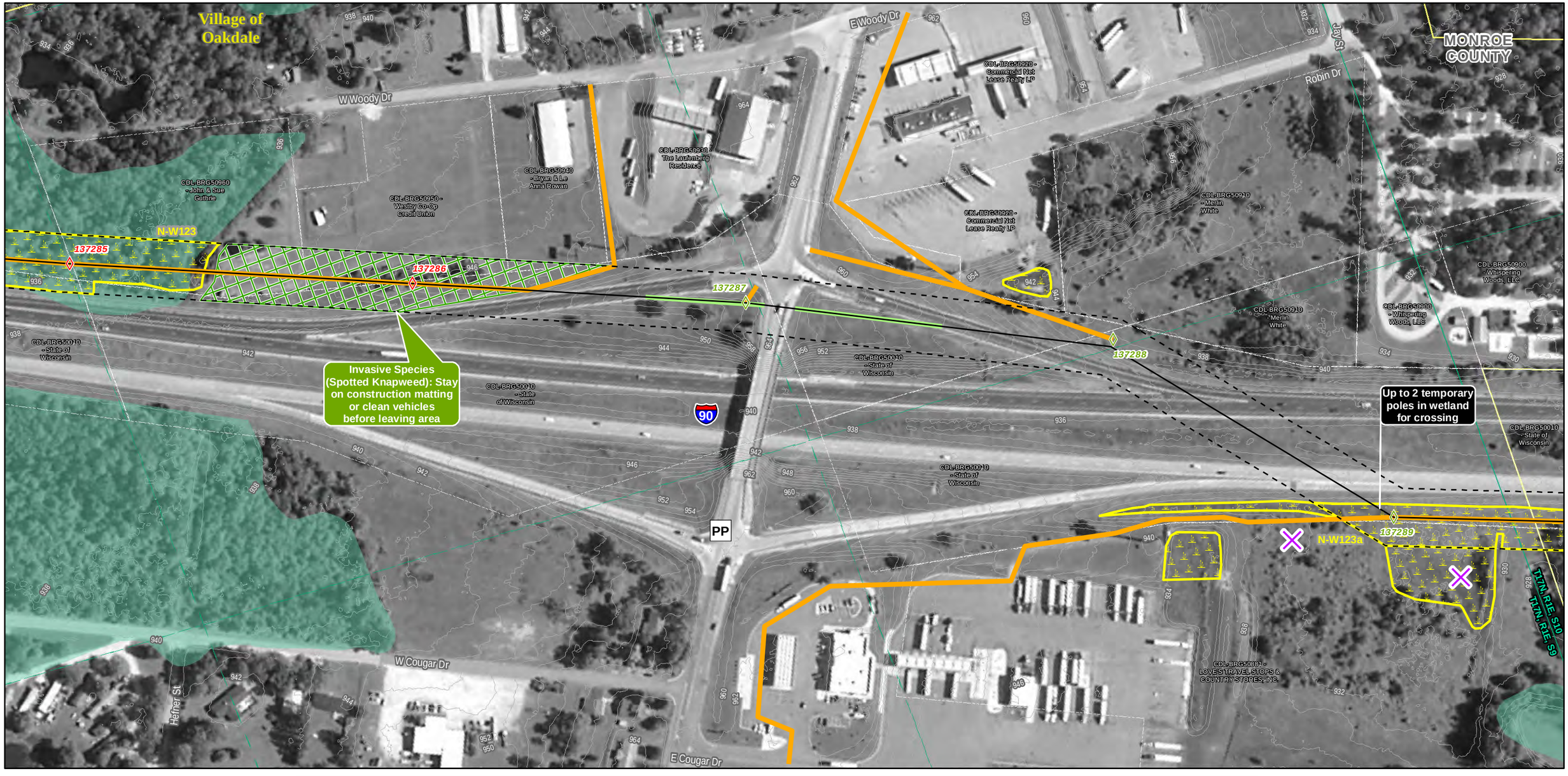

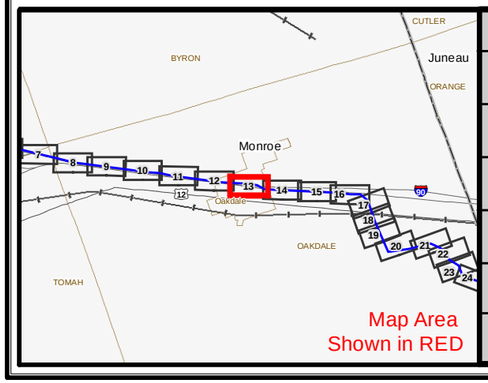

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Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

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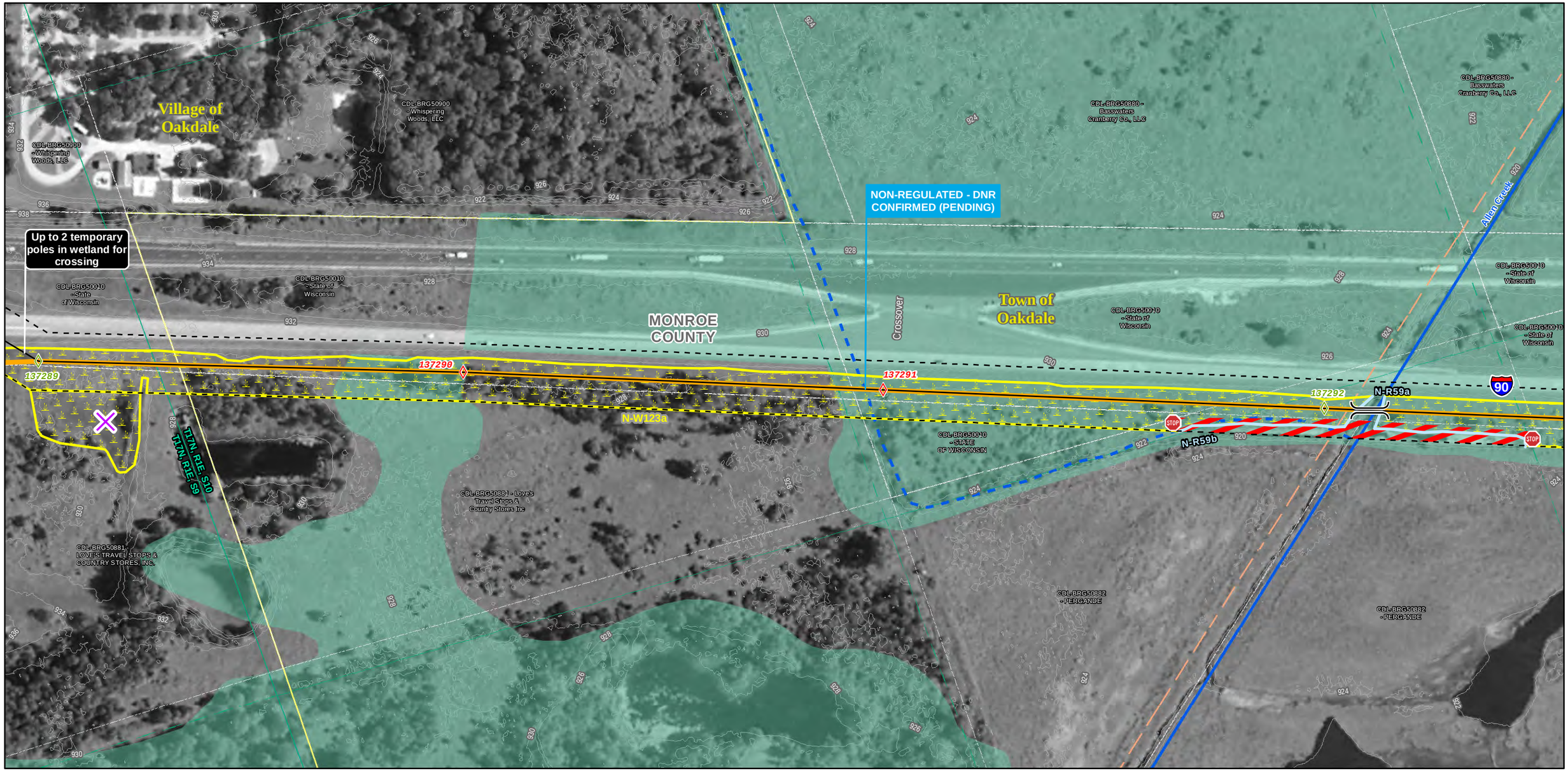

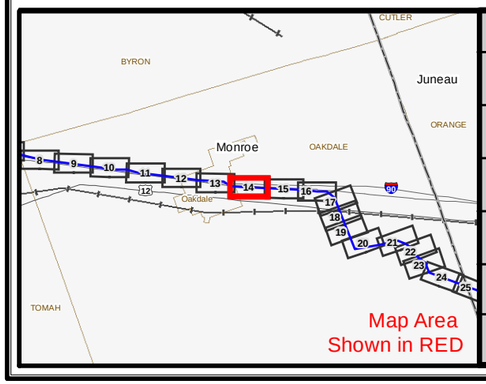

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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

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Feet

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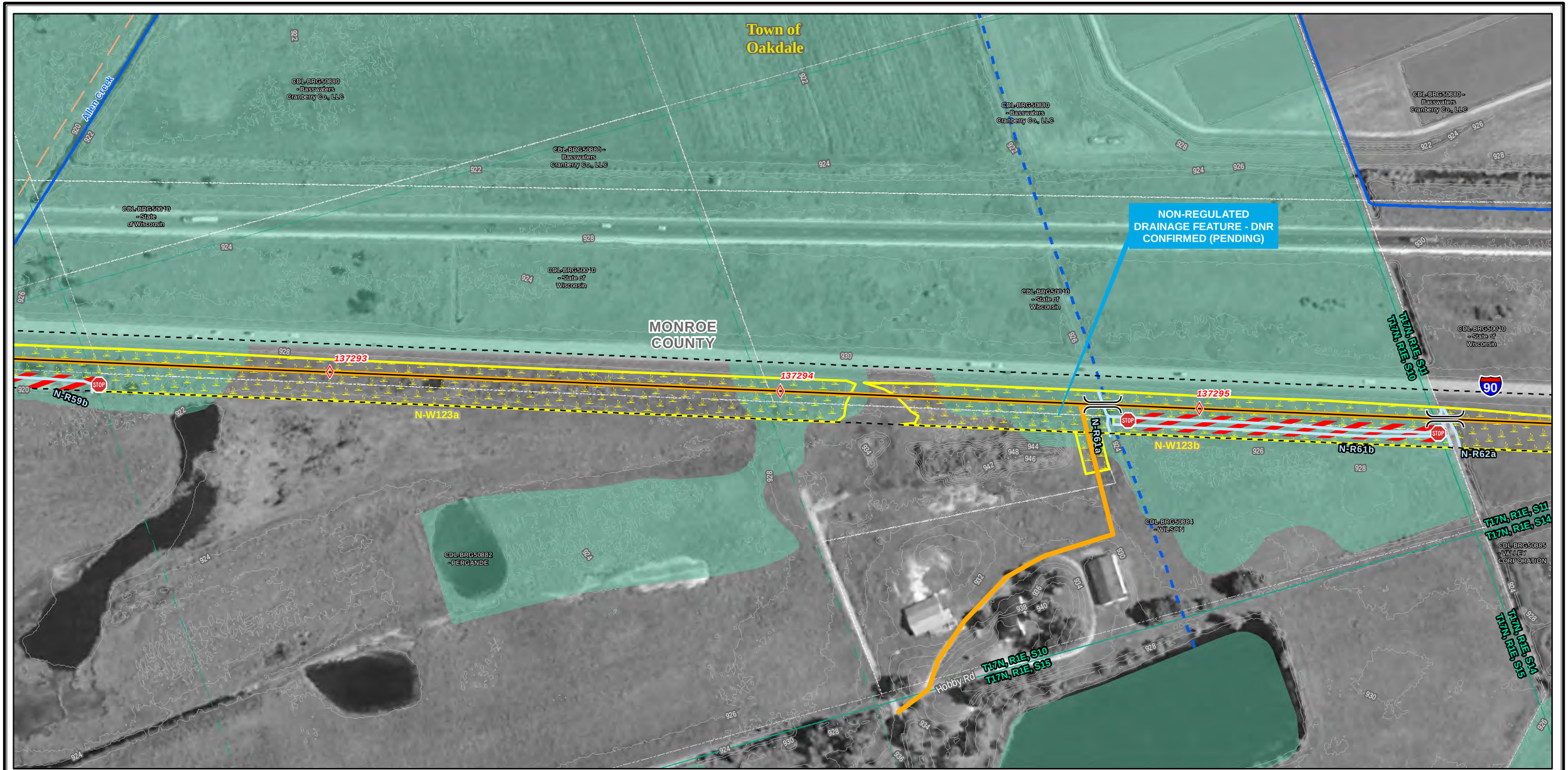

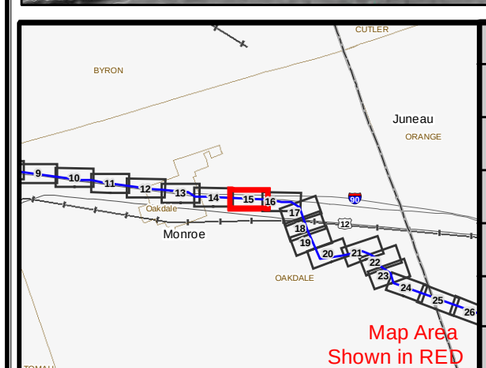

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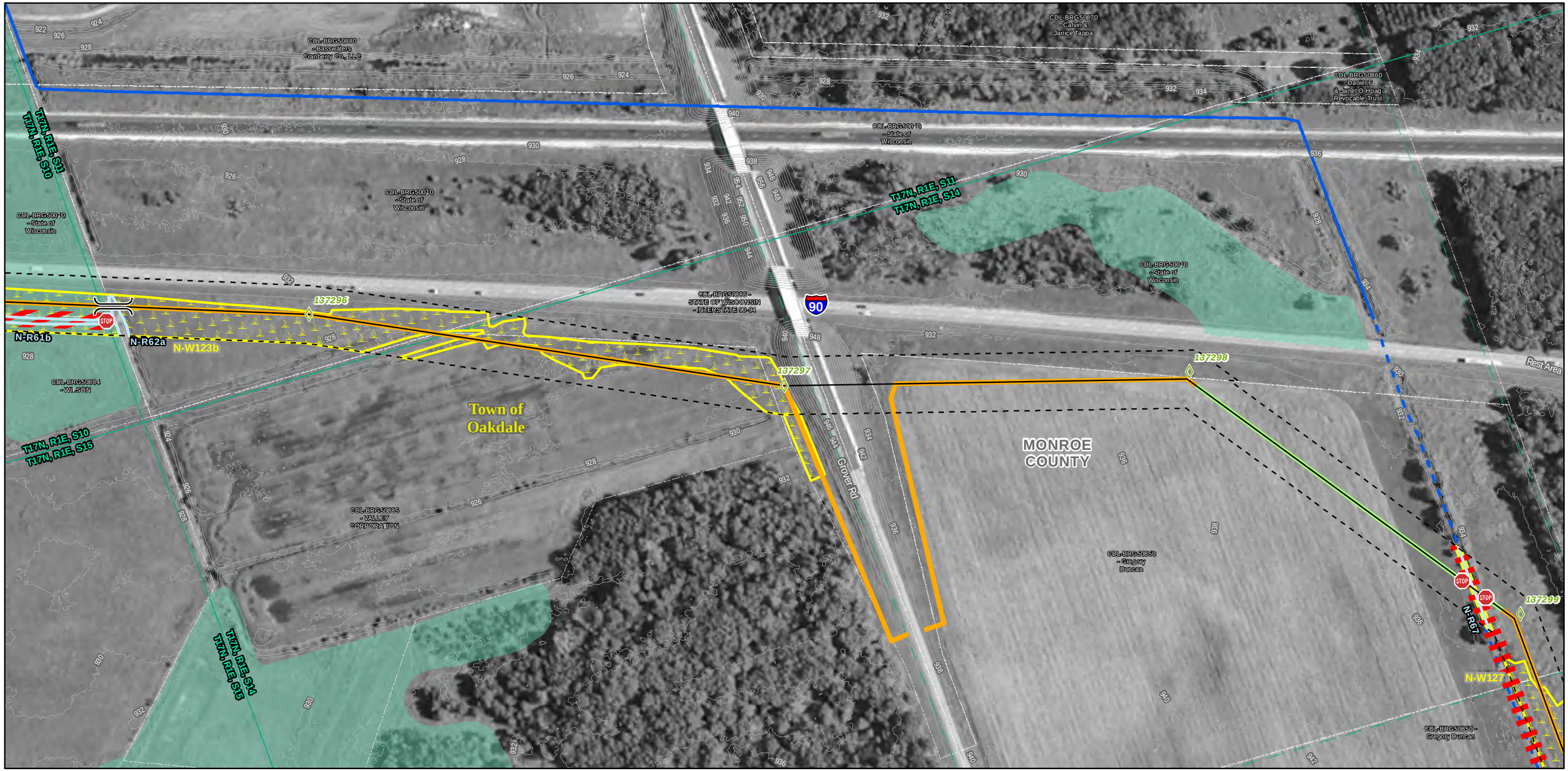

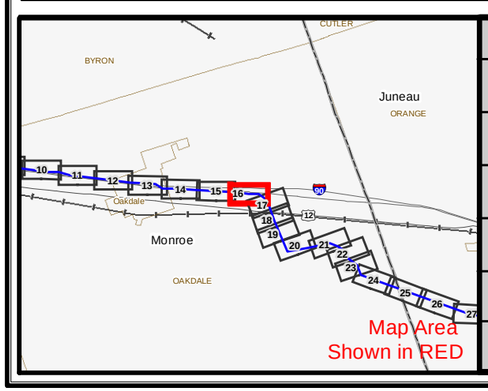

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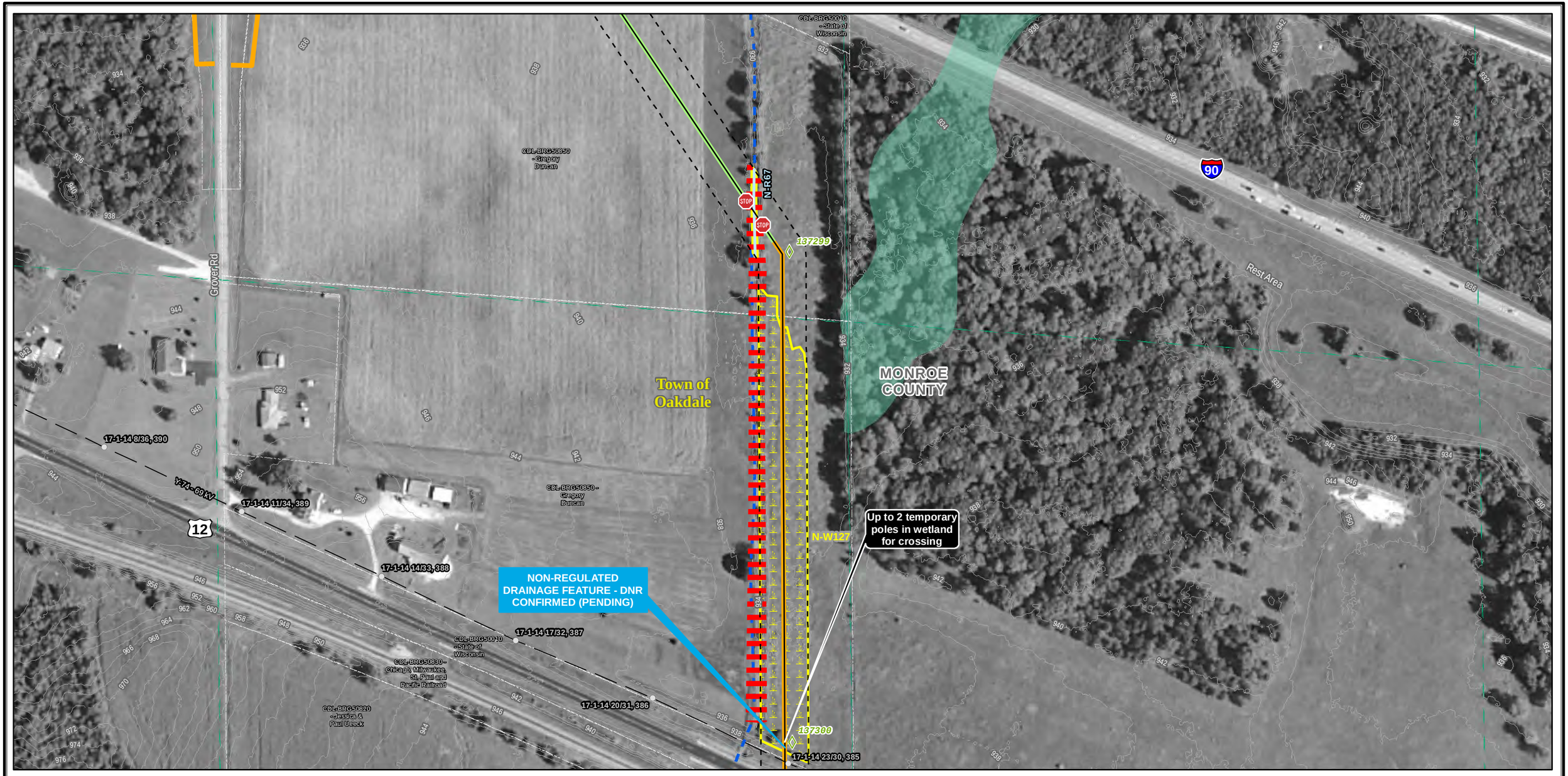

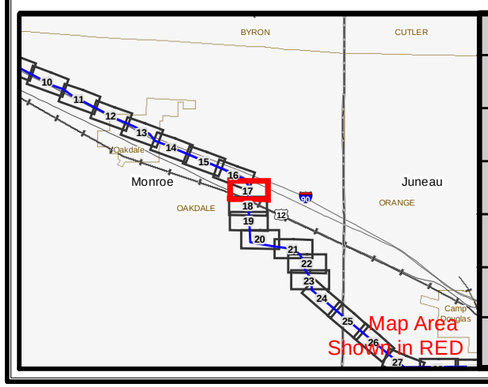

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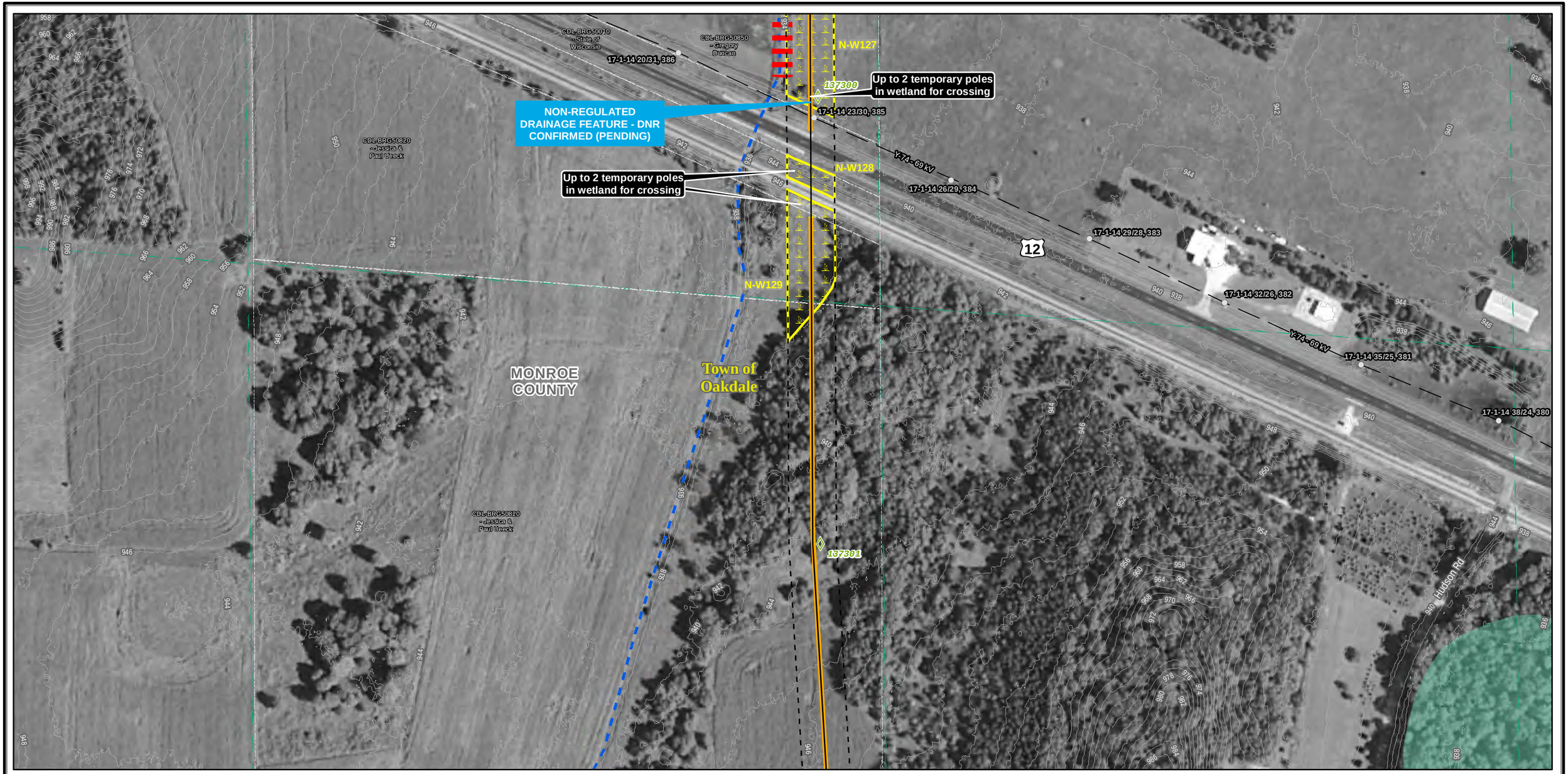

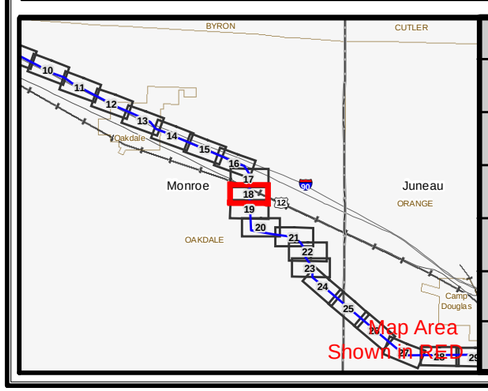

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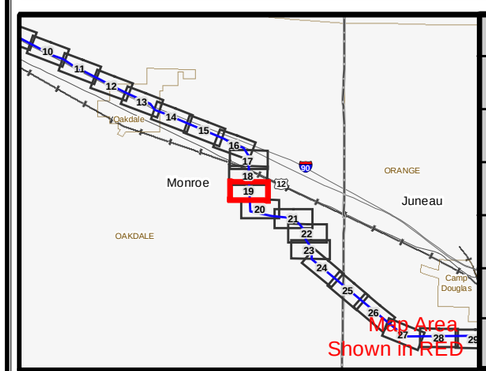

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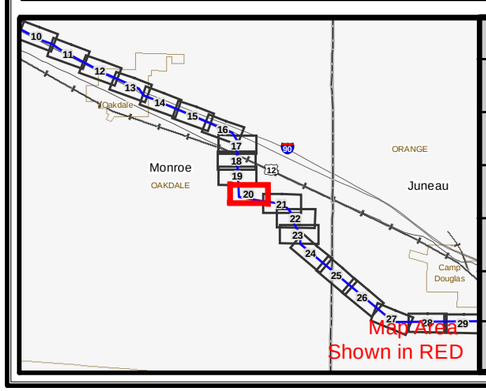

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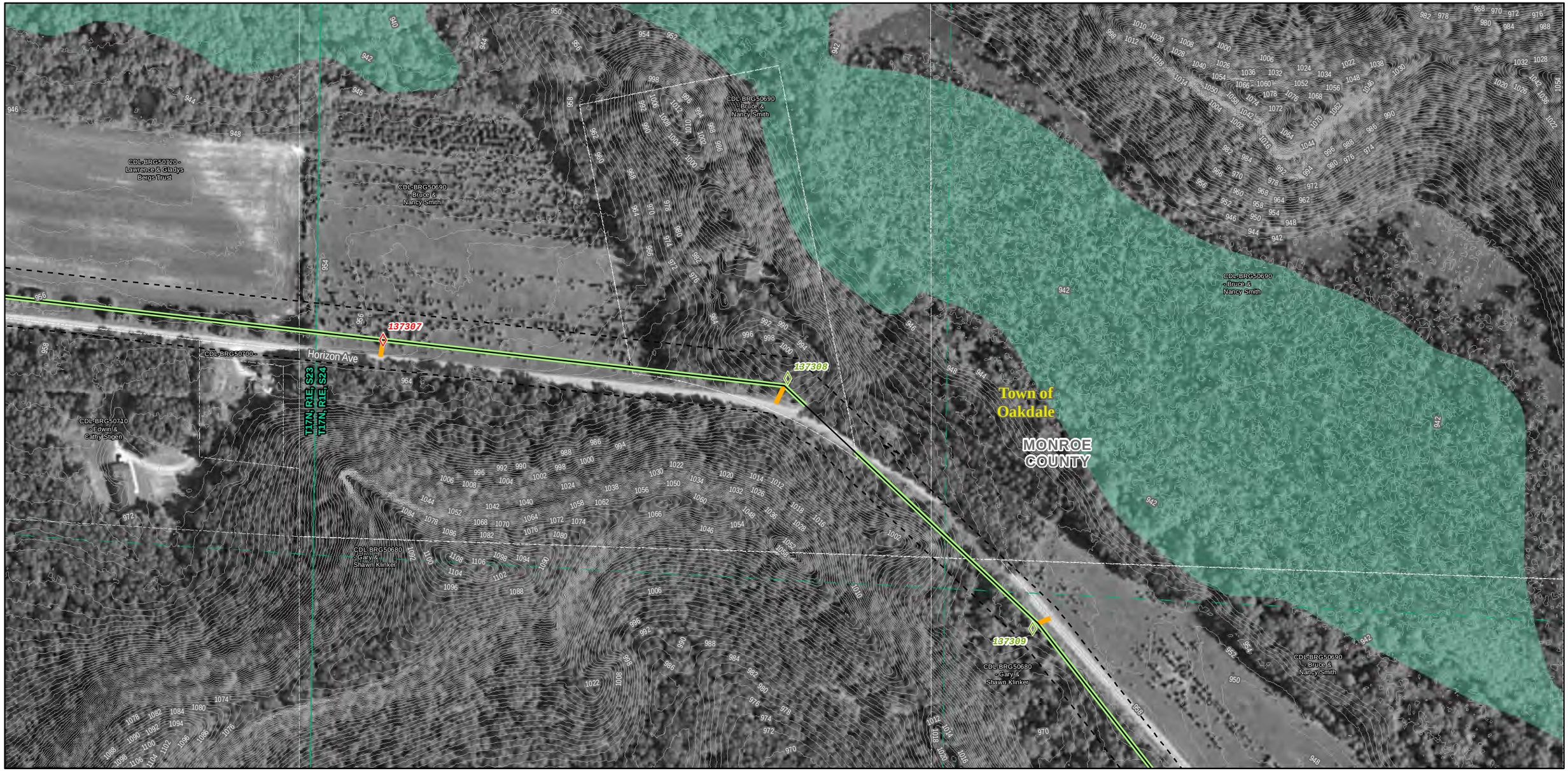

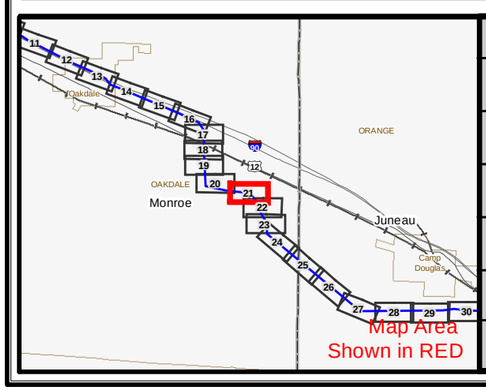

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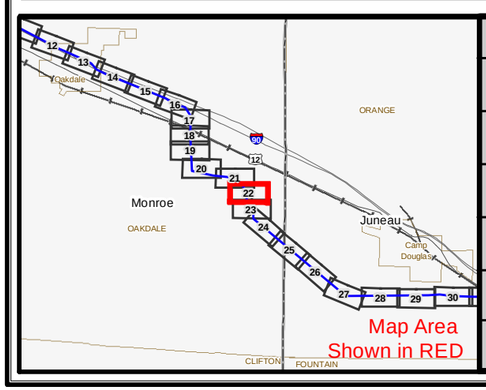

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  *Right-of-Way shown on this map is approximate and is shown for guidance only
- TCSB
  Temporary Clear Span Bridge
- STOP - NO VEHICLE ACCESS
  FOOT TRAFFIC ONLY
- Approximate wire set up area
  (Dimensions: Approximately 200' X 400')
- 200 Topographic Line
  Elevation
- Protected or Sensitive Resource -
  Construction Technique Protocol Needed
- Invasive Species -
  Construction Technique Protocol Needed
- Possible Wetland (WDNR Wetland)
- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
- DATCP Identified Soils -
  Difficult to Decompact
- Property Line
  Shown with: Parcel Number and Owner Name
- City/Village/Town Boundary

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN
SEGMENT 5

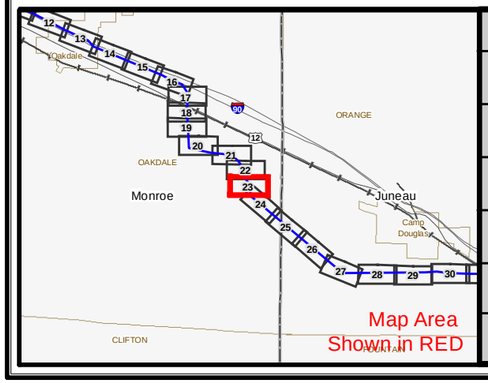
Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200
Feet

8/1/2016



- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
- Existing Pole to be Removed
- Existing Pole
- Existing Substation
- Existing ATC Transmission Line
- Existing Non-ATC Transmission Line
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- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

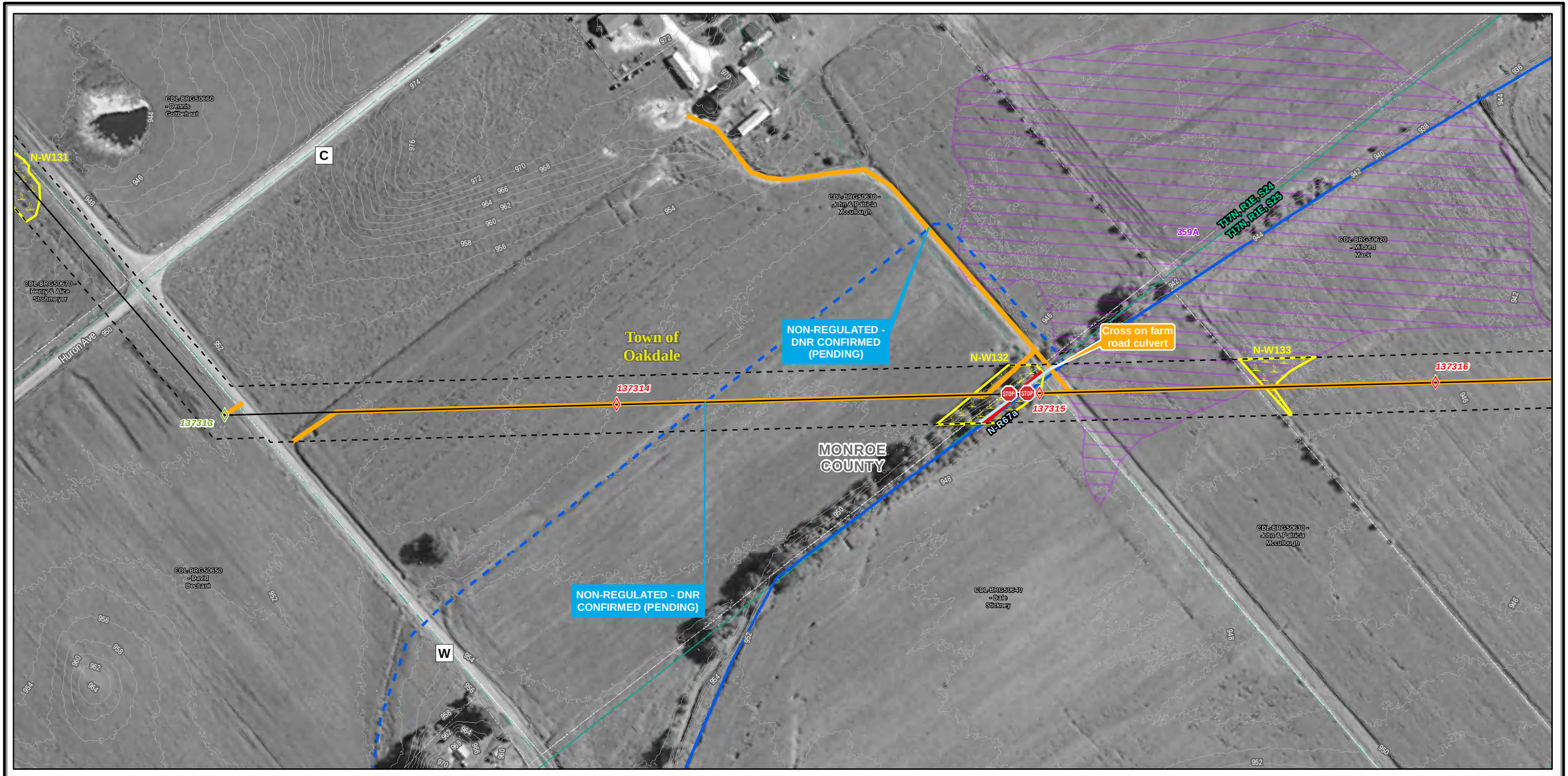
Orthophotography: NAIP 2010

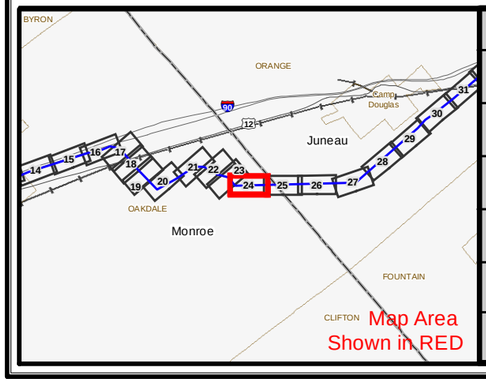
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
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- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
- DATCP Identified Soils - Difficult to Decompact
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC American Transmission Company®

0 100 200 Feet

8/1/2016

T17N, R1E, S24
T17N, R1E, S25

359A

CDL-BRG50610 - Michael Stuhlmeyer

CDL-BRG50600 - Shadowland Holdings LLC

N-W134

N-R67b

137316

137317

137318

137319

JUNEAU COUNTY

Town of Orange

NON-REGULATED - DNR CONFIRMED (PENDING)

NON-REGULATED - DNR CONFIRMED (PENDING)

