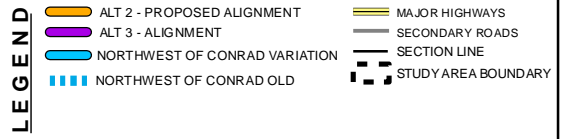
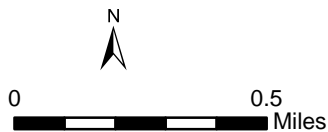
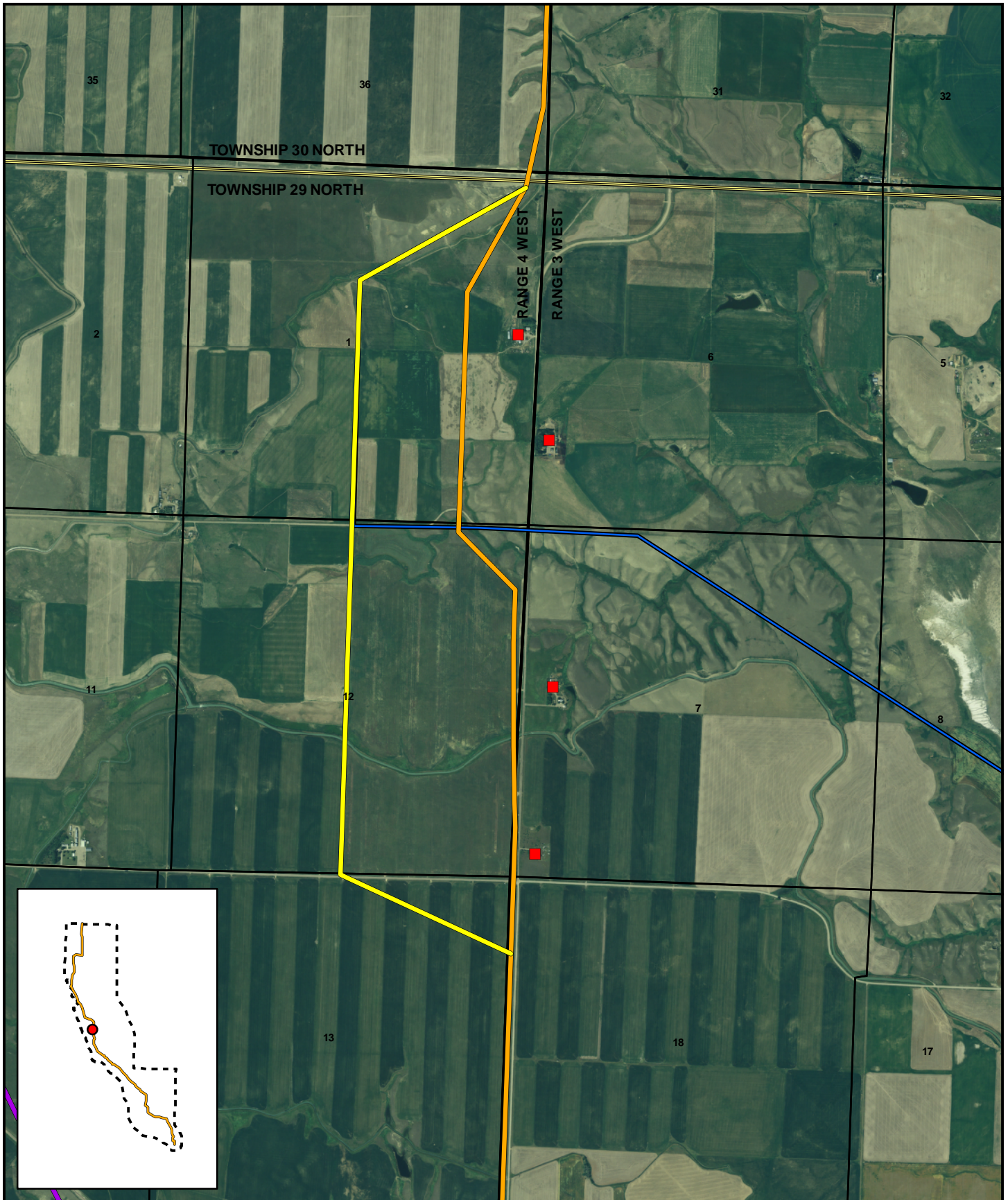


