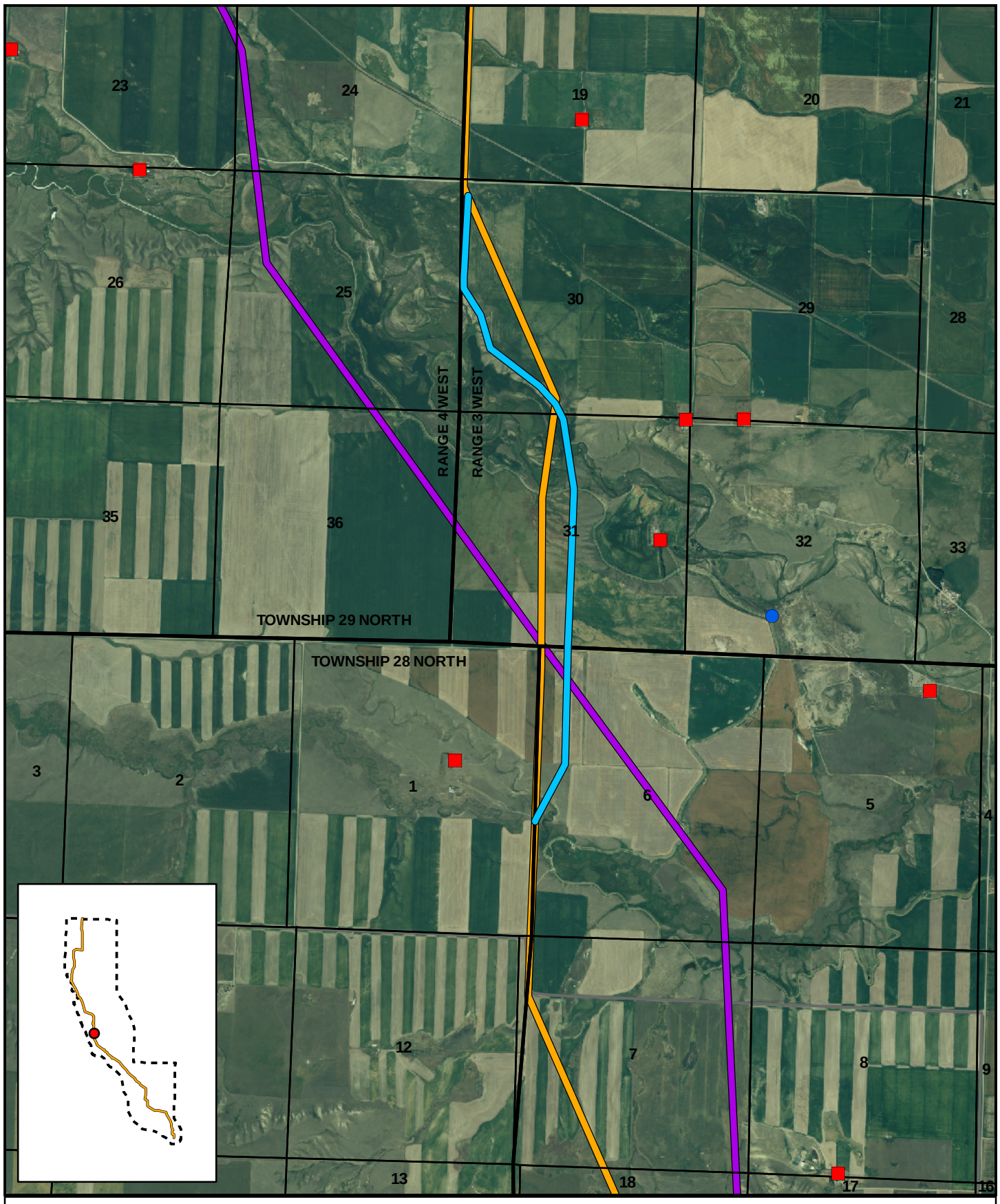

FIGURE 2.6-6
LOCAL ROUTING OPTION
NORTHWEST OF CONRAD

GIS map by Ed Madej -TTEMI-HE Fig2_6-5_MATL_Northwest_Conrad_Routing_Option_121007.mxd