Town of

Stickney Rd

C

W

JUNEAU COUNTY

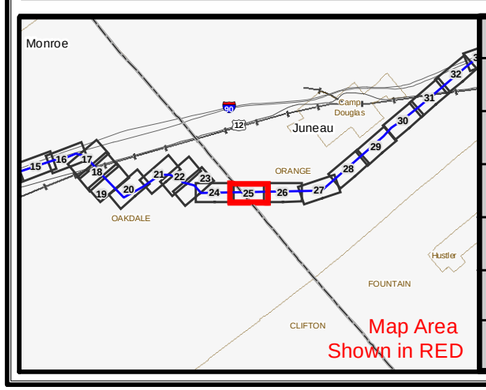
MONROE COUNTY

Huron Ave

Camp Hill Rd

T17N, R2E, S30
T17N, R1E, S25

0 1,000 2,000
Feet



- Proposed Centerline
- Proposed Pole DIRECT EMBED
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- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
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- Protected or Sensitive Resource - Construction Technique Protocol Needed
- Invasive Species - Construction Technique Protocol Needed
- Possible Wetland (WDNR Wetland)
- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN
SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200
Feet

8/1/2016

NON-REGULATED - DNR CONFIRMED (PENDING)

JUNEAU COUNTY

Town of Orange

CDL-BRG50600 - Shadowland Holdings LLC

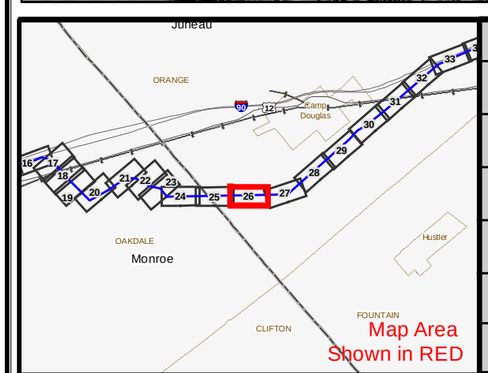
CDL-BRG50610 - Michael Strohmeyer

CDL-BRG50560 - Dorothy Gibbons

137320

137321

137322



- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
- Existing Pole to be Removed
- Existing Pole
- Existing Substation
- Existing ATC Transmission Line
- Existing Non-ATC Transmission Line
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- STOP - NO VEHICLE ACCESS FOOT TRAFFIC ONLY
- Approximate wire set up area (Dimensions: Approximately 200' X 400')
- Topographic Line (200 Elevation)
- Protected or Sensitive Resource - Construction Technique Protocol Needed
- Invasive Species - Construction Technique Protocol Needed
- Possible Wetland (WDNR Wetland)
- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

137322

137323

137324

137325

JUNEAU COUNTY

Town of Orange

Camp Hill Rd

T17N, R2E, S29
T17N, R2E, S30

T17N, R2E, S31
T17N, R2E, S32

T17N, R2E, S30
T17N, R2E, S31

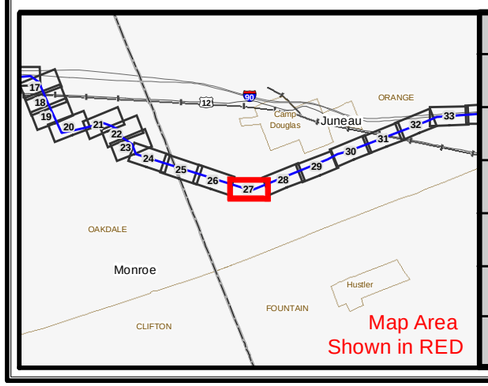
T17N, R2E, S29
T17N, R2E, S32

CDL-BRG50560 - Dorothy Gibbons

CDL-BRG50560 - Richard & Sarah Olson

CDL-BRG50599 - Todd & Paula Forsythe

Invasive Species (Garlic Mustard): Avoid accessing or clean vehicles before leaving the area



- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
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- Delineated Wetland
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- WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

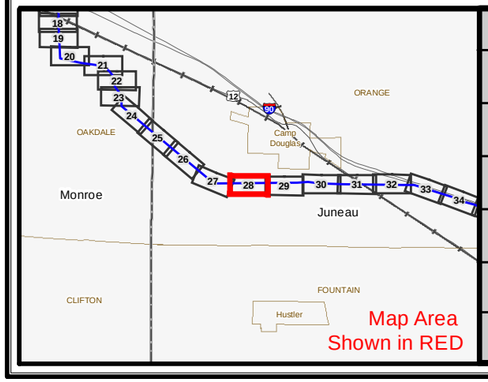
Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY

0 100 200 Feet

8/1/2016



- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
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- Graded Construction Access and Structure Pads
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

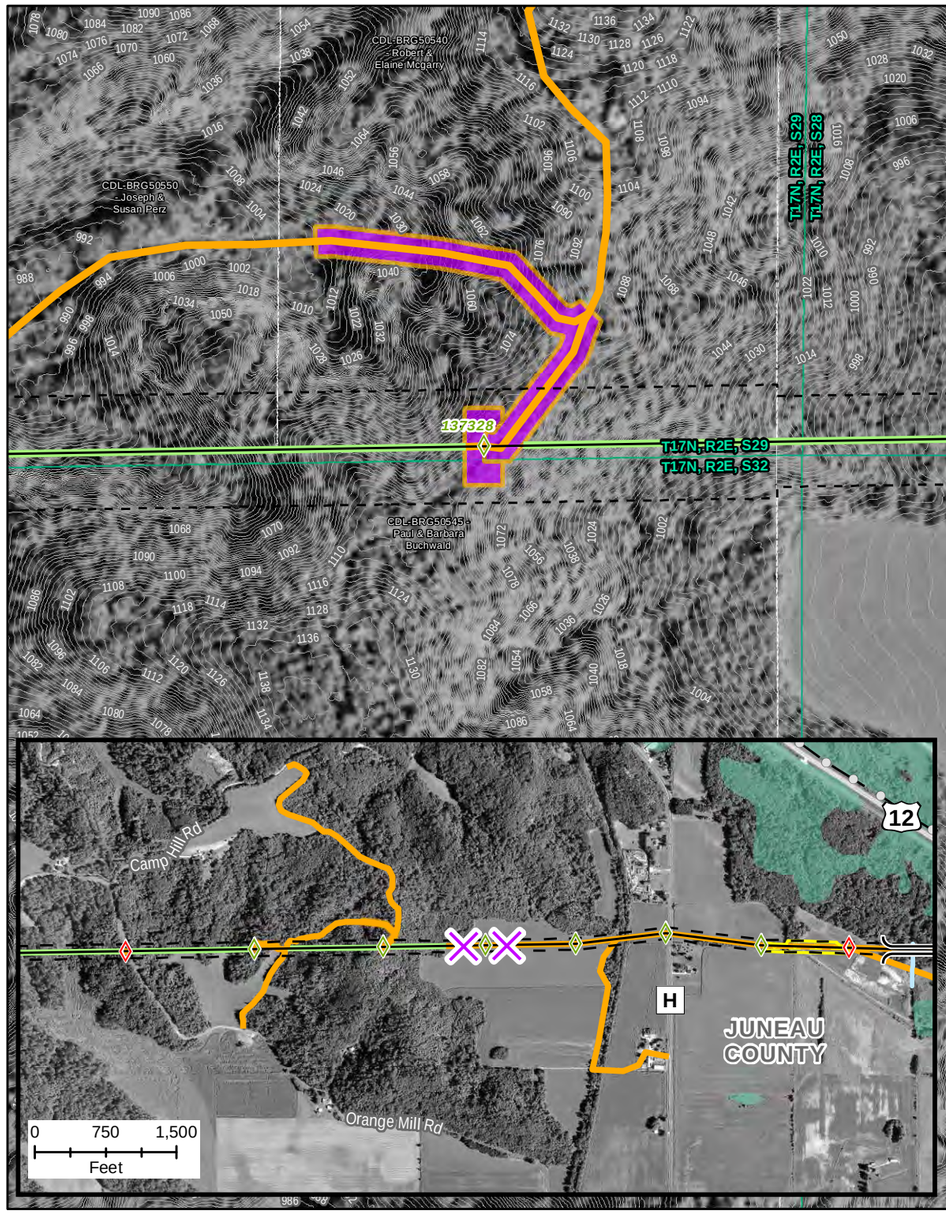
Orthophotography: NAIP 2010

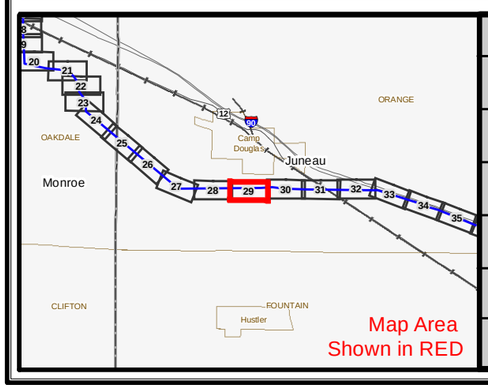
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





Map Area Shown in RED

- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
- Existing Pole to be Removed
- Existing Pole
- Existing Substation
- Existing ATC Transmission Line
- Existing Non-ATC Transmission Line
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- Protected or Sensitive Resource - Construction Technique Protocol Needed
- Invasive Species - Construction Technique Protocol Needed
- Possible Wetland (WDNR Wetland)
- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Town of Orange

559A

398A

Invasive Species (Garlic Mustard): Avoid accessing or clean vehicles before leaving the area

137331

137332

137333

N-W135

Omaha County Trail Crossing

T17N, R2E, S28
T17N, R2E, S33

JUNEAU COUNTY

Use existing culverted crossing

N-R68

T17N, R2E, S28
T17N, R2E, S27

T17N, R2E, S33
T17N, R2E, S34

CDL-BRG50495 - Chester & Kathleen Chaffee

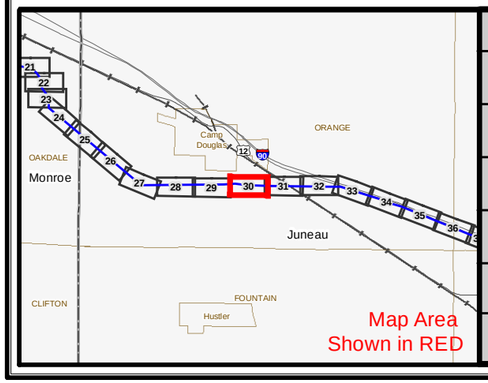
CDL-BRG50470 - Wills and Darlene Bires

CDL-BRG50610 - Steven & Diana Mack and Deborah Hurley

CDL-BRG50520 - Arthur Bradley

CDL-BRG50500 - George Jilek Rev Trust

H



- Proposed Centerline
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- Delineated Wetland
- Field Located Waterway
- WDNR Perennial Stream
- WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

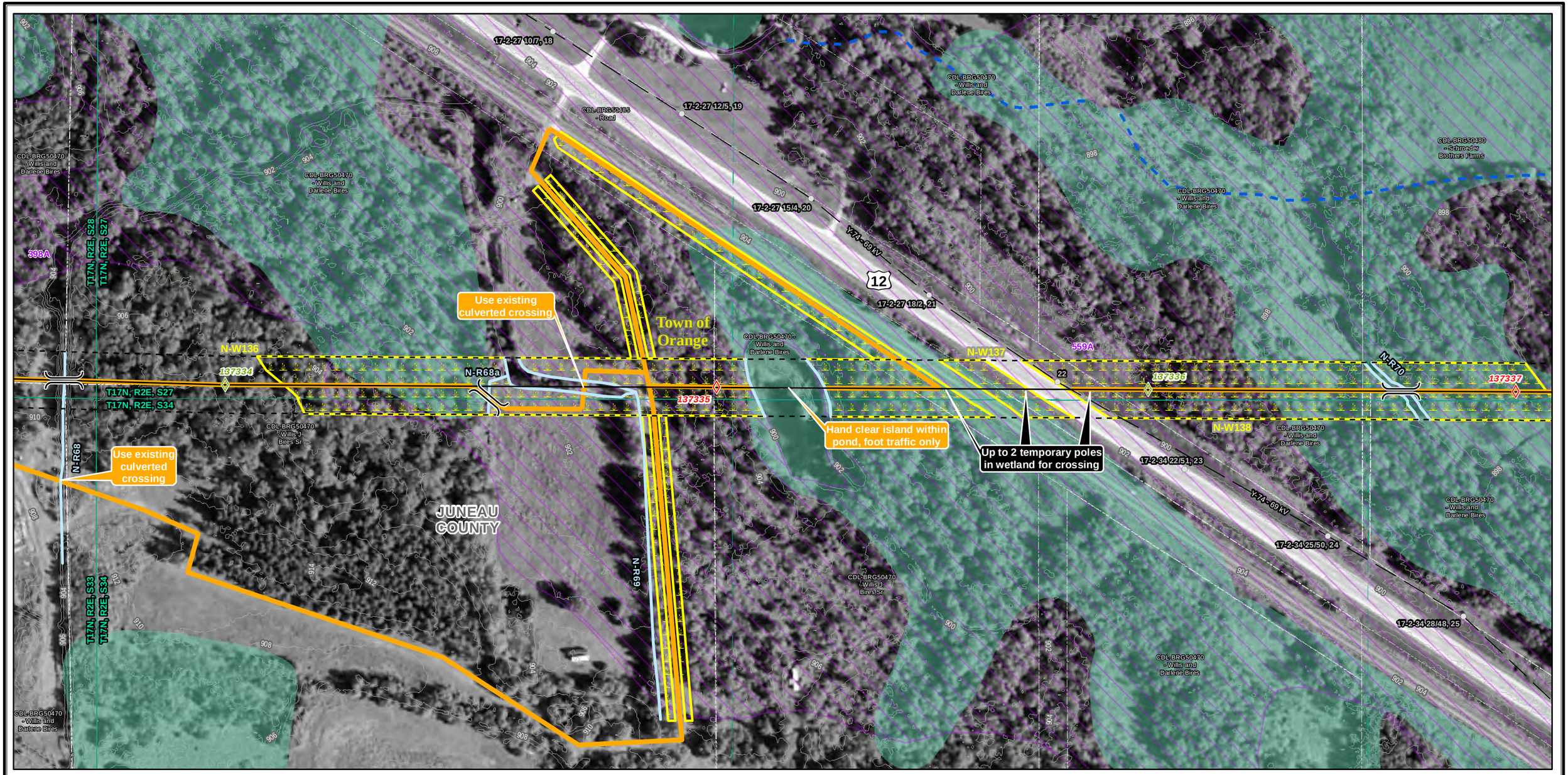
Orthophotography: NAIP 2010

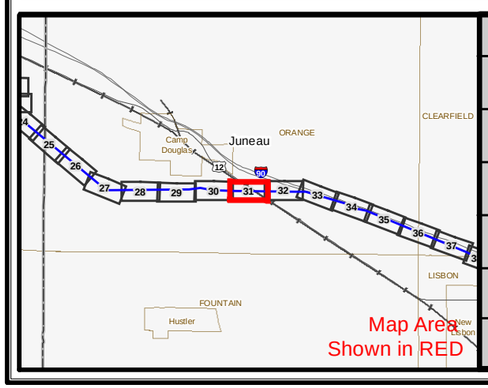
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





- Proposed Centerline
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- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
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- Graded Construction Access and Structure Pads
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

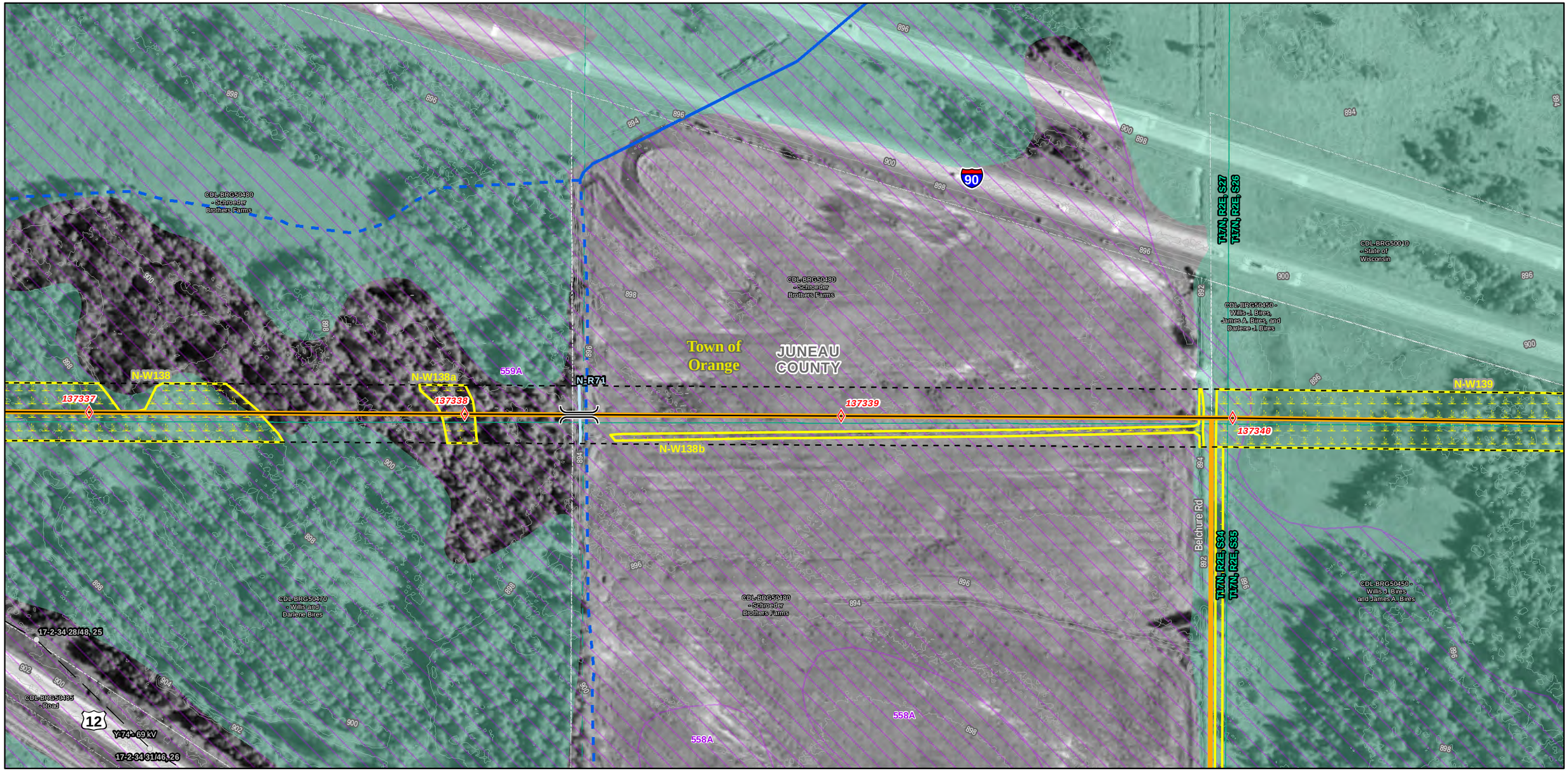
Orthophotography: NAIP 2010

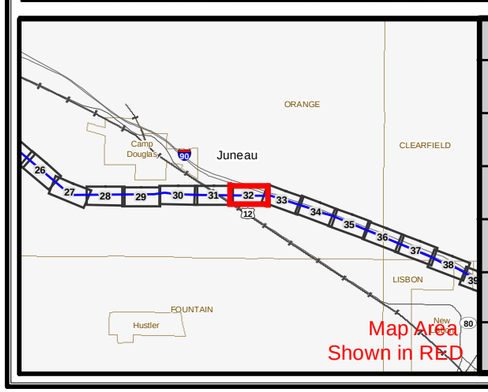
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





Proposed Centerline	Transmission Right-of-Way* *Right-of-Way shown on this map is approximate and is shown for guidance only	Possible Wetland (WDNR Wetland)	City/Village/Town Boundary
Proposed Pole DIRECT EMBED; Proposed Pole FOUNDATION; Proposed Pole VIBRATORY	TCSB Temporary Clear Span Bridge	Delineated Wetland	
Vehicle Construction Access; Potential Vehicle Construction Access	STOP - NO VEHICLE ACCESS FOOT TRAFFIC ONLY	Field Located Waterway	
Clearing Access Only	Approximate wire set up area (Dimensions: Approximately 200' X 400')	WDNR Perennial Stream; WDNR Intermittent Stream	
Graded Construction Access and Structure Pads	Topographic Line (200 — Elevation)	DATCP Identified Soils - Difficult to Decompact	
Existing Pole to be Removed; Existing Pole; Existing Substation	Protected or Sensitive Resource - Construction Technique Protocol Needed	Property Line (Shown with: Parcel Number and Owner Name)	
Existing ATC Transmission Line; Existing Non-ATC Transmission Line	Invasive Species - Construction Technique Protocol Needed		

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

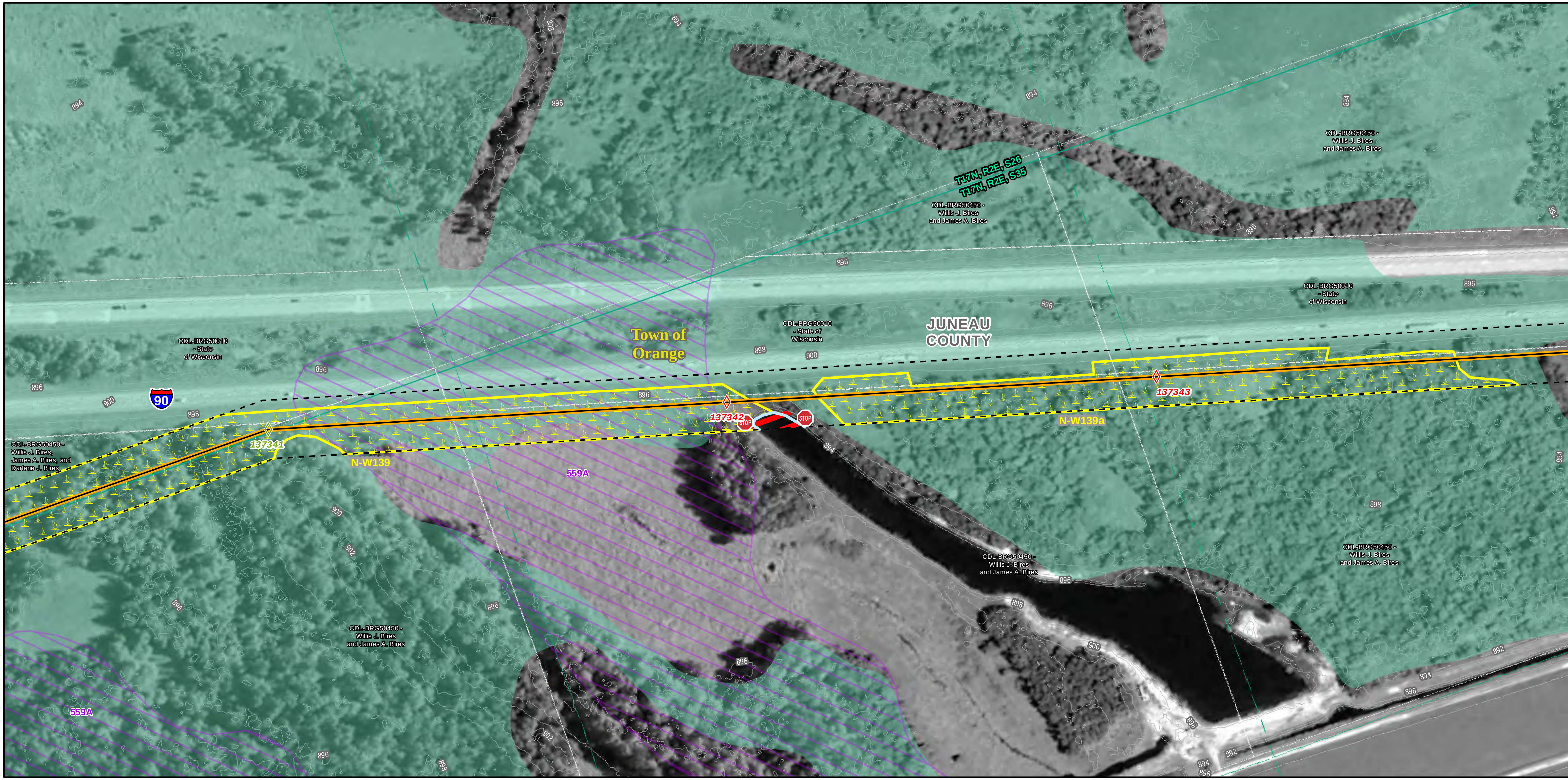
Orthophotography: NAIP 2010

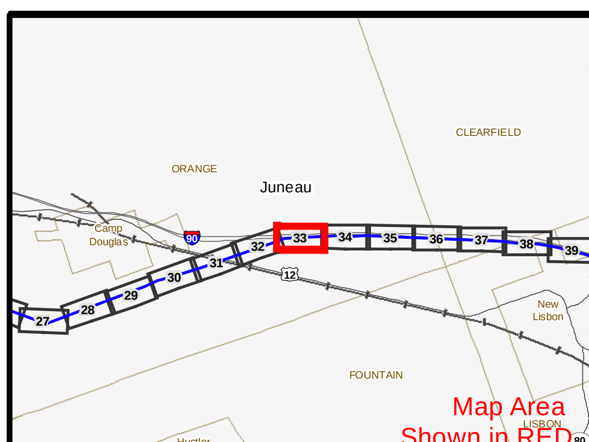
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY

0 100 200 Feet

8/1/2016





Proposed Centerline

Proposed Pole DIRECT EMBED | Proposed Pole FOUNDATION | Proposed Pole VIBRATORY

Vehicle Construction Access

Potential Vehicle Construction Access

Clearing Access Only

Graded Construction Access and Structure Pads

Existing Pole to be Removed

Existing Pole

Existing Substation

Existing ATC Transmission Line

Existing Non-ATC Transmission Line

Transmission Right-of-Way*

*Right-of-Way shown on this map is approximate and is shown for guidance only

TCSB
Temporary Clear Span Bridge

STOP - NO VEHICLE ACCESS
FOOT TRAFFIC ONLY

Approximate wire set up area
(Dimensions: Approximately 200' X 400')

Topographic Line (200, Elevation)

Protected or Sensitive Resource - Construction Technique Protocol Needed

Invasive Species - Construction Technique Protocol Needed

Possible Wetland (WDNR Wetland)

Delineated Wetland

Field Located Waterway

WDNR Perennial Stream

WDNR Intermittent Stream

DATCP Identified Soils - Difficult to Decompact

Property Line — Shown with: Parcel Number and Owner Name

City/Village/Town Boundary

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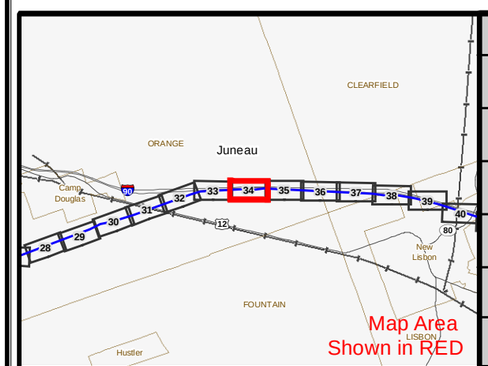
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN
SEGMENT 5

Orthophotography: NAIP 2010

0 100 200
Feet

8/1/2016



- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
- Graded Construction Access and Structure Pads
- Existing Pole to be Removed
- Existing Pole
- Existing Substation
- Existing ATC Transmission Line
- Existing Non-ATC Transmission Line
- Transmission Right-of-Way* (*Right-of-Way shown on this map is approximate and is shown for guidance only)
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- Invasive Species - Construction Technique Protocol Needed
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Town of Orange

JUNEAU COUNTY

CDL-BRG50440 - John & Barbara Haske

CDL-BRG50010 - State of Wisconsin

CDL-BRG50430 - Vlas Clausen & Terry Toomey

CDL-BRG50420 - Richard Moncher

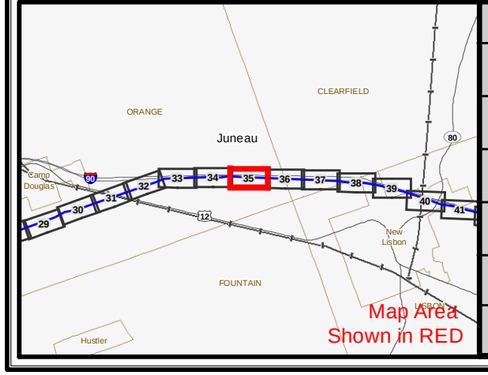
559A 398A 359A 558A

137348 137349 137350

N-W143 N-W143a N-W143b N-W143c N-R72

STOP

90



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

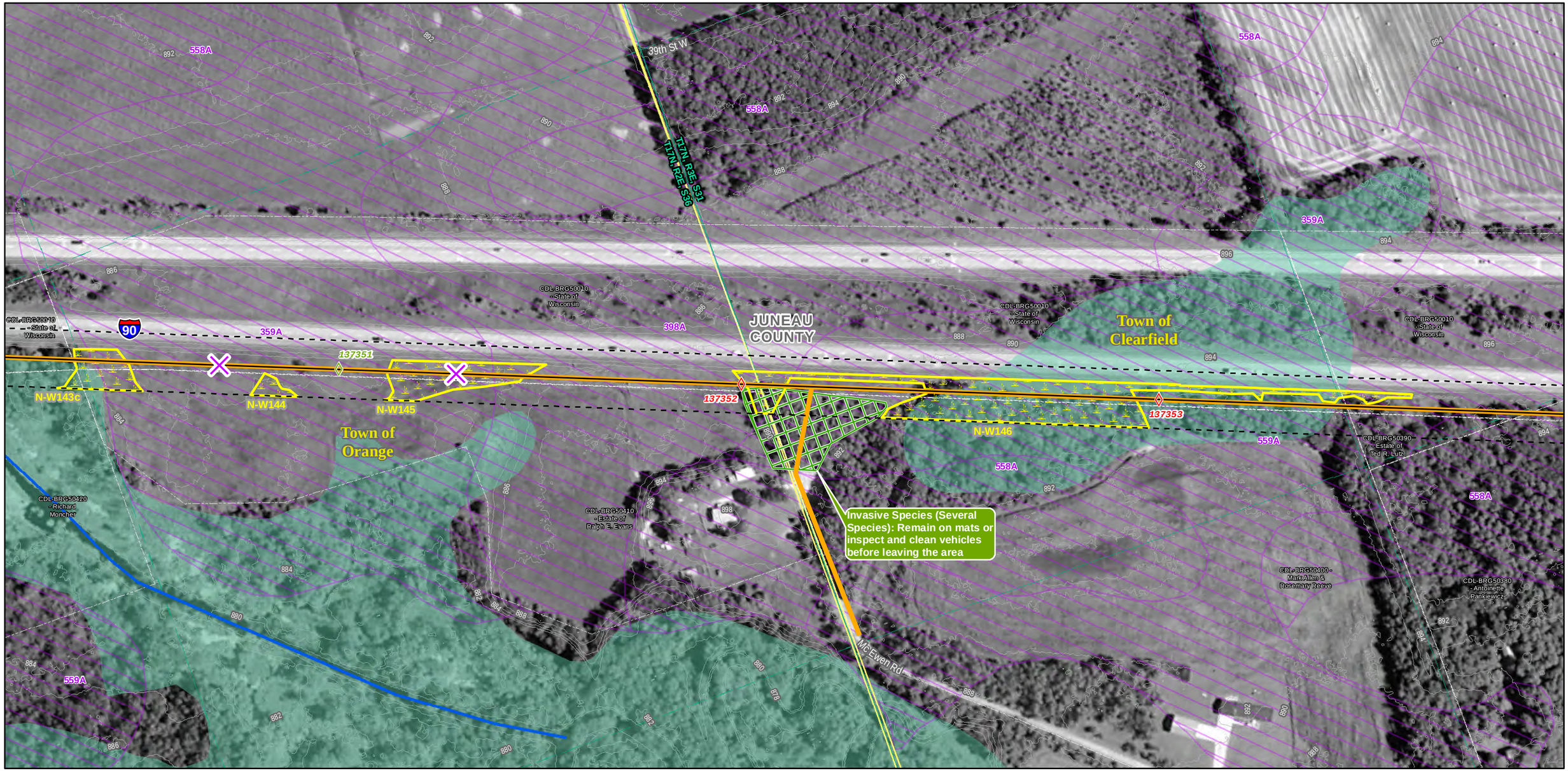
Orthophotography: NAIP 2010

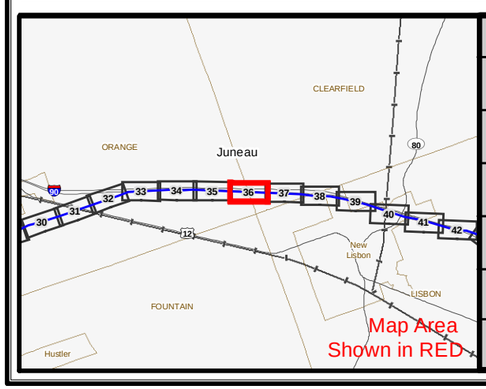
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

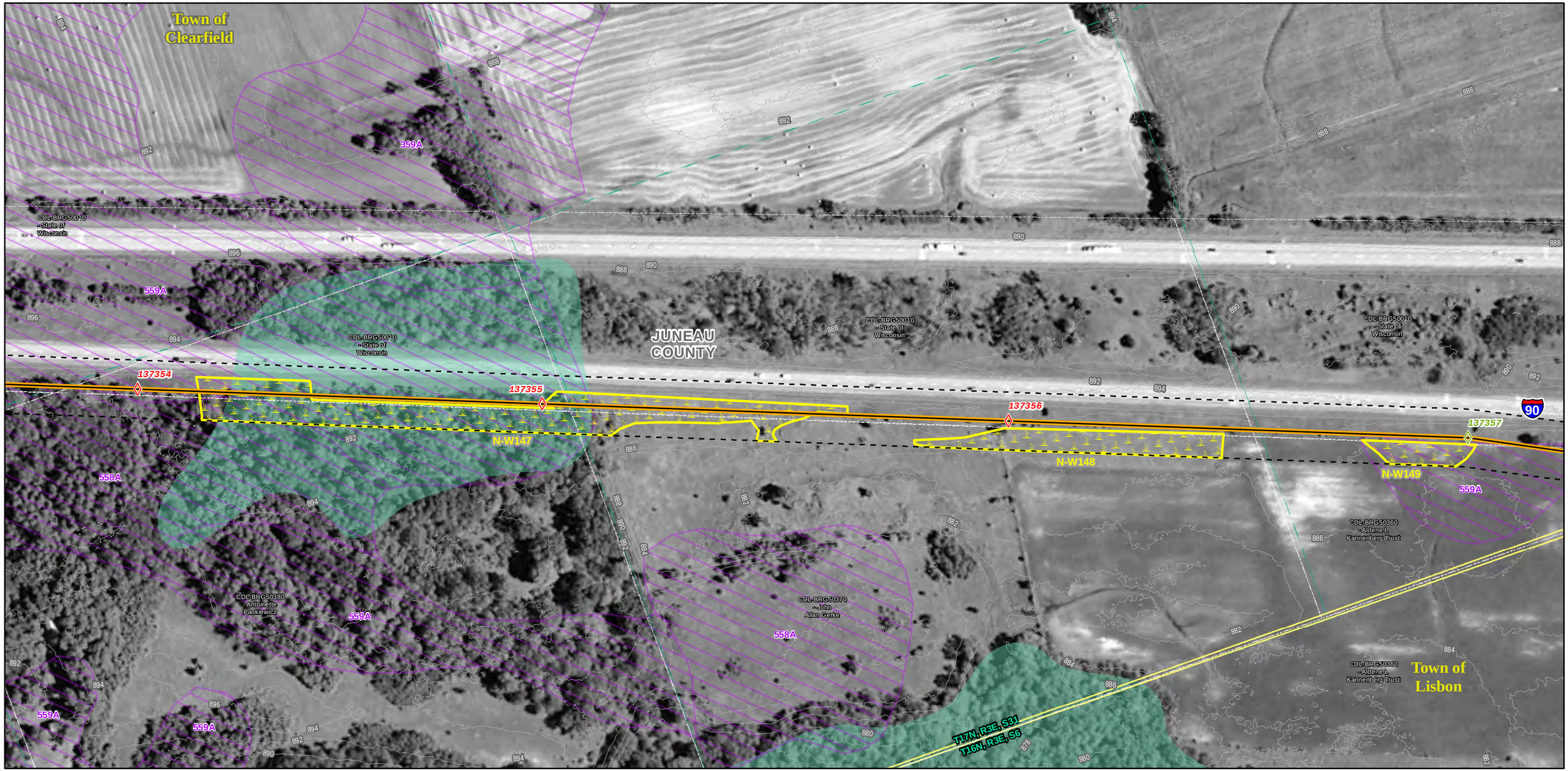
Orthophotography: NAIP 2010

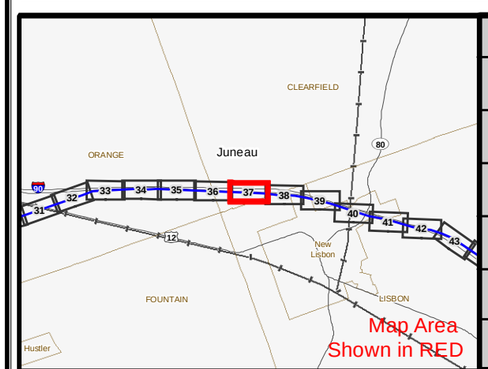
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