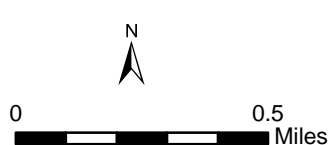
**FIGURE 2.6-6  
LOCAL ROUTING OPTION AND VARIATION  
NORTHWEST OF CONRAD**





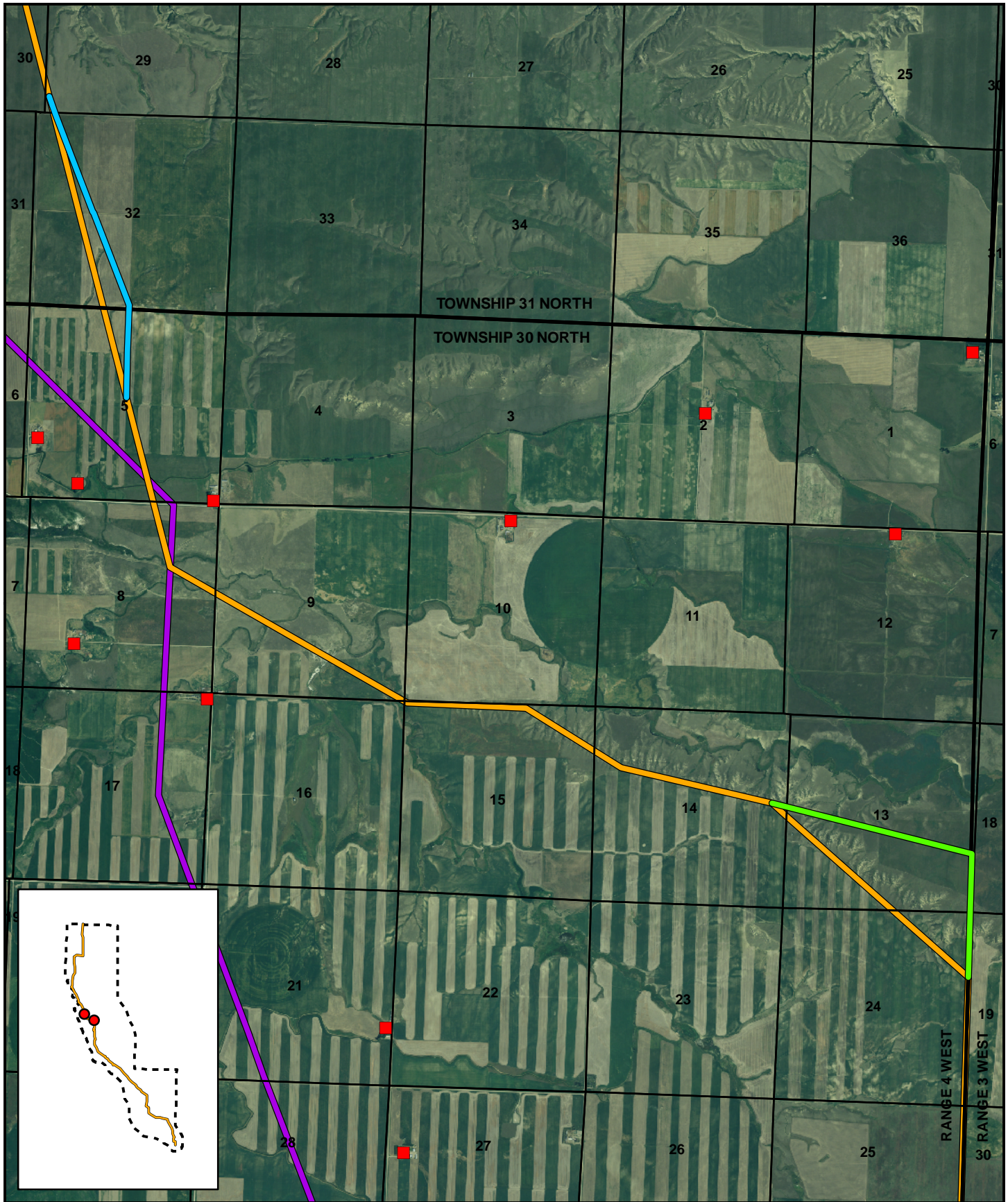


**FIGURE 2.6-7  
LOCAL ROUTING OPTION AND VARIATION  
IN THE BELGIAN HILL AREA**

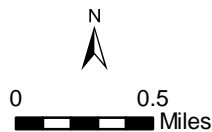


- LEGEND**
- ALT 2 - PROPOSED ALIGNMENT
  - ALT 3 - ALIGNMENT
  - ALT 4 - ALIGNMENT
  - BELGIAN HILL REVISED
  - MAJOR HIGHWAYS
  - SECONDARY ROADS
  - SECTION LINE
  - STUDY AREA BOUNDARY
  - HOUSE





**FIGURE 2.6-8  
LOCAL ROUTING OPTIONS  
BULLHEAD COULEE AREA**



- LEGEND**
- ALT 2 - PROPOSED ALIGNMENT
  - ALT 3 - ALIGNMENT
  - BULLHEAD COULEE SOUTH
  - BULLHEAD COULEE NORTH
  - MAJOR HIGHWAYS
  - SECONDARY ROADS
  - SECTION LINE
  - STUDY AREA BOUNDARY
  - HOUSE
  - GRAIN SILOS

The Bullhead Coulee North Local Routing Option [for Alternatives 2 and 4](#) would reduce farming cost by placing more structures on field edges [and has greater potential for landowner acceptance](#). Anticipated increased construction costs would be minimal.