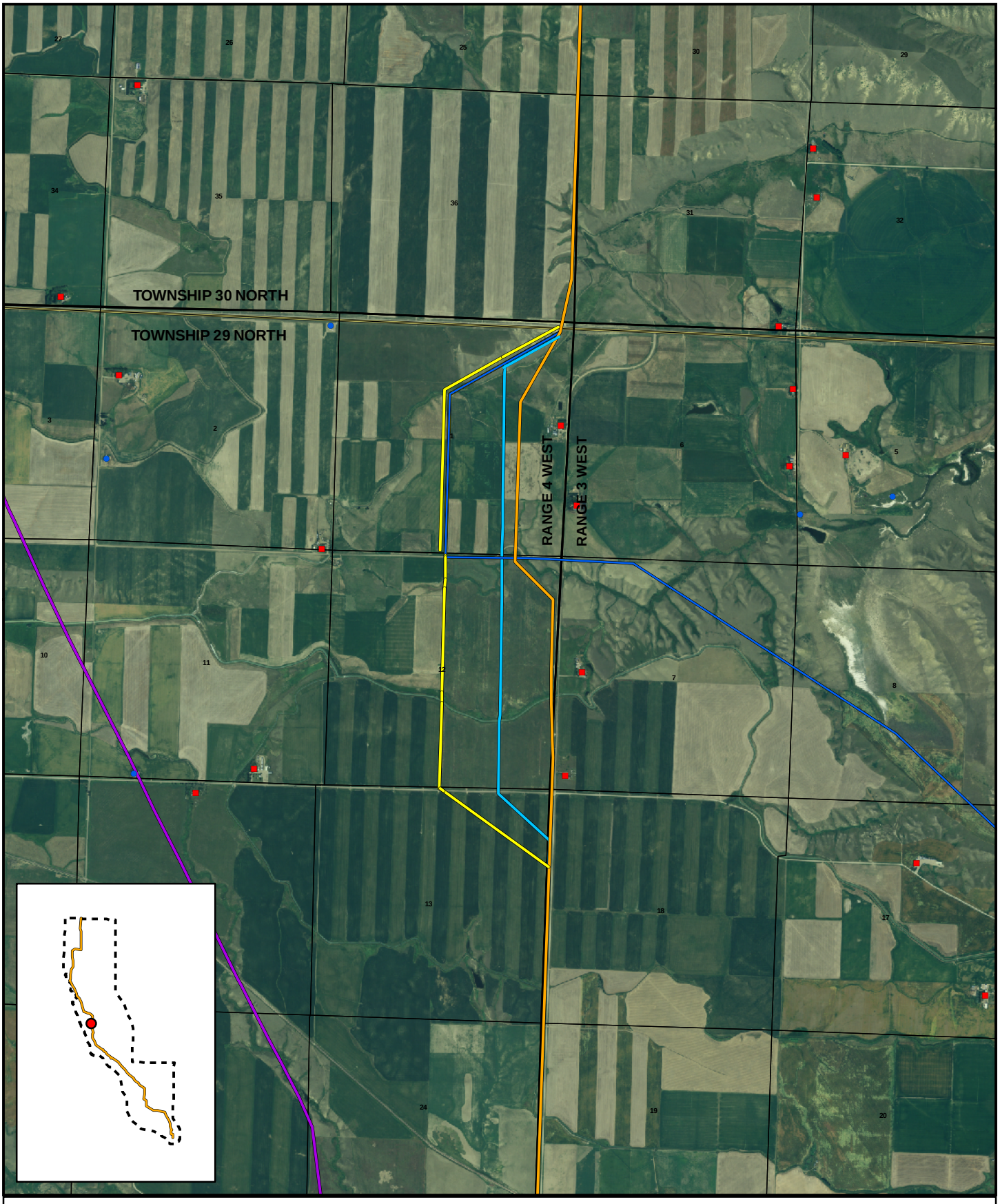

FIGURE 2.6-7
LOCAL ROUTING OPTIONS
IN THE BELGIAN HILL AREA

N

0 0.5 Miles

LEGEND

- ALT 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- ALT 4 - ALIGNMENT
- CURRENT BELGIAN HILL LOCAL ROUTING OPTION
- OLD BELGIAN HILL REROUTE
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY
- HOUSE
- GRAIN SILOS

GIS map by Ed Madej -TTEMI-HE Fig2_6-7_MATL_Belgian_Hill_Road_Routing_Option_121007.mxd

2.6.7 Bullhead Coulee Area

Two local routing options were suggested by landowners in the Bullhead Coulee area **(Figure 2.6-8)**. One, the Bullhead Coulee South, approximately 4 to 7 miles north of the Valier Highway (State Highway 44), would avoid diagonal crossing of cropland and place the transmission line within a proposed wind farm. The landowner indicated turbines cannot be placed within 500 feet of the line. In Alternative 2 as proposed, a landowner could lose the opportunity of receiving annual payments from having a turbine located on his land. This routing option would allow placement of a wind turbine south of the line. Expected annual revenue from the turbine over the life of the line is estimated to exceed the additional cost of line construction. The turbine is part of a wind farm that has not signed agreements with MATL but plans to interconnect with another transmission line in the area.

The Bullhead Coulee North routing option would reduce farming costs by placing more structures on field edges. Anticipated increased construction costs would be minimal.

2.6.8 South of Cut Bank

The South of Cut Bank option has been carried forward from the March 2007 document as a local routing option (**Figure A1** in the March 2007 document). This segment coincides with Alternative 4.

2.7 Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study. A table listing these alignment alternatives is in **Appendix G** of the March 2007 document. Several additional alignment alternatives were provided in the MATL MFSA application (MATL 2006b). Alternatives considered but dismissed from further study, are discussed below, along with the rationale for dismissing them from further study. Other local routing alternatives that were evaluated by the agencies are discussed in **Appendix A** of the March 2007 document.

Possible Local Realignments Not Incorporated into Alternative 4 in the March 2007 Document

Alternative 4 was developed by DEQ to address public concerns regarding line interference with farming activities and close proximity to residences. It was developed by making changes to Alternative 2. During the development of Alternative 4, the agencies considered eight possible local realignments to Alternative 2 to address specific scoping issues.