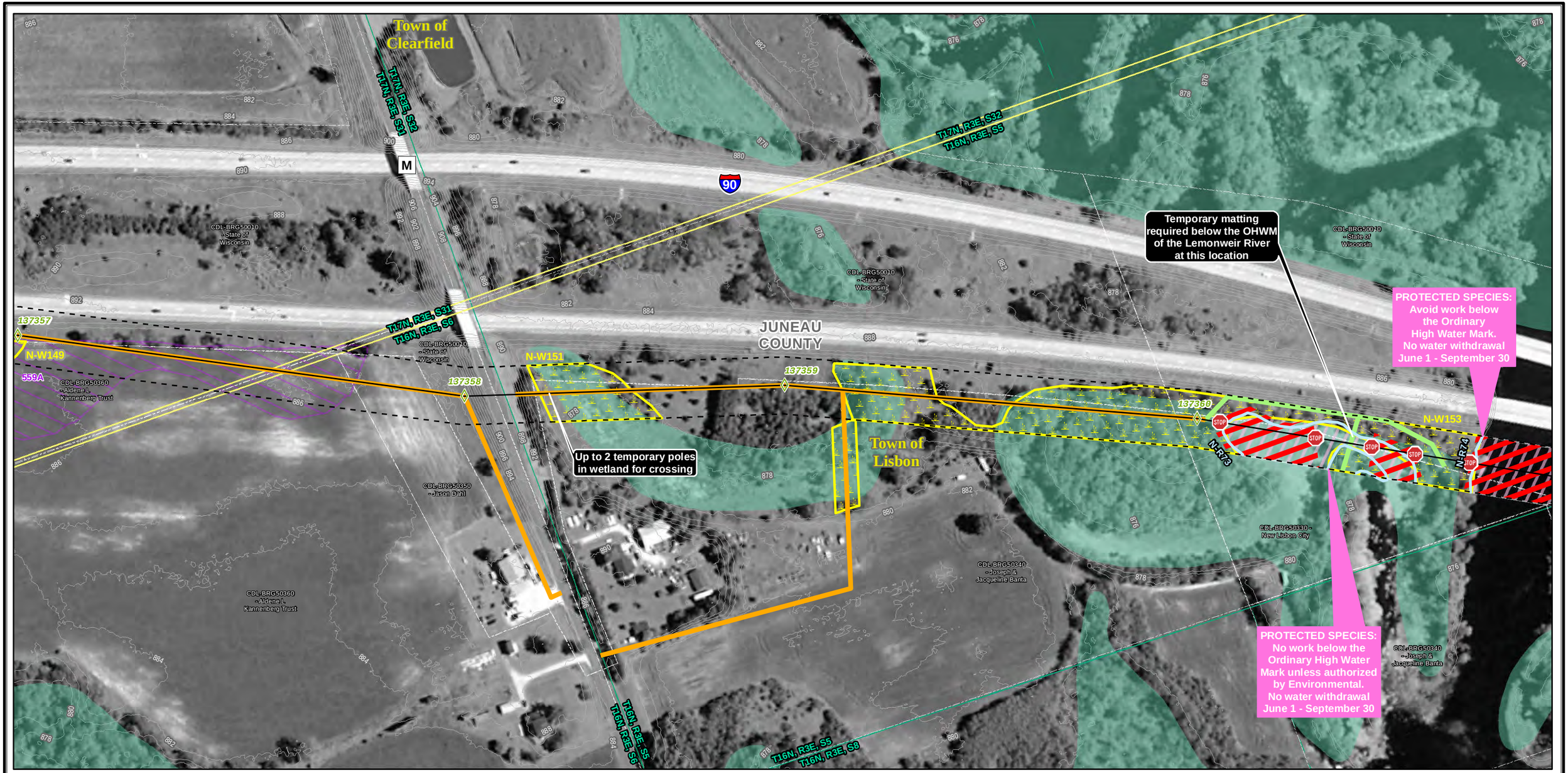
Orthophotography: NAIP 2010

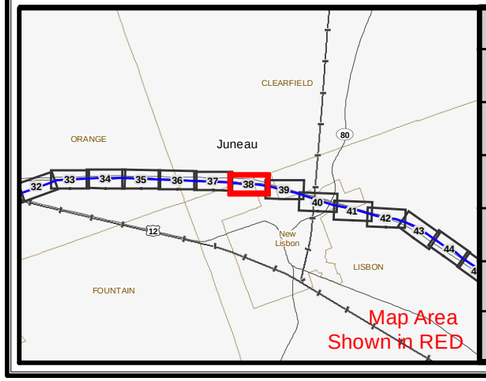
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

PROTECTED SPECIES: Avoid work below the Ordinary High Water Mark. No water withdrawal June 1 - September 30

Temporary matting required below the OHWM of the Lemonweir River at this location

PROTECTED SPECIES: No work below the Ordinary High Water Mark unless authorized by Environmental. No water withdrawal June 1 - September 30

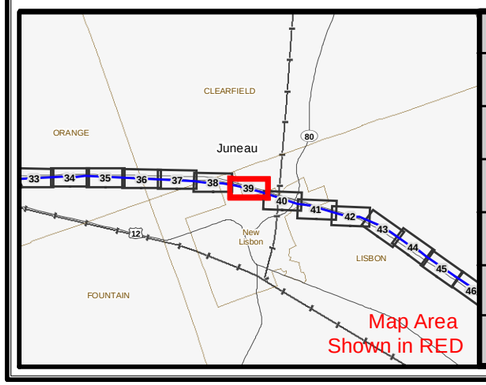
T.16N, R3E, S5
T.16N, R3E, S8

N-R74
N-R75
N-R76
N-W153

137361
137362
137363

Town of Lisbon
JUNEAU COUNTY
City of New Lisbon

CDL-BRG50010 - State of Wisconsin
CDL-BRG50330 - New Lisbon City
CDL-BRG50340 - Joseph & Jacqueline Banta
CDL-BRG50305 - Road
CDL-BRG50320 - James Albert Jones



Map Area Shown in RED

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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

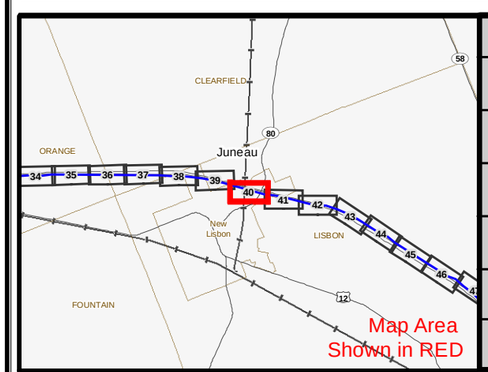
ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Invasive Species (Several Species): Remain on mats or inspect and clean vehicles before leaving the area

137364
N-W153
137365
N-W154
N-W154a
137366
N-W155
137367
N-W156
N-R77
558A
359A
398A
398A
T16N R9E S9
T16N R9E S8
8th Ave
Frontage Rd
Hogi Island Rd
Bickford St
90
80
STOP
CDL-BRG50305 - Road
CDL-BRG50310 - Evelyn I Young-Jones Life Estate
CDL-BRG50311 - Evelyn I Young-Jones Life Estate
CDL-BRG50320 - James Albert Jones
CDL-BRG50319 - State of Wisconsin
CDL-BRG50010 - State of Wisconsin
CDL-BRG50010 - State of Wisconsin
CDL-BRG50280 - Clair Gilmore Trust
CDL-BRG50290 - Bnf/ Storage
CDL-BRG50270 - Gaitlin Fenwick
JUNEAU COUNTY
City of New Lisbon



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

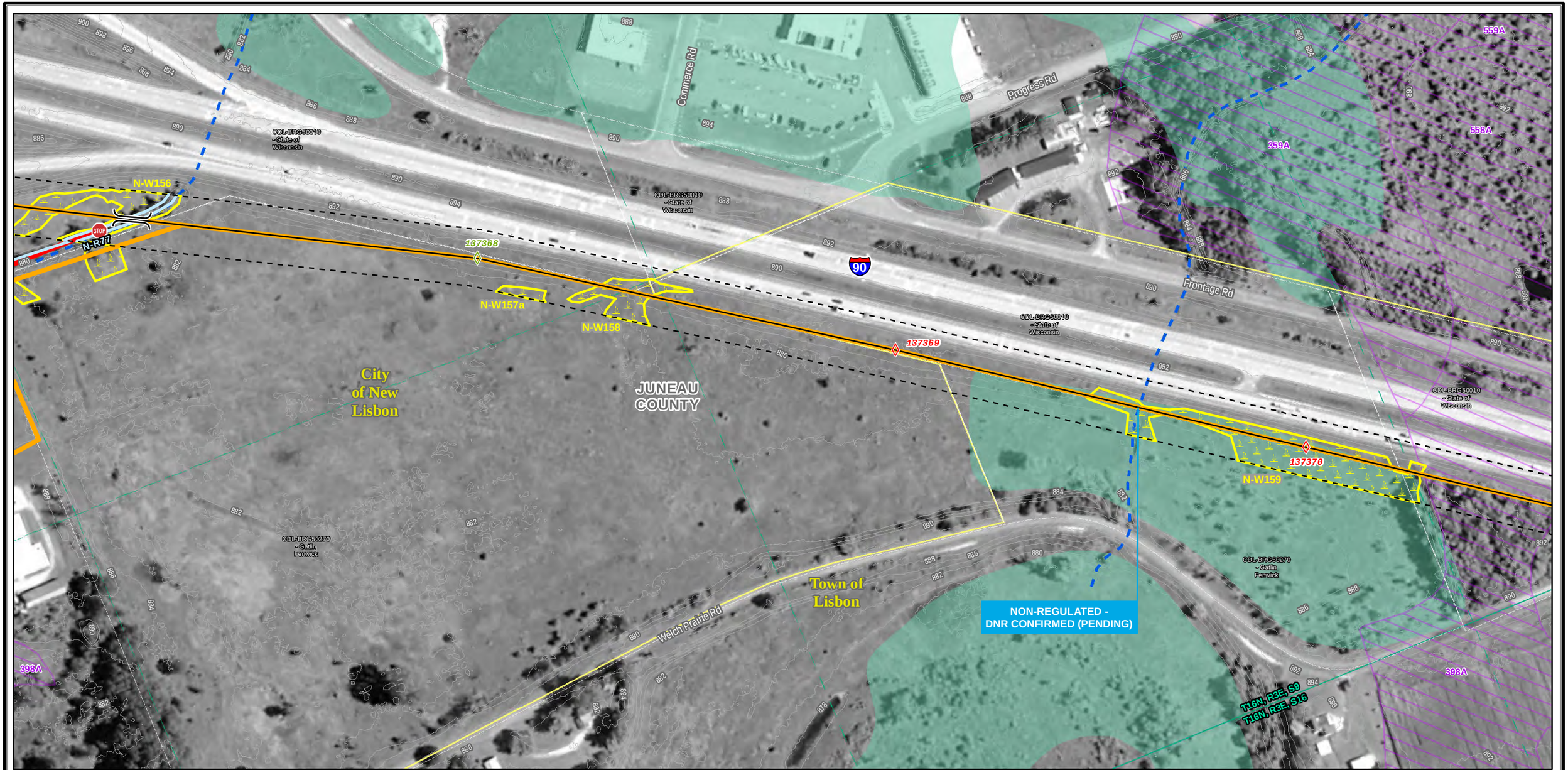
Orthophotography: NAIP 2010

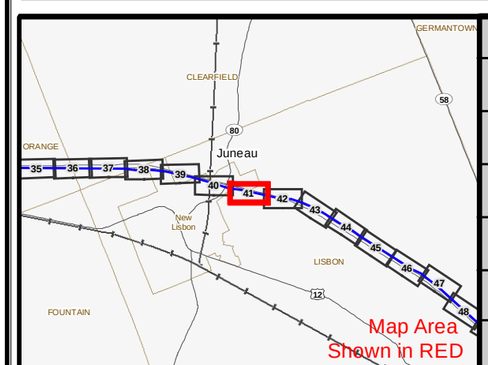
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

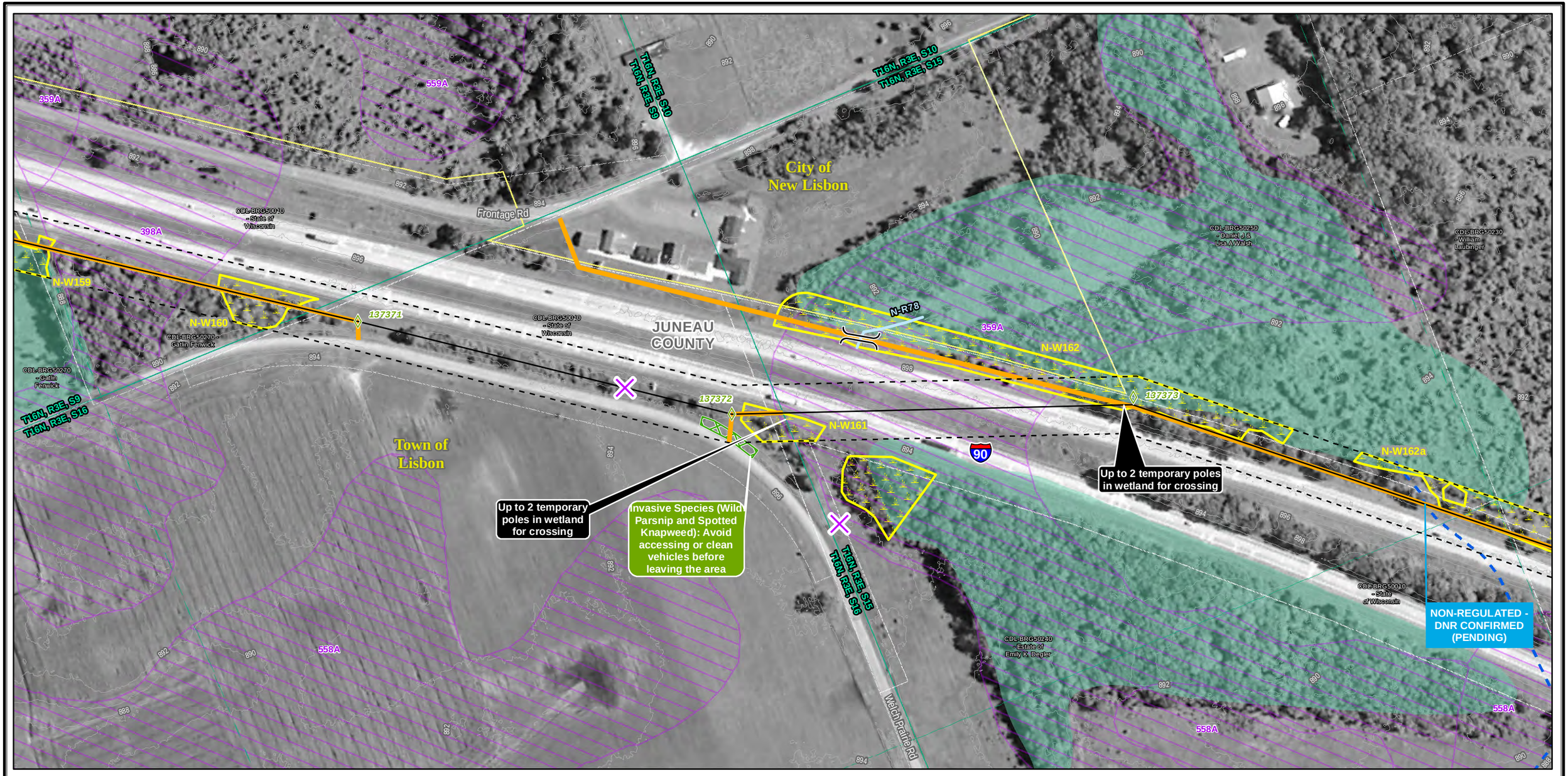
Orthophotography: NAIP 2010

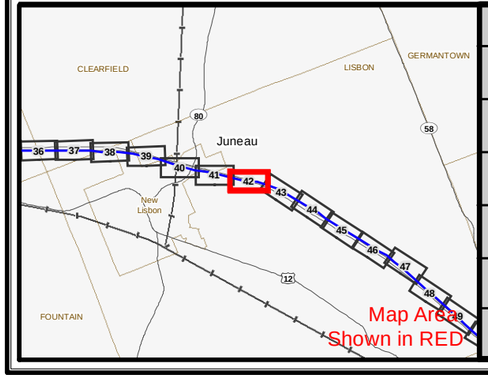
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

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Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

NON-REGULATED DRAINAGE FEATURE - DNR CONFIRMED (PENDING)

NON-REGULATED - DNR CONFIRMED (PENDING)

CDL-BRG50230 - William Laubinger

CDL-BRG50200 - Duane Miller

CDL-BRG50220 - Norman & Dennis Walker

CDL-BRG50250 - Daniel J & Lisa A Walsh

CDL-BRG50010 - State of Wisconsin

CDL-BRG50240 - Estate of Emily K. Degler

N-W163

N-W162a

137374

137375

137376

137377

N-R79

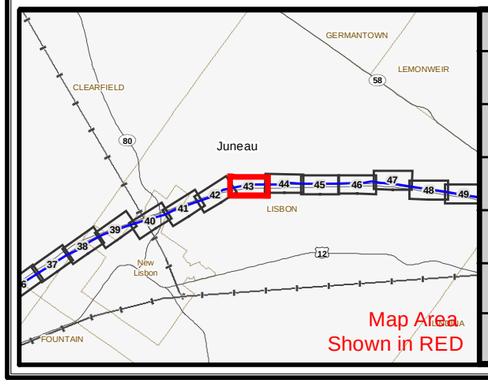
558A

359A

Town of Lisbon

JUNEAU COUNTY

Welch Prairie Rd



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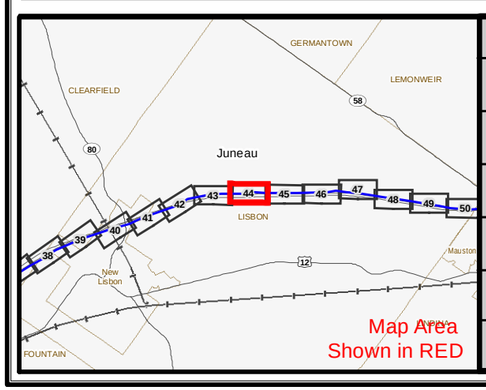

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

NON-REGULATED - DNR CONFIRMED (PENDING)

N-W164

137381

137382

N-W165

137383

N-W166

Town of Lisbon

JUNEAU COUNTY

CDL-BRG50170 - Charlotte Stange Trust

CDL-BRG50180 - Christie Becker

CDL-BRG50010 - State of Wisconsin

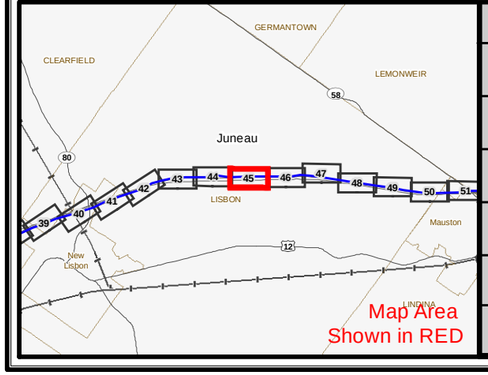
T14N, R3E, S23
T14N, R3E, S22

Use existing culverted crossing

Welch Prairie Rd

Meyer Rd (2)

0 750 1,500 Feet



Map Area Shown in RED

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- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
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- Potential Vehicle Construction Access
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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

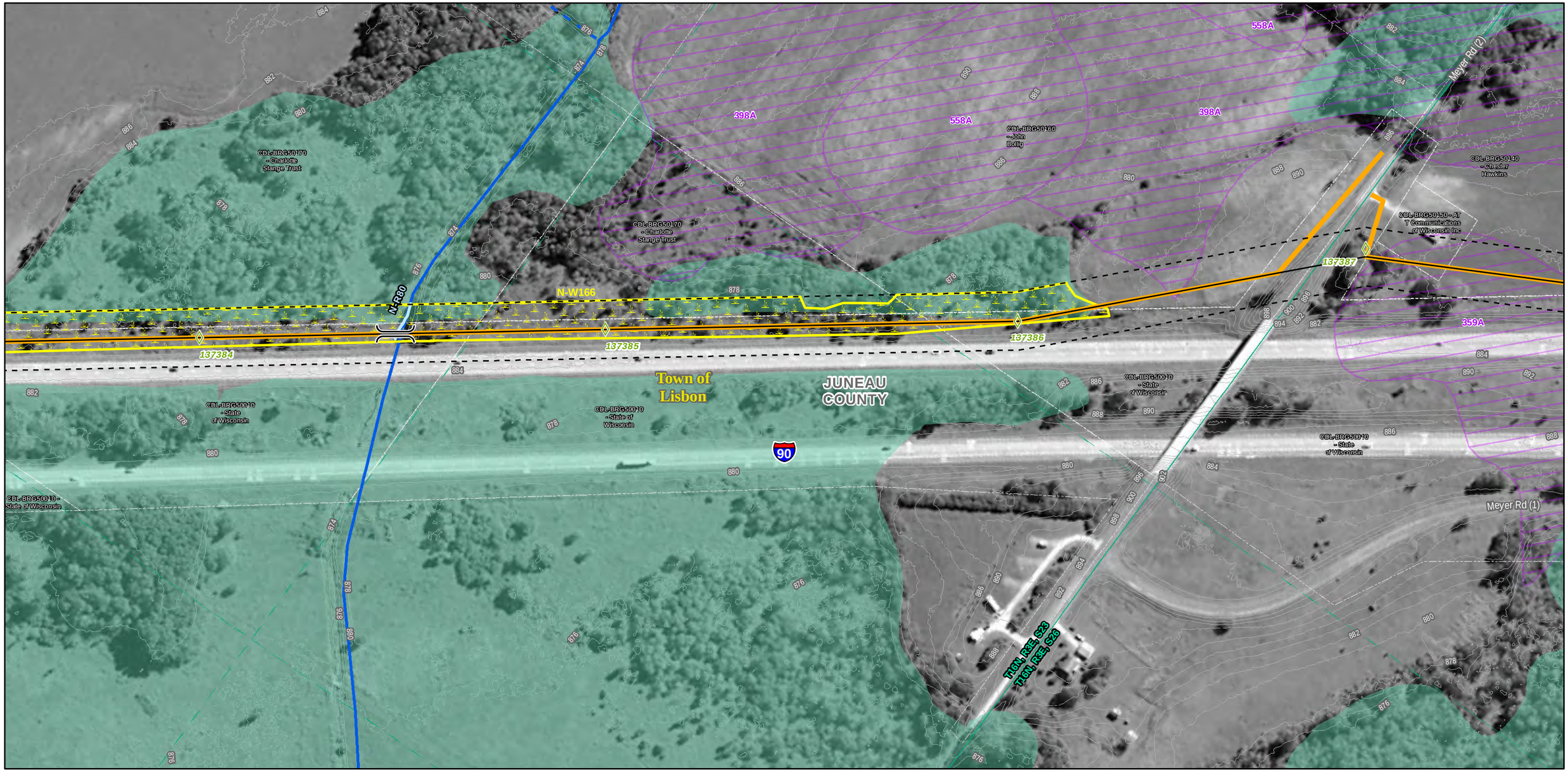
Orthophotography: NAIP 2010

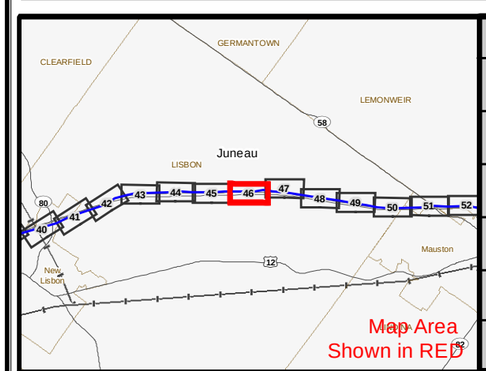
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

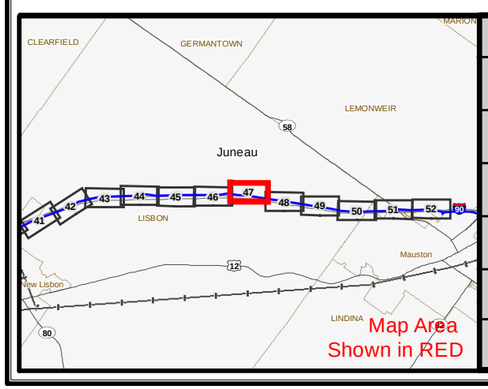
Orthophotography: NAIP 2010

Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016



Proposed Centerline

Proposed Pole DIRECT EMBED | Proposed Pole FOUNDATION | Proposed Pole VIBRATORY

Vehicle Construction Access

Potential Vehicle Construction Access

Clearing Access Only

Graded Construction Access and Structure Pads

Existing Pole to be Removed

Existing Pole

Existing Substation

Existing ATC Transmission Line

Existing Non-ATC Transmission Line

Transmission Right-of-Way*

*Right-of-Way shown on this map is approximate and is shown for guidance only

TCSB
Temporary Clear Span Bridge

STOP - NO VEHICLE ACCESS FOOT TRAFFIC ONLY

Approximate wire set up area (Dimensions: Approximately 200' X 400')

200 Topographic Line — Elevation

Protected or Sensitive Resource - Construction Technique Protocol Needed

Invasive Species - Construction Technique Protocol Needed

Possible Wetland (WDNR Wetland)

Delineated Wetland

Field Located Waterway

WDNR Perennial Stream

WDNR Intermittent Stream

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

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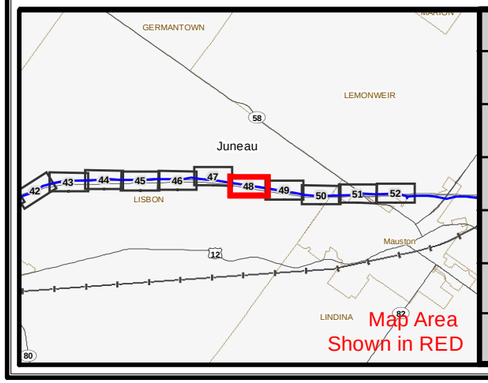
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY

0 100 200 Feet

8/1/2016

16-3-25 0/23, 226
16-3-25 0/20, 227
CDL-BRG50120 - Richard Hopper
Y-74 - 69 kV
N-W169
16-3-26 49/24, 228
137391
N-W170
137392
CDL-BRG50010 - State of Wisconsin
NON-REGULATED - DNR CONFIRMED (PENDING)
T16N, R3E, S25
T16N, R3E, S26
Town of Lisbon
JUNEAU COUNTY
Welch Prairie Rd
137393
N-W171
T16N, R3E, S25
T16N, R3E, S36
CDL-BRG50100 - John & Barbara Treganza, Christine Carter, Jeffrey Treganze and Lisa Quigg
CDL-BRG50110 - Charles & Dorothy Clark
N-W172
137394
16-3-26 45/17, 229
16-3-26 47/15, 230
558A
16-3-26 48/12, 231
Y-74 - 69 kV
6-3-26 50/9, 232
Meyer Rd (1)
16-3-26 51/7, 233
234
16-3-25 1/2, 235
16-3-36 2a/31, 236
6-3-36 3/48, 237
238
559A



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN
SEGMENT 5

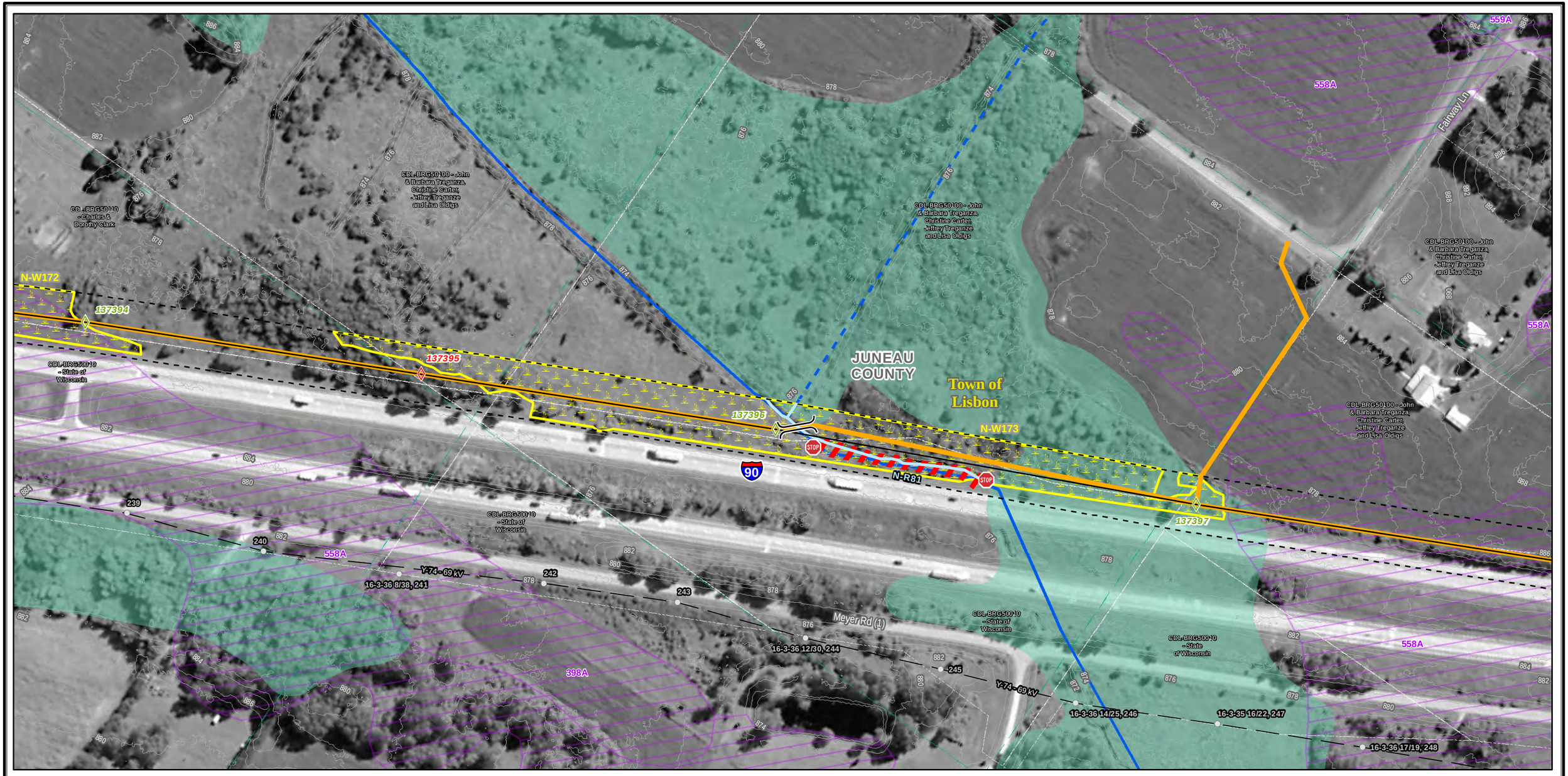
Orthophotography: NAIP 2010

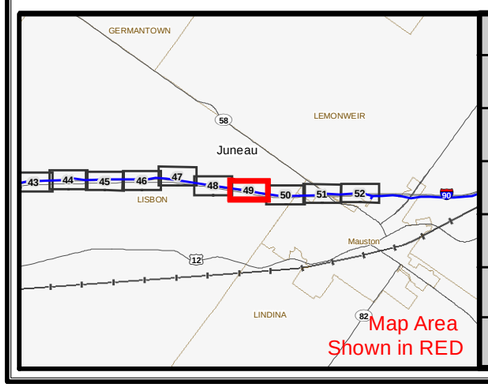
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY®

0 100 200
Feet

8/1/2016





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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

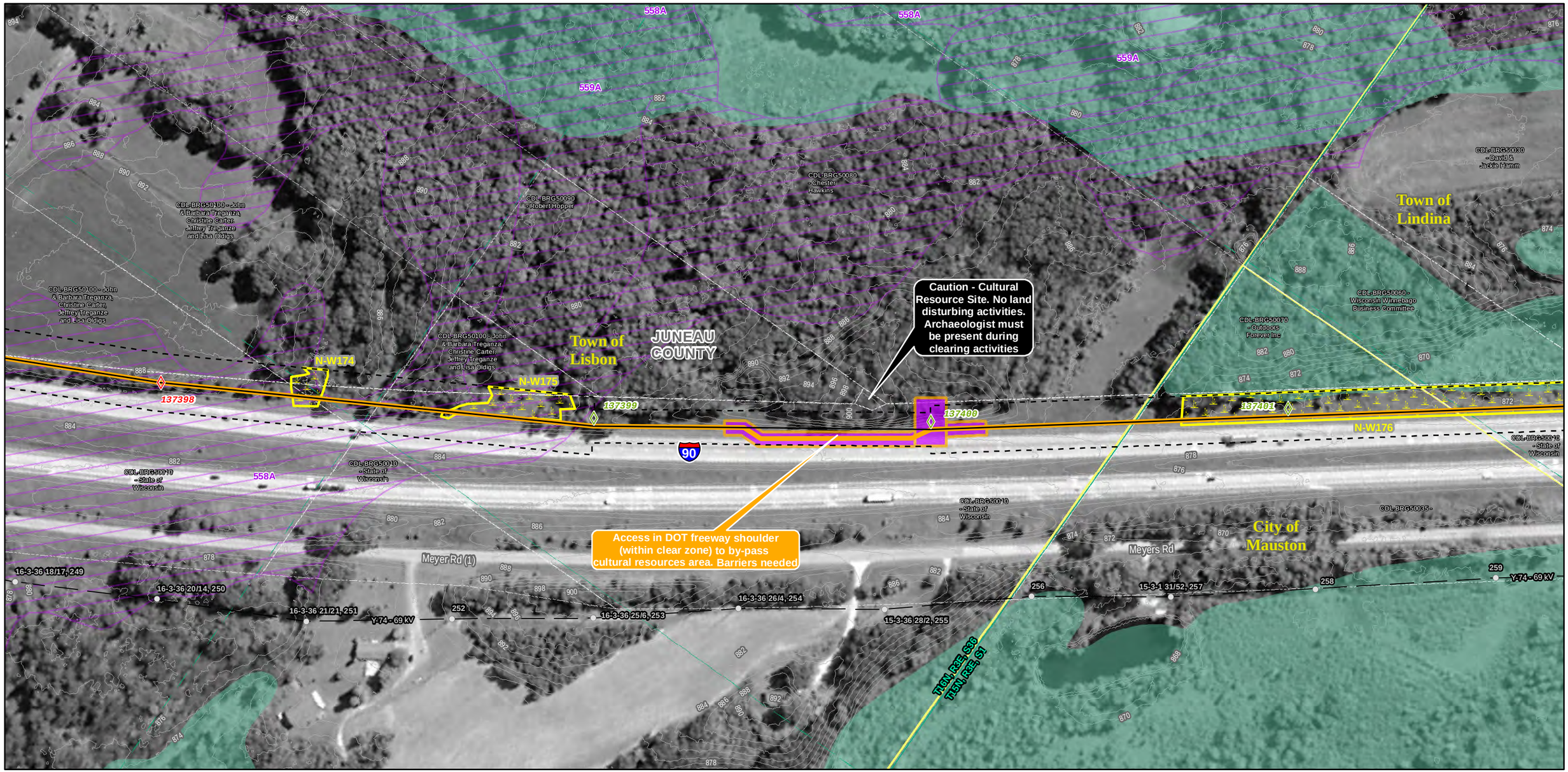
Orthophotography: NAIP 2010

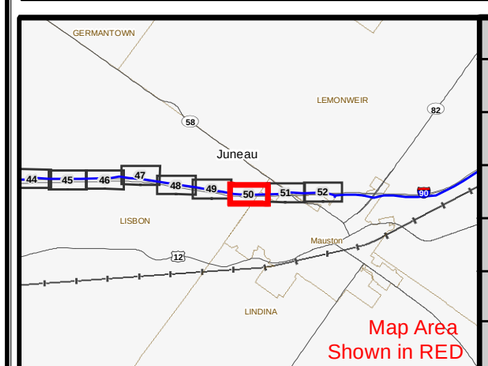
Xcel Energy®

ATC AMERICAN TRANSMISSION COMPANY

0 100 200 Feet

8/1/2016





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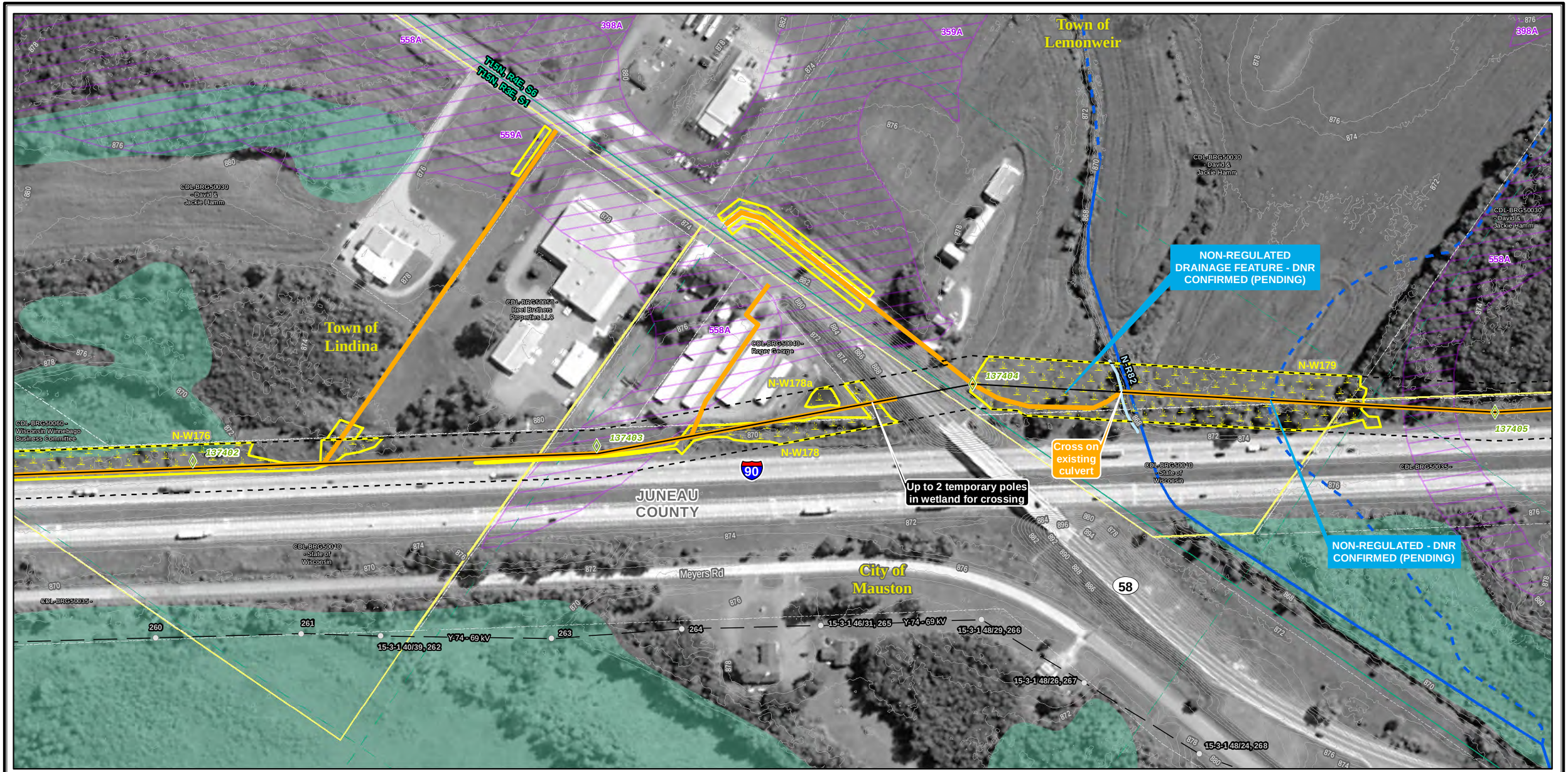

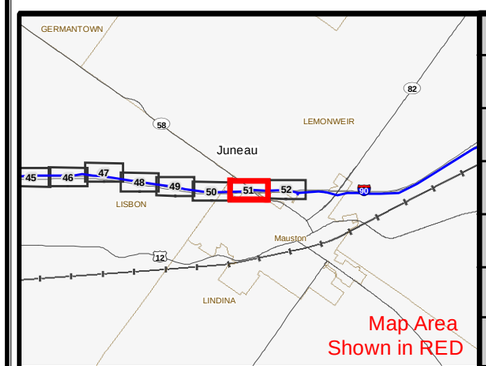

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ENVIRONMENTAL ACCESS PLAN SEGMENT 5