### 2.6.8 South of Cut Bank

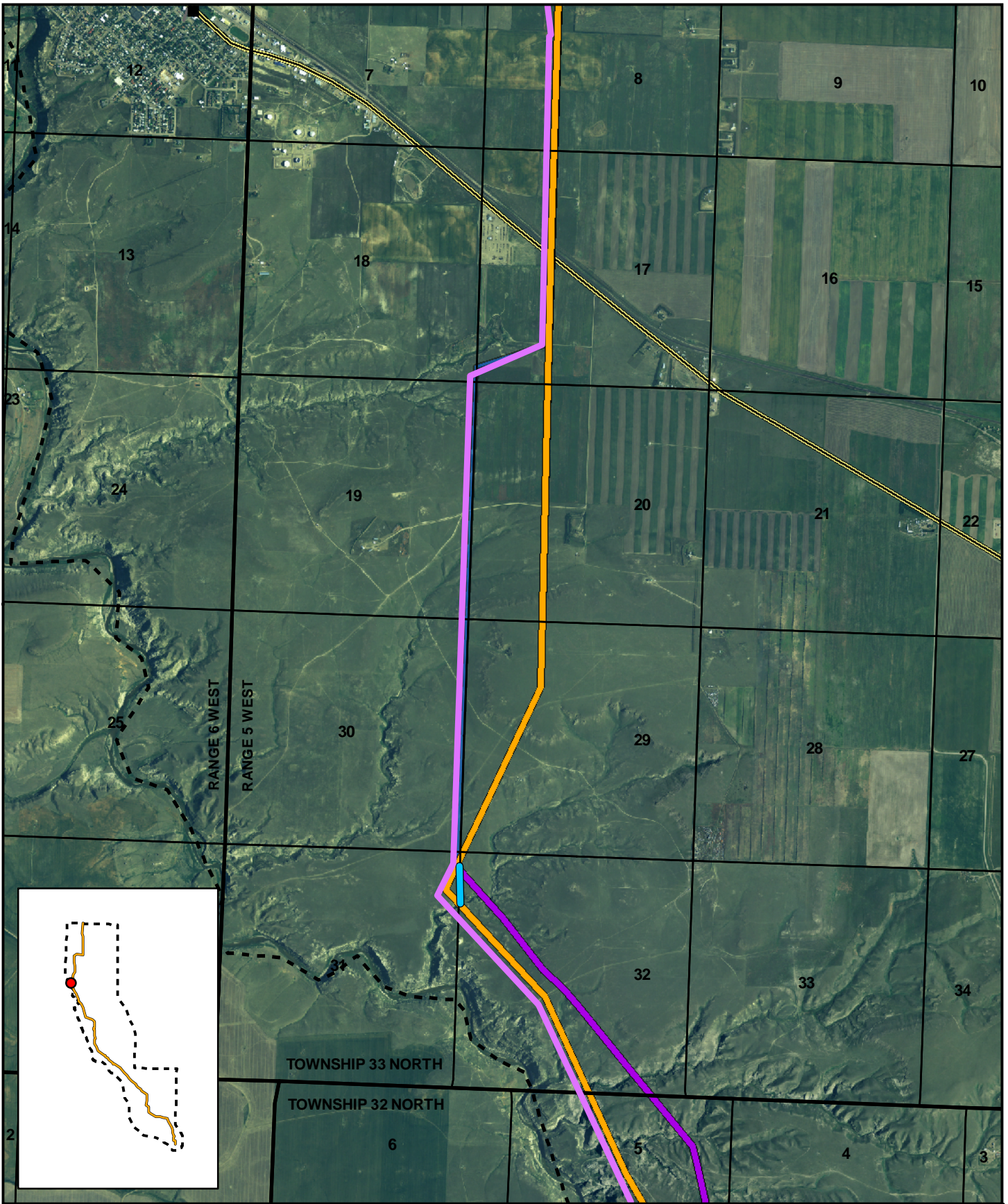
The South of Cut Bank [Local Routing Option is shown in Figure 2.6-9](#). The agencies [identified a minor variation for the south ¼ mile of the South of Cut Bank Local Routing Option that would eliminate several angle structures and keep the transmission line along the section line as indicated on Figure 2.6-9](#).

### 2.6.9 Great Falls 230-kV Switchyard Area

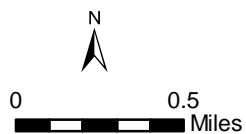
[A variation to Alternative 2 was developed by MATL and two landowners north of the Great Falls 230-kV Switchyard to mitigate and minimize impacts to existing and future land uses in this area. The variation would apply to Alternative 2 for the first approximately 5.1 miles of the alignment north of the Great Falls Switchyard \(Figure 2.6-10\). It would also apply to Alternative 3 from approximately MP 3 to MP 5.1 where it shares the alignment with Alternative 2. The variation involves constructing approximately 4.3 miles of the line using monopole structures capable of supporting two 230-kV transmission lines \(double-circuit 230 kV line construction\). The remaining 0.8 mile, from MP 4.3 to MP 5.1 would remain a single-circuit H-frame construction but would be relocated across to the northwest side of Highway 87.](#)

[The minor variation would also involve moving the Alternative 2 alignment to the east side of the existing 115-kV line between MP 0.9 and MP 1.9. The existing distribution line would be removed between MP 1.4 and MP 1.9 to provide the room for MATL's 230-kV alignment. MATL would pay for the existing distribution line to be placed underground or for the construction of a new overhead distribution line, depending on the landowner's permission and preference.](#)