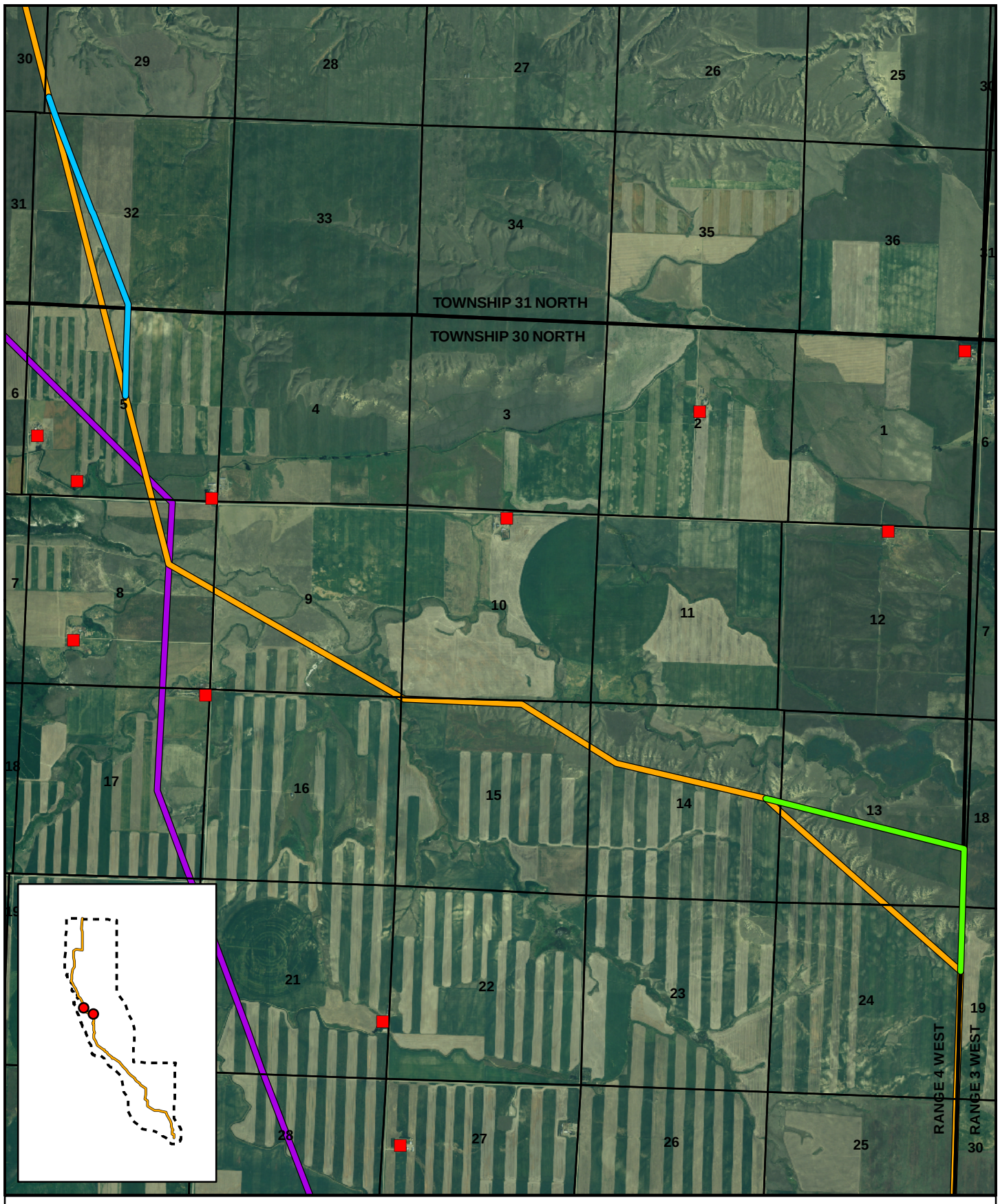

FIGURE 2.6-8
LOCAL ROUTING OPTIONS
BULLHEAD COULEE AREA

GIS map by Ed Madej -TTEMI-HE Fig2_6-8_MATL_Bullhead_Coulee_Routing_Options_121007.mxd

The eight local realignments are described below as segments A1, A2, B1, B2, C1, C2, D, and E. They were developed to address issues raised in the following areas: just north of the Great Falls switch yard (A1, A2), Diamond Valley area south of the Teton River (B1, B2), north of the Brady Frontage Road area (C1, C2), Belgian Hill (D), and south of Cut Bank (E). Only one segment from the "A", "B", and "C" realignments could be selected because they were developed to realign the same section of Alternative 2. For Alternative 4, the agencies included only segments A1, B2, C1, the north half of D, and E. The other realignments not incorporated into Alternative 4 were dismissed (A2, B1, C2, and the south half of D) because their ability to reduce impacts to farming and visuals were less than the retained segments.

Alternative 4 is described in Section 2.5. As discussed in Section 2.5, the agencies could select some or all of the segments included in Alternative 4 as mitigations to address land use and visual resource issues. All of the segment descriptions are included here for information. The agencies' analysis of these segments and the information that helped in the selection of segments for Alternative 4 are included in **Appendix A** of the March 2007 document.

West Great Falls Realignment Segment A1 (Retained as part of Alternative 4)

Alternative segment A1 is an alignment that would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible. Where Alternative 2 would go directly north out of the Great Falls switch yard, segment A1 would take a west-northwesterly path out of Great Falls paralleling the railroad and WAPA 230-kV transmission line, making use of an existing transportation corridor. The segment A1 alignment would head west and then north along the railroad and rejoin Alternative 2 where it leaves 8th Road. Segment A1 is the only segment that would run south and west of Benton Lake National Wildlife Refuge.

Shooting Sports Complex Realignment Segment A2 (Eliminated from further consideration)

Approximately 1½ miles north of Great Falls, Alternative 2 would turn directly west for a mile and then run directly north along the west side of the Great Falls Shooting Sports Complex. Segment A2 is a 4.2-mile-long alignment that would continue directly north from Great Falls along the edge of cropland and parallel to the access road through the east side of the Great Falls Shooting Sports Complex. The alignment would parallel the existing 161-kV NWE transmission line between Great Falls and Havre. Segment A2 would rejoin Alternative 2 where it crosses Highway 87. This alignment would minimize crossing of farmland but would interfere with future building plans at the Shooting Sports complex.

Diamond Valley Right Angle Realignment Segment B1 (Eliminated from further consideration)

Segment B1 is a 5.9-mile-long alignment addressing the area in Teton County 2 to 5 miles south of the Teton River. In the headwaters of Kinnerly Coulee, segment B1 would run directly north where Alternative 2 turns northwest. After running directly north for approximately 2½ miles, segment B1 would turn directly west running approximately 3 miles until it would rejoin Alternative 2 in the vicinity of Hunt Coulee. This alignment did not adequately address local landowner concerns and was dismissed. The general intent this realignment to avoid diagonal crossing of farm land was incorporated into the new Diamond Valley local routing option.

Diamond Valley and Teton River Realignment Segment B2 (Retained as part of Alternative 4)

Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing. Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Diamond Valley Area

During initial scoping, landowner concerns in the Diamond Valley east of Dutton focused primarily on the amount of farmland crossed on the diagonal and the close proximity of residences. Following the March 2007 document, the agencies identified eight potential local realignments through this part of the Diamond Valley area based on comments and suggestions made by the landowners (**Figure 2.7-1**). Three of the realignments were retained for detailed consideration and are discussed in Section 2.6-1 as Local Routing Options Diamond Valley South, Diamond Valley Middle, and Diamond Valley North. Five potential local realignments were considered but dismissed for the reasons provided below.

The proposed realignments C, D, F, and G were not carried forward as potential subalternative realignments because they would not adequately address the landowner concerns about proximity of the line to residences, crossing farmland diagonally, and closely paralleling NWE's existing 115-kV transmission line. The east-west portions of potential local realignments F and G would be inadequate because they would result in structures being located mid-field. Local realignment J was not considered in detail because that realignment would be in close proximity to one residence and two sets of grain bins. The close proximity of a transmission line to grain bins can create safety hazards, especially during use of grain augers near the line. All five potential local realignments (C, D, F, G, and J) would have greater lengths compared to Alternative 2.