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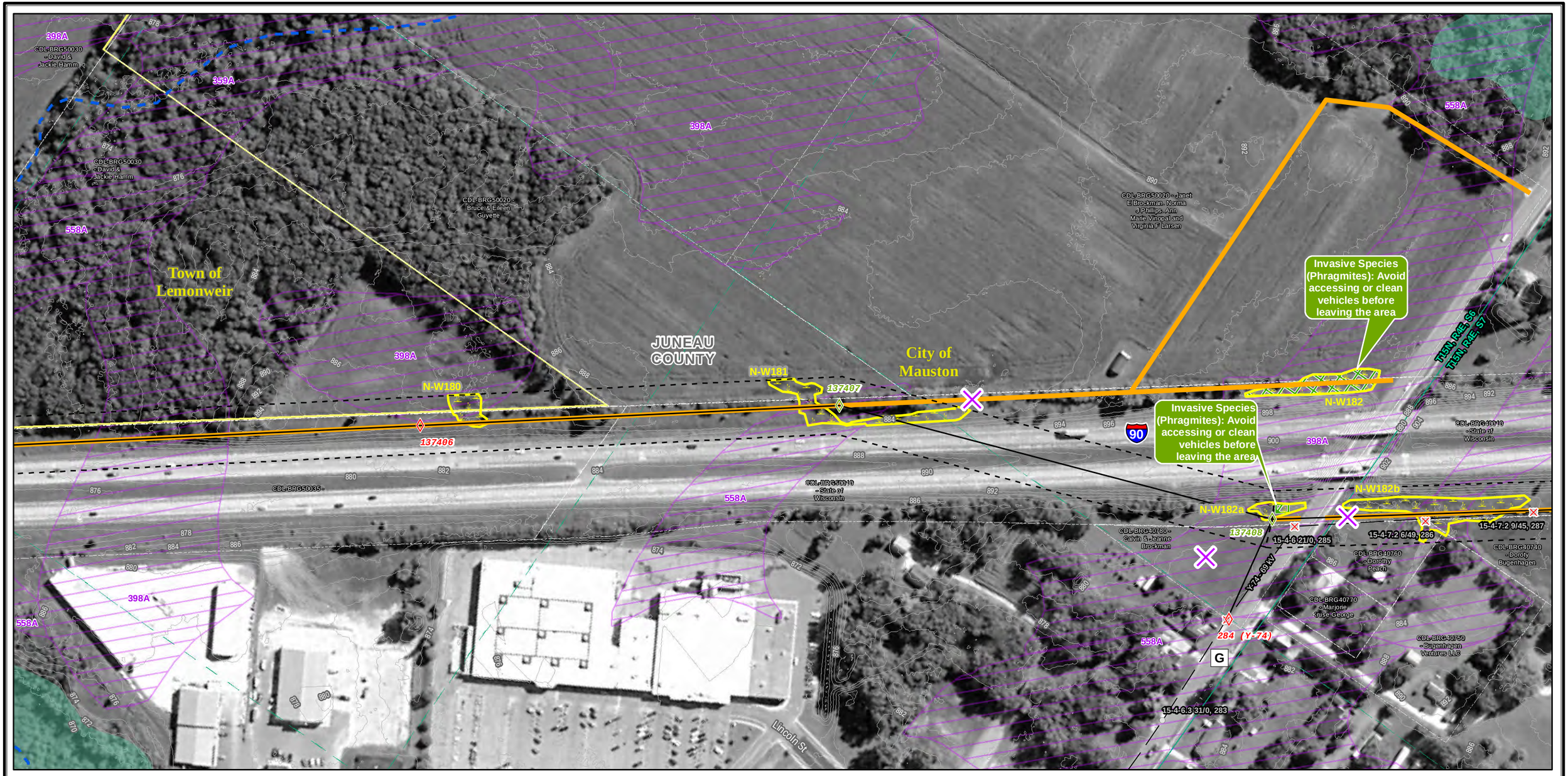

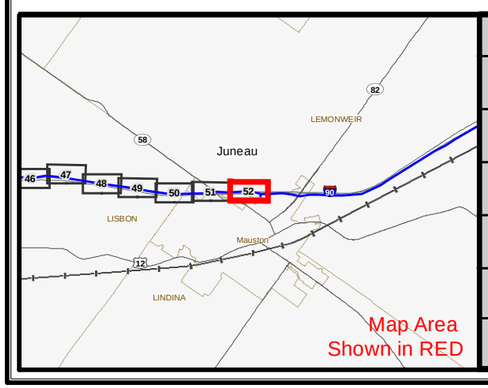

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 5

Orthophotography: NAIP 2010

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ATC AMERICAN TRANSMISSION COMPANY®

0 100 200 Feet

8/1/2016

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix B

Wetland Summary Table

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W110	1	137248	Large feature comprised of shrub-carr, degraded wet meadow, shallow marsh, sedge meadow, and a small area of hardwood swamp. The shrub-carr community is dominated by glossy buckthorn with some speckled alder over an herb layer dominated by reed canary grass, with sensitive fern, skunk cabbage, interrupted fern, and various sedges. Degraded wet meadow located along regularly mown path and sometimes extending into DOT ROW dominated by reed canary grass with giant goldenrod, lake sedge, and fox sedge. The shallow marsh is located southeast of N-R46 (Mud Creek) and is dominated by narrow-leaved cattail, reed canary grass, and lake sedge. A small area of sedge meadow was also identified in the southeastern portion of the feature dominated by tussock sedge and lake sedge with some woolgrass and meadowsweet and only sparse reed canary grass. The small area of hardwood swamp is located at the southeast end of the feature; within the DOT ROW the hardwood swamp is comprised of several large silver maples over reed canary grass and beyond the DOT ROW, the community is comprised of quaking aspen over dense glossy buckthorn with some speckled alder and a sparse herb layer dominated by reed canary grass and scattered sedges. With shift in Project ROW, feature extended and merged with previous N-W111 with shrub-carr connecting the two features.	1-7
N-W111	N/A	N/A	**Feature merged with N-W110**	---
N-W112	2	N/A	Large feature comprised of shrub-carr, hardwood swamp, and degraded wet meadow. Shrub-carr dominated by glossy buckthorn with sparse speckled alder over reed canary grass, meadowsweet, and lake sedge. Hardwood swamp with a red maple and quaking aspen dominated canopy over glossy buckthorn with reed canary grass in the herb layer. Degraded wet meadow along cleared snowmobile path and within DOT ROW dominated by reed canary grass, lake sedge, and sensitive fern. Feature reduced in 2016 to exclude area of upland woodland dominated by northern pin oak, black cherry, honeysuckle, glossy buckthorn, Pennsylvania sedge, Canada mayflower, wood anemone, and large-leaf aster.	8-10
N-W112a	2	N/A	Small wetland complex of shrub-carr, hardwood swamp, and degraded wet meadow. Shrub-carr dominated by glossy buckthorn over reed canary grass. Hardwood swamp component with a red maple dominated canopy over glossy buckthorn with a few scattered white oak and honeysuckle shrubs and reed canary grass and sensitive fern in the herb layer. Degraded wet meadow along cleared snowmobile path and within DOT ROW dominated by reed canary grass, lake sedge, and sensitive fern. Feature was part of larger N-W112, but separated by exclusion of upland woodland dominated by northern pin oak, black cherry, honeysuckle, glossy buckthorn, Pennsylvania sedge, Canada mayflower, wood anemone, and large-leaf aster.	9-10
N-W113	N/A	N/A	**Feature removed** - upland grassland on shallow rise dominated by smooth brome, dandelion, Queen Anne's-lace, Canada goldenrod, and yellow rocket.	---

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W114	3, 4	137254, 137255	Large wetland complex comprised of hardwood swamp, sedge meadow, shallow marsh, and degraded wet meadow communities, with shrub-carr as the dominant community within this feature. Within the western half of the feature, the shrub-carr contains glossy buckthorn with scattered red maple and quaking aspen saplings, and includes a variety of higher quality species such as meadowsweet, steeplebush, and various willows in the shrub layer and lake sedge, tussock sedge, bluejoint, and sensitive fern in the herb layer. A small component of lower quality shrub-carr is present at the northwest end of the feature and is dominated by glossy buckthorn with quaking aspen, reed canary grass, and giant goldenrod. Within the eastern half of the feature, a large shrub-carr community dominated by meadowsweet and steeplebush in the shrub layer with only scattered glossy buckthorn over an herb layer of reed canary grass, lake sedge, and tussock sedge is present A small area of hardwood swamp is also present near the northwest end of the feature with quaking aspen in the canopy, some glossy buckthorn in the shrub layer, and royal fern, ostrich fern, interrupted fern, tussock sedge, and iris in the herb layer. The sedge meadow community, surrounding the shallow marsh, is dominated by tussock sedge and lake sedge; the shallow marsh contained shallow open water and various *Juncus* species. Degraded wet meadow is primarily within the eastern half of the feature and is dominated by reed canary grass with scattered glossy buckthorn, giant goldenrod, and sparse tussock sedge on higher tussocks.	11-15
N-W115	4	N/A	Feature consists of a depressional area within hwy interchange. Degraded wet meadow dominated by reed canary grass and scattered lake sedge with an area of ponding in the center of the depression. Shrub-carr community in SE corner dominated by quaking aspen saplings, glossy buckthorn, and reed canary grass.	16
N-W116	4	N/A	Small wetland complex of shrub-carr, degraded wet meadow, and degraded sedge meadow within hwy interchange area. Shrub-carr dominated by glossy buckthorn with nannyberry, pussy willow, *Spirea* , red-osier dogwood, and a few American elm trees; herb layer dominated by reed canary grass with sensitive fern common. Degraded sedge meadow dominated by reed canary grass and tussock sedge, with sensitive fern common and invading glossy buckthorn. Degraded wet meadow dominated by reed canary grass with sensitive fern common.	17
			Extended wetland line to the E to include degraded wet meadow associated with a swale and a depressional area; dominated by reed canary grass with sedges common. Extended wetland line at N end to extend shrub-carr community in depressional area.	
N-W117	4, 5	137258	Wetland complex of shrub-carr and degraded wet meadow. Near the western end of the feature, the degraded wet meadow is dominated by reed canary grass with narrow-leaved cattail, giant goldenrod, sensitive fern, tussock sedge, scattered grey dogwood and meadowsweet common with iris present along waterway N-R50. East of waterway N-R50, the degraded wet meadow transitions into 100% coverage by reed canary grass. The shrub-carr within the the western half of the feature is dominated by glossy buckthorn with reed canary grass, scattered quaking aspen, sensitive fern, various sedges, grey dogwood, meadowsweet, and a few honeysuckle shrubs; east of the waterway, the shrub-carr community becomes more open with scattered glossy buckthorn over an herb layer of 100% reed canary grass and a few sparse speckled alder.	18-19
			Feature reduced during 2016 field investigations to remove an area of upland woodland on a rise in topography at the eastern end dominated by pin oak with black cherry, honeysuckle, wild strawberry, dandelion, and Canada mayflower common.	

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W118	5, 6	137260, 137261, 137262, 137263	Extensive shrub-carr and degraded wet meadow complex. Small area of higher quality shrub-carr near west end dominated by various willow shrubs, meadowsweet, and scattered glossy buckthorn over various sedges, reed canary grass, giant goldenrod, sensitive fern, woolgrass, and fox sedge. The larger expanse of shrub-carr dominated by glossy buckthorn and reed canary grass. The degraded wet meadow community is dominated by reed canary grass with scattered tussock sedge and bluejoint grass.	20-22
			Extended feature on west end to include an area of degraded wet meadow dominated by reed canary grass, various sedges, giant goldenrod, bluejoint, and scattered sandbar willow.	
N-W118a	6, 7	N/A	**Feature added during 2016 field investigations.** Shallow marsh ditch associated with cranberry bog operation. Narrow-leaved cattail common within 2-3 feet of water observed during the field investigation; curly-leaf pondweed also dominant in standing water. Soft rush, lake sedge, fox sedge, sensitive fern, and some reed canary grass along the edges.	23
N-W119	7	137267	Large degraded wet meadow dominated by reed canary grass with giant goldenrod, stinging nettle, Canada thistle, scattered elderberry, and lake sedge with a small inclusion of shrub-carr located between waterways N-R53 and N-R54 dominated by grey dogwood and reed canary grass.	24-26
			Feature adjusted during 2016 field investigations. Removed small area of high topography and mowed smooth brome at west end of feature and a larger area of upland woodland comprised of pin oak, hazelnut, sweet fern, Pennsylvania sedge, and large-leaf aster over sandy soils near the center of the feature removed. Additional area of shrub-carr at east end dominated by glossy buckthorn over sensitive fern, reed canary grass, and giant goldenrod.	
N-W119a	8	137269	Predominantly hardwood swamp with an area of degraded wet meadow. Hardwood swamp dominated by quaking aspen and red maple in the canopy over glossy buckthorn, reed canary grass, some sensitive fern, and fox sedge. Degraded wet meadow pocket dominated by reed canary grass with scattered glossy buckthorn and nannyberry.	27
			This feature was part of a larger N-W119, but the exclusion of the upland woodland area noted above split the feature into two separate parts.	
N-W120	8, 9, 10	137270, 137271, 137272, 137273, 137274, 137275, 137276, 137277	Extensive wetland comprised of degraded wet meadow and farmed wetland. Majority of degraded wet meadow dominated by reed canary grass, Canada thistle, giant goldenrod, and stinging nettle. West of waterway N-R55, there is a recently excavated ditch, with the spoils placed within degraded wet meadow; species growing through the spoils included reed canary grass, soft rush, Canada thistle, willow herb, boneset, and giant goldenrod. Farmed wetland areas within the eastern half of the feature had dark, uneven soils with visible areas of ponding earlier in 2016. Weedy ag species of varying vigor common with reed canary grass, giant goldenrod, and stinging nettle common along field edges.	28-30
N-W121	11	N/A	Hardwood swamp immediately adjacent to waterway N-R58 with box elder, silver maple, and reed canary grass dominant. Most of feature comprised of degraded wet meadow dominated by reed canary grass with marsh hedge-nettle, Canada thistle, giant goldenrod, and woolly-fruited sedge. Shrub-carr present at east end of feature dominated by sandbar willow over woolly-fruited sedge, Kentucky bluegrass, reed canary grass, giant goldenrod, Canada goldenrod.	31-33
			Feature reduced during 2016 field investigations to exclude area of upland grassland dominated by wild parsnip, smooth brome, Canada goldenrod, and Queen Anne's-lace. Farmed area also excluded - approximately 10 feet above excavated ditch draining area.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W122	12	137283	Large area of degraded wet meadow dominated by reed canary grass, Canada thistle, lake sedge, and giant goldenrod, with scattered nannyberry, American elm, and honeysuckle. Excluded east end of feature east of waterway N-R59; area was approximately 10-15 feet above waterway and dominated by various oaks, honeysuckle, blueberry, and huckleberry.	34
N-W123	12, 13	137285	Feature primarily hardwood swamp extending into degraded wet meadow within DOT ROW. Hardwood swamp with a canopy of red maple and white pine with scattered green ash, silver maple, American elm, and white oaks over reed canary grass and bluejoint, with glossy buckthorn, nannyberry, and scattered honeysuckle shrubs. Degraded wet meadow dominated by reed canary grass and giant goldenrod with scattered sedges, meadowsweet, and honeysuckle.	35-36
N-W123a	13, 14, 15	137289, 137290, 137291, 137292, 137293, 137294	**New feature in 2016 due to corridor shift.** Large wetland complex consisting primarily of degraded wet meadow in DOT ROW and degraded wet meadow, shrub-carr, hardwood swamp, shallow marsh, and sedge meadow in non-DOT ROW. Degraded wet meadow dominated by reed canary grass with scattered Canada goldenrod, giant goldenrod, Canada thistle, jewelweed, and stinging nettle. Shallow marsh within highway ditch at W end of feature as well as a pocket E of 137289; dominated by narrow-leaved cattail and reed canary grass. Shrub-carr at W end dominated by elderberry, *Spirea* , willows, a few Russian olive and quaking aspen with reed canary grass dominated herb layer. Shrub-carr E of structure 137289 dominated by elderberry, grey dogwood, invasive honeysuckle shrubs, reed canary grass, and scattered skunk cabbage. Remaining shrub-carr pockets primarily dominated by invasive honeysuckle or elderberry with reed canary grass. Hardwood swamp W of 137290 with an open canopy of quaking aspen and a few paper birch; herb layer dominated by reed canary grass with scattered lake sedge, sensitive fern, and skunk cabbage. Hardwood swamp E of 137290 with a relatively open canopy of quaking aspen, cottonwood, and American elm; honeysuckle and brambles common; herb layer dominated by reed canary grass with stinging nettle common. Sedge meadow located at S extent of corridor, roughly between structures 137293-137294; dominated by wool-grass with scattered soft rush, prairie cordgrass, dark-green bulrush, and with 10-30% cover reed canary grass .	37-42
N-W123b	15, 16	137295, 137296, 137297	**New feature in 2016 due to corridor shift.** Degraded wet meadow in W 2/3 of feature; dominated by reed canary grass with scattered patches of elderberry, Canada thistle common to abundant in areas. Farmed wetland in E 1/3 of feature; wetness signatures present in aerial photos, field evidence of recent ponding and crop stress with scattered weedy hydrophytes and hydric soil. Two small shallow marsh areas within narrow agricultural ditches between an upland berm and adjacent wetland areas; dominated by narrow-leaved cattail with scattered sedges and purple-stem aster.	43-46
N-W124	N/A	N/A	NA - No longer in project corridor.	---
N-W125	N/A	N/A	NA - No longer in project corridor.	---
N-W126	N/A	N/A	NA - No longer in project corridor.	---

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W127	16, 17, 18	137300	Previously delineated wet meadow community plowed for row crop farming in the last few years. Wetland at N end restricted to lower banks of waterway N-R67; degraded wet meadow dominated by reed canary grass, jewel weed, early meadow rue, Canada goldenrod, and brambles. Farmed wetland within slight depressional area with evidence of spring ponding; corn stubble present from 2015 but also reed canary grass, common yellow-cress, field nut sedge, Pennsylvania smartweed, stinging nettle, and a few willow saplings. Common dandelion more prevalent in farm field at S end but hydric soil present.	47
			Reduced feature at N 1/4 to restrict wetland to lower banks of waterway and to exclude an area of upland farm field with healthy corn stubble from 2015, on a slight rise, lacking hydric soil, and with only a few hydrophytic weeds. Reduced feature at S end to exclude raised farm access lane.	
N-W128	18	N/A	Degraded sedge meadow/wet meadow within depressional area between Hwy 12 and RR embankment. Degraded sedge meadow with hummocky topography in E 2/3; dominated by reed canary grass and tussock sedge with cattail, iris, sensitive fern, and wool-grass scattered to common. Degraded wet meadow in W 1/3; dominated by reed canary grass with scattered sedges and giant goldenrod.	48
			Reduced wetland at N edge along highway embankment to follow wetland topography.	
N-W129	18	N/A	Degraded wet meadow dominated by reed canary grass with scattered giant goldenrod, Canada goldenrod, and stinging nettle.	49
N-W130	20	N/A	Predominantly hardwood swamp with an area of degraded wet meadow within a historically cleared pathway. Hardwood swamp with a red maple (many multi-trunked) dominated canopy over shining sedge and skunk cabbage commonly observed. Areas of sparse vegetation in shallow depressions where water appears to pond during various times of the year. The degraded wet meadow is dominated by reed canary grass, swamp dewberry, giant goldenrod, fox sedge, royal fern, shining sedge, and scattered steeplebush.	50-51
			Feature reduced during 2016 field investigations to exclude area of upland mesic woods with black cherry, white pine, common buckthorn, hazelnut, Pennsylvania sedge, and Virginia creeper common.	
N-W131	23, 24	137312	Farmed wetland located in shallow depression with different cropping pattern and dark soils in depression compared to upslope. Reed canary grass and *Juncus* species observed at field edge.	52
N-W132	24	137315	Narrow hardwood swamp along ditched waterway; box elder and black willow over reed canary grass, stinging nettle, common buckthorn, and some Virginia creeper.	53
N-W133	24	N/A	Farmed seasonally flooded basin exhibiting crop stress with field nut sedge visible during 2016 field investigations.	54
			Feature adjusted during 2016 field investigation to exclude area of active agricultural land showing no signs of wetness or crop stress; adjacent field lines are dominated by smooth brome, reed canary grass, dandelion, and common milkweed.	
N-W134	25	N/A	Farmed seasonally flooded basin exhibiting crop stress with field nut sedge visible during 2016 field investigations.	55
			Feature adjusted during 2016 field investigation to exclude area of active agricultural land on higer topo showing no signs of wetness or crop stress/stunting.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W135	30	N/A	Feature comprised of hardwood swamp, degraded wet meadow, and farmed wetland. Hardwood swamp dominated by box elder with scattered black cherry and northern pin oak on shallow rises over reed canary grass, jewelweed, stinging nettle, common buckthorn, elderberry, and some honeysuckle shrubs. Farmed seasonally flooded basin intentionally cropped around in 2016 with some crop stress/stunting visible along edges of the non-cropped area. Degraded wet meadow dominated by reed canary grass with giant goldenrod and stinging nettle. East half of feature was inaccessible during 2016 field investigations, but active land disturbance/grading being conducted by landowner was visible. Most of area has been cleared with sparse to no vegetation; a large, shallow pond connecting to an apparent shallow ditch was visible.	56-58
N-W136	31	137335	Feature inaccessible during 2016 field investigations. Associated with mapped hydric soils and comprised of hardwood swamp, farmed seasonally flooded basin, and open water pond communities.	---
N-W137	31	N/A	Feature inaccessbile during 2016 field investigations. Wetland viewable from adjacent roadway and comprised of shallow marsh dominated by narrow-leaved cattail with some woolly-fruited sedge.	59
N-W138	31, 32	137336, 137337	Portions of feature inaccessible during 2016 field investigations, but were viewed from adjacent roadway and accessible parcels. Wetland complex comprised of hardwood swamp, shrub-carr, degraded wet meadow, and a small shallow marsh component. Wooded areas comprised of two hardwood swamp community types: one dominated by red maple over cinnamon and royal fern, the second type dominated by river birch within a shallow depression that appeared to pond frequently with sparse reed canary grass. Shrub-carr adjacent to waterway N-R70 dominated by grey dogwood over reed canary grass with sparse red maple saplings and sensitive fern. Degraded wet meadow portions still contained high species divisity despite presence of reed canary grass with woolgrass, tussock sedge, marsh fern, scattered steeplebush, Bebb's willow, speckled alder, cinnamon and royal fern along the edges of the community common. Shallow marsh communities dominated by narrow-leaved cattail and located at west end of feature adjacent to roadway and near center of feature surrounded by degraded wet meadow.	60-65
			Adjusted feature during 2016 field investigations to exclude area of upland woodland dominated by northern pin oak, Pennsylvania sedge, huckleberry, large-leaf aster, and bracken fern, as well an area of active agricultural fields. The active ag fields did not exhibit any crop stress, had very sandy dry soils, and common weedy species were non-hydrophytes. Common weedy species along excavated ditch (N-W138a) included dandelion, prickly lettuce, lamb's-quarters, common ragweed, bindweed, daisy fleabane, Canada goldenrod, and red clover.	
N-W138a	32	137338	Small area of hardwood swamp dominated by multi-trunked red maple in the canopy over winterberry, cinnamon and royal ferns, swamp dewberry, and some reed canary grass.	63
			Feature was part of larger N-W138, but separated by exclusion of upland woodland dominated by northern pin oak, Pennsylvania sedge, huckleberry, large-leaf aster, and bracken fern.	
N-W138b	32	N/A	Shallow marsh ditch draining adjacent agricultural fields with areas of standing water. Narrow-leaved cattail and water plantain were common emergent species within bottom of ditch with reed canary grass, swamp milkweed, and reed canary grass also common along the edges. Feature was part of larger N-W138 but excluded agricultural land that did not appear to be stressed by excessive moisture.	66-68

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W139	32, 33	137340, 137341, 137342	Large wetland complex comprised of hardwood swamp, degraded wet meadow, and shallow marsh. Degraded wet meadow areas dominated by reed canary grass with sensitive fern, marsh hedge-nettle, and swamp milkweed common. Shallow marsh domianted by narrow-leaf cattail and reed canary grass. Hardwood swamp areas appeared to be a mix of vegetation including oaks, paper birch, and red maple over reed canary grass, interrupted fern, and honeysuckle as viewed from DOT ROW. Full access within this area was not available during 2016 field investigations. Area is assumed to be all wetland due to mapped hydric soils.	69-72
			Feature reduced during 2016 field investigations to exclude upland grassland along compacted access road at W end of feature and upland oak woodland along topographic rise adjacent to excavated open water area.	
N-W139a	33, 34	137343	Wetland complex of hardwood swamp and degraded wet meadow. Degraded wet meadow areas dominated by reed canary grass with sensitive fern, marsh hedge-nettle, and swamp milkweed common. Hardwood swamp areas appeared to be a mix of vegetation including oaks, paper birch, and red maple over reed canary grass, interrupted fern, and honeysuckle as viewed from DOT ROW. Full access within this area was not available during 2016 field investigations. Area is assumed to be all wetland due to mapped hydric soils.	69-70
			Feature was part of larger N-W139, but separated from original feature due to exclusion of upland oak woods along topographic rise adjacent to excavated open water area.	
N-W140	34	137345	Wetland complex consisting of hardwood swamp, shrub-carr, degraded wet meadow, and shallow marsh. Hardwood swamp dominated by quaking aspen and red maple with swamp white oak in the canopy, winterberry scattered in the shrub layer, and sensitive fern and reed canary grass common in the herb layer. Small shrub-carr located at NW end dominated by winterberry and quaking aspen saplings. Degraded wet meadow dominated by reed canary grass with scattered *Spirea* and scattered goldenrods. Shallow marsh dominated by narrow-leaved cattail, reed canary grass, scattered wool-grass, with a *Phragmites* clone in the western community.	73-75
			Slight reduction to feature along highway embankment at N edge to follow topographic break.	
N-W141	34	137346	Feature consists primarily of degraded wet meadow dominated by reed canary grass with a few patches of pussy willow and *Spirea* . Hardwood swamp within western portion dominated by quaking aspen trees and saplings with reed canary grass dominant in the herb layer.	76
			Feature reduced at W end to exclude area of higher topography dominated by Kentucky bluegrass, with Russian olive, quaking aspen, hazelnut, and red cedar.	
N-W142	34	N/A	Degraded wet meadow in linear depression between base of road embankment and upland woodland to the east; small depression connects to hardwood swamp to the east. Degraded wet meadow dominated by reed canary grass with some standing water and sensitive fern. Hardwood swamp dominated by red maple, swamp white oak, and some green ash in the canopy with green ash saplings in the shrub layer and reed canary grass, interrupted fern, and various sedges in the herb layer. Some large concave depressions lacking herbaceous cover due to frequent ponding also present.	77-78
			Feature extended during 2016 field investigations to include an area of hardwood swamp that extends beyond the Project ROW to the south.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W143	35	N/A	Predominantly degraded wet meadow dominated by reed canary grass with scattered sensitive fern and meadowsweet transitioning into hardwood swamp with red maple and green ash in the canopy over a sparse herb layer of reed canary grass, jewelweed, and interrupted fern.	79-80
			This feature was part of the larger N-W143. Areas of upland woodland and grassland were excluded from the feature due to prominence of jack and white pines, various oak species, Kentucky bluegrass, smooth brome, Pennsylvania sedge, Canada goldenrod, yarrow, and honeysuckle shrubs. Western end reduced to exlcude upland ag field in visibly sandy soils with sheep sorrel the dominant weed species.	
N-W143a	35	N/A	Degraded wet meadow dominated by reed canary grass with tussock sedge and scattered green ash and meadowsweet.	80
			This feature was part of the larger N-W143. Areas of upland woodland and grassland were excluded from the feature due to prominence of jack and white pines, various oak species, Kentucky bluegrass, smooth brome, Pennsylvania sedge, Canada goldenrod, yarrow, and honeysuckle shrubs.	
N-W143b	35	137349	Wetland complex of degraded wet meadow, shrub-carr, shallow marsh, and a small area of hardwood swamp. Areas of degraded wet meadow dominated by reed canary grass; the shrub-carr community is dominated by grey dogwood and glossy buckthorn over reed canary grass and sensitive fern and connects to a shallow marsh ditch present within DOT ROW. Shallow marsh ditch dominated by narrow-leaved cattail, lake sedge, and soft rush connects to waterway N-R72. Hardwood swamp dominated by bur oak and red maple over reed canary grass.	81-83
			This feature was part of the larger N-W143. Areas of upland woodland and grassland were excluded from the feature due to prominence of jack and white pines, various oak species, Kentucky bluegrass, smooth brome, Pennsylvania sedge, Canada goldenrod, yarrow, and honeysuckle shrubs.	
N-W143c	35, 36	N/A	Small area of hardwood swamp and degraded wet meadow. Hardwood swamp dominated by bur oak and red maple in the canopy over reed canary grass. Degraded wet meadow dominated by reed canary grass with Canada thistle and wild parsnip.	79
			This feature was part of the larger N-W143 separated from larger feature with the exclusion of an area of upland oak woods dominated by red and white oaks with scattered bur oak and shagbark hickory over Canada mayflower, Pennsylvania sedge, and black cherry saplings.	
N-W144	36	N/A	Degraded wet meadow dominated by reed canary grass, fox sedge, and giant goldenrod with scattered yellow rocket and wild parsnip.	84
			Feature extended during 2016 field investigations to include an area of similar topography and plant species.	
N-W145	36	N/A	Degraded wet meadow in shallow depression dominated by reed canary grass with sparse fox sedge.	85
			Feature reduced at east end during 2016 field investigations to exclude area of higher topography dominated by smooth brome, Canada goldenrod, and Canada thistle.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W146	36	137352	Wetland community comprised of a mix of hardwood swamp communities and degraded wet meadow within DOT ROW. Predominant hardwood swamp community within center of feature comprised of red maple, green ash, swamp white oak, and American elm over winterberry shrubs with jewelweed, various sedges, and some reed canary grass. The west end of the feature has a canopy of green ash and black locust over jewelweed, reed canary grass, and some winterberry and honeysuckle shrubs. The east end of the feature includes green ash and quaking aspen with scattered shagbark hickory over winterberry, poison ivy, glossy buckthorn, honeysuckle, and wild geranium. Degraded wet meadow is comprised of reed canary grass, narrow-leaved cattail, and various sedges. Feature extended at east end during 2016 field investigations to include additional degraded wet meadow swale within depressional area with hydric soil; dominated by reed canary grass with Canada goldenrod, Canada thistle, sedges, and poison ivy scattered.	86-87
N-W147	37	137355	Degraded wet meadow and hardwood swamp wetland. Degraded wet meadow comprised of reed canary grass, giant goldenrod, woolgrass, and scattered grey dogwood and meadowsweet. Hardwood swamp community with a canopy comprised of box elder, green ash, red maple, and swamp white oak with scattered river birch over reed canary grass, various sedges, interrupted fern, red maple seedlings, and sensitive fern common. Approximately 10-15% inclusions of shallow upland rises containing red and white oak with honeysuckle shrubs, Canada mayflower, wood anemone, and Pennsylvania sedge. Excluded an area of upland grassland at east end during 2016 field investigations; dominated by smooth brome, Kentucky bluegrass, Canada goldenrod, yarrow, and pussy-toes on high topography.	88-89
N-W148	37	N/A	Degraded wet meadow dominated by reed canary grass within shallow depression with giant goldenrod, sensitive fern, scattered woolgrass, fox sedge, and sandbar willow. Feature does not extend into DOT ROW due to a rise in topography near the DOT ROW. Feature extended on west end during 2016 field investigations to include a side seepage area of reed canary grass with meadowsweet, sensitive fern, woolgrass, and giant goldenrod.	90
N-W149	37, 38	N/A	Farmed wetland within shallow depression with evidence of recent ponding during 2016 field investigation. Chickweed and scouring rush common weedy species.	91
N-W150	N/A	N/A	**Feature removed** - no signs of wetness during 2016 field investigations, no depressional topography, dandelion and chickweed common weedy species and adjacent fenceline dominated by smoth brome.	---
N-W151	38	N/A	Degraded wet meadow and shallow marsh communities. Degraded wet meadow dominated by reed canary grass, lake sedge, sensitive fern, and giant goldenrod with scattered American elm. Shallow marsh near center of feature dominated by narrow-leaved cattail and reed canary grass. Feature reduced during 2016 field investigations to exclude areas of higher topography with Scotch pine, smooth brome, honeysuckle shrubs, and red cedar common.	92
N-W152	N/A	N/A	**Feature merged with N-W153**	---

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W153	38, 39, 40	137360, 137361, 137362, 137363	Extensive wetland complex associated with the Lemonweir River/New Lisbon Lake (N-R73, N-R74, N-R75, N-R76). Predominantly hardwood swamp / floodplain forest dominated by silver maple, green ash, and river birch over reed canary grass, bluejoint, and scattered speckled alder sometimes observed within the shrub layer. Swamp white oak, giant goldenrod, sensitive fern, and marsh fern were also seen within the wooded areas. Within openings in hardwood swamp community, shallow marsh, degraded wet meadow, alder thicket, and shrub-carr were present. Shallow marsh community compositions varied throughout the wetland complex, but included species such as lake sedge, dark-green bulrush, narrow-leaved cattail, and meadowsweet. The degraded wet meadow areas were dominated by reed canary grass with lake sedge, bluejoint, sensitive fern, marsh fern, giant goldenrod, and woolly sedge. The alder thicket is present near the east end of the feature and is dominated by speckled alder over reed canary grass, stinging nettle, and sensitive fern. The shrub-carr is present at the west end of the feature and is dominated by grey dogwood and scattered willow shrubs over reed canary grass. Feature connected to N-W152 during 2016 field investigations.	93-99
N-W154	40	N/A	Degraded wet meadow dominated by reed canary grass with wool-grass, sensitive fern, giant goldenrod, and a few larger green ash. A stormwater swale was observed running through the center of the feature and contained patches of narrow-leaved cattail and hummocky reed canary grass.	100
N-W154a	40	137366	Hardwood swamp and degraded wet meadow complex. Hardwood swamp with green ash dominant in the canopy and shrub layer with scattered bur oak and reed canary grass, bluejoint, giant goldenrod, and interrupted fern common in the herb layer. Transitions into degraded wet meadow dominated by reed canary grass, with scattered giant goldenrod and sensitive fern at base of highway embankment. **Feature added during 2016 field investigations.**	101
N-W155	40	N/A	Degraded wet meadow in highway interchange dominated by reed canary grass and narrow-leaved cattail.	102
N-W156	40, 41	N/A	Degraded wet meadow within depressional area adjacent to highway interchange and associated with the banks of waterway N-R77. Dominated by reed canary grass with prairie cordgrass common along the edges; scattered *Spirea* , sedges, giant goldenrod, Canada goldenrod, and Canada thistle. Few quaking aspen, black willow, and grey dogwood along the banks of N-R77. Feature extended within narrow swale. Feature reduced along highway embankment to exclude area of high topography dominated by Kentucky bluegrass.	103
N-W157	N/A	N/A	**Feature merged with N-W156.**	---
N-W157a	41	N/A	Farmed wetland located in slight depressional area of non-DOT ROW. Area not planted or crop drowned out, 15% cover of reed canary grass, evidence of recent ponding. **Feature added during 2016 investigations.**	104
N-W158	41	N/A	Feature consists of shallow marsh and degraded wet meadow in DOT ROW and farmed wetland in non-DOT ROW. Shallow marsh located near highway culvert; dominated by cattail and reed canary grass. Farmed wetland with areas of crop stress/bare areas. Feature extended to NW to include degraded wet meadow dominated by reed canary grass with a few Canada thistle and Canada goldenrod and to the W to follow wetness signatures in the farmed wetland.	105

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N-W159	41, 42	137370	Degraded wet meadow dominated by reed canary grass with woolly sedge, giant goldenrod, and scattered red clover with jewelweed, narrow-leaved cattail, and some willow shrubs along stormwater swale near west end of feature. Feature reduced during 2016 field investigations. Excluded area of grassland dominated by Kentucky bluegrass, pussy-toes, black-eyed Susan, dandelion, and yarrow; as well as an area that had been recently tilled and cropped to rye on higher, sloping topography over reddish clayey soils.	106
N-W160	42	N/A	Small area of hardwood swamp extending into degraded wet meadow within DOT ROW. Hardwood swamp with red maple and quaking aspen common in the canopy and reed canary grass common in the herb layer with scattered black cherry and honeysuckle shrubs. Within DOT ROW, degraded wet meadow dominated by reed canary grass with some sensitive fern. Feature reduced during 2016 field investigation to exclude a broad, flat ditch dominated by reed canary grass with Queen Anne's-lace, Canada goldenrod, and bracken fern common on higher topography.	107-108
N-W161	42	N/A	Shrub-carr with meadowsweet, glossy buckthorn, scattered speckled alder, with sparse black cherry and red oak over sensitive fern, reed canary grass, and giant goldenrod. Extended the feature within DOT ROW during 2016 field investigations to include area of meadowsweet, reed canary grass, and sensitive fern.	109
N-W162	42	137373	Primarily hardwood swamp during 2012 investigations; land use and tree clearing has resulted in a fragmentation of the woodland into a wetland complex consisting of hardwood swamp, degraded sedge meadow, wet meadow, and degraded wet meadow. Hardwood swamp dominated by quaking aspen and red maple in the canopy; winterberry common in the shrub layer; and sedges, giant goldenrod, interrupted fern, sensitive fern, and reed canary grass scattered to common in the herb layer. Area east of structure 137373 recently cleared of trees; wet meadow/sedge meadow communities dominated by sedges, rushes (*Juncus* spp.), scattered to common reed canary grass, scattered wool-grass, soft rush, and bluejoint. Areas of degraded wet meadow dominated by reed canary grass. Wetland delineated in 2012 split into two features due to landowner placement of a gravel pad in area between structures 137373 and 137374. Feature extended E of 137373 to include recently cleared wet meadow/sedge meadow community dominated by sedges and rushes with Kentucky bluegrass and reed canary grass common.	110-113
N-W162a	42, 43	137374	Wetland complex consisting of hardwood swamp, shrub-carr, degraded sedge meadow, wet meadow, and degraded wet meadow. Hardwood swamp dominated by quaking aspen in the canopy; and sedges, giant goldenrod, interrupted fern, bluejoint, and reed canary grass scattered in the herb layer. Small shrub-carr area E of structure 137374 dominated by winterberry, quaking aspen saplings, sedges, and scattered reed canary grass. Area W of structure 137374 recently cleared of trees; wet meadow/sedge meadow communities dominated by sedges, rushes (*Juncus* spp.), scattered to common reed canary grass, scattered wool-grass, soft rush, and bluejoint. Areas of degraded wet meadow dominated by reed canary grass with giant goldenrod. Feature previously connected to N-W162; now two separate features due to placement of a gravel pad. Wetland feature reduced at E end to exclude areas along higher topography with dominance by Kentucky bluegrass, quaking aspen, pin oak, and scattered giant goldenrod. Small upland island of prairie excluded from feature W of structure 137374; dominated by Kentucky bluegrass, yarrow, common blue violet, common sheep sorrel, with scattered sedges and reed canary grass.	114-116

Appendix B. Wetland Summary Table
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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W163	43, 44	137375, 137376, 137377	Wetland complex consisting of hardwood swamp; shrub-carr; and wet meadow, degraded wet meadow, and sedge meadow primarily located within a fiber optic cable corridor located NE of the DOT ROW. Hardwood swamp areas dominated by red maple and quaking aspen in the canopy; winterberry in the shrub layer; and sedges with areas of Canada mayflower, interrupted fern, and bluejoint in the herbaceous layer. Shrub-carr primarily located along the DOT fenceline; dominated by winterberry, quaking aspen and red maple saplings, reed canary grass, and sedges. Degraded wet meadow was the primary herbaceous plant community; dominated by reed canary grass. Wet meadow areas dominated by sedges, wool-grass, giant goldenrod, with reed canary grass scattered to common. Small sedge meadow community located N of structure 137377; dominated by sedges, wool-grass, *Spirea* , areas of *Sphagnum* , with reed canary grass and bluejoint scattered.	117-120
			Extended wetland line at E end to include a wet meadow community dominated by hydrophytes. Extended wetland line NW of waterway N-R79 to include a shrub-carr area along the slope dominated by reed canary grass, stinging nettle, and elderberry. Excluded two areas of mesic woodland along rises within non-DOT ROW as well as reduced the N edge of the feature to exclude dry-mesic woods dominated by quaking aspen, sumac, and Kentucky bluegrass.	
N-W164	45	N/A	Degraded wet meadow and sedge meadow. Degraded wet meadow dominated by reed canary grass with blue vervain and swamp milkweed; sedge meadow present along mapped intermittent waterway dominated by lake sedge, dark-green bulrush, with reed canary grass.	121-122
			Feature reduced during 2016 field investigations to exlcude area of higher topography dominated by smooth brome, Kentucky bluegrass, Canada goldenrod, and Queen Anne's-lace.	
N-W165	45	N/A	Degraded wet meadow in shallow depression dominated by reed canary grass with scattered box elder saplings.	123
			Feature reduced during 2016 field investigations to exclude road ditch dominated by smooth brome, Queen Anne's-lace, sheep sorrel, and reed canary grass.	
N-W166	45, 46	137384, 137385, 137386	Large wetland comprised of hardwood swamp and degraded wet meadow with a small inclusion of shrub-carr. Hardwood swamp portions dominated by silver maple, box elder, green ash, and quaking aspen in the canopy; silver maple common in the shrub layer; and reed canary grass and woolly sedge in the herb layer. Degraded wet meadow areas dominated by reed canary grass with pockets of standing water, narrow-leaved cattail, and lake sedge. Shrub-carr inclusion near center of feature dominated by meadowsweet, woolly sedge, and giant goldenrod with scattered grey dogwood and reed canary grass.	124-125
			Feature reduced during 2016 field investigations to exclude an area of upland oak woods near east end of feature dominated by red and white oak, quaking aspen, black cherry, honeysuckle shrubs, bracken fern, and Pennsylvania sedge, as well as a small area of high topography at west end of feature dominated by smooth brome, Canada goldenrod, honeysuckle, mullein, and two large black cherry trees.	
N-W167	47	N/A	Hardwood swamp wetland extending into degraded wet meadow within DOT ROW. Hardwood swamp with silver and red maple dominant in the canopy, scattered glossy buckthorn and honeysuckle in the shrub layer, and woolly sedge, meadowsweet, and reed canary grass in the herb layer. Degraded wet meadow with reed canary grass, blue vervain, and wool grass dominant and scattered honeysuckle and meadowsweet.	126
			Feature extended within DOT ROW to include additional area of degraded wet meadow.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W168	47	137389	Degraded wet meadow within DOT ROW dominated by reed canary grass with scattered meadowsweet; feature connects to roadside ditch dominated by narrow-leaved cattail and reed canary grass.	127
			Feature reduced during 2016 field investigations to exclude area of farm field. Farmed areas on higher, sloping topography with no wetness indicators observed, with dandelion and Canada thistle common weedy species.	
N-W169	47, 48	N/A	Small area of shallow marsh and degraded wet meadow. Shallow marsh dominated by narrow-leaved cattail and reed canary grass associated with open water pond located outside Project ROW; degraded wet meadow dominated by reed canary grass with pockets of woolly sedge, sensitive fern, meadowsweet, giant goldenrod, and pussy willow.	128-129
			Feature reduced during 2016 field investigations to remove area of higher topography dominated by smooth brome, Canada goldenrod, and some reed canary grass.	
N-W170	48	N/A	Degraded wet meadow dominated by reed canary grass with scattered narrow-leaved cattail and stinging nettle.	130
			Feature reduced during 2016 field investigations to remove wooded area dominated by black locust and honeysuckle.	
N-W171	48	N/A	Small area of degraded wet meadow and shrub-carr. Degraded wet meadow located within shallow depression between highway and frontage road ROW dominated by reed canary grass. Shrub-carr located within depressional swale along DOT fenceline dominated by glossy buckthorn, meadowsweet, scattered green ash and cottonwood trees with reed canary grass, narrow-leaved cattail, wool-grass, woolly sedge, and some standing water.	131-132
			Feature extended during 2016 field investigations to include shrub-carr dominated depressional swale along DOT fenceline.	
N-W172	48, 49	137394	Degraded wet meadow dominated by reed canary grass and Canada thistle; grass-leaved goldenrod, giant goldenrod, and tussock sedge common; scattered Kentucky bluegrass and Canada goldenrod.	133
			No access granted to area north of DOT fenceline. Boundary estimated based on visual observation from fenceline.	