**FIGURE 2.6-9  
LOCAL ROUTING OPTION AND VARIATION  
SOUTH OF CUT BANK**



- LEGEND**
- ALTE 2 - PROPOSED ALIGNMENT
  - ALT 3 - ALIGNMENT
  - ALT 4 - ALIGNMENT
  - SOUTH OF CUT BANK VARIATION
  - MAJOR HIGHWAYS
  - SECONDARY ROADS
  - SECTION LINE
  - STUDY AREA BOUNDARY





**FIGURE 2.6-10  
LOCAL ROUTING OPTION AND VARIATION  
GREAT FALLS SWITCHYARD APPROACH**

- |               |  |                                     |  |                     |
|---------------|--|-------------------------------------|--|---------------------|
| <b>LEGEND</b> |  | ALT 2 - ALIGNMENT                   |  | STUDY AREA BOUNDARY |
|               |  | ALT 2 MILE MARKERS                  |  | MAJOR HIGHWAYS      |
|               |  | DISTRIBUTION LINE REMOVAL           |  | SECONDARY ROADS     |
|               |  | GREAT FALLS MONODOUBLE CIRCUIT      |  |                     |
|               |  | GREAT FALLS SINGLE CIRCUIT H-FRAMES |  |                     |
|               |  | ALIGNMENT END AND EXIT POINTS       |  |                     |
|               |  |                                     |  |                     |
- NOTE:  
ALT = ALTERNATIVE



## 2.7 Agencies' Preferred Alternative

The preferred alternative consist of portions of Alternatives 2 and 4 as shown on Figures 1.3-1, 1.3-2, and 1.3-3. The preferred alternative uses monopoles wherever cropland and lands enrolled in the CRP are crossed (approximately 83.6 miles of the 133.5 miles). The agencies selected the preferred alternative because it represents the best balance of avoidance of impacts to farmland, cost, avoidance of houses, public acceptance, paralleling existing corridors, and use of public lands.

Beginning at the Great Falls Switchyard at Milepost 0, the agencies' preferred alternative includes a 27.3 mile segment of Alternative 4 because it better avoids cultivated and CRP land than Alternative 2 (Figure 1.3-1). Compared to Alternative 2, this portion of Alternative 4 crosses 5.79 fewer miles of farmland, crosses 7.73 fewer miles of farmland diagonally, and has fewer nearby residences. Overall, this segment is 0.39 miles longer than the corresponding Alternative 2 segment and crosses 2.46 miles less state land. Much of this line segment parallels the WAPA 230 kV line that was sited during the 1980s to avoid cropland where possible.

From Milepost 27.3 to Milepost 31 the agencies' preferred alternative coincides with Alternative 2 (Figure 1.3-2). From Milepost 31 the preferred alternative follows the Diamond Valley South Local Routing Option as far as Milepost 39.2. While the Diamond Valley South option is 1.7 miles longer than the corresponding segment of Alternative 2, it better avoids diagonal crossings of farmland and better avoids houses. Compared to the Diamond Valley North Local Routing Option, it parallels fewer miles of field roads, better avoids a grain bin, and has two fewer crossings of NorthWestern Energy's 115-kV line.

At the crossing of the Teton River (Milepost 39.2) the agencies' preferred alternative incorporates the Teton River Local Routing Option because this crossing would remain higher above the river channel than Alternative 2, avoiding potential flood inundation, and largely remains along field edges north of the river.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same



use of monopoles wherever cropland and lands enrolled in CRP are crossed as required under Alternative 4.

From the Teton River the agencies' preferred alternative coincides with Alternative 2 as far as Milepost 56.2. Here, the preferred alternative uses the Southeast of Conrad Local Routing Option that locates the line on rangeland and field boundaries better than Alternative 2. From Milepost 59.2 to Milepost 69.3 the agencies' preferred alternative coincides with Alternative 2. Between Mileposts 69.3 and 72.2 the Northwest of Conrad Local Routing Option was selected because it better avoids crossing farmland diagonally by using the range and pasture land available in the area.