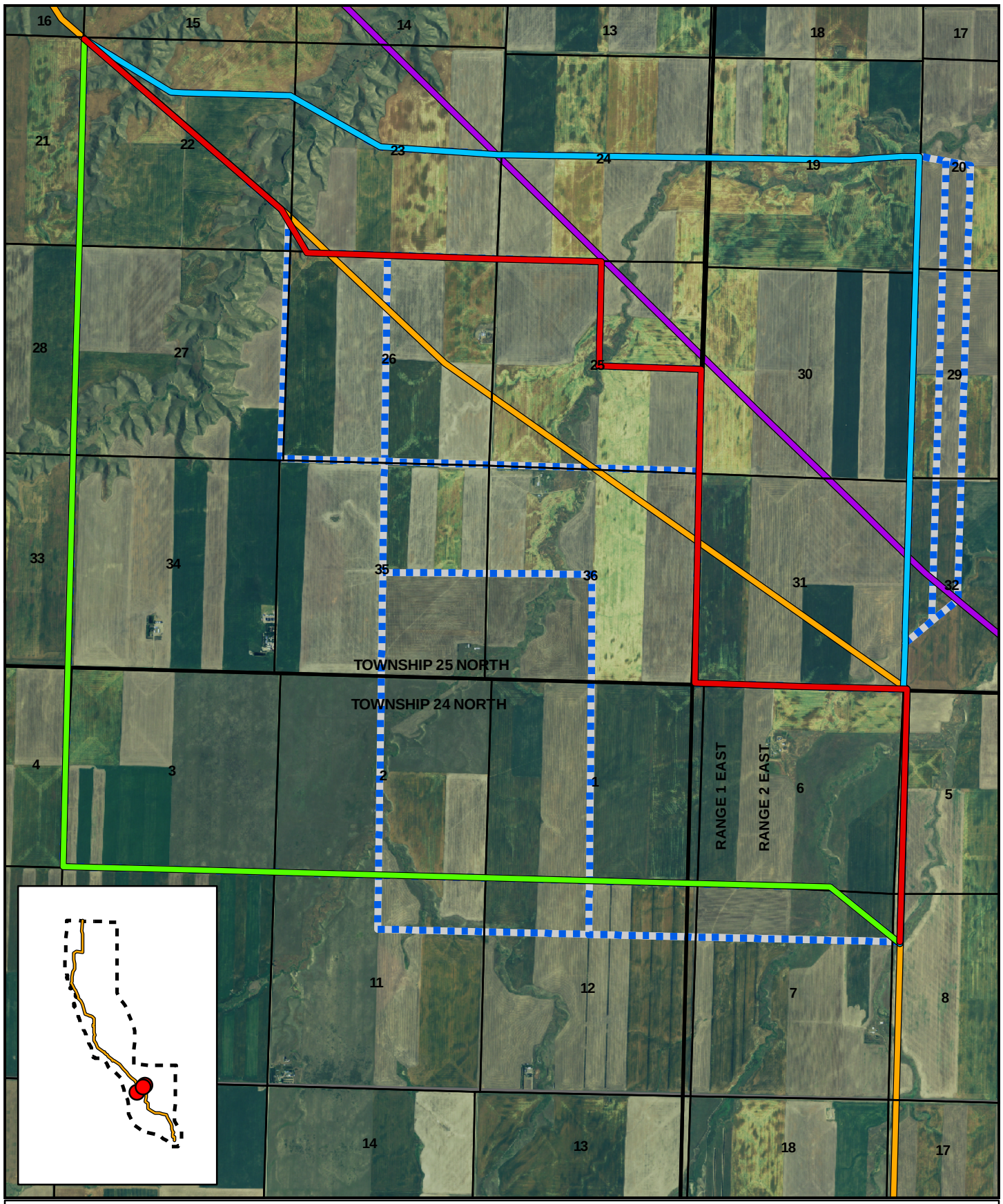

FIGURE 2.7-1
DISMISSED ALIGNMENTS IN DIAMOND VALLEY AREA

N

0 0.5 Miles

LEGEND

- ALT 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- DIAMOND VALLEY AREA
- DIAMOND VALLEY SOUTH
- DIAMOND VALLEY MIDDLE
- DIAMOND VALLEY NORTH
- DISMISSED ALIGNMENTS
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY

GIS map by Ed Madej -TTEMI-HE Fig2_7-1_MATL_Diamond_Valley_Dismissed_Alignments_121007.mxd

Alternative Teton River Crossing (Eliminated from further consideration)

The agencies examined a suggested alignment to cross the Teton River in the Northwest corner of Section 16. This alignment was eliminated from further consideration because it would cross a landslide feature where long-term slope stability is uncertain and would cross the Teton River at a low elevation bend that would be more prone to flooding compared to Alternative 2.

Brady Frontage Road Realignment Segment C1 (Eliminated from further consideration)

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River valley and county road to the Interstate 15 frontage road, and follow the frontage road for about 11 miles, past the town of Brady to rejoin Alternative 2 about 2 miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 could decrease crossing of farmland and avoid paralleling one pipeline, but still would roughly parallel a second pipeline.

Conrad Realignment Segment C2 (Retained as part of Alternative 4)

Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river.

The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

West of Conrad (Not carried forward for further consideration)

One suggested realignment southwest of Conrad (labeled SWC Realignment on **Figure 2.7-2**) would diverge from Alternative 2 near milepost 60 and would run west for about ½ mile and turn north for 2 miles. This realignment would reduce the amount of cultivated land crossed on the diagonal. The SWC realignment would decrease potential mid-field interference with aerial crop dusting compared to Alternative 2 through this area, but would increase edge-of-field and some mid-field interference along the southern leg of this segment. The SWC realignment would result in reduced farming costs to farmers due to structure locations along the edges of fields.