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W173	49	137396, 137397	Large shrub-carr and degraded wet meadow complex. Small hardwood swamp component at N end of feature; dominated by red maple, paper birch, river birch, quaking aspen, and a few black oak in the canopy; glossy buckthorn dominant in the shrub layer; and northern dewberry, bluejoint, royal fern, and cinnamon fern in the herbaceous layer. Degraded wet meadow dominated by reed canary grass with scattered *Spirea* , common milkweed, sensitive fern, grass-leaved goldenrod, sedges, elderberry, and glossy buckthorn. Canada thistle was common to dominant at the S end of the feature. Shrub-carr community dominated by red-osier dogwood, elderberry, and glossy buckthorn in the shrub layer; with reed canary grass, giant goldenrod, Canada goldenrod, and stinging nettle dominant in the herbaceous layer. A linear raised berm is present within the shrub-carr that is approximately one foot higher than the adjacent wetland but still dominated by hydrophytes.	134-136
			Wetland feature reduced at N end during 2016 field investigation to exclude mesic woods dominated by black oak, bracken fern, early low blueberry, Pennsylvania sedge, and Canada mayflower. Could not access northernmost edge of feature due to landowner restrictions - area was estimated based on visual observation from adjacent parcel. Reduced wetland at E end of feature to exclude two upland old field areas dominated by Canada goldenrod, common milkweed, Kentucky bluegrass, with scattered *Spirea* , reed canary grass, and wild parsnip.	
N-W174	50	N/A	Degraded wet meadow dominated by reed canary grass with Canada thistle, bindweed, and giant goldenrod common; few quaking aspen, glossy buckthorn, sedges, and sensitive fern.	137
			Slight boundary reduction in N corner during 2016 field investigation to exclude area with high elevation and dominated by Canada goldenrod.	
N-W175	50	N/A	Feature consists primarily of degraded wet meadow with areas of shallow inundation; dominated by reed canary grass with few glossy buckthorn and stinging nettle. Shallow marsh within central portion of feature; dominated by narrow-leaved cattail and reed canary grass. Shrub-carr in E end; dominated by glossy buckthorn and reed canary grass with one mature cottonwood tree.	138
			Feature reduced during 2016 field investigation to exclude upland mesic woods at the N end; dominated by white pine, early low blueberry, blue cohosh, and glossy buckthorn.	
N-W176	50, 51	137401, 137402	Predominantly degraded wet meadow with areas of shrub-carr. Degraded wet meadow dominated by reed canary grass, lake sedge, blue vervain, and scattered narrow-leaved cattail. Shrub-carr with glossy buckthorn and reed canary grass common with some pussy willow and grey dogwood.	139-140
			Feature merged with N-W177 via degraded wet meadow ditch in DOT ROW. Also excluded an area of higher topography dominated by red pine, honeysuckle, smooth brome, Kentucky bluegrass, bee balm, Queen Anne's-lace, and Canada goldenrod.	
N-W177	N/A	N/A	**Feature merged with N-W176**	---

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W178	51	N/A	Wetland consists primarily of a wet meadow/shallow marsh swale along I-90 and Hwy 58. Shallow marsh dominated by cattail, reed canary grass, and scattered sedges. Wet meadow dominated by sedges, with reed canary grass, sensitive fern, iris common, and scattered willow and dogwood shrubs. Degraded wet meadow in northern portion of swale feature; dominated by reed canary grass with scattered sedges, senstive ferm, and *Spirea* . Shrub-carr located along the fringes of the shallow marsh portions of the swale; dominated by glossy buckthorn and quaking aspen saplings, willow common, and reed canary grass dominant and sensitive fern scattered in the herb layer.	141-142
			Excluded NE lobe from wetland, now filled for a parking pad. Minor wetland line adjustment in NW portion to include additional degraded wet meadow along the swale banks.	
N-W178a	51	N/A	Degraded wet meadow within dry detention basin surrounded by berm, receiving runoff from adjacent development, and connected via culvert to N-W178. Blunt spikerush, reed canary grass, red clover, and dandelion scattered throughout basin.	143
			Feature added during 2016 field investigations due to shift in project ROW alignment.	
N-W179	51	137404	Wetland complex consisting primarily of farmed wetland within non-DOT ROW and with smaller components of degraded wet meadow, hardwood swamp, and shrub-carr. Recent tree clearing by landowner near fenceline. Farmed wetland with evidence of spring ponding and crop stress/failure in 2015; abundant purslane speedwell, cursed crowfoot, scouring rush, and horsetail with scattered reed canary grass. Degraded wet meadow along field perimeter and within non-wooded portions of DOT ROW; dominated by reed canary grass with lake sedge common; scattered Canada thistle, Canada anemone, and willow saplings. Shrub-carr dominated by glossy buckthorn with willows common and scattered red-osier dogwood in the shrub layer; reed canary grass dominant, lake sedge and *Spirea* common in the herb layer. Hardwood swamp NE of N-R82 dominated by cottonwood with a few black willow in the canopy, willows common in the shrub layer, and an herb layer dominated by reed canary grass with Canada thistle and giant goldenrod scattered. Hardwood swamp areas near fenceline and DOT ROW dominated by a combination of green ash, quaking aspen, and river birch in the canopy; glossy buckthorn common and honeysuckle and *Spirea* scattered in the shrub layer; and reed canary grass dominant in the herb layer with scattered lake sedge, Canada thistle, and giant goldenrod.	144-146
			Wetland reduced at SE end in non-DOT ROW to exclude an area lacking dominance by hydrophytes, lacking hydric soils, and at a higher elevation than the wetland. Extended wetland at the S end in DOT ROW to include a hardwood swamp community and degraded wet meadow similar to the communities described above. Modified wetland line at N end to follow depressional area within farmed wetland and to exclude lobe that went up the highway embankment with rip rap.	
N-W180	52	N/A	Farmed wetland in non-DOT ROW located within a depression; evidence of spring ponding, algal crust, drowned out soybean crop from 2015, and 10% cover of purslane speedwell. Degraded wet meadow in DOT ROW dominated by tussock sedge, with abundant reed canary grass and giant goldenrod, and scattered Canada goldenrod and bull thistle.	147-148
			Adjusted wetland line in farm field to follow slope break and boundary of crop stress. Extended wetland line WSW into DOT ROW to include degraded wet meadow.	

Appendix B. Wetland Summary Table
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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W181	52	N/A	SE portion consists of a shallow marsh community within a roadside ditch that ties to a farmed wetland off-ROW to the E; dominated by cattail and reed canary grass with sedges common. Degraded wet meadow within roadside ditch near the culvert under I-90; dominated by reed canary grass with giant goldenrod and sedges common and scattered cattail and *Spirea* .	149-152
			Feature extended to north from 2012 boundary to include additional wet meadow and farmed wetland. Farmed wetland located in non-DOT ROW; depressional area with drowned out corn from 2015, evidence of spring ponding and water movement to the south. Farmed wetland connects to wet meadow in DOT ROW; dominated by tussock sedge, giant goldenrod, and *Spirea* ; with reed canary grass common; and scattered bird's-foot trefoil, yarrow, Ohio spiderwort, Canada thistle, and spotted knapweed.	

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix C

Photographs of Wetlands and Waterways

Wetland Photographs

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 01. N-W110 DWM in DOT ROW; vSW. May 2016

Photo 02. N-W110 DWM; vSE. May 2016

Photo 03. N-W110 ShM; vNE. May 2016

Photo 04. N-W110 SC; vNE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 05. N-W110 SM and SC; vNW. May 2016

Photo 06. N-W110 HS at south end of feature; vE. May 2016

Photo 07. N-W110 HS in DOT ROW; vW. May 2016

Photo 08. N-W112 DWM and SC; vNE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 09. N-W112a_SC and DWM; vNE. May 2016

Photo 10. Representative HS in N-W112 and N-W112a; vSE. May 2016

Photo 11. N-W114 SC near W end of feature; vE. May 2016

Photo 12. N-W114 HS; vNW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 13. N-W114 SC at E end of feature; vNE. May 2016

Photo 14. N-W114 ShM surrounded by SM; vE. May 2016

Photo 15. N-W114 DWM; vS. May 2016

Photo 16. N-W115 DWM and SC; vSE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 17. N-W116 SC and DWM; vE from NW corner of feature. May 2016

Photo 18. N-W117 DWM; vW. May 2016

Photo 19. N-W117 SC; vE. May 2016

Photo 20. N-W118 DWM; vW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 21. N-W118 higher quality SC near W end of feature; vE. May 2016

Photo 22. N-W118 SC in E half of feature; vW. May 2016

Photo 23. N-W118a ShM ditch; vE. May 2016

Photo 24. N-W119 DWM; vW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 25. N-W119 SC near center of feature; vN. May 2016

Photo 26. N-W119 SC at E end of feature; vW. May 2016

Photo 27. N-W119a HS; vW. May 2016

Photo 28. N-W120 DWM in DOT ROW; vE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 29. N-W120 DWM w spoil from recent ditch excavation; vE. May 2016

Photo 30. N-W120 farmed wetland and DWM; vE. May 2016

Photo 31. N-W121 HS along N-R58; vE. June 2016

Photo 32. N-W121 DWM; vN. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 33. N-W121 SC; vNW. June 2016

Photo 34. N-W122 DWM; vW. May 2016

Photo 35. N-W123 DWM; vNW. May 2016

Photo 36. N-W123 HS; vNE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 37. N-W123a DWM, ShM; vE. May 2016

Photo 38. N-W123a DWM and HS; vW from STR 137291. May 2016

Photo 39. N-W123a SC; vNW. May 2016

Photo 40. N-W123a DWM transition to SM; vE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 41. N-W123a HS, vSW. May 2016

Photo 42. N-W123a extensive DWM; vSE. May 2016

Photo 43. N-W123b DWM, vW; May 2016

Photo 44. N-W123b DWM, ShM from berm near E end of feature; vW. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 45. N-W123b ShM; vW. June 2016

Photo 46. N-W123b farmed wetland; vNW. June 2016

Photo 47. N-W127 farmed wetland; vNW. May 2016

Photo 48. N-W128, vSE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 49. N-W129; vSE. June 2016

Photo 50. N-W130 HS; vE. June 2016

Photo 51. N-W130 DWM; vS. June 2016

Photo 52. N-W131 farmed wetland; vW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 53. N-W132 HS; vS. May 2016

Photo 54. N-W133 farmed wetland; vN. June 2016

Photo 55. N-W134 farmed wetland; vW. June 2016

Photo 56. N-W135 farmed wetland; vW. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 57. N-W135 HS; vW. June 2016

Photo 58. N-W135 DWM, current disturbance in E half of feature; vE. June 2016

Photo 59. N-W137 ShM; vW. June 2016

Photo 60. N-W138 ShM at W end of feature; vNE. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 61. N-W138 DWM west of N-R70; vNW. June 2016

Photo 62. N-W138 SC and DWM; vSE. June 2016

Photo 63. Red maple HS common in N-W138 and N-W138a; vS. June 2016

Photo 64. N-W138 river birch dominated HS; vN. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 65. N-W138 ShM surrounded by DWM; vSW. June 2016

Photo 66. N-W138b ShM near center of feature; vW. June 2016

Photo 67. N-W138b ShM from E end; vW. June 2016

Photo 68. N-W138b ShM at E end of feature; vS. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 69. Typical view of DWM, ShM within N-W139, N-W139a vE. June 2016

Photo 70. Typical view of HS within N-W139, N-W139a; vSW. June 2016

Photo 71. N-W139_open water feature at E end of feature; vSW. June 2016

Photo 72. N-W139 DWM with recent excavation activities; vSW. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 73. N-W140 ShM; vSE. May 2016

Photo 74. N-W140 HS; vE from SE end of feature. May 2016

Photo 75. N-W140 DWM; vW. June 2016

Photo 76. N-W141 DWM and HS; vE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 77. N-W142 DWM; vS. May 2016

Photo 78. N-W142 HS; vS. May 2016

Photo 79. Representative DWM and HS in N-W143, N-W143c; vW. May 2016

Photo 80. Representative DWM in N-W143, N-W143a; vE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 81. N-W143b DWM; vS. May 2016

Photo 82. N-W143b SC; vW. May 2016

Photo 83. N-W143b ShM; vW. May 2016

Photo 84. N-W144 WM; vS. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 85. N-W145 WM; vE. May 2016

Photo 86. N-W146 HS; vW. May 2016

Photo 87. N-W146 DWM in DOT ROW; vW. May 2016

Photo 88. N-W147 HS; vW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 89. N-W147 DWM at E end of feature; vW. May 2016

Photo 90. N-W148 hayed DWM; vW. May 2016

Photo 91. N-W149 farmed wetland; vW. May 2016

Photo 92. N-W151 DWM, ShM; vSE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 93. N-W153 SC; vW. May 2016

Photo 94. N-W153 HS, DWM; vSW. May 2016

Photo 95. N-W153 HS W of N-R74; vE. May 2016

Photo 96. N-W153 representative view of DWM in DOT ROW; vNW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 97. N-W153 HS E of N-R74; vSW. May 2016

Photo 98. N-W153 ShM; vW. May 2016

Photo 99. N-W153 AT at E end of feature; vN. May 2016.

Photo 100. N-W154 DWM; vSW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 101. N-W154a DWM, HS; vNW. May 2016

Photo 102. N-W155 DWM; vNW. May 2016

Photo 103. N-W156 DWM; vSW. May2016

Photo 104. N-W157a farmed wetland; vS. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 105. N-W158 DWM, ShM, farmed wetland; vSE. May 2016

Photo 106. N-W159 DWM; vSE. May 2016

Photo 107. N-W160 DWM in DOT ROW; vNW. May 2016

Photo 108. N-W160 HS; vNW. May 2016

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Photo 109. N-W161 SC; vNW. May 2016

Photo 110. N-W162 HS at NW edge of feature; vSE. May 2016

Photo 111. N-W162 HS; vNW. May 2016

Photo 112. N-W162 DWM; vNE. May 2016

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Photo 113. N-W162 SM; vNW. May 2016

Photo 114. N-W162a DWM; vNW. May 2016

Photo 115. N-W162a HS; vNW. May 2016

Photo 116. N-W162a degraded SM; vSE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 117. N-W163 WM; vNW. May 2016

Photo 118. N-W163 HS; vNW. May 2016

Photo 119. N-W163 SM; vSE. May 2016

Photo 120. N-W163 DWM; vNW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 121. N-W164 DWM; vSE. May 2016

Photo 122. N-W164 SM; vE. May 2016

Photo 123. N-W165 DWM; vNW. May 2016

Photo 124. N-W166 DWM, HS; vNW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 125. N-W166 SC; vSE. May 2016

Photo 126. N-W167 DWM, HS; vW. May 2016

Photo 127. N-W168 DWM; vW. May 2016

Photo 128. N-W169 DWM; vE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 129. N-W169 ShM; vNE. May 2016

Photo 130. N-W170 DWM; vE. May 2016

Photo 131. N-W171 SC; vNW. May 2016

Photo 132. N-W171 DWM; SW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 133. N-W172 DWM; vE. June 2016

Photo 134. N-W173 HS; vE. June 2016

Photo 135. N-W173 DWM; vSE. June 2016

Photo 136. N-W173 SC; vNW. June 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 137. N-W174 DWM; vE. June 2016

Photo 138. N-W175 DWM; vNW. June 2016

Photo 139. N-W176 DWM; vW. May 2016

Photo 140. N-W176 SC; vNE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 141. N-W178 DWM; vSE. May 2016

Photo 142. N-W178 ShM, SC; vW.May 2016

Photo 143. N-W178a DWM; vSW. May 2016

Photo 144. N-W179 farmed wetland; vNW. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 145. N-W179 HS; vE. May 2016

Photo 146. N-W179 SC; vNE. May 2016

Photo 147. N-W180 DWM; vSE. May 2016

Photo 148. N-W180 farmed wetland; vSE. May 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 149. N-W181 WM; vSE. May 2016

Photo 150. N-W181 farmed wetland; vE. May 2016

Photo 151. N-W181 DWM; vSE. May 2016

Photo 152. N-W181 ShM; vNW. May 2016

Waterway Photographs

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 01. N-R46; vSE. May 2016

Photo 02. N-R47; vW. May 2016

Photo 03. N-R48; vE. May 2016

Photo 04. N-R49; vW. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 05. N-R50; vN. May 2016

Photo 06. N-R51; vS. May 2016

Photo 07. N-R52; vN. May 2016

Photo 08. N-R53; vN. May 2016

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Photo 09. N-R54; vN. May 2016

Photo 10. N-R55; vE. May 2016

Photo 11. N-R56; vN. May 2016

Photo 12. N-R57; vN. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 13. N-R58; vNE. June 2016

Photo 14. N-R59; vN. May 2016

Photo 15. N-R59a; vSW from DOT culvert. May 2016

Photo 16. N-R59b; vW. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 17. N-R59b, vE from DOT culvert. May 2016

Photo 18. N-R61a; vS. June 2016

Photo 19. N-R61b at intersection with N-R62a; vW. June 2016

Photo 20. N-R62a; vS. June 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 21. N-R67; vN. May 2016

Photo 22. N-R67a; vW. May 2016

Photo 23. N-R67b; vS. June 2016

Photo 24. N-R68. Photo from Pictometry

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 25. N-R68a and N-R69. Photo from Pictometry

Photo 26. N-R70; vSE. June 2016

Photo 27. N-R71; vS. June 2016

Photo 28. N-R72 showing western lateral; vW. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 29. N-R72; vS. May 2016

Photo 30. N-R73; vS. May 2016

Photo 31. N-R74 from W bank; vS. May 2016

Photo 32. N-R74 from E bank; vW. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 33. N-R75; vNW. May 2016

Photo 34. N-R76; vNW. May 2016

Photo 35. N-R77; vE. May 2016

Photo 36. N-R78 (off-ROW access); vNE. May 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 37. N-R79; vN. May 2016

Photo 38. N-R80; vE. May 2016

Photo 39. N-R81; vNE. June 2016

Photo 40. N-R82; vSW. May 2016

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

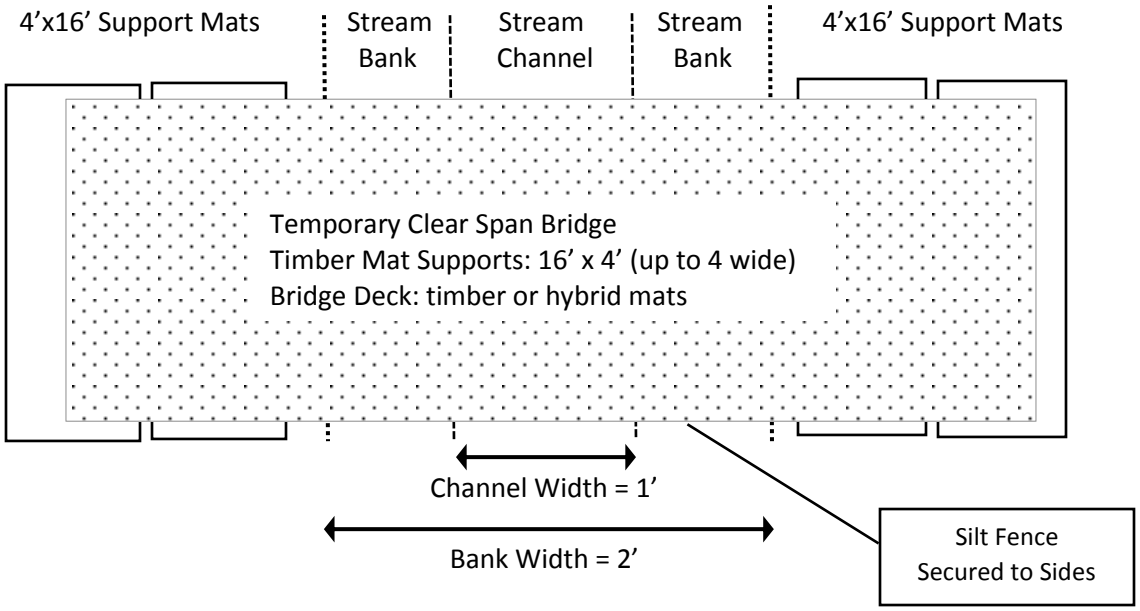
Appendix D

TCSB Plan and Profile Figures

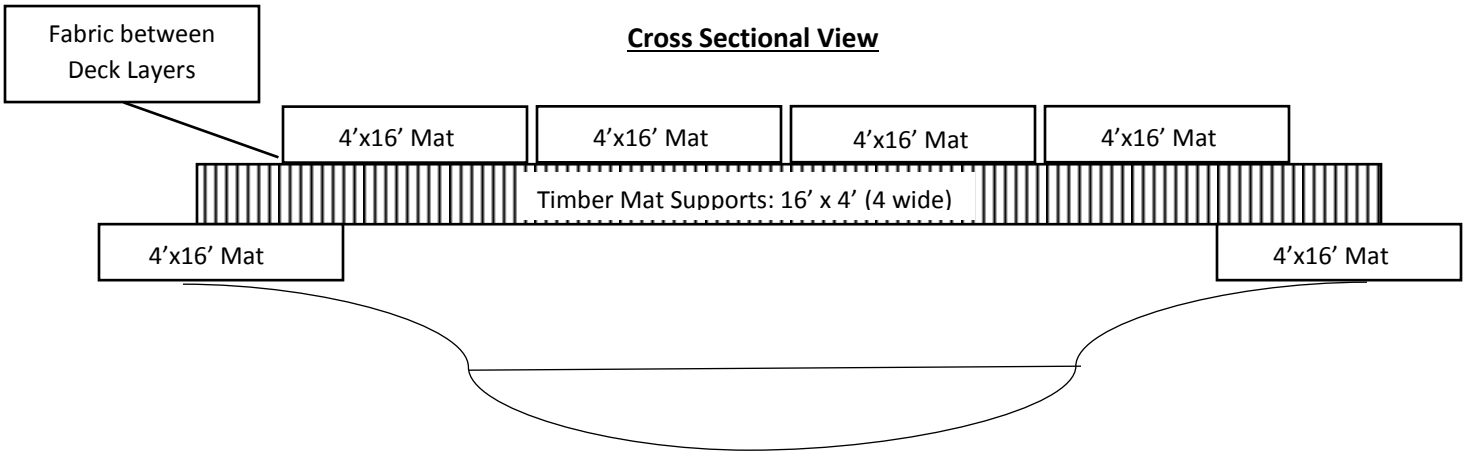
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R47
Nearest Structure: 137248

Plan View



Cross Sectional View



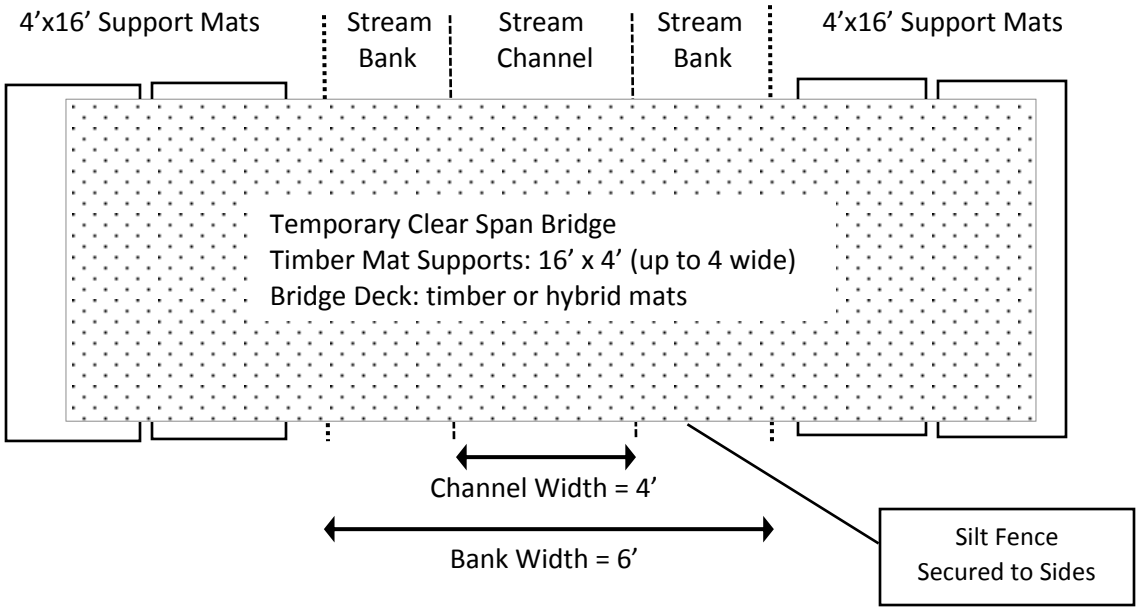
Depth of Water = 6"
Height of Bank = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

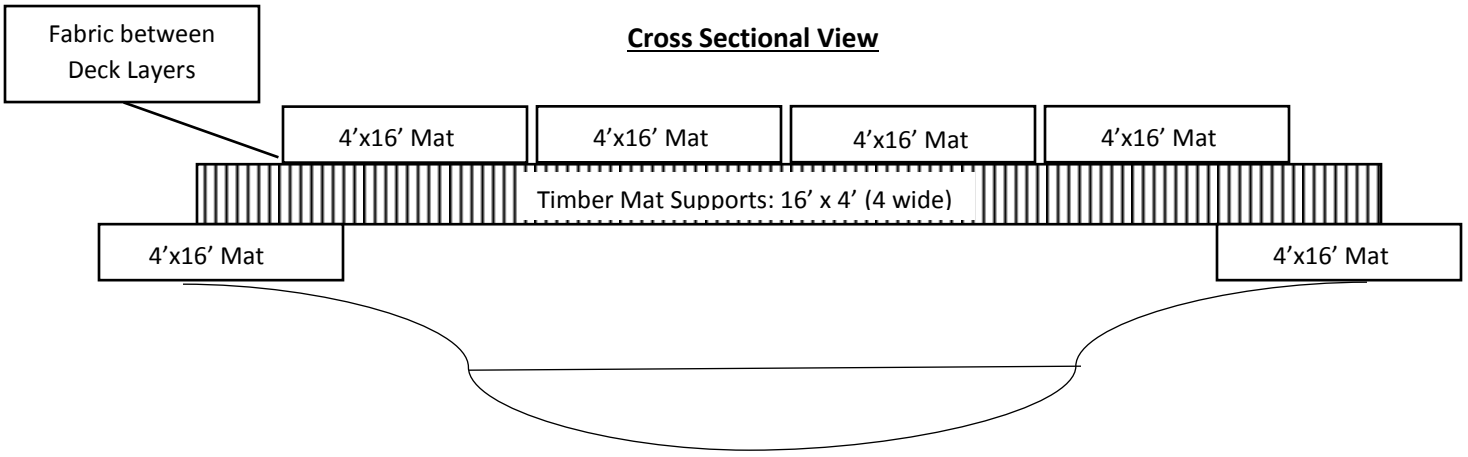
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R48
Nearest Structure: 137249

Plan View



Cross Sectional View



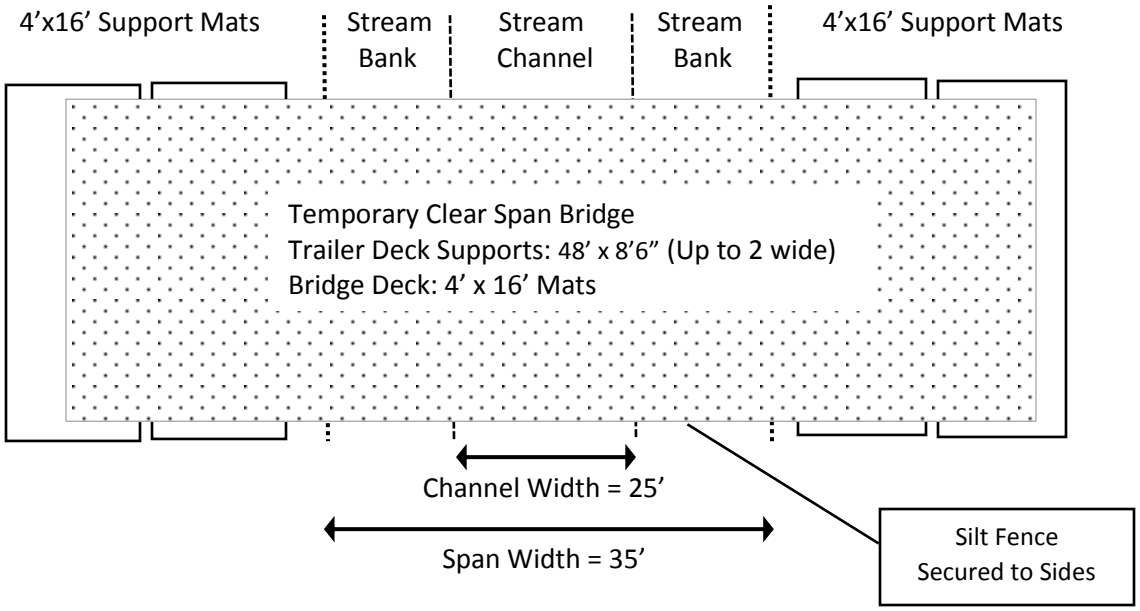
Depth of Water = 6"
Height of Bank = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

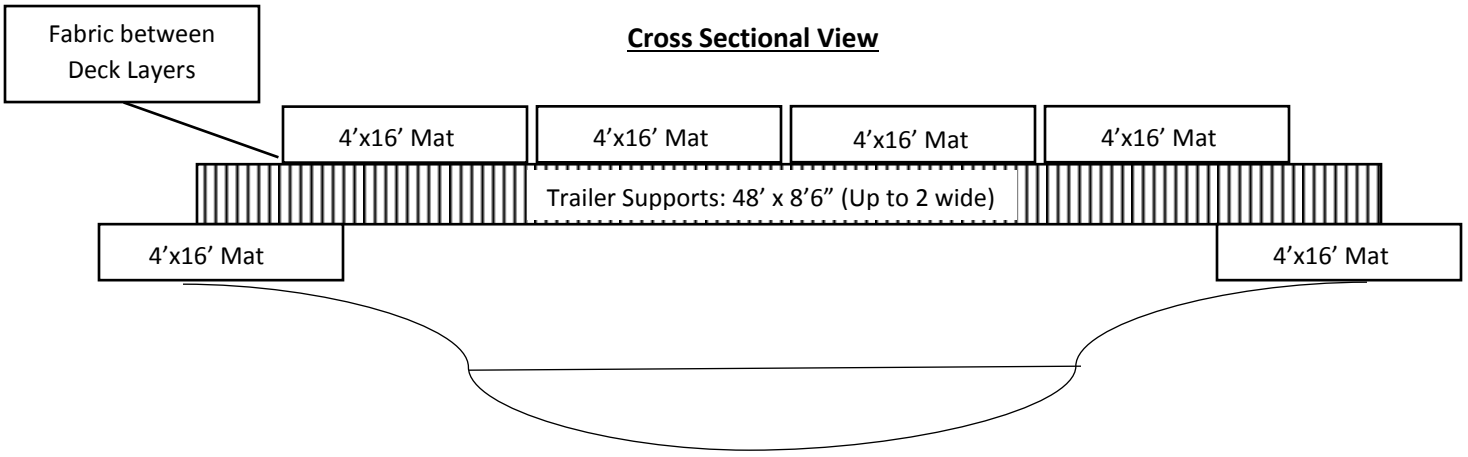
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R49
Nearest Structure: 137255

Plan View



Cross Sectional View



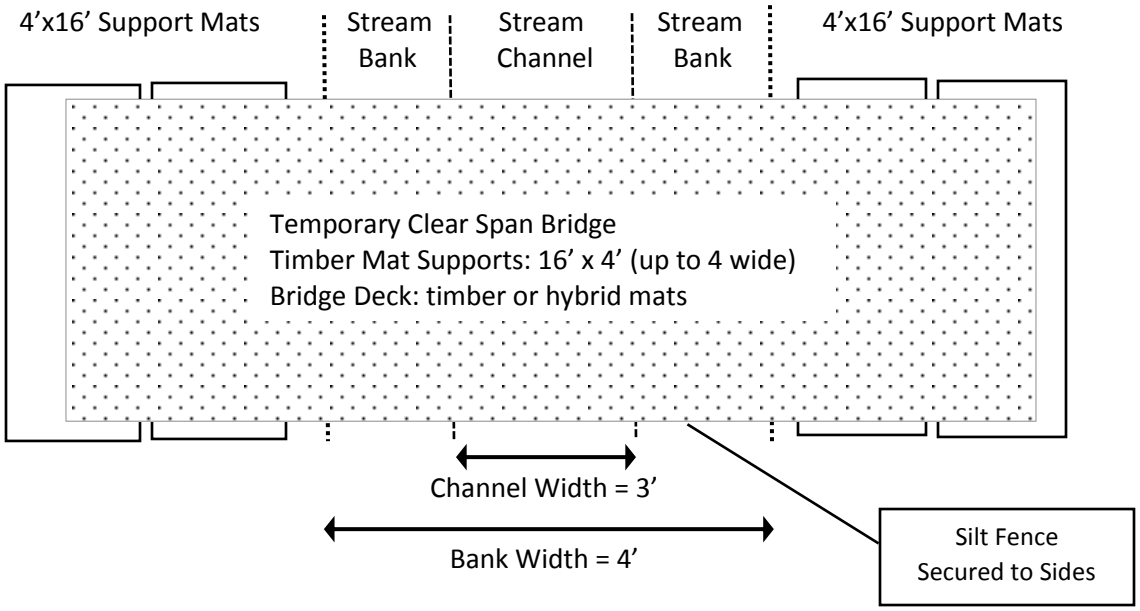
Depth of Water = 2'
Height of Bank = 5'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

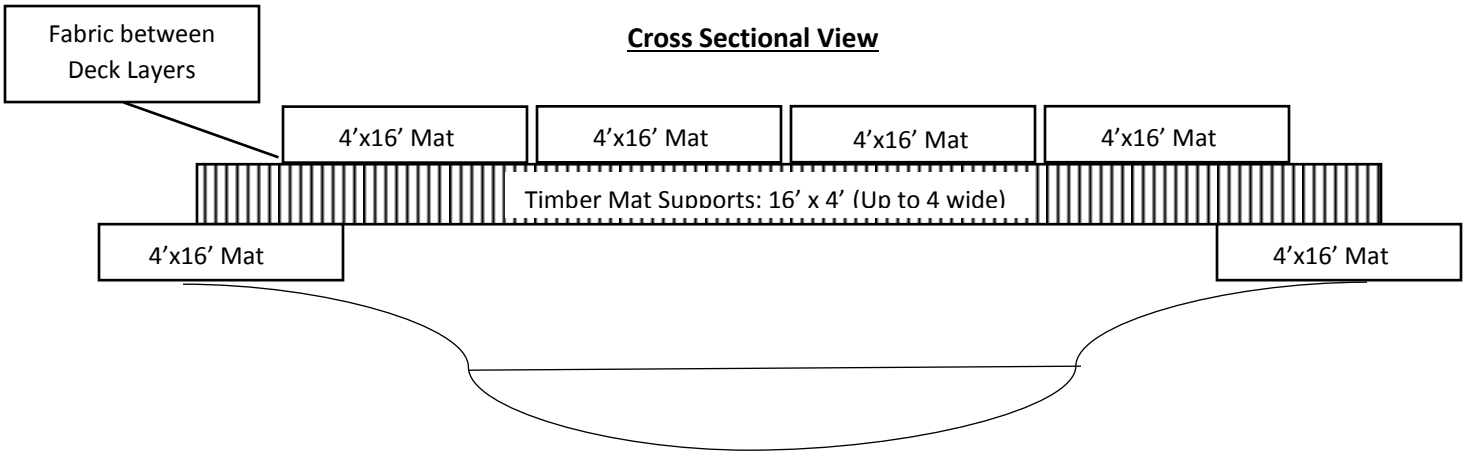
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R50
Nearest Structure: 137258