From Milepost 72.2 to approximately Milepost 74 (the beginning of the Belgian Hill Local Routing Option) the preferred alternative coincides with Alternative 2. From Milepost 74 to Milepost 76.8 the Belgian Hill Local Routing Option was selected to avoid close proximity to several houses.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same use of monopoles wherever farmland and lands enrolled in CRP are crossed as required under Alternative 4.

From Milepost 76.8 to Milepost 79.5 the agencies' preferred alternative coincides with Alternative 2 (Figure 1.3-3). From Milepost 79.5 to Milepost 81.2 the Bullhead Coulee South Local Routing Option was selected because, at the request of an affected landowner, it would allow construction of a wind turbine that would otherwise be precluded by Alternative 2.

From Milepost 81.2 to Milepost 85.5 the preferred alternative coincides with Alternative 2. From Milepost 85.5 to Milepost 87.2 the Bullhead Coulee North Local Routing Option was selected to reduce the amount of cropland crossed diagonally. From Milepost 87.2 to Milepost 100.5, the preferred alternative coincides with Alternative 2. The preferred alternative would cross BLM-owned land between Milepost 93.4 and Milepost 94.0. Beginning at Milepost 100.5 the preferred alternative uses the South of Cut Bank Local Routing Option because it would locate the line on field boundaries and better avoid a house without a large increase in line length. North of Milepost 103.1 the



[preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing.](#)

[Although Alternative 3 is the shortest route, north of Cut Bank it is not preferred because it does not join with Canada's approved route. South of Cut Bank, Alternative 3 was developed to closely parallel an existing 115-kV line that was built in the 1960s prior to passage of MFSA. Alternative 3 is not the agencies' preferred alternative in that area because it crosses more crop and irrigated land diagonally than Alternatives 2 and 4 and has little public acceptance or support.](#)

## **2.8 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**. 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**.

### **Possible Local Realignments Not Incorporated into Alternative 4**

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.

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 [Switchyard](#) (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**.

### **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 [Switchyard](#), 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 8<sup>th</sup> 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 2.8-1**). 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.