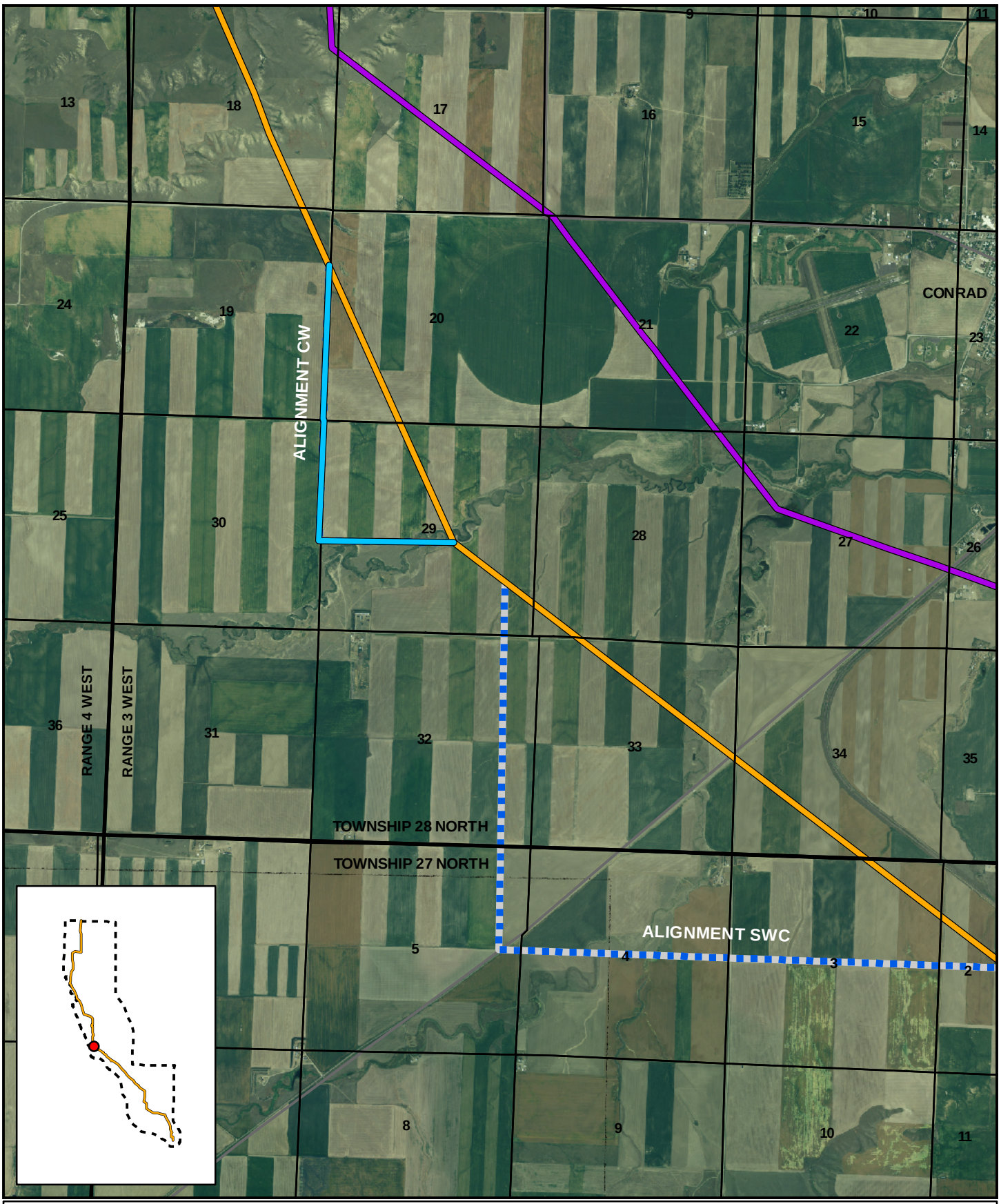

FIGURE 2.7-2
DISMISSED ALIGNMENTS
WEST OF CONRAD

N

0 0.5 Miles

LEGEND

- ALT 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- WEST OF CONRAD
- DISMISSED ALIGNMENTS
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY

GIS map by Ed Madej -TTEMI-HE Fig2_7-2_MATL_West_Conrad_Dismissed_Alignments_121007.mxd

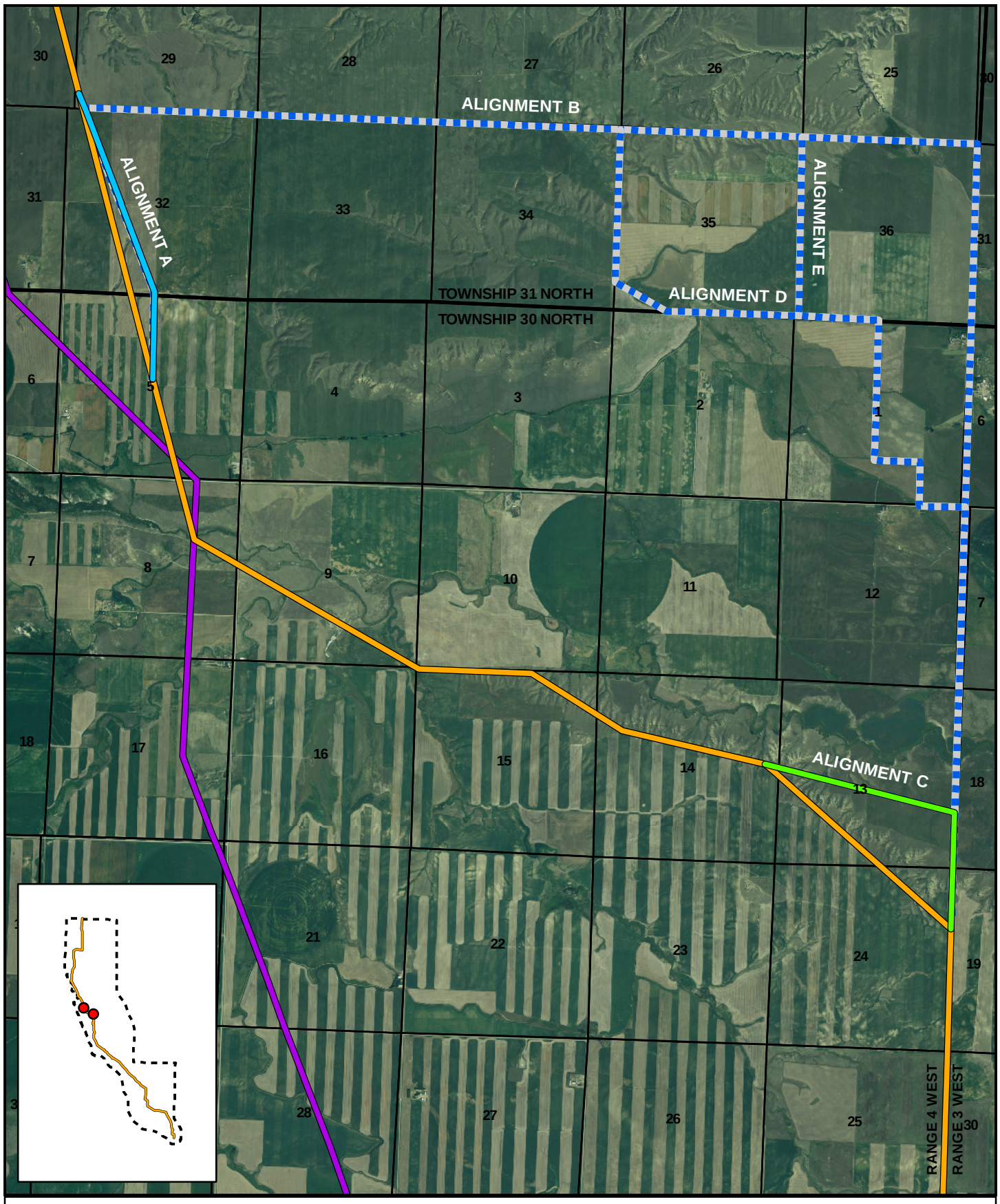

FIGURE 2.7-3
DISMISSED ALIGNMENTS IN BULLHEAD COULEE AREA

GIS map by Ed Madej -TTEMI-HE Fig2_7-3_MATL_Bullhead_Coulee_Dismissed_Realignments_121007.mxd

However, the cost of construction for the SWC realignment would be greater than for Alternative 2. The additional construction cost would be greater than the cost savings to the farmers for this realignment. In addition, some local landowners expressed concerns about interference with crop dusters along the SWC realignment.