Plan View



Cross Sectional View



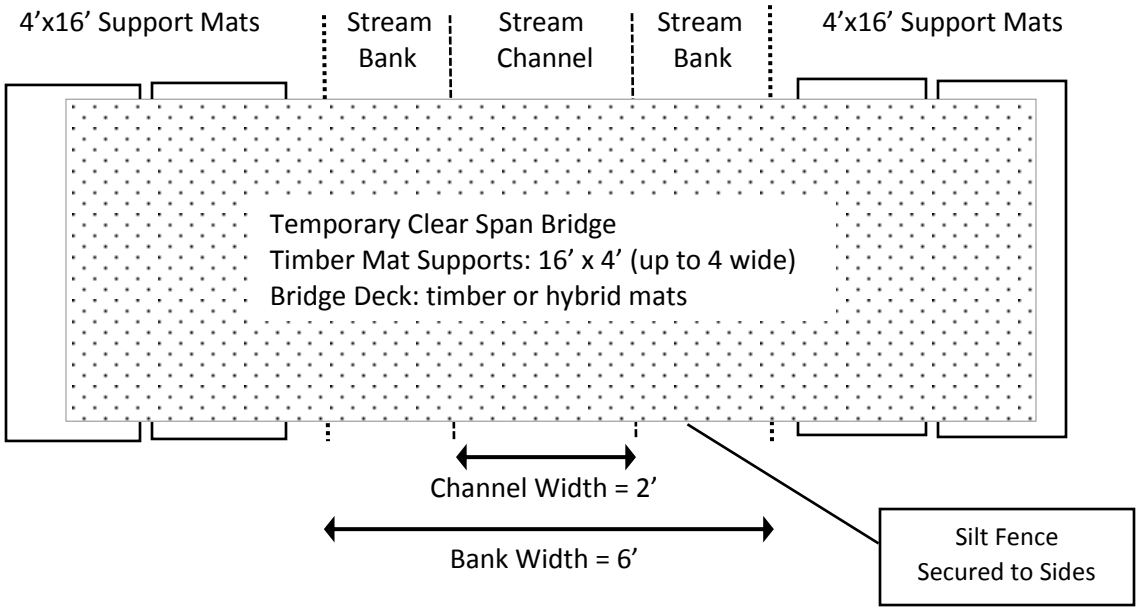
Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

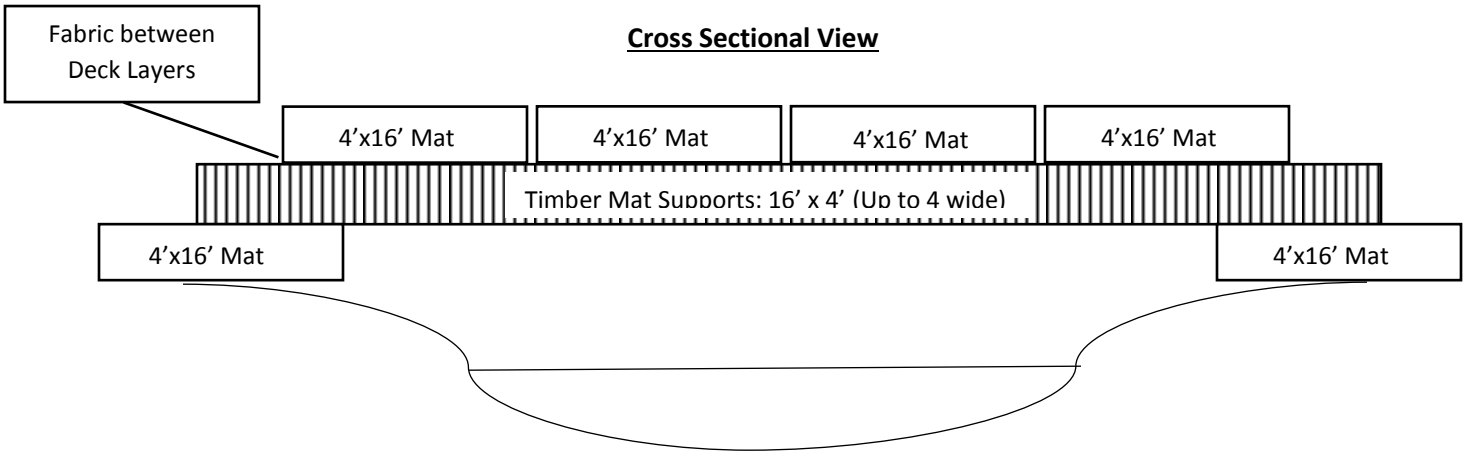
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R51
Nearest Structure: 137261

Plan View



Cross Sectional View



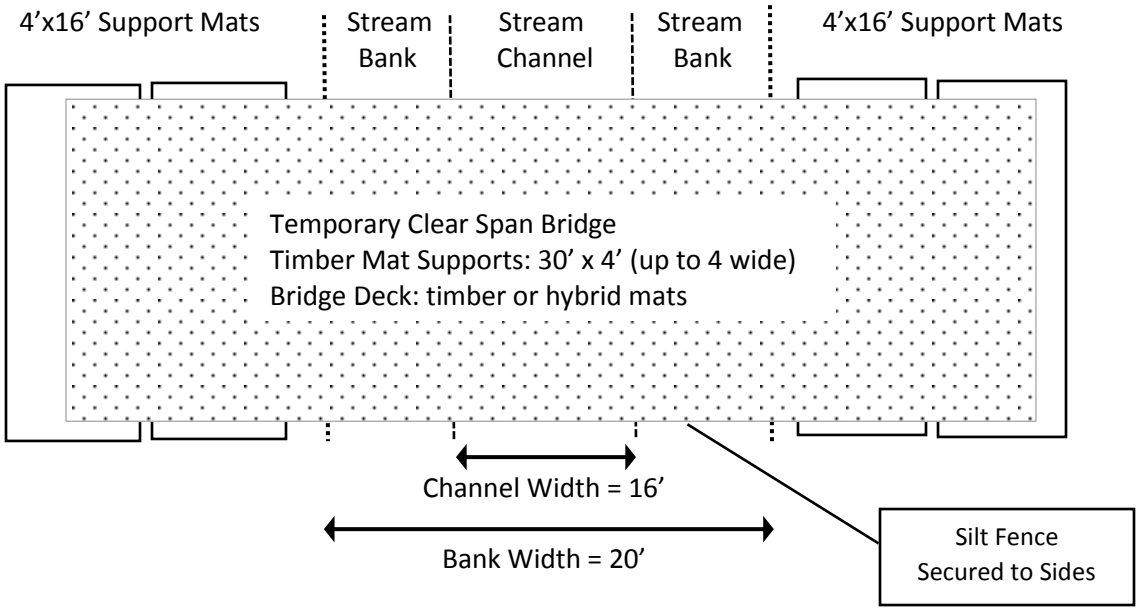
Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

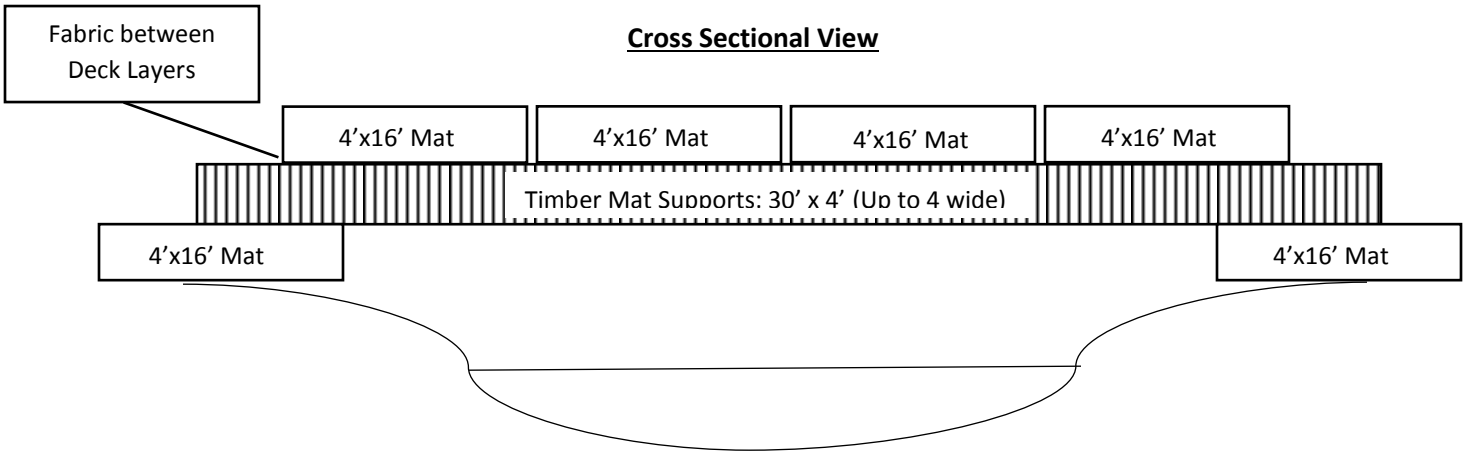
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R53
Nearest Structure: 137267

Plan View



Cross Sectional View



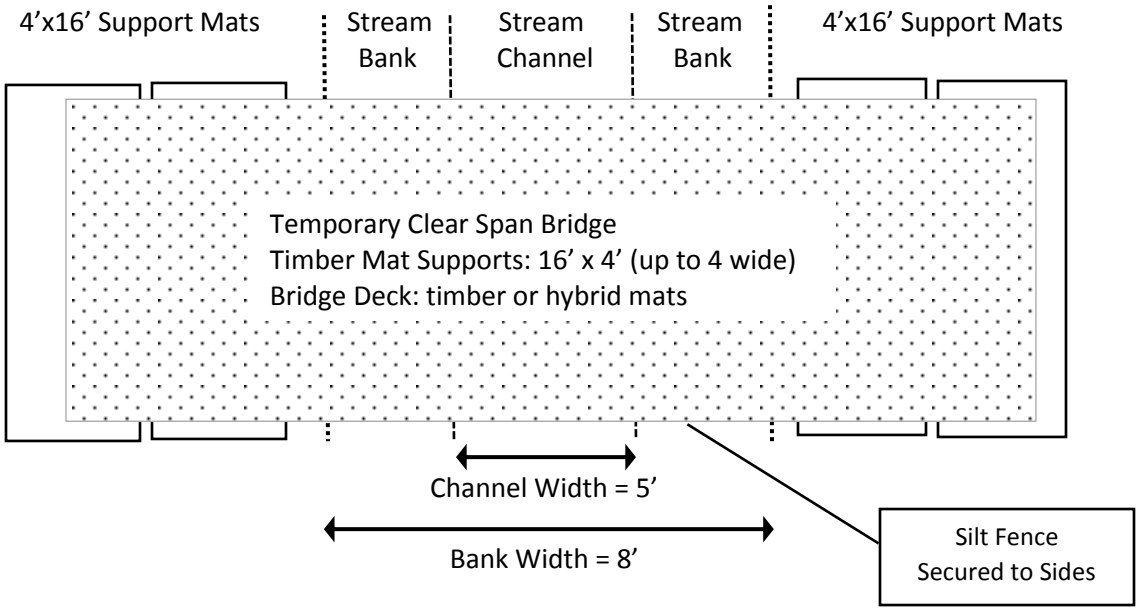
Depth of Water = 3'
Height of Bank = 5'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

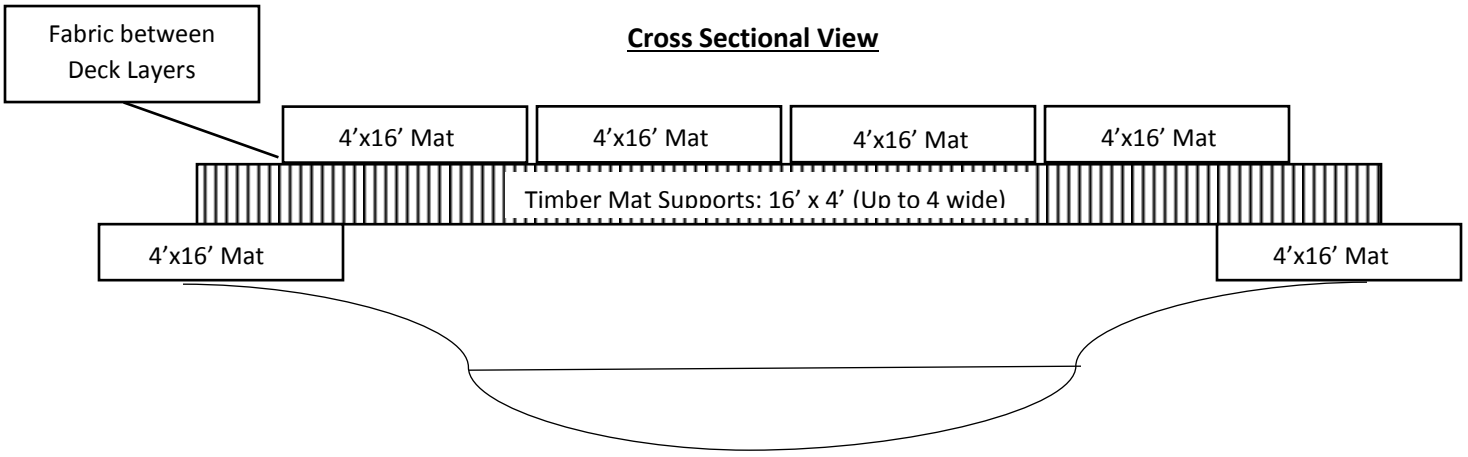
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R54
Nearest Structure: 137267

Plan View



Cross Sectional View



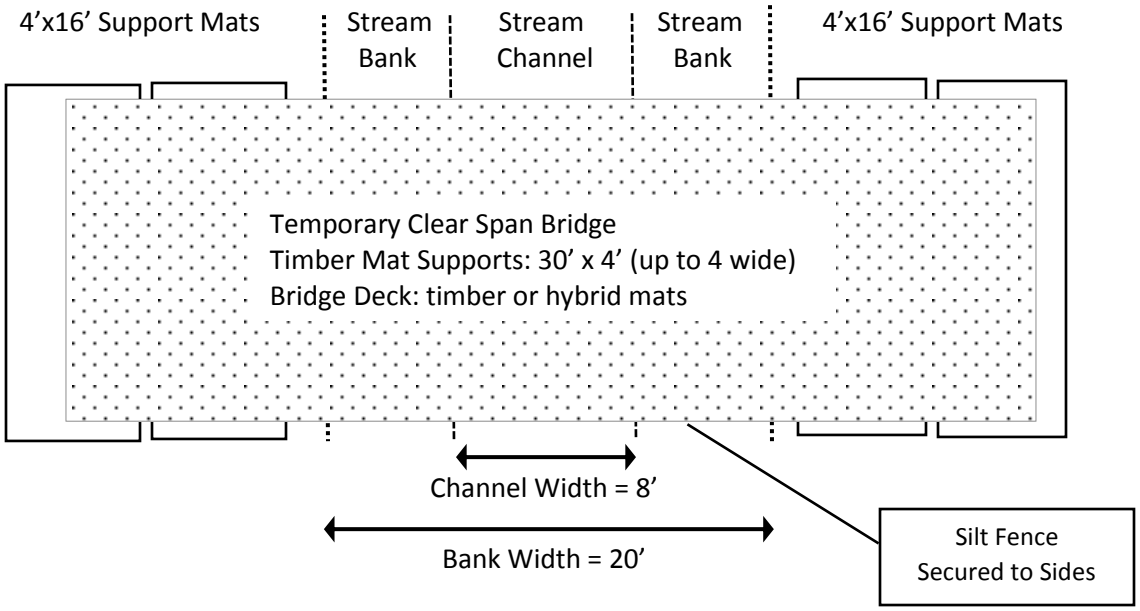
Depth of Water = 6"
Height of Bank = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

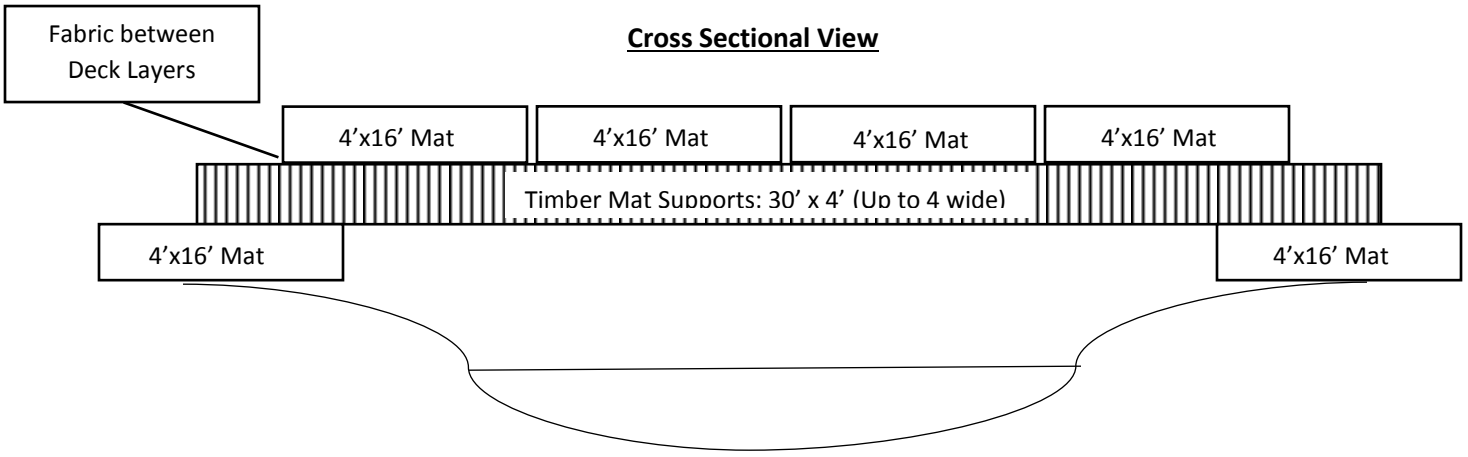
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R55
Nearest Structure: 137271

Plan View



Cross Sectional View



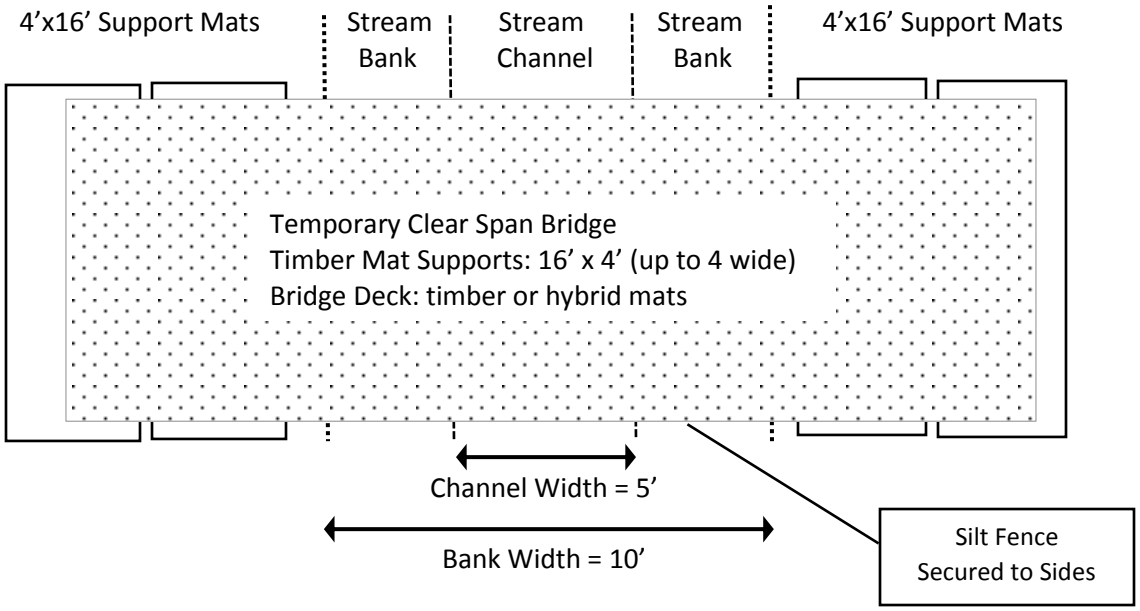
Depth of Water = 1'
Height of Bank = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

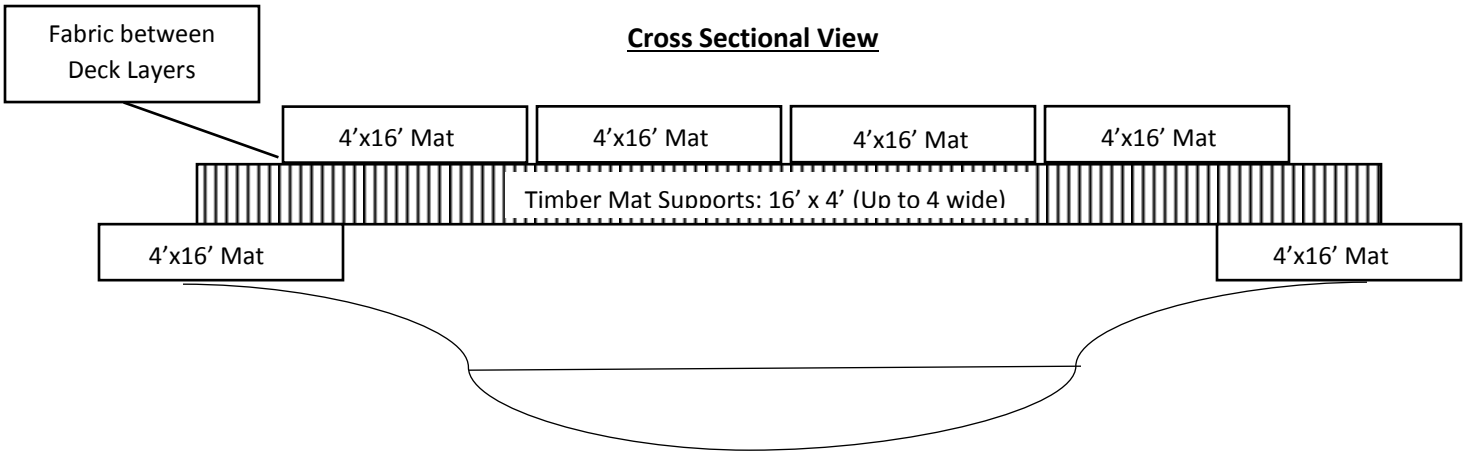
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R56
Nearest Structure: 137272

Plan View



Cross Sectional View



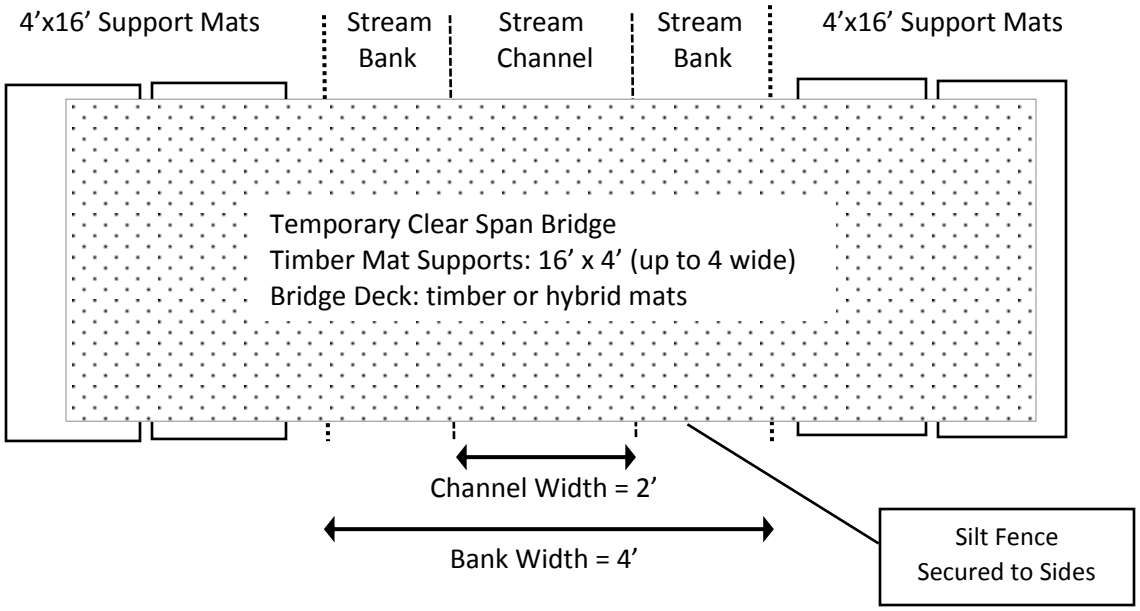
Depth of Water = 6"
Height of Bank = 4'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

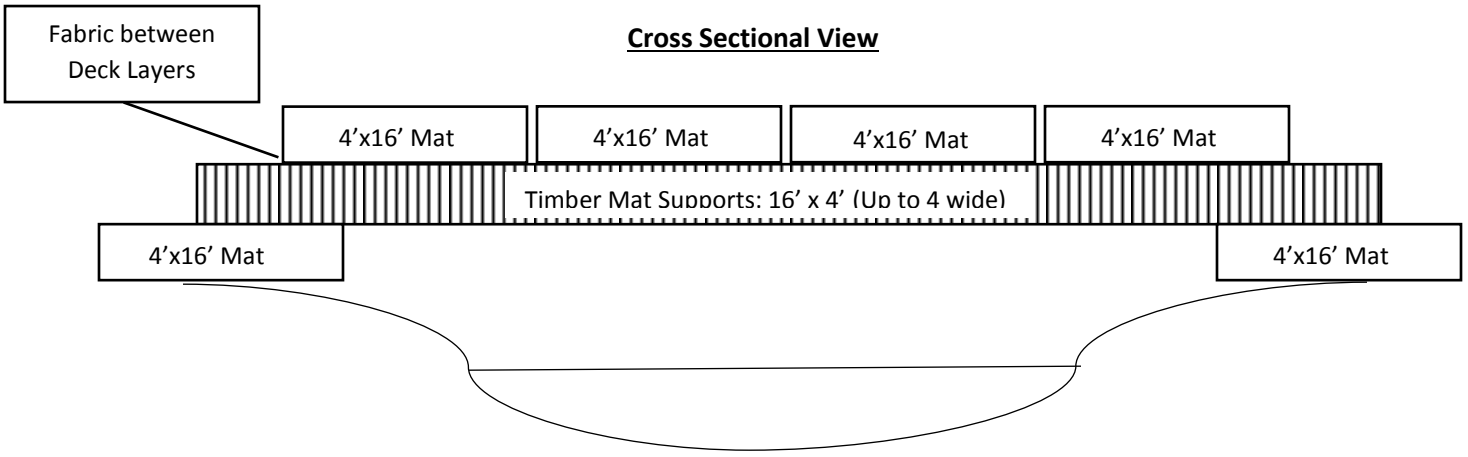
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R57
Nearest Structure: 137275

Plan View



Cross Sectional View



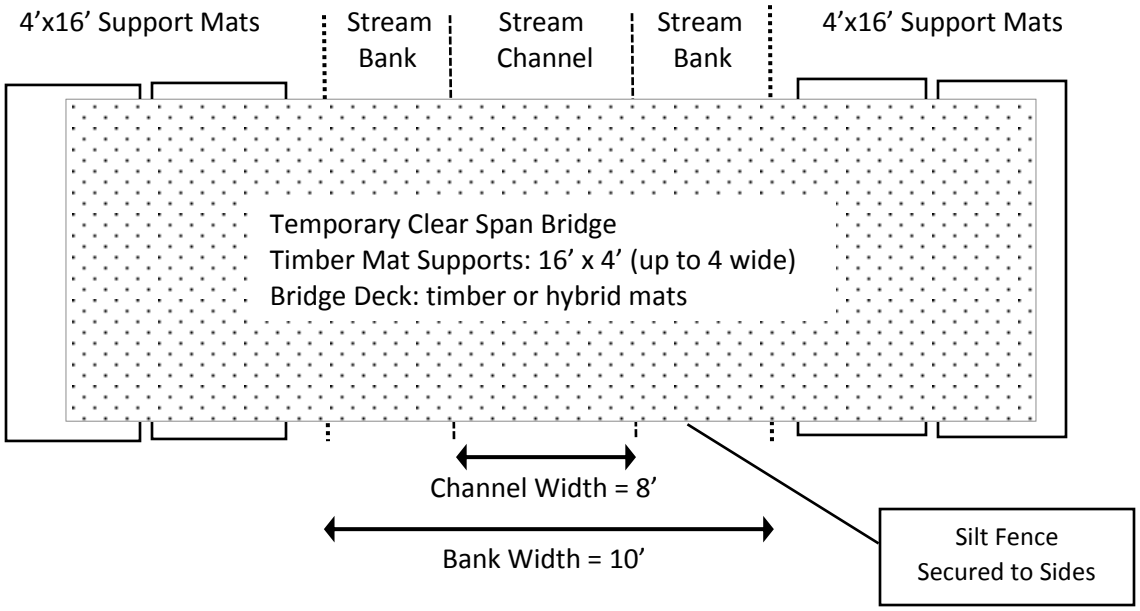
Depth of Water = 1'
Height of Bank = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

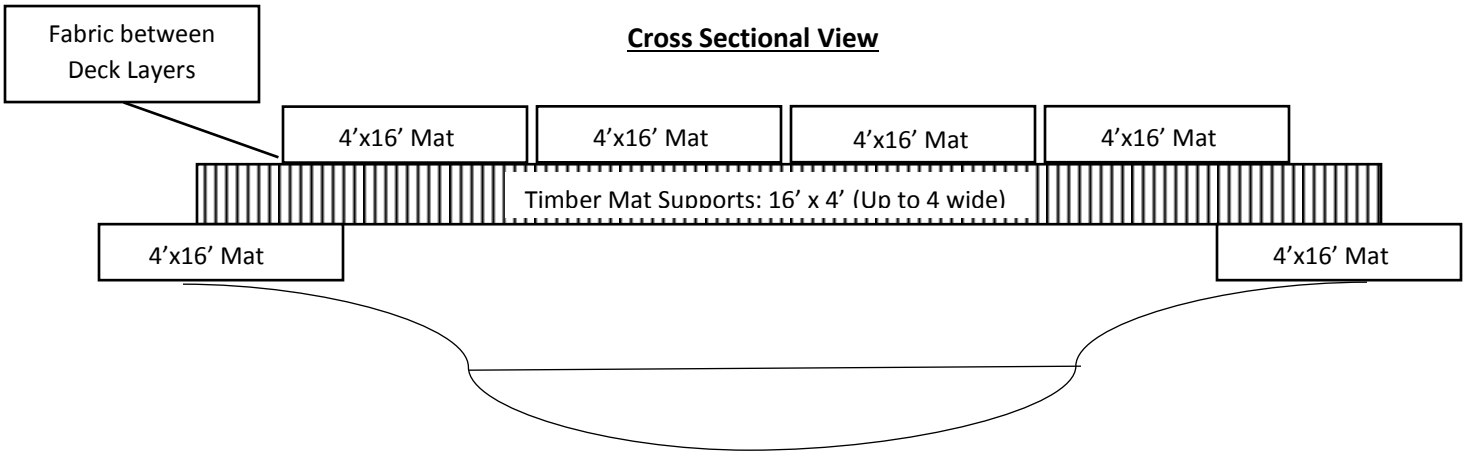
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R58
Nearest Structure: 137278

Plan View



Cross Sectional View



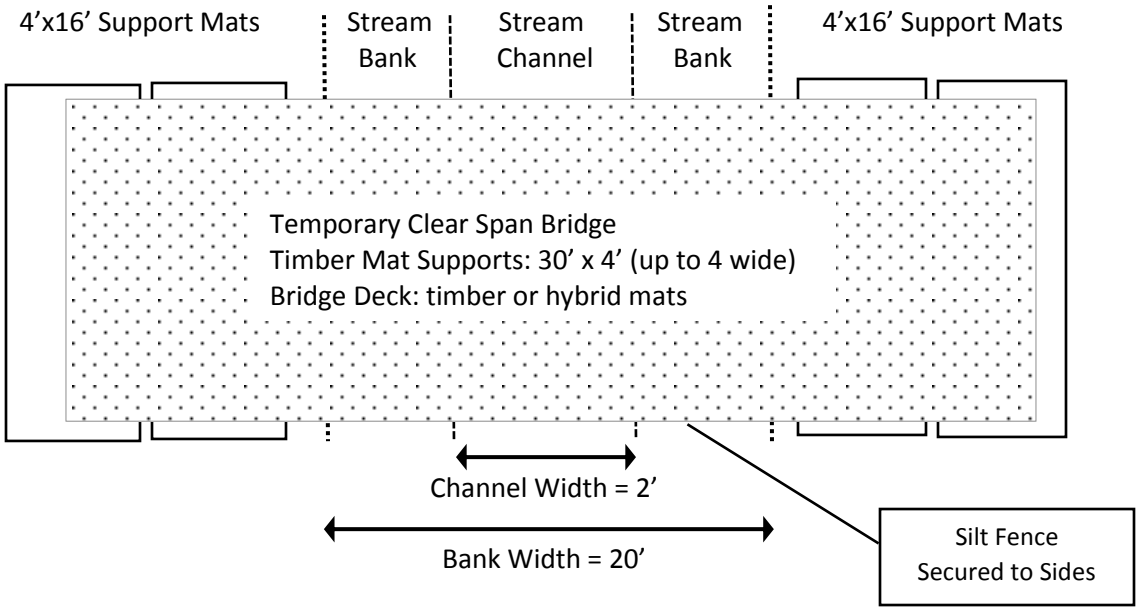
Depth of Water = 1'
Height of Bank = 5'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

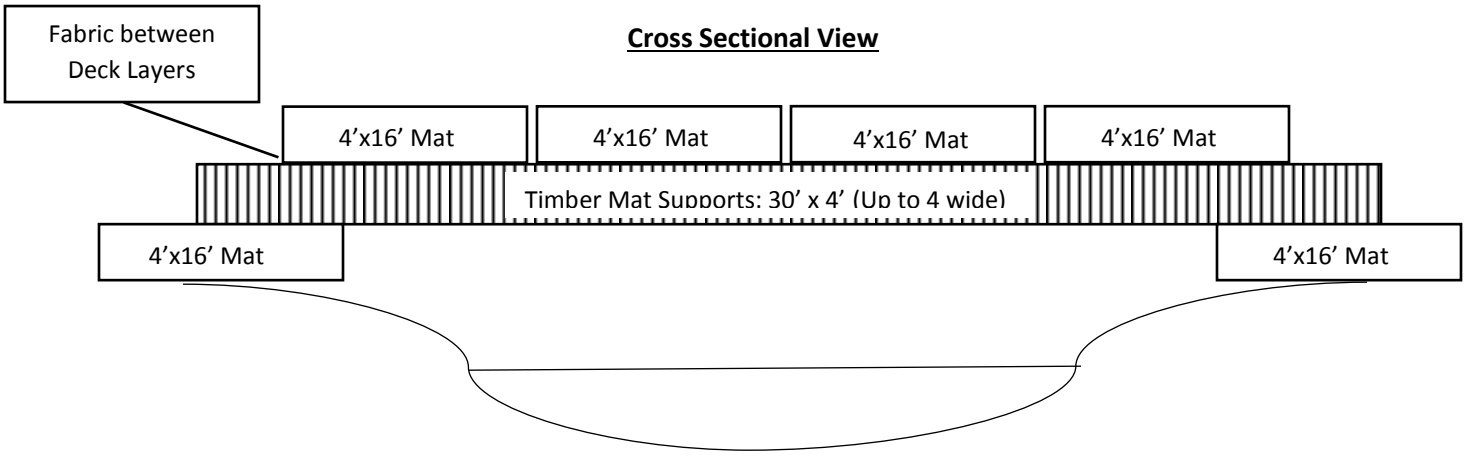
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R59
Nearest Structure: 137283

Plan View



Cross Sectional View



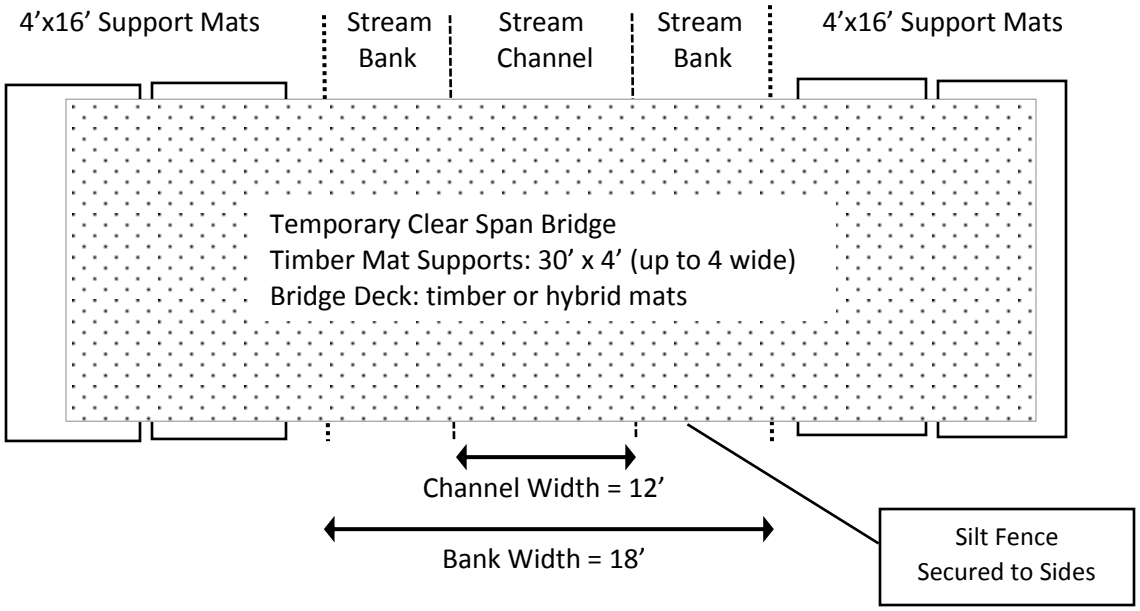
Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