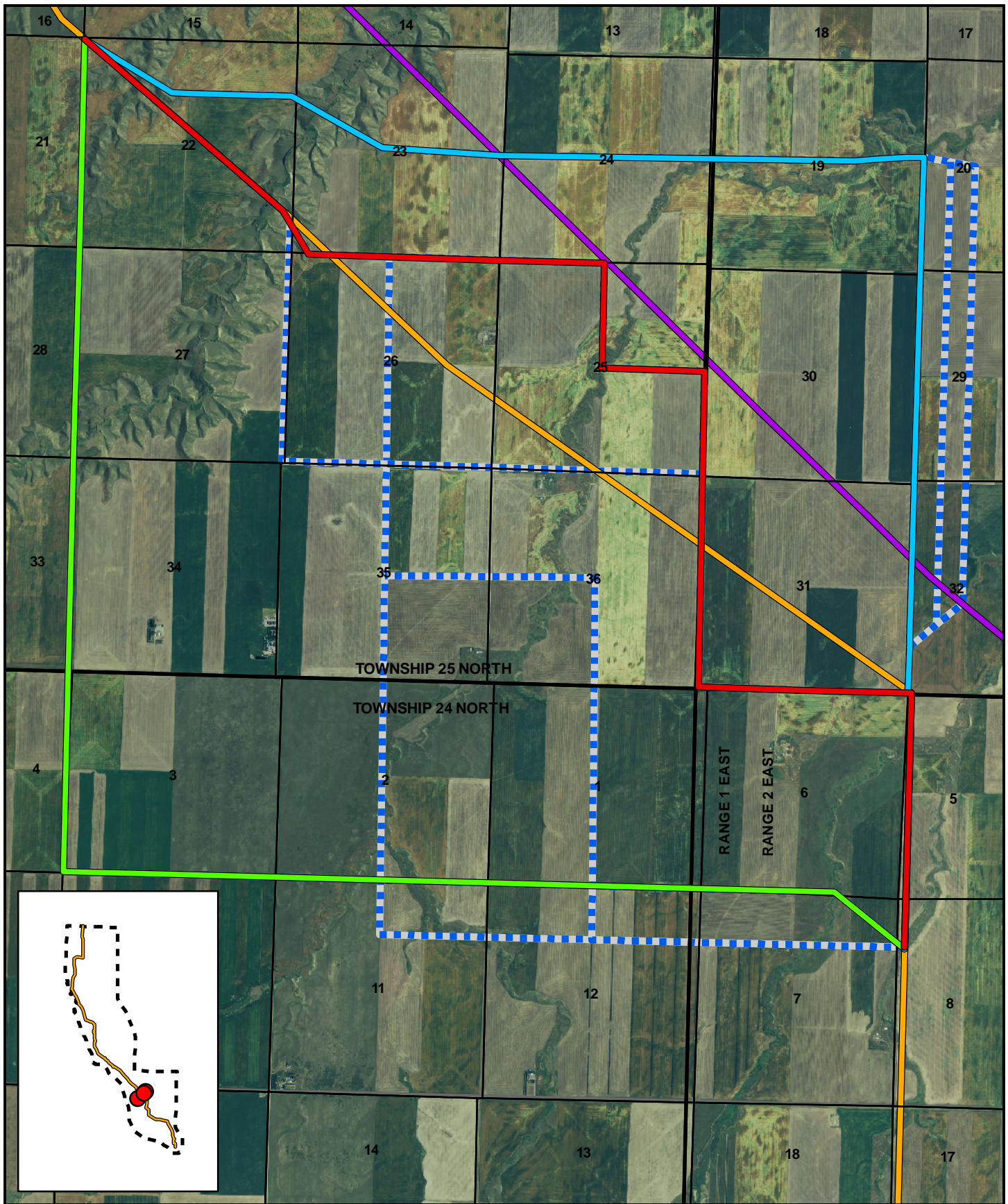
The proposed realignments C, D, F, and G were not carried forward as potential subalternative realignments because they would not adequately address the landowner concerns about proximity of the line to residences, crossing farmland diagonally, and closely paralleling NWE's existing 115-kV transmission 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.

### **Alternative Teton River Crossing (Eliminated from further consideration)**

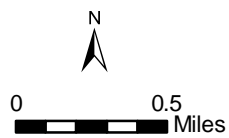
The agencies examined a suggested alignment to cross the Teton River in the Northwest corner of Section 16. This alignment was eliminated from further consideration because it would cross a landslide feature where long-term slope stability is uncertain and would cross the Teton River at a low elevation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