Belgian Hill Realignment Segment D (North half retained as part of Alternative 4)

Belgian Hill Segment D was considered as mitigation for Alternative 2 and the north half was retained as part of Alternative 4 (March 2007 document). Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences. The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required. This realignment has been replaced by the Belgian Hill local routing option in this document.

Bullhead Coulee Area

Three local realignments (designated Bullhead Coulee B, D, and E on **Figure 2.7-3**) were suggested in the Bullhead Coulee area, approximately 4 to 7 miles north of the Valier Highway (State Highway 44). They would avoid crossing saturated soils at the Bullhead Coulee crossing and help minimize diagonal crossing of cropland. These Bullhead Coulee Area realignments B, D, and E were dismissed from further consideration because the estimated cost of line construction along these realignments would be five to six times greater than the estimated cost savings to farmers from locating the structures along field edges compared to within the field boundaries. In addition, realignment B would be located within ¼ mile of four residences.

South of Cut Bank Realignment Segment E (Retained as part of Alternative 4 and as mitigation for Alternative 2)

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and results in greater potential for general local acceptance. It is 0.1 mile longer than Alternative 2. Segment E would generally parallel Alternative 2.

MATL C Alignment

MATL C was in the MFSA application (MATL 2006b). The alignment would be 136 miles long. The MATL C alignment would diverge more from the Alternative 2 proposed Project alignment than the Alternative 3 alignment and is the longest of the alignments MATL presented. The MATL C alignment would diverge from Alternative 2 at mile 7 to follow existing north-south and east-west state highway and county road rights of way. The MATL C alignment would continue north, change direction around

the eastern side of Woods Crossing, and then go north for about 16 more miles. The MATL C alignment would then go west towards the town of Brady, south of which it would parallel Alternative 2, remaining about 2 to 4 miles east of Alternative 2. North of Conrad, MATL C would gradually move closer to Alternative 2 until joining it at Cut Bank. North of Santa Rita, the MATL C alignment would diverge from Alternative 2, heading northwest where Alternative 2 heads north, and cutting across Alternative 2 to head north where Alternative 2 heads east. The border crossing for MATL C is about 1 mile west of the Alternative 2 border crossing.

This alternative was dropped from further consideration because it did not fully address issues raised during scoping. Although it would reduce the total miles of diagonal crossing of farm land, compared to MATL's proposed alignment, MATL C would have crossed more farm land diagonally along the portion beginning south of Brady and continuing to approximately 10 miles north of Conrad. Use of the MATL C alignment would have impacts to visual resources from its alignment located very close to several residences. The MATL C alignment would not use as much range and pasture land, or parallel existing transmission lines as much as similar alignments developed by MATL and the agencies west of Great Falls. The Alternative 2 segment west of Great Falls would more closely parallel an existing transmission line than would the MATL C alignment.

Building the Line Underground

As discussed in Chapter 3, overhead transmission lines and associated support structures interfere with some land uses. Burying the line underground would reduce long-term visual impacts and may reduce long-term impacts for some land uses such as farming. Underground lines would still require ground disturbance. An underground line would be less susceptible to weather related outages.

Underground 230-kV lines would cost between 2 and 15 times the amount required to build an overhead line (Georgia Transmission Corporation 2006; Verbund 2006). Cost to build underground may be slightly more than $1 million per mile (Energy Central News 2007), compared with MATL's estimate of about $293,500 per mile using H-frame structures.

Digging trenches to bury the lines would result in greater construction disturbance to the land and would require greater time to install. Above ground access vaults would need to be constructed as well as above ground structures at line termination points. Buildings on the alignment would be restricted. Vegetation would likely have to be restricted to avoid reducing soil moisture that is needed to cool the transmission line. Problems with underground systems would also be more difficult to locate and repair. Studies indicate that magnetic strengths from power lines buried underground are similar to magnetic strengths for power lines above ground (NIEHS 1999).

Un-guyed, Self-Supporting Angle and Dead-End Structures

Changes in direction and dead-ends on a transmission line require additional support in the form of guy lines or bulkier self-supporting structures. Guy wires can increase interference with farm equipment and take additional land out of cultivation compared to non-guyed structures, resulting in increased land use impacts. Eliminating the use of guy lines would reduce some of the impacts on land uses. However, this alternative was dismissed because of the higher costs for these self-supporting structures compared to guy wires.

Requiring the Use of Helicopters to String the Line

The use of helicopters could avoid construction of some access roads. Helicopters are most frequently used in extremely hilly terrain or large marshy areas where access is difficult. Using helicopters to string the conductors would create an additional expense. Using helicopters would not eliminate any of the work for the stringing crew, and it would not eliminate the installation of sheaves (pulleys used to string the line). Special sheaves would need to be purchased or rented so that the conductor and ground wires could be installed from the air. Access roads would still be needed for maintenance over the life of the line. This alternative was dismissed because most of the study area is accessible from the ground.

Requiring Monopole Structures in all Areas

A monopole design would reduce some interference with land uses that the H-frame design would have. The use of monopole support structures instead of H-frame structures for the entire length of the line was dismissed because of added costs with little additional land use benefits on rangeland. However, the use of monopoles is now proposed for 53 miles of cropland and CRP (89 miles) crossed diagonally under Alternative 2 and is also analyzed for all cropland and CRP crossings under Alternative 4.

Northwest Alternatives

Alignment selection from the U.S./Canada border to Cut Bank, approximately 25 miles south, required MATL to consider several alternatives. Alternative border crossing locations were dismissed based on routing conditions in Alberta. Alternative alignments between the border and Cut Bank were dismissed based on land use criteria such as: avoidance of occupied residences, an abundance of prairie pothole wetlands, and avoidance of Blackfeet Reservation land.

Eastern Alternative

MATL conceptually considered a Canada/U.S. border crossing near the Coutts/Sweet Grass Port-of-Entry along U.S. Interstate 15. Alignment alternatives considered in this vicinity would parallel Highway 4 from Lethbridge to Coutts/Sweet Grass, and roughly follow Interstate 15 from the border south to Shelby. This alignment would have afforded an opportunity to maintain infrastructure development in a common corridor, as well as avoiding protected lands in the Milk River Hills of southern Alberta.

South of Shelby, the eastern alternative would have traveled diagonally cross-country to the southeast for a distance of approximately 12 miles before heading directly south for almost the entire remaining distance to its tie-in at NWE's 230-kV switch yard north of Great Falls. Several factors contributed to MATL's dismissal of the eastern alternative including:

- In southern Alberta, the Eastern Alternative would potentially compromise the safety control system on the rail line that parallels Highway 4.
- Land development patterns in southern Alberta and in the Shelby area would necessitate the use of a stair step-like centerline resulting in increased distances and numerous angle structures requiring guy wires.
- The topographically rugged "breaks" of the Marias River are approximately 6 miles south of Shelby. The steep and highly eroded topography at this crossing location is relatively wide (approximately 6 to 7 miles) and would result in additional project costs to meet engineering challenges.
- The Marias River breaks area is relatively undisturbed, which has the potential for a greater number of archaeological sites.