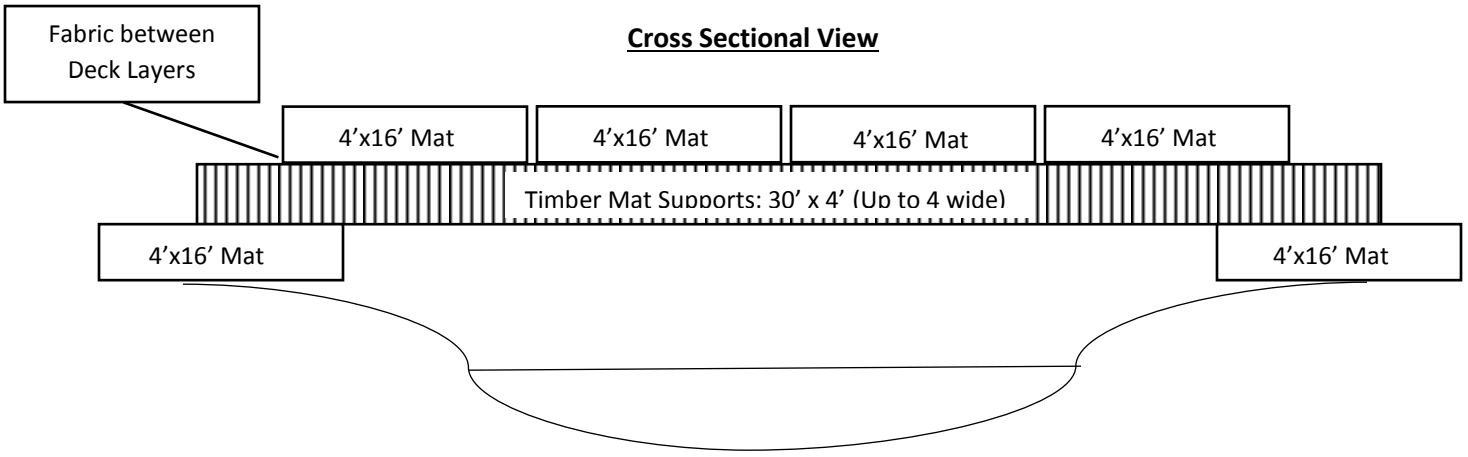
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R59a
Nearest Structure: 137292

Plan View



Cross Sectional View



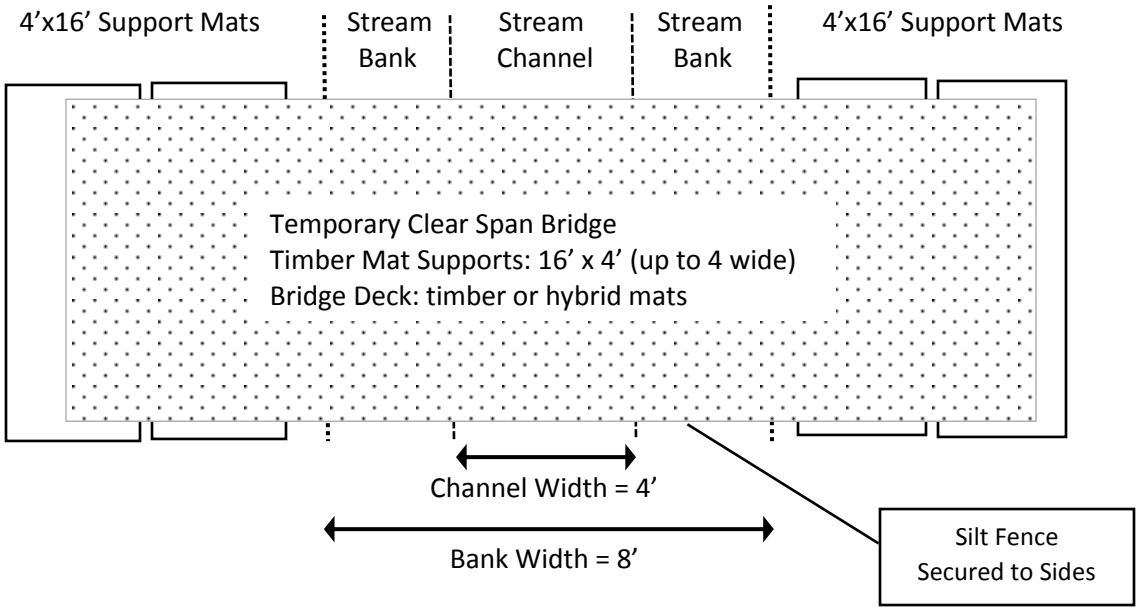
Depth of Water = 1'
Height of Bank = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

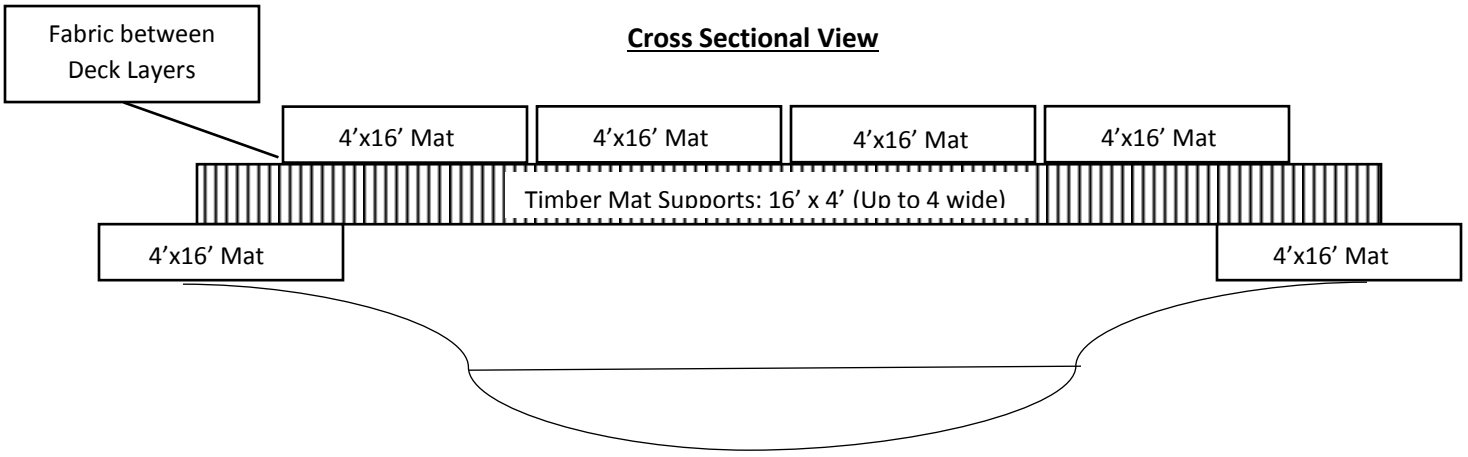
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R61a
Nearest Structure: 137295

Plan View



Cross Sectional View



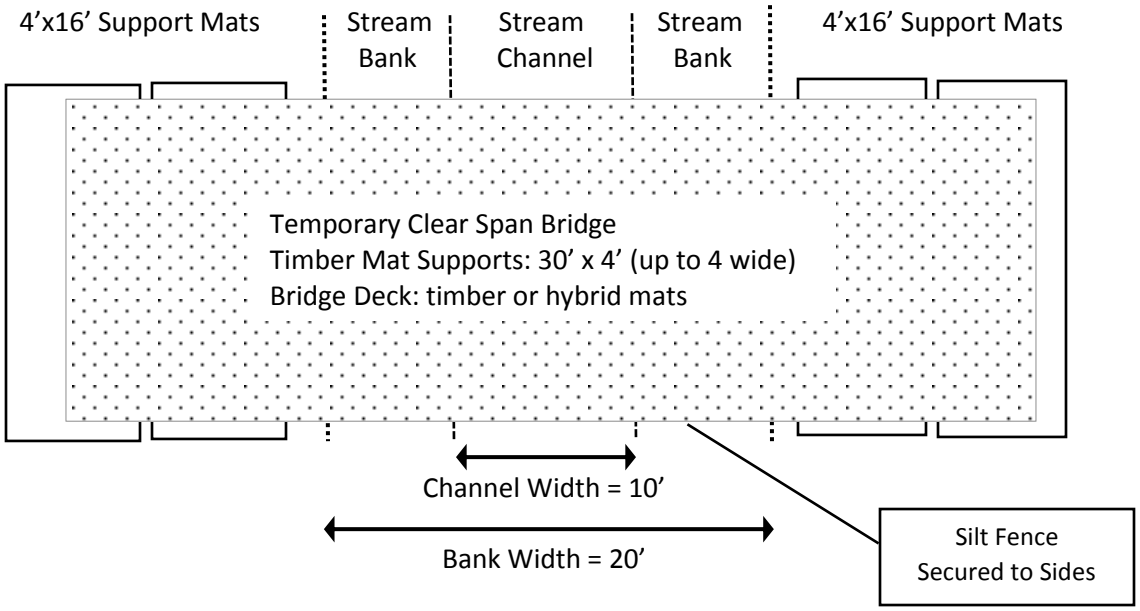
Depth of Water = 6"
Height of Bank = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

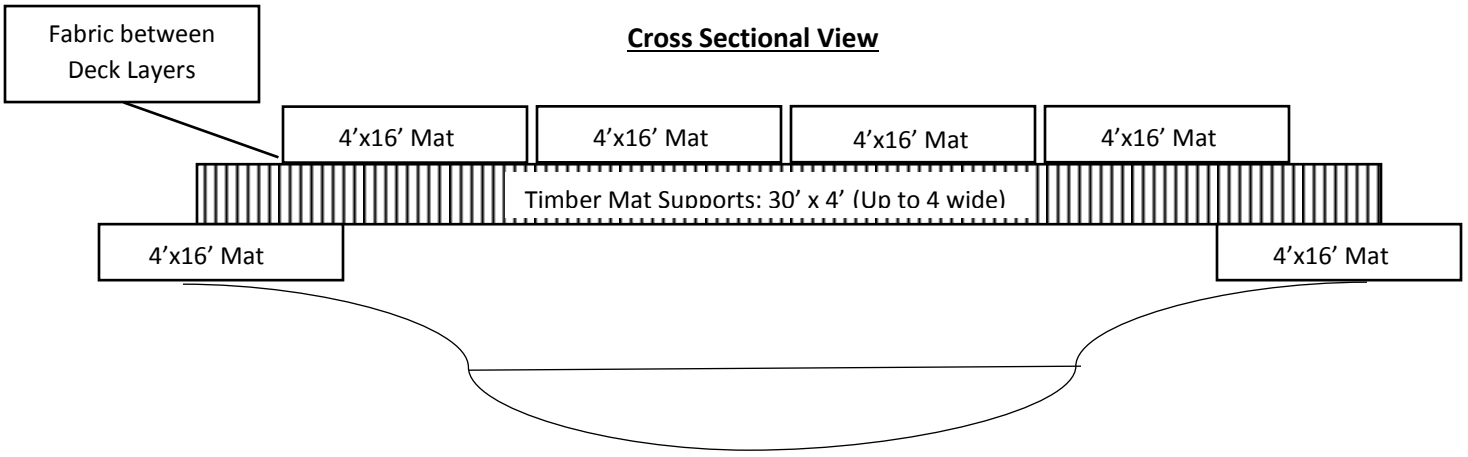
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R62a
Nearest Structure: 137296

Plan View



Cross Sectional View



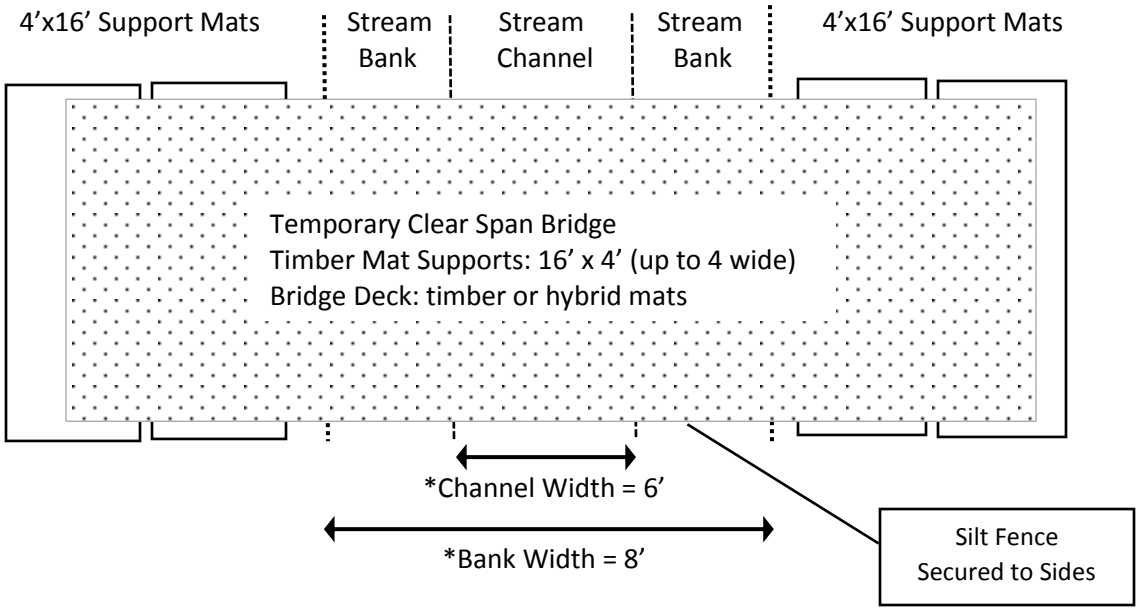
Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

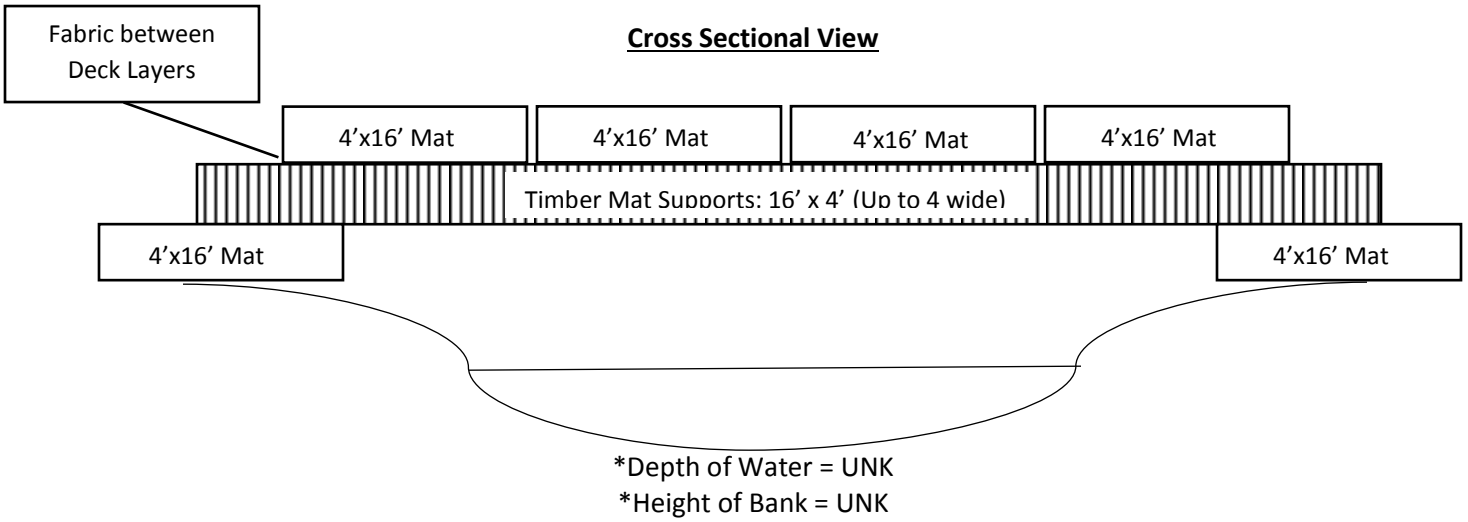
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R67b
Nearest Structure: 137317

Plan View



Cross Sectional View

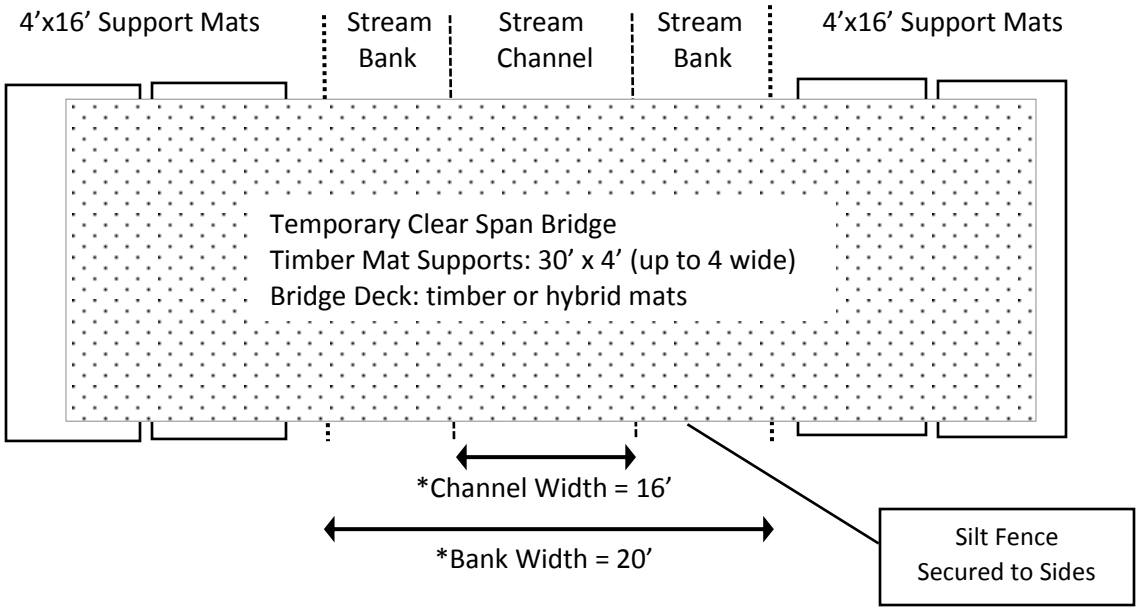


- *Measurements were not field reviewed by H&M due to access restrictions. Desktop review through aerial photography was used to review bridge design. Bank height and water depth are unknown due to lack of field review.
- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

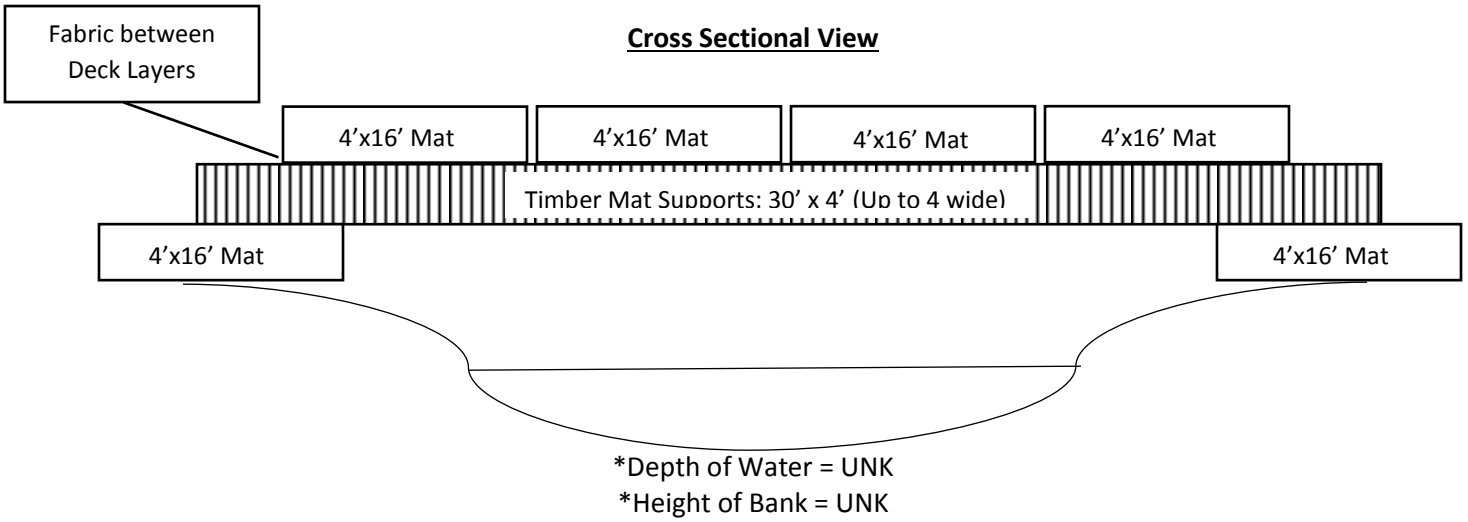
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R68
Nearest Structure: 137334

Plan View



Cross Sectional View

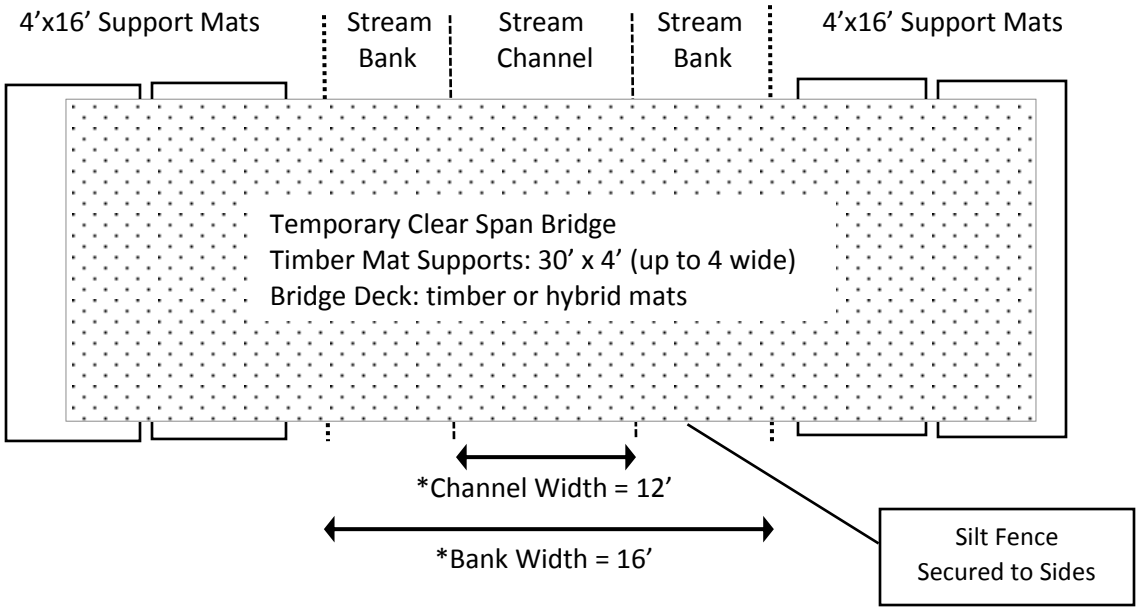


- *Measurements were not field reviewed by H&M due to access restrictions. Desktop review through aerial photography was used to review bridge design. Bank height and water depth are unknown due to lack of field review.
- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

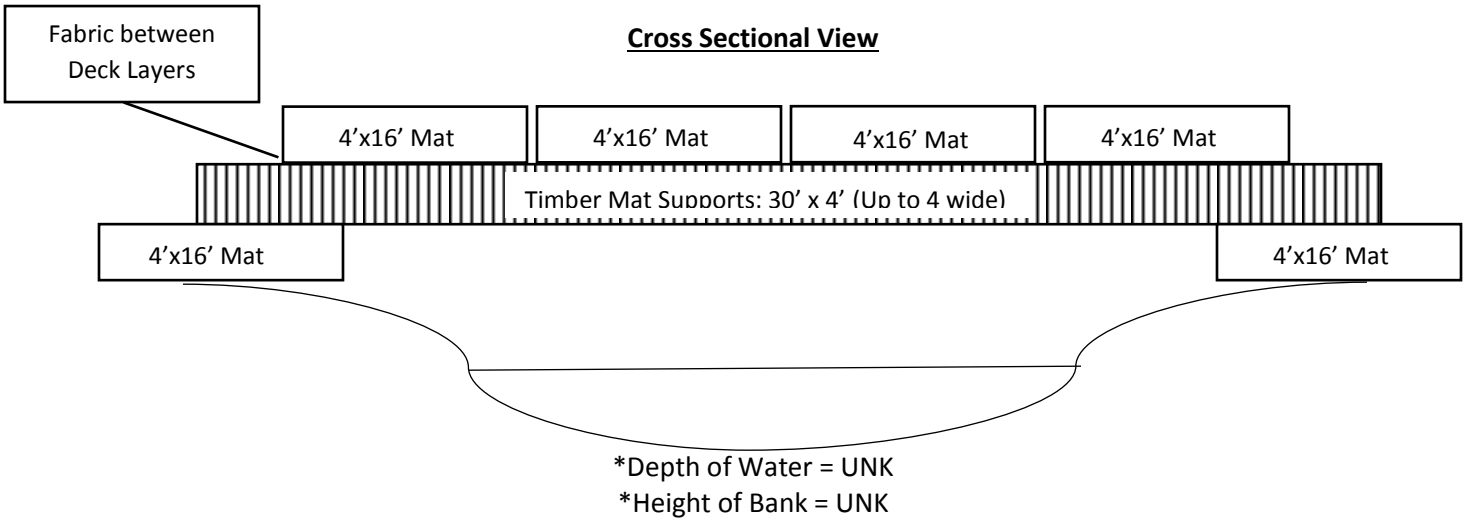
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R68a
Nearest Structure: 137335

Plan View



Cross Sectional View

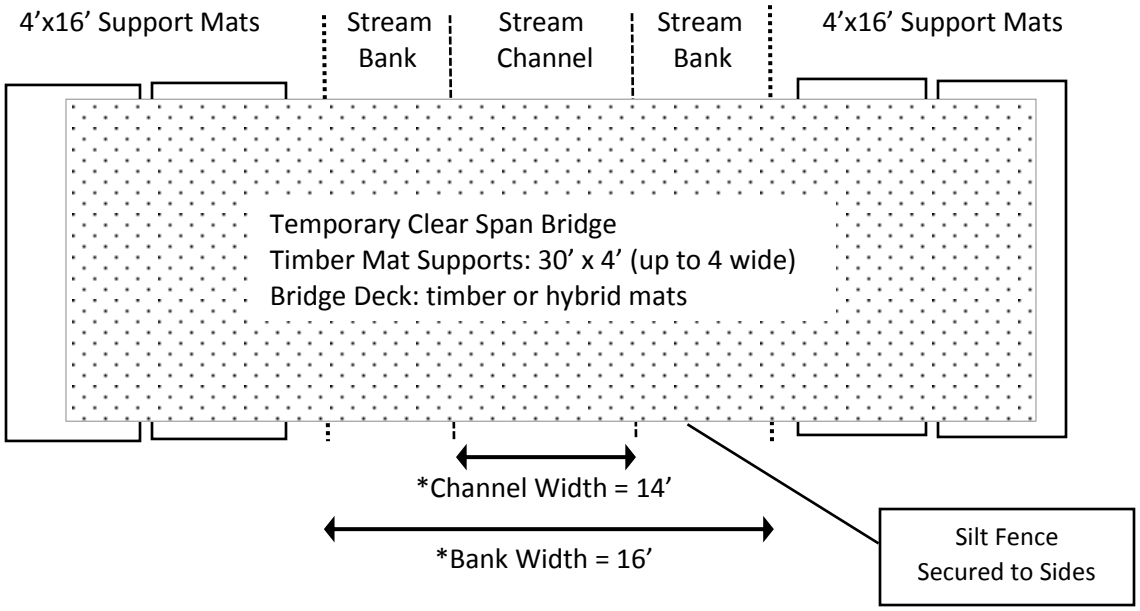


- *Measurements were not field reviewed by H&M due to access restrictions. Desktop review through aerial photography was used to review bridge design. Bank height and water depth are unknown due to lack of field review.
- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

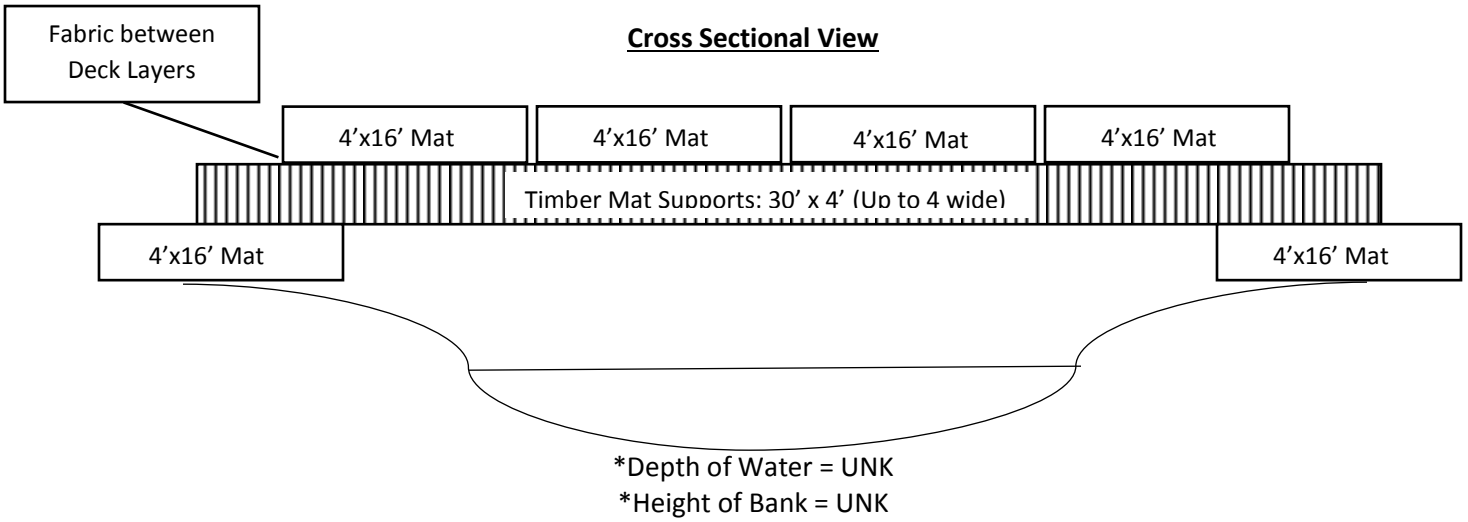
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R70
Nearest Structure: 137337

Plan View



Cross Sectional View

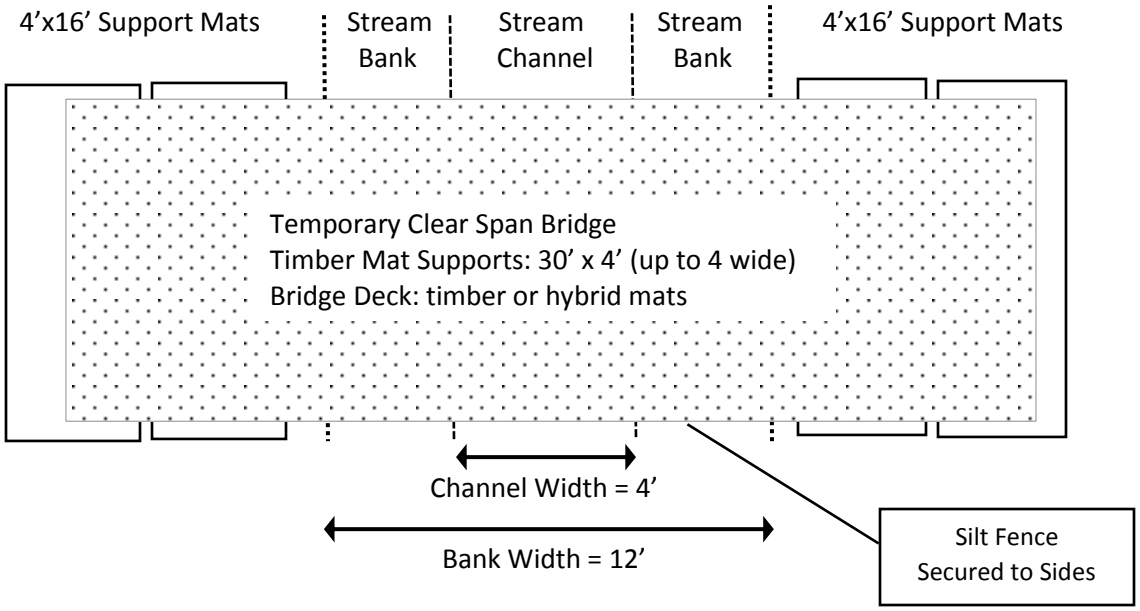


- *Measurements were not field reviewed by H&M due to access restrictions. Desktop review through aerial photography was used to review bridge design. Bank height and water depth are unknown due to lack of field review.
- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

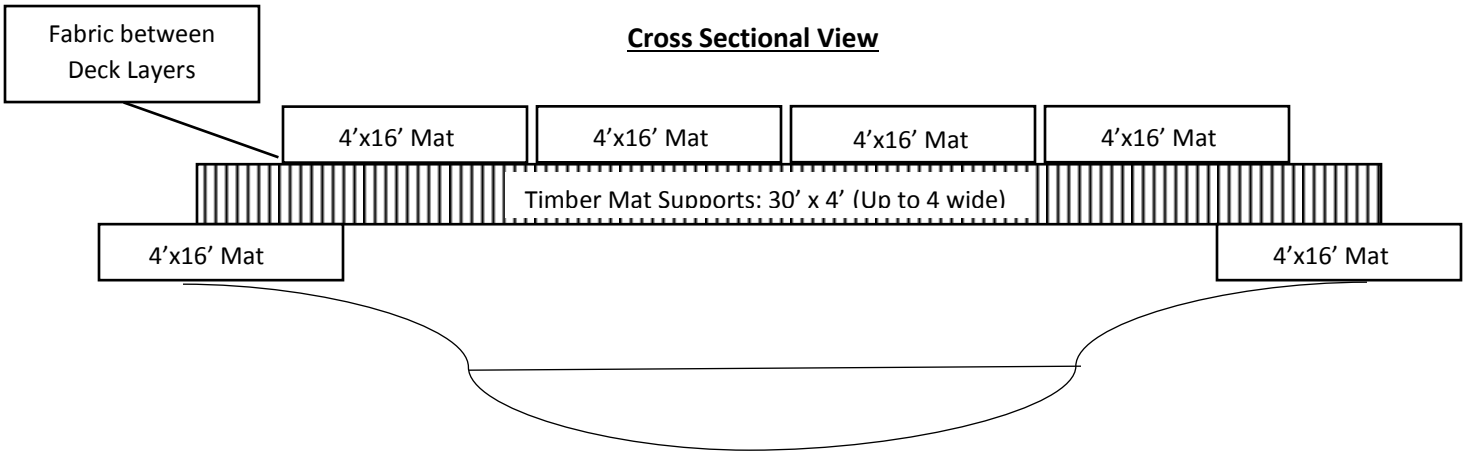
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R71
Nearest Structure: 137338

Plan View



Cross Sectional View



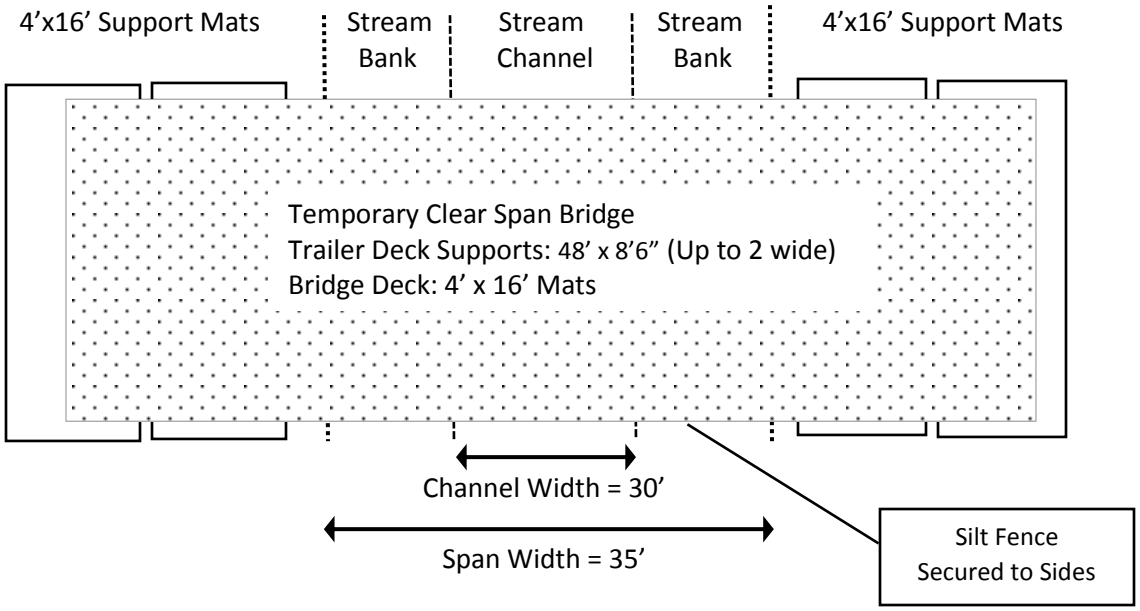
Depth of Water = No water
Height of Bank = 5'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

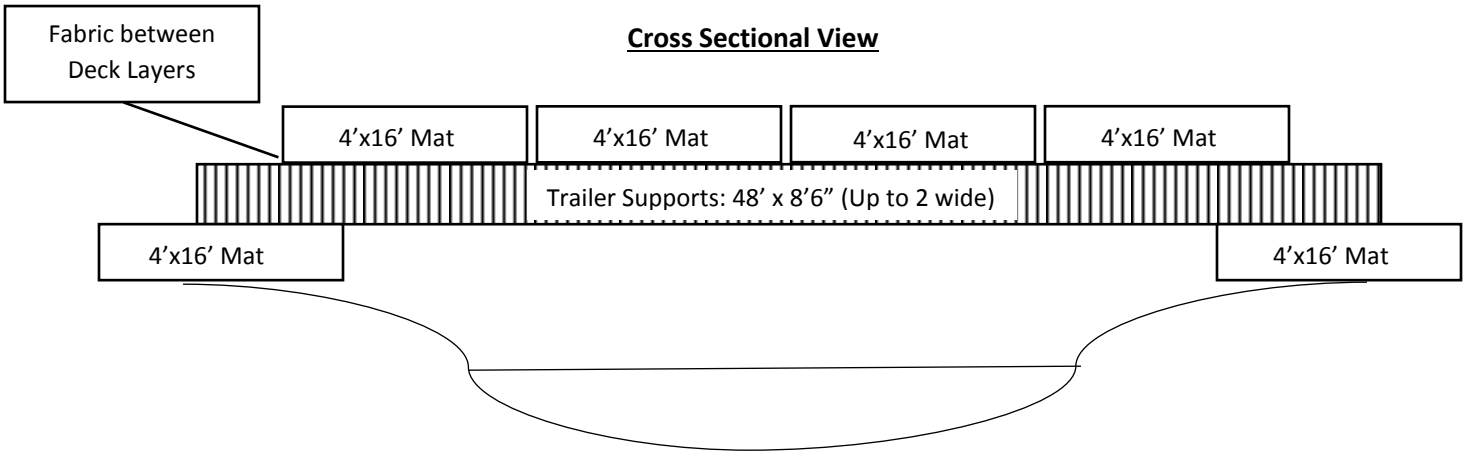
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R72
Nearest Structure: 137350