**FIGURE 2.8-1  
DISMISSED ALIGNMENTS IN  
DIAMOND VALLEY AREA**



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



### **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.

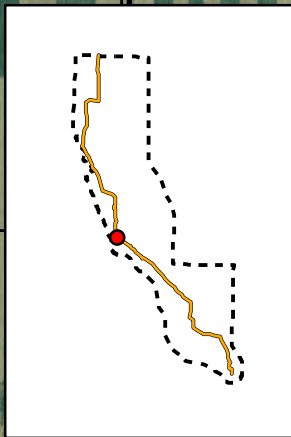
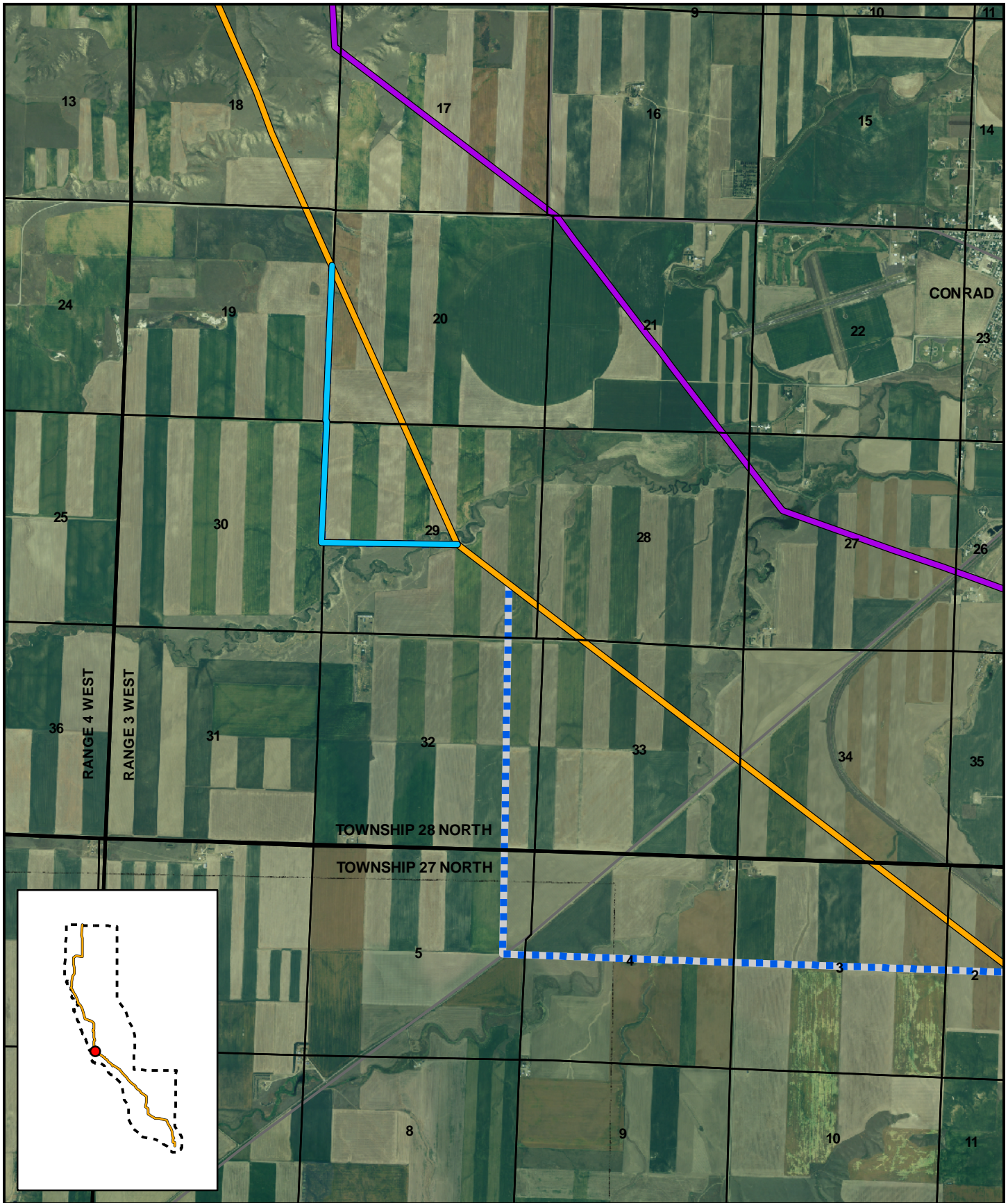
### **West of Conrad (Not carried forward for further consideration)**

One suggested realignment southwest of Conrad (**Figure 2.8-2**) 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 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 realignment would result in reduced farming costs to farmers due to structure locations along the edges of fields.

However, the cost of construction for the West of Conrad 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 this 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. 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.



**FIGURE 2.8-2  
DISMISSED ALIGNMENTS  
WEST OF CONRAD**



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



### **Bullhead Coulee Area**

Three local realignments (designated Bullhead Coulee B, D, and E on **Figure 2.8-3**) 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  $\frac{1}{4}$  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  $\frac{1}{4}$  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.