Cut Bank to Shelby Alternatives

MATL would build the line to Cut Bank and then to Shelby and tie into WAPA's system there in order to complete a transmission path to Great Falls. In that way, energy producers or other subscribers that would need to move power south on the line would pay MATL a transmission tariff to get the power to Shelby and then would have to pay WAPA's tariff to move power from Shelby to Great Falls. WAPA's tariff of $2.69 per kW-month (kW/Mo.) would represent a substantial increase in the cost of transmission for users of the proposed line over paying the MATL tariff alone. MATL's varying tariffs on its line, which were bid by successful shippers in two open seasons, range from $3.01 kW/Mo. to $4.04 kW/Mo.[5]. These two rates together would almost double the total tariff in certain cases and would likely price most subscribers out of using the line. In addition, WAPA lines already have firm commitments for available capacity

[5] *http://www.matl.ca/documents/Transmission%20requests%20July%2014,%2006.pdf*

and can sometimes run at capacity due to system characteristics. Thus, the WAPA system does not provide the additional firm capacity offered by a separate MATL transmission line.

In a variation of this alternative, MATL and WAPA would cooperatively rebuild portions of the current WAPA Shelby-Great Falls 230-kV line, thereby creating a double circuit transmission line in certain parts of the path. WAPA cannot agree to this. A double circuit line would lower reliability for the operating system. The loss of one structure would affect both circuits. The loss of a structure on one of two parallel single circuit lines would affect just one circuit. WAPA also has reservations about building a parallel line in the same right-of-way as its Shelby-Great Falls route due to the potential for induced current between two lines located close to one another.

Besides the increased tariffs and decreased line reliability, these alternatives were dismissed because of operating limitations of WAPA's "West Control Area." These limitations are due to WAPA's lack of additional generation capacity reserves on its system that would be needed (as backup power sources) to support the wind projects proposed for the MATL project. The hydroelectric generators at Fort Peck Dam are the primary sources of these "regulating reserves" on the west system, and generation capacity is severely limited by the current drought conditions and resultant stream flow limitations.

NWE 115-kV Transmission Line Rebuild Alternative

Combining MATL's transmission line with NWE's existing 115-kV line would minimize potential environmental impacts. With that impetus, MATL considered rebuilding and updating, as necessary, NWE's existing 115-kV transmission line between Cut Bank and Great Falls and engaged in discussions with NWE regarding its feasibility. This rebuild alternative proved prohibitive based on the logistics of maintaining service while the line was being rebuilt and upgraded and the economics associated with a partnership and existing line rebuild.

3.0 Affected Environment and Environmental Impacts

Information in this chapter describes the relevant resource components of the affected environment. Only resources that could be affected by the alternatives, or that could affect the alternatives if implemented, are described. Data and analyses in these sections correspond with the importance of the impact and with concerns raised during the scoping process. The following resource areas are in this chapter: land use and infrastructure, geology and soils, engineering and hazardous materials, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, threatened and endangered species, air quality, noise, socioeconomics, cultural resources, visuals, and the transmission grid. Section 3.18 summarizes the findings DEQ would make in determining whether to certify the project under MFSA.

The location and extent of the affected environment for the alternatives depend on the resource under evaluation. If approved, the transmission line would be constructed within a 500-foot wide zone, 250 feet on each side of a center line specified in the Certificate of Compliance. For most resources, the affected environment analysis area for the transmission line is the 500-foot-wide zone for each alternative. Where affected environment resource analysis areas extend beyond the zone, the extended area is described at the beginning of the resource area section, and in many cases corresponds to MATL's study area (MATL 2006b) shown in **Figure 1.1-1**.

After the affected environment for each resource has been described, the impacts of the Project and alternatives are discussed, including the direct and indirect impacts, and short-term and long-term impacts. Short-term impacts are defined for this project as those that would take place during the construction phase. The construction phase is expected to last six months. Long-term impacts are defined for this project as those that would take place during the operation and maintenance of the line. The cumulative impacts for each resource are discussed in Chapter 4. Chapter 4 also includes a discussion of unavoidable adverse impacts and irreversible and irretrievable commitments of resources. The text includes descriptions for impacts and resources relevant to identified issues of concern (Section 1.5.2).

3.1 Land Use and Infrastructure

This section describes the human use of the land for economic production, and for residential, recreational, or other purposes.

3.1.1 Analysis Methods

Quantitative analysis of the number of miles included in a transmission line alignment and the associated number of acres and land use is based on Geographic Information System (GIS) analysis of the action alternatives. Assumptions needed for GIS analysis include:

- Existing land uses were developed from interpretation of orthophotographs (aerial photographs with distortion removed) taken in 2005 (USDA National Agriculture Imagery Program [NAIP] 2005). Some land uses may have changed since the photographs were taken. **Appendix H** lists land use by milepost for each alternative.
- Existing ownership information was developed from county plats and other sources. Information is believed to be accurate and up to date. However, some recording errors may have occurred, or lands may have been sold since the GIS information was developed.

Analysis Area

The analysis area for land use and infrastructure is the study area defined in MATL's permit application (MATL 2006b). Detailed analysis was conducted along the proposed centerline and alternatives.

Information Sources

Data and information for this section were compiled and refined from several sources including, but not limited to, computer assisted mass appraisal (CAMA), GAP Analysis data, and photographic interpretation and other sources. MATL verified this information by ground reconnaissance during July and August 2005. In addition, MATL contacted Federal, state, and local regulatory personnel by telephone and in person to validate existing information and to solicit additional information. This information was included in the MFSA application (MATL 2006b).

DEQ also verified land use information in the summers of 2006 and 2007 by:

- conducting a field reviews of the alignments from Great Falls to the U.S.-Canada border;

- verifying physical features and land uses along portions of the alternatives by driving along the alignments, recording observations, and taking periodic Global Positioning System (GPS) readings; and
- overlaying the alignments on 2005 orthophotographs (USDA NAIP 2005) and documenting visible land uses by milepost (**Appendix H**).

The land uses documented included: mechanically irrigated cropland, non-irrigated cropland, rangeland/pasture land, forest, residential, existing rights of way, riparian habitat, and water. Information was generally mapped at a scale of 1:24,000.