Plan View



Cross Sectional View



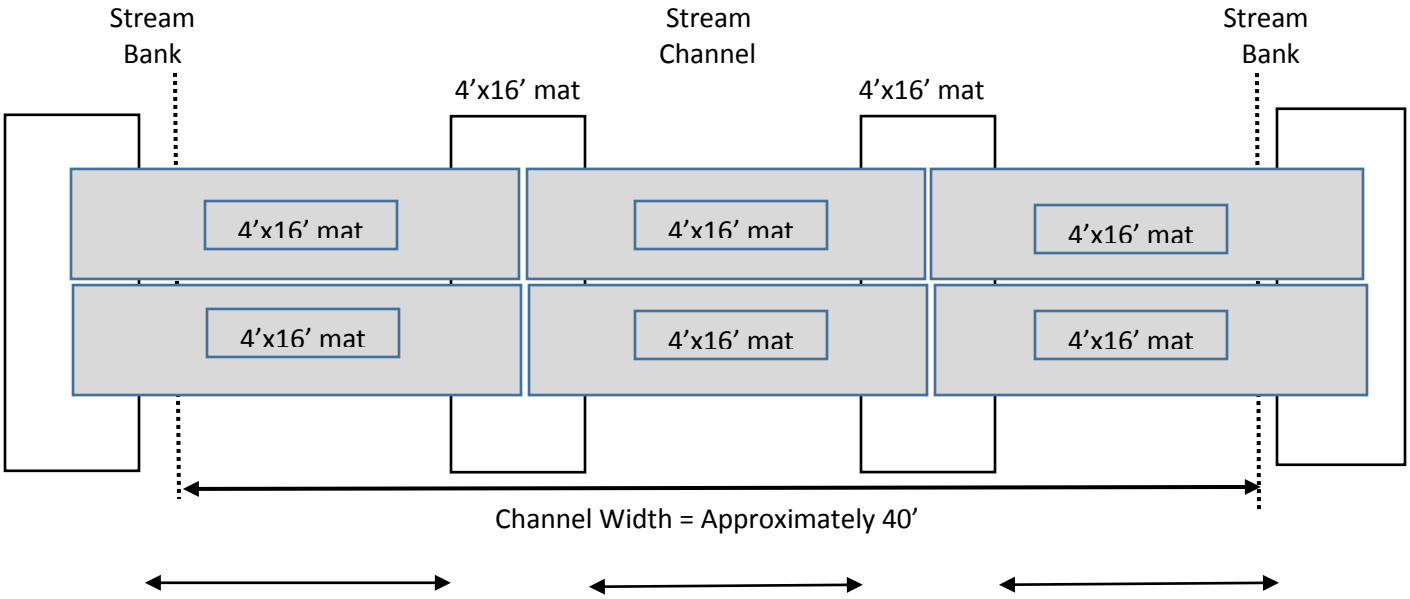
Depth of Water = 1'
Height of Bank = 4'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

Badger Coulee
Channel Crossing Typical Drawing

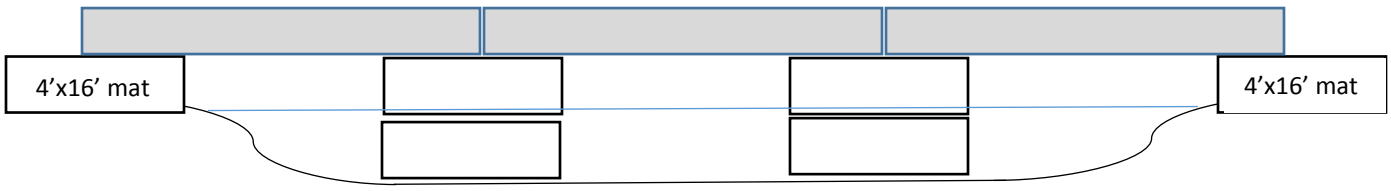
Segment: 5
Waterway: N-R73
Nearest Structure: 137360

Plan View



Cross Sectional View

Deck: 16' x 4' Mats (2-3 wide)
Supports: 16' x 4' Mats (various depending on water depth)



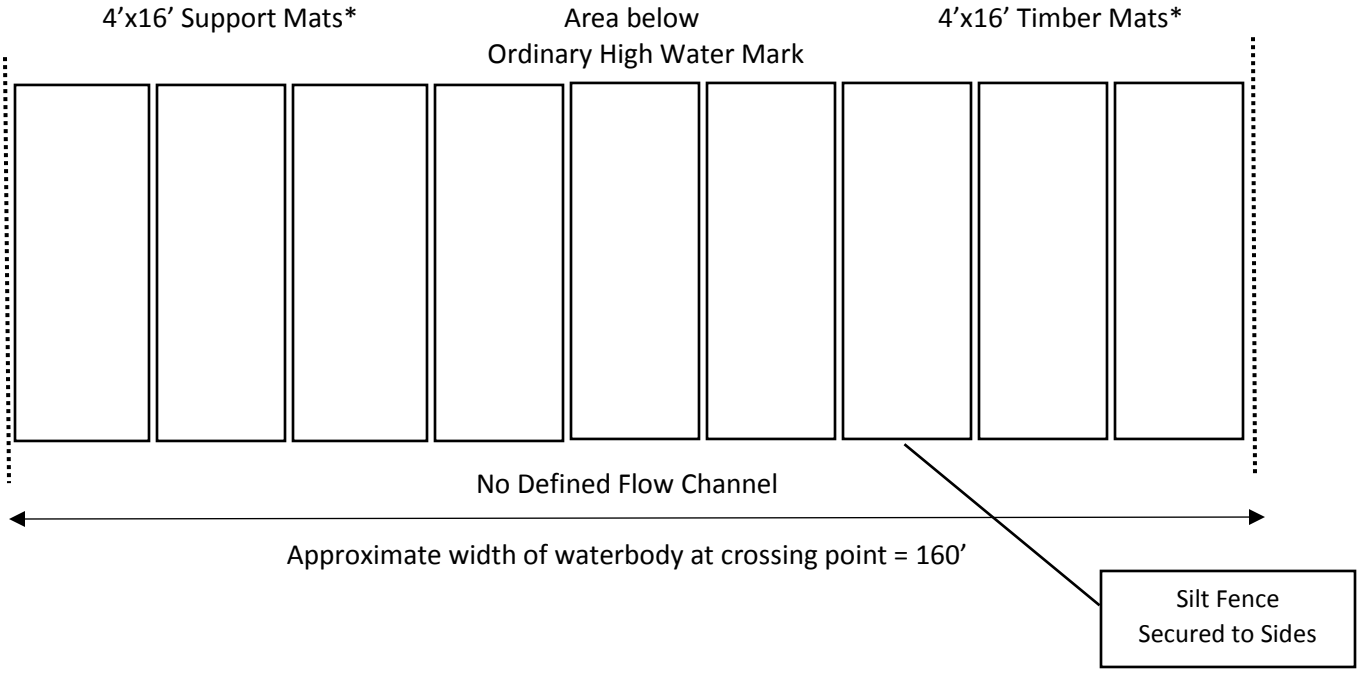
Depth of Water = Unknown
Clearance to Water = 0-1'

- Drawings are not to scale
- Support mats will be beneath the ordinary high water mark and will rest on the channel bed
- The bridge will be secured to a fixed anchor. Each mat will be secured together with eye-bolts and cable and tied off to a fixed object on shore.
- These mats are expected to be used for clearing purposes only and will be in place for a shorter period of time than the matting at N-R75 which will be in place during clearing and construction.

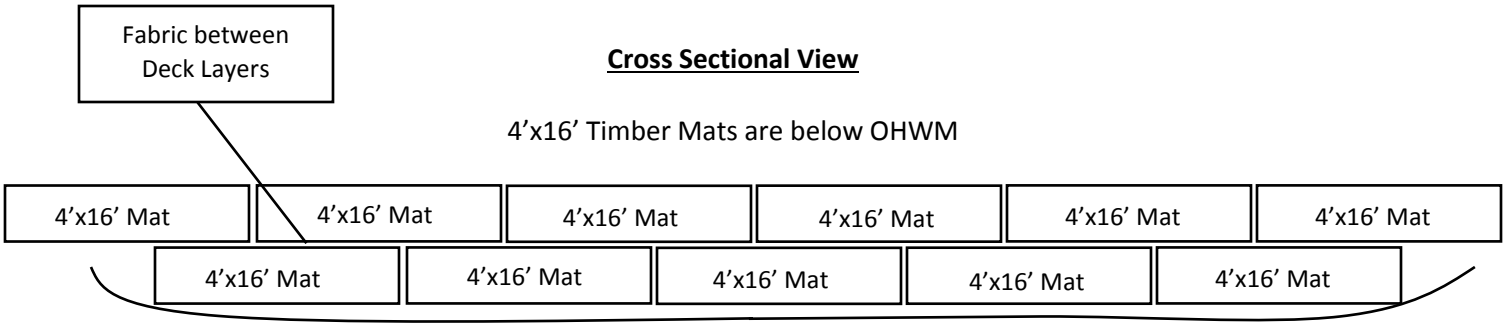
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R75
Nearest Structure: 137361

Plan View



Cross Sectional View



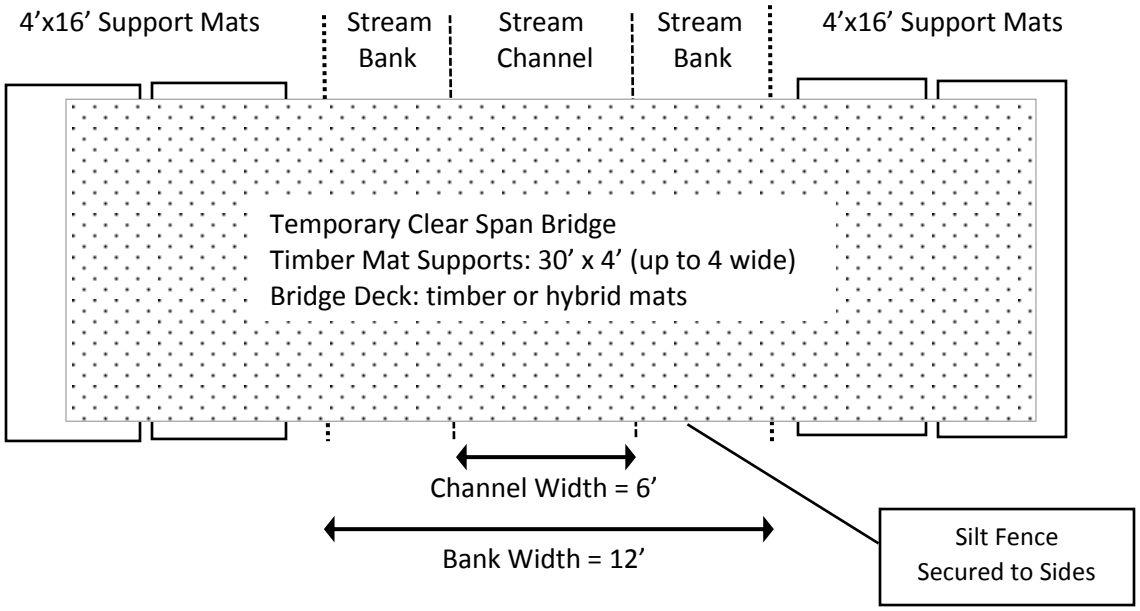
Depth of Water = 1-2'
Clearance to Water = Mats will be set on bed of waterbody

- Drawings are not to scale
- It is estimated that approximately 50 timber mats will be used as a base for the mat road on the bed of the waterbody.
- Mats will be secured together with eye-bolts and cable and tied off to a fixed object on shore.
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

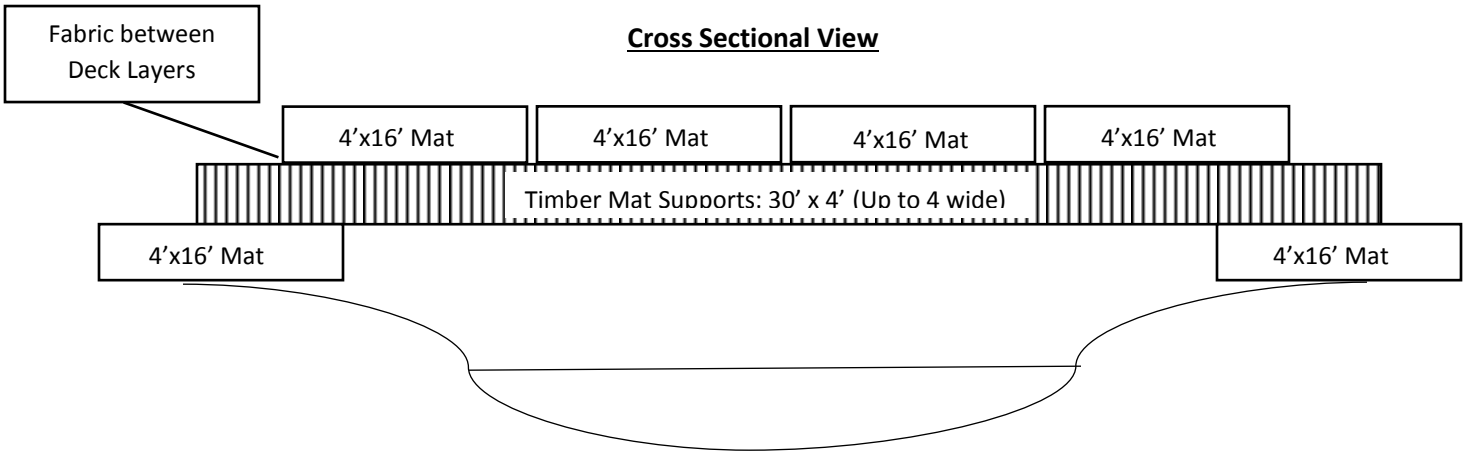
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R77
Nearest Structure: 137367

Plan View



Cross Sectional View



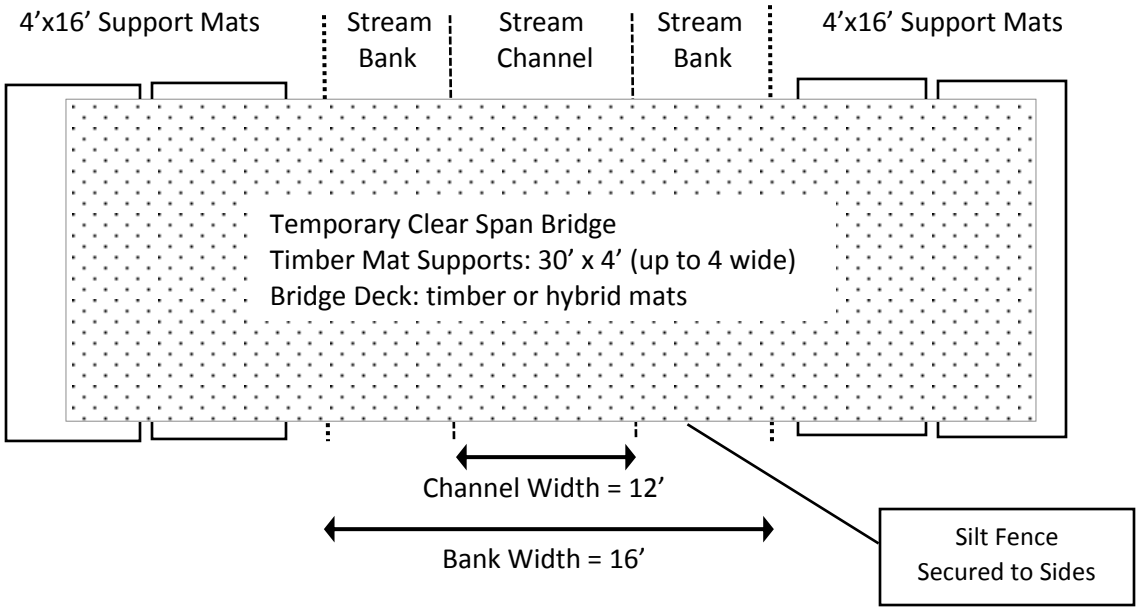
Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

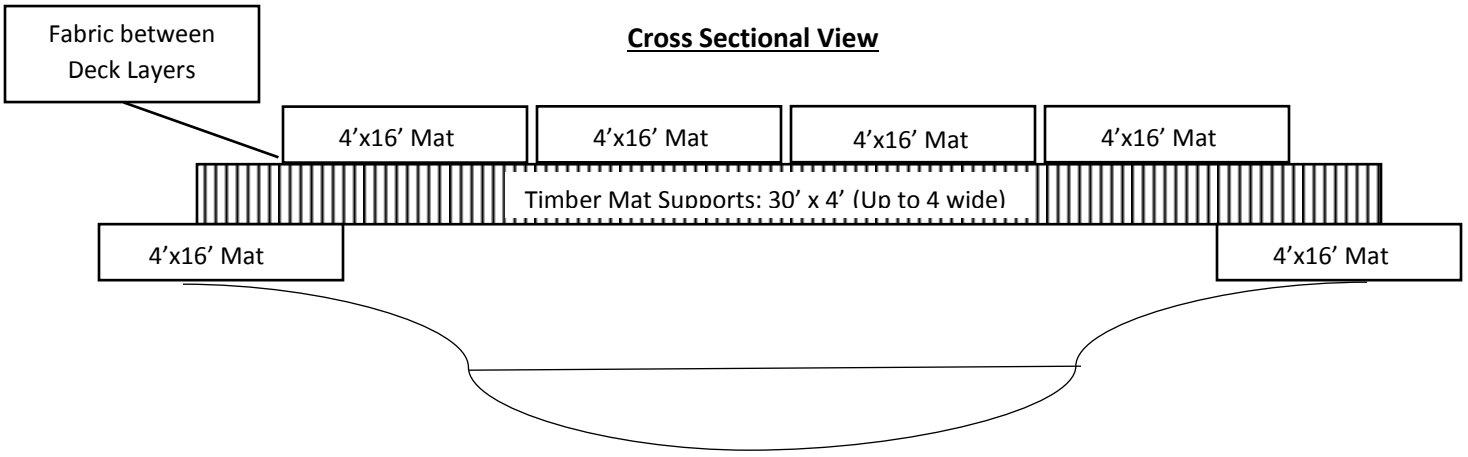
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R78
Nearest Structure: 137373

Plan View



Cross Sectional View



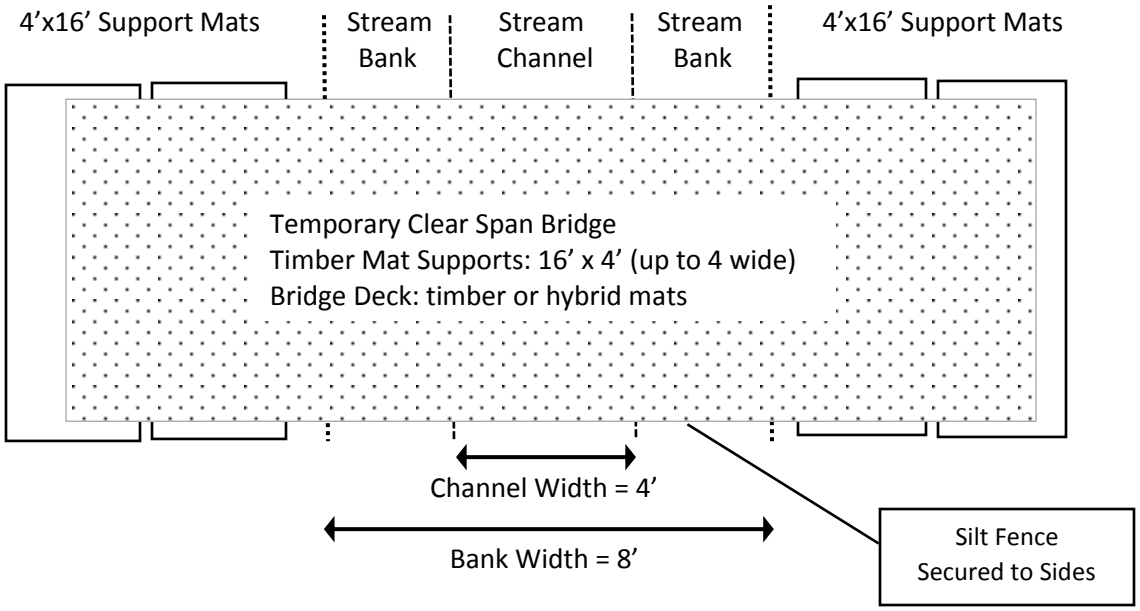
Depth of Water = 6"
Height of Bank = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

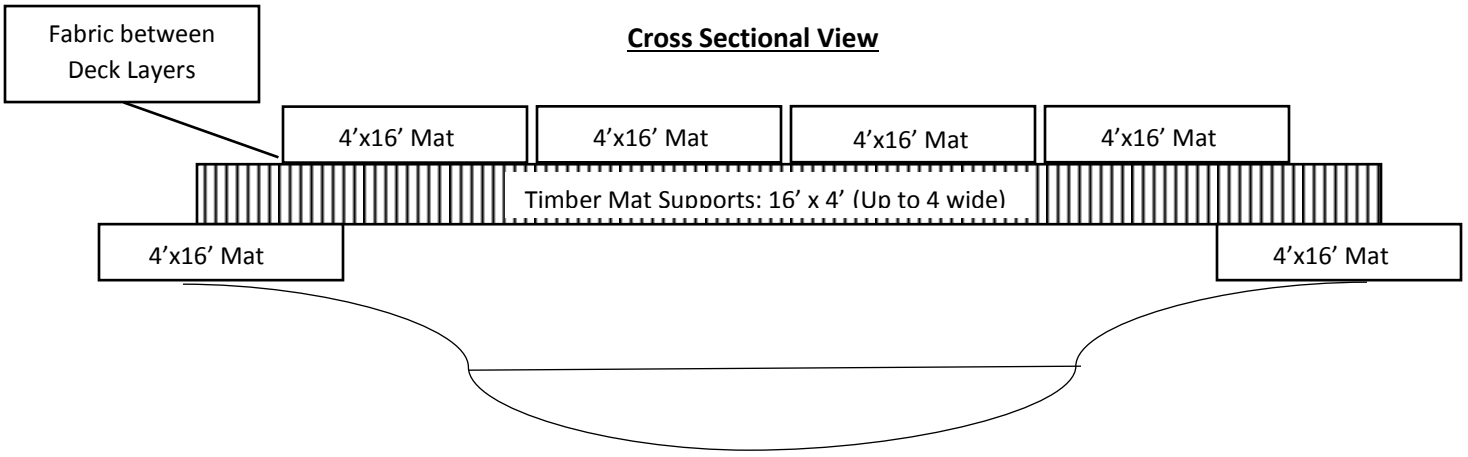
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R79
Nearest Structure: 137376

Plan View



Cross Sectional View



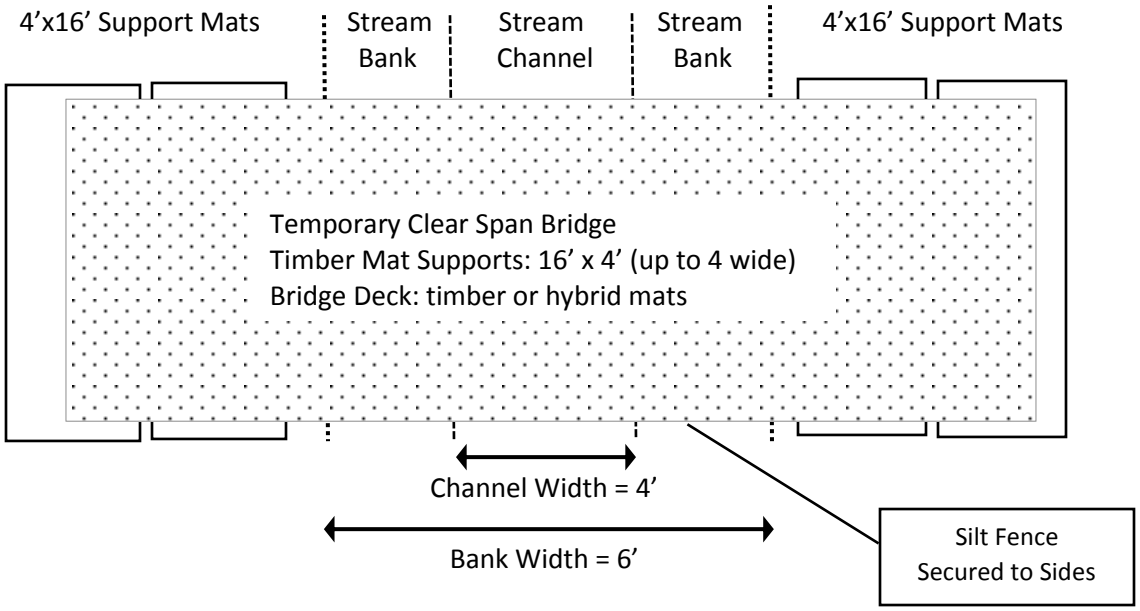
Depth of Water = 6"
Height of Bank = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

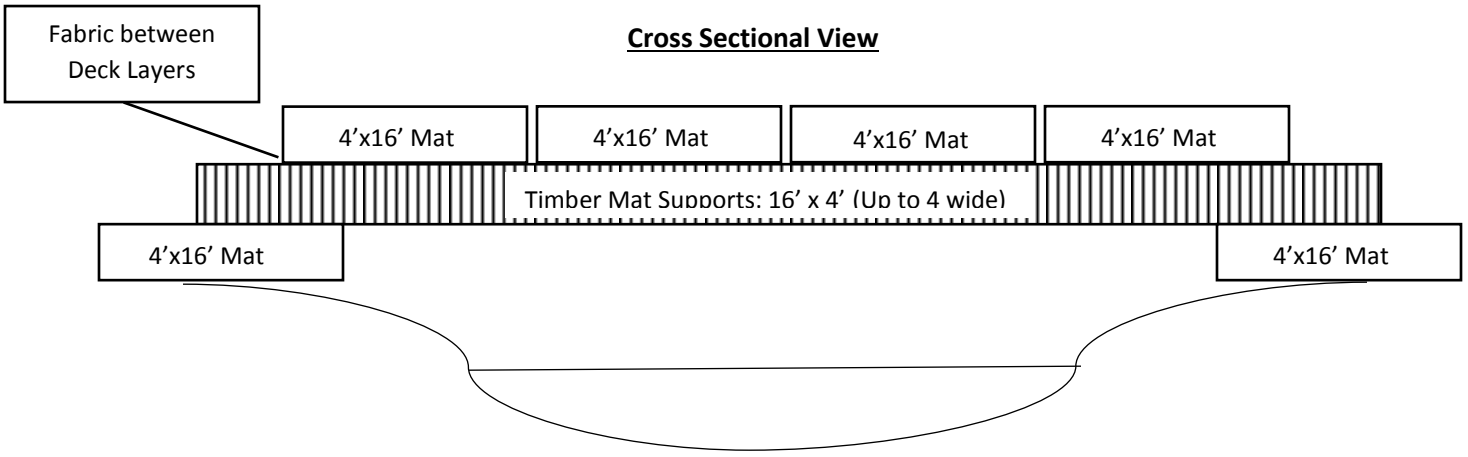
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R80
Nearest Structure: 137384

Plan View



Cross Sectional View



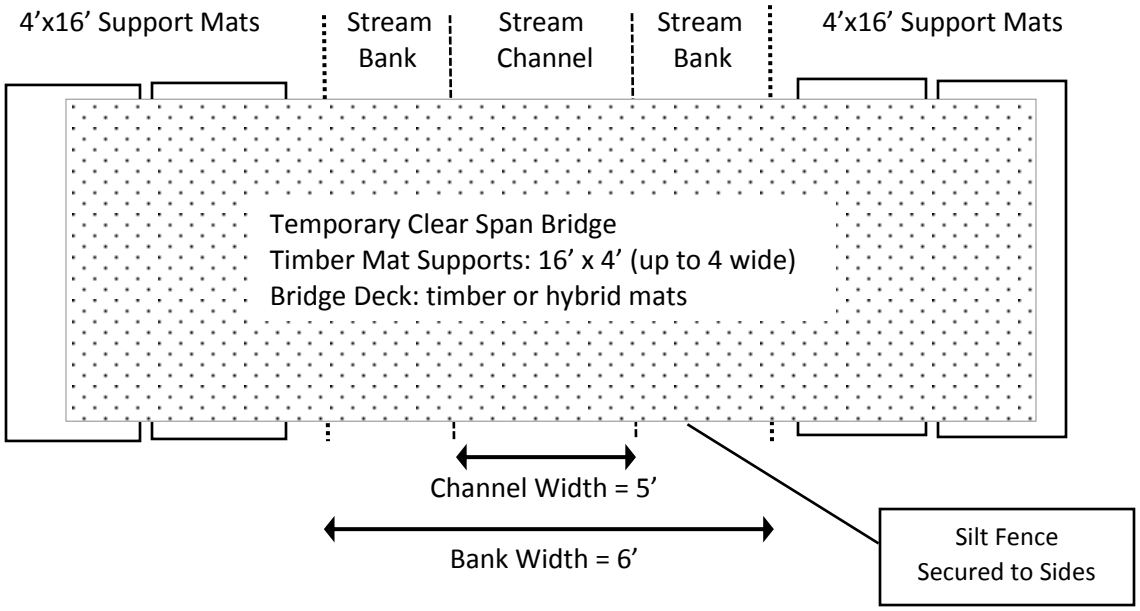
Depth of Water = 1'
Height of Bank = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

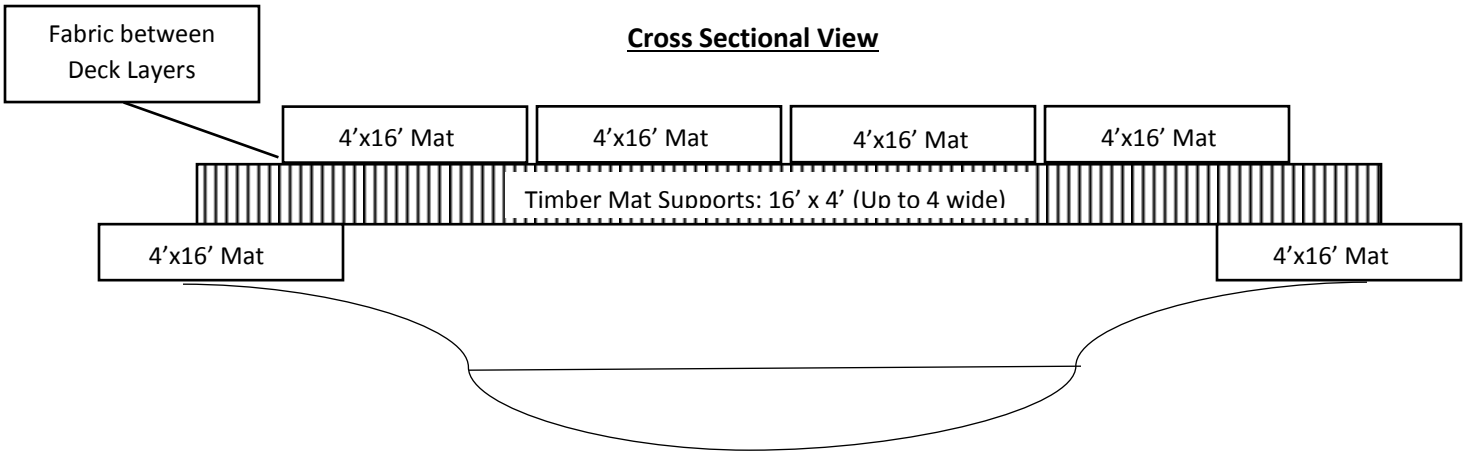
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 5
Waterway: N-R81
Nearest Structure: 137396

Plan View



Cross Sectional View



Depth of Water = 6"
Height of Bank = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix E

Photographs of Waterways Requiring a Navigability Decision

Appendix E. Photographs of Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 01. Feature N of STR 137270 - recently excavated ditch; vE. May 2016

Photo 02. Feature NW of STR 137279 - excavated ditch; vNW. June 2016

Photo 03. Feature W of STR 137291; vNE. May 2016

Photo 04. Feature W of N-R61a, E of STR 137294. Photo from Pictometry

Appendix E. Photographs of Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 05. Feature S of STR 137300 - excavated ditch; vNW. May 2016

Photo 06. Feature E of STR 137314; vS. May 2016

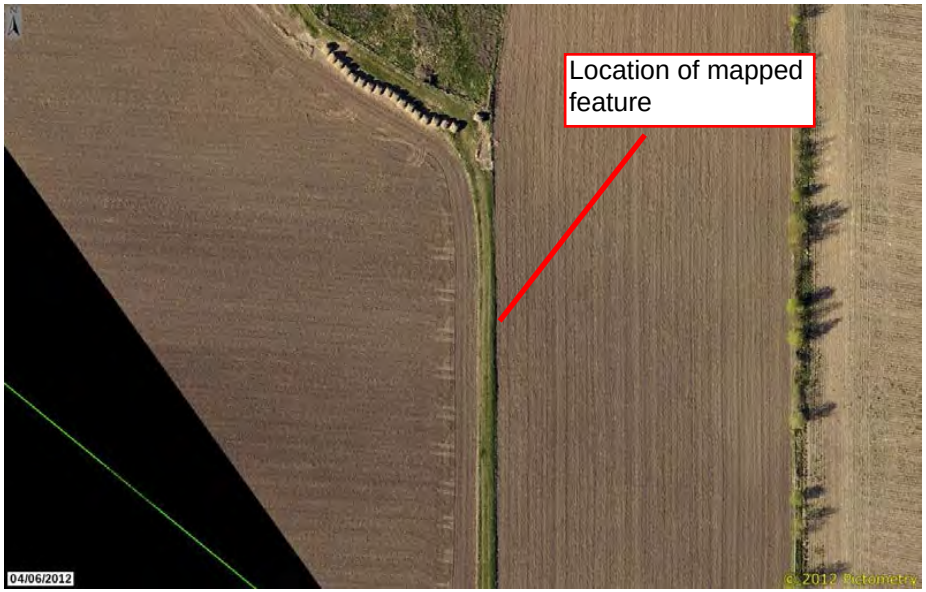


Photo 07. Feature at off-ROW access NE of STR 137314. Photo from Pictometry

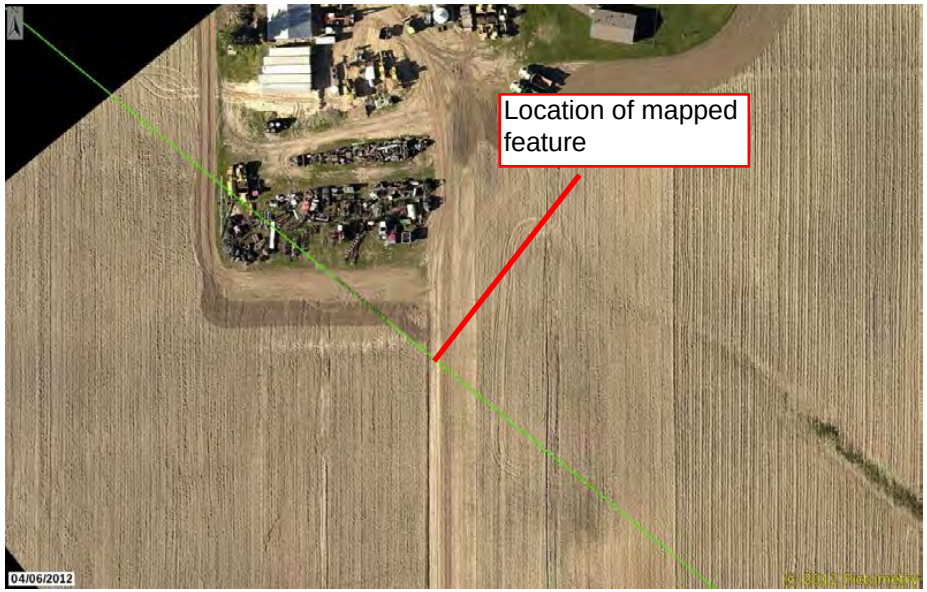


Photo 08. Feature W of STR 137318. Photo from Pictometry

Appendix E. Photographs of Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 09. Feature NE of STR 137319. Photo from Pictometry

Photo 10. Feature between STRs 137369, 137370; vS. May 2016

Photo 11. Feature between STRs 137373, 137374; vS. May 2016

Photo 12. Feature W of STR 137376 - excavated ditch; vN. May 2016

Appendix E. Photographs of Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 13. Feature NW of STR 137381; vE. May 2016

Photo 14. Feature between STRs 137389, 137390; vW. May 2016

Photo 15. Feature N of STR 137391; vE. May 2016

Photo 16. Feature E of STR 137404 - excavated ditch; vNW. May 2016

Appendix E. Photographs of Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 17. Feature N of STR 137405; vE. May 2016

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix F

Approved Waivers of Seasonal Limitations for TCSBs

Badger Coulee 345 kV Transmission Line Project

Segment 5 CMP

Appendix G

Project Wetland Impacts and Compensatory Mitigation Acres

Summary of Wetland Impacts and Compensatory Mitigation Acres - Segment 5

Badger Coulee 345 kV Transmission Line Project

Watershed (BSA)[1]	Wetland Cover Types[2]	Permanent Impacts (acre)[3]					Temporary Impacts (acre)[4]					Total Credits[5] Permanent + Temporary Impacts
		Structure Impacts [A]	Conversion [A,B]	Mitigation Ratio (structure)	Mitigation Ratio (conversion)	Total Credits Needed	Matting (ROW)	Matting (off-ROW)	Conversion (off-ROW)	Mitigation Ratio	Total Credits Needed	
Lower Wisconsin (LW)	Shallow Marsh	0.004	na	1.45	na	0.006	na	na	na	na	0.000	0.01
	Sedge Meadow	0.002	na	1.45	na	0.003	0.270	0.000	na	0.25	0.068	0.07
	Farmed Wetland (Seasonally Flooded Basin)	0.009	na	1.45	na	0.013	na	na	na	na	0.000	0.01
	Wet Meadow	0.002	na	1.45	na	0.003	na	na	na	na	0.000	0.01
	Wet Meadow (Degraded)	0.079	na	1.45	na	0.115	na	na	na	na	0.000	0.11
	Shrub-Carr	0.000	8.841	1.45	0.50	4.421	na	na	0.000	0.25	0.000	4.42
	Alder Thicket	0.000	0.045	1.45	0.50	0.023	na	na	0.000	0.25	0.000	0.02
	Hardwood Swamp	0.025	27.652	1.45	0.50	13.862	na	na	0.715	0.25	0.179	14.04
	Floodplain Forest	0.000	0.111	1.45	0.50	0.056	na	na	0.037	0.25	0.009	0.06
	TOTAL	**0.121**	**36.649**	**na**	**na**	**18.500**	**0.270**	**0.000**	**0.752**	**na**	**0.256**	**18.76**

Notes/Assumptions:

1 Bank Service Areas are based on Guidelines for Wetland Compensatory Mitigation in Wisconsin, Version 1, August 2013.

2 Wetland cover types are based on Eggers and Reed, 2011, Wetland Plants and Plant Communities of Minnesota and Wisconsin, Third Edition.

3 Permanent wetland impacts include transmission structure placement in wetlands and permanent conversion of shrub or forested wetlands.

4 Mitigation is required for temporary matting within high-quality or difficult to replace (DTR) herbaceous wetlands, specifically non-degraded sedge meadow. Mitigation is also required for temporary wetland impacts associated with the temporary clearing of forested or shrub wetlands along off-ROW access routes where woody vegetation would be allowed to naturally regenerate.

5 The ILF program will be used for mitigation. Total wetland credits are based on replacement ratios of 0.25:1 for temporary clearing of wooded wetland, 0.25:1 for temporary matting of non-degraded sedge meadow, 1.45:1 for permanent structure impacts, and 0.5:1 for permanently converted shrub and forested wetlands. Total credits are rounded to the nearest 0.01, as this is the minimum amount of credits that can be purchased.

A Impact acreages provided by Stantec Consulting Services Inc.

B Structure impacts within forested and shrub wetlands additionally account for conversion. Acreage within the structure impacts column was not included within the conversion column so that the impacted acreage was only accounted for once.