Information describing the existing transportation and utility networks was obtained from the MFSA application (MATL 2006b) or from Mr. Jim McDonald, Teton County road foreman. Details regarding farm tractors and tillage equipment were obtained from an interview with Mr. Bruce Broesder, service warranty writer for Torgersons, Inc. in Great Falls, and timelines for planting and harvesting were obtained from Mr. Sherwin K. Smith, Executive Director of the Teton County Farm Service Agency in Choteau. Mileages were measured using GIS.

3.1.2 Affected Environment

The following land uses and ownership categories are described in this section:

- Cities, towns, unincorporated communities,
- Developed residential, industrial, and commercial areas adjoining cities and towns,
- Federal and state highways and county roads,
- Railroads and railroad rights of way,
- Existing electric transmission lines,
- Communication facilities,
- Military installations,
- Conservation easements,
- Public and private airports,
- National trails,
- Farmland differentiated by irrigated cropland, mechanically irrigated cropland, non-irrigated cropland, rangeland/pasture land, and conservation reserve program (CRP),
- Mines, and
- Land ownership categories (Federal, state, tribal, private).

Land Ownership

Figures 3.1-1, 3.1-2, and **3.1-3** show land ownership in the south, middle, and north parts of the analysis area. **Table 3.1-1** summarizes the proportion of land ownership and jurisdiction within the analysis area (Montana Natural Resource Information System [Montana NRIS] 2006a). The majority (89.7 percent) is privately owned, with the remainder owned or managed by state, Federal, and local government agencies. A discussion of public land management, relative to facility siting, is provided below.

TABLE 3.1-1
LANDOWNERSHIP AND JURISDICTION WITHIN ANALYSIS AREA

Ownership	Percent of Analysis Area
Local Government	0.3
Private	89.7
Right-of-way	0.6
State Government	6.7
Tribal	0.0
Undetermined	0.0
U.S. Department of Agriculture	0.0
U.S. Department of Defense	0.1
U.S. Government	0.0
U.S. Department of Agriculture Forest Service	0.0
U.S. Department of the Interior Bureau of Land Management	1.5
U.S. Department of the Interior Fish and Wildlife Service	0.5
Water	0.5
Total	100.0

Source: Montana NRIS 2006a

Land Use Categories

Land use categories described in this section are: residential, commercial and industrial, agricultural, publicly managed, and conservation easements.

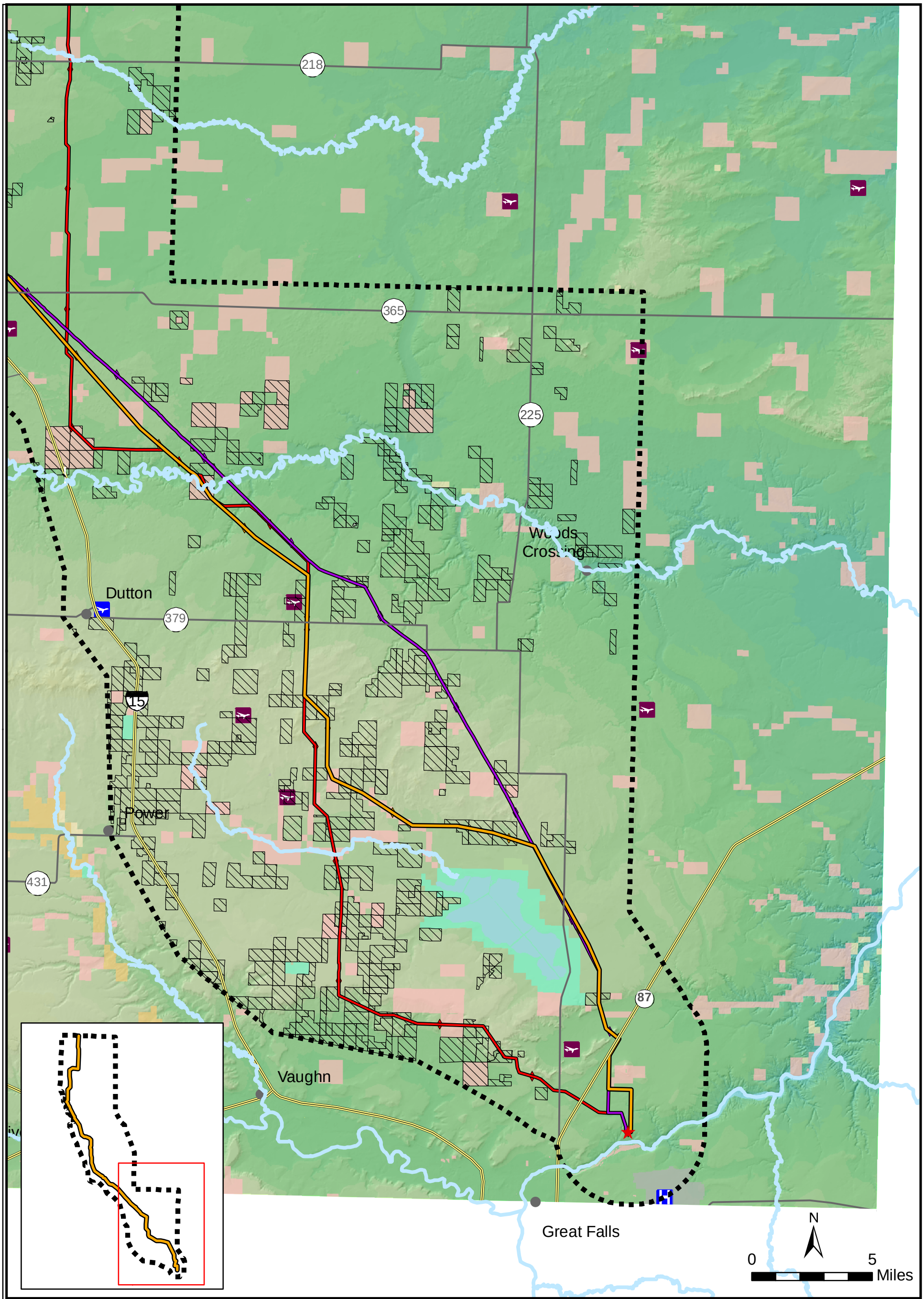

FIGURE 3.1-1
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
SOUTH

LEGEND

Ownership
- Conservation Reserve Program
- Tribal
- State Government
- US Department of Agriculture
- US Department of Defense
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- ALIGNMENT END AND EXIT POINTS
- RIVERS AND STREAMS
- CITIES AND TOWNS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS

GIS map by Patricia Williams -TTMTI 3-1-1-LandUseAnalysisArea-South.mxd