

APPENDIX A

PRELIMINARY DESIGN

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The following pages present the preliminary design of the preferred alternative in the form of an overlay of engineering information on an aerial photographic background. The purpose of presenting this information is two-fold:

- To show the characteristics of the project corridor and items and areas that may potentially be impacted (as shown by the aerial photograph background).

- To demonstrate the degree of impact that "build" alternatives might have on the facility and adjacent properties (as shown by the blue colored overlay lines).

Preferably it would be best to show the impacts of all alternatives considered in this study on the aerial photograph background. Unfortunately, the need to show 55.1 km (34.2 mi) of information in a manner conducive to presentation in this EIS necessitates using the smallest practical scale that will still allow recognition of areas and their expected impacts. Trying to show overlays of all alternatives on this scale made it very difficult to differentiate between alternatives and greatly diminished the effectiveness of the presentation due to the confusion created by so much information in a small space.

Accordingly, the preliminary design shown herein is for the preferred alternative set forth in this EIS. This was done in order to portray information that would best represent what would likely occur in the corridor if the recommended improvements are implemented.

The information displayed is also representative of the expected impacts that would occur for the other "build" alternatives. Extent of impacts in areas where the additional lane of the 2-land modified alternative would be located are nearly identical to the information shown. Areas where the additional lane is not present would have slightly less width and area of impact compared to what is shown.

The preferred alternative is comprised of a mix of the use of 4-lane undivided and 5-lane sections. Therefore, the information portrayed in this appendix is very representative of the impacts of those alternatives if they were used exclusively throughout the corridor. The area of impacts for the 4-lane divided alternative are approximately 33% greater than the 4-lane undivided or 5-lane segments. Adding approximately one-third of the distance between centerline and the proposed construction limit will give a good indication of the limits of construction associated with the 4-lane divided alternative.

Information portrayed on the pages herein includes the following. Important features and information are clearly labeled to help determine the location in the project corridor and to help identify features potentially impacted:

- Existing roads and adjacent properties on an aerial photo background (photo taken 1992). Aerial photographs show buildings, drainages, intersecting roads, and other physical features on the ground (main features labeled).

- Milepost locations.

- Sections lines and breakdowns of sections (e.g., SE¼ Sec 1).

- Property lines of record.

- Proposed centerline of new road.

- Stationing along the proposed centerline. Stationing given is distance in meters and hundreds of meters. For example, 9+00 = 900 meters. Each tick mark along the centerline represents an interval of 20 meters (65.6 ft). One meter equals 3.28 feet.

- Proposed edge of pavement.

- Proposed construction limits, which are the limits of ground disturbance.

- Proposed right-of-way.

- Information in the middle of the page between the two strips of aerial photograph calls out the name of the segment in which the area lies (see below), the scale (metric scale of 1 to 300, that is, everything shown on the maps will be 300 times larger in real life), and an indication of the lane configuration of the preferred alternative to be used at the location shown (4-lane, 5-lane, and 5-lane urban which includes curb and gutter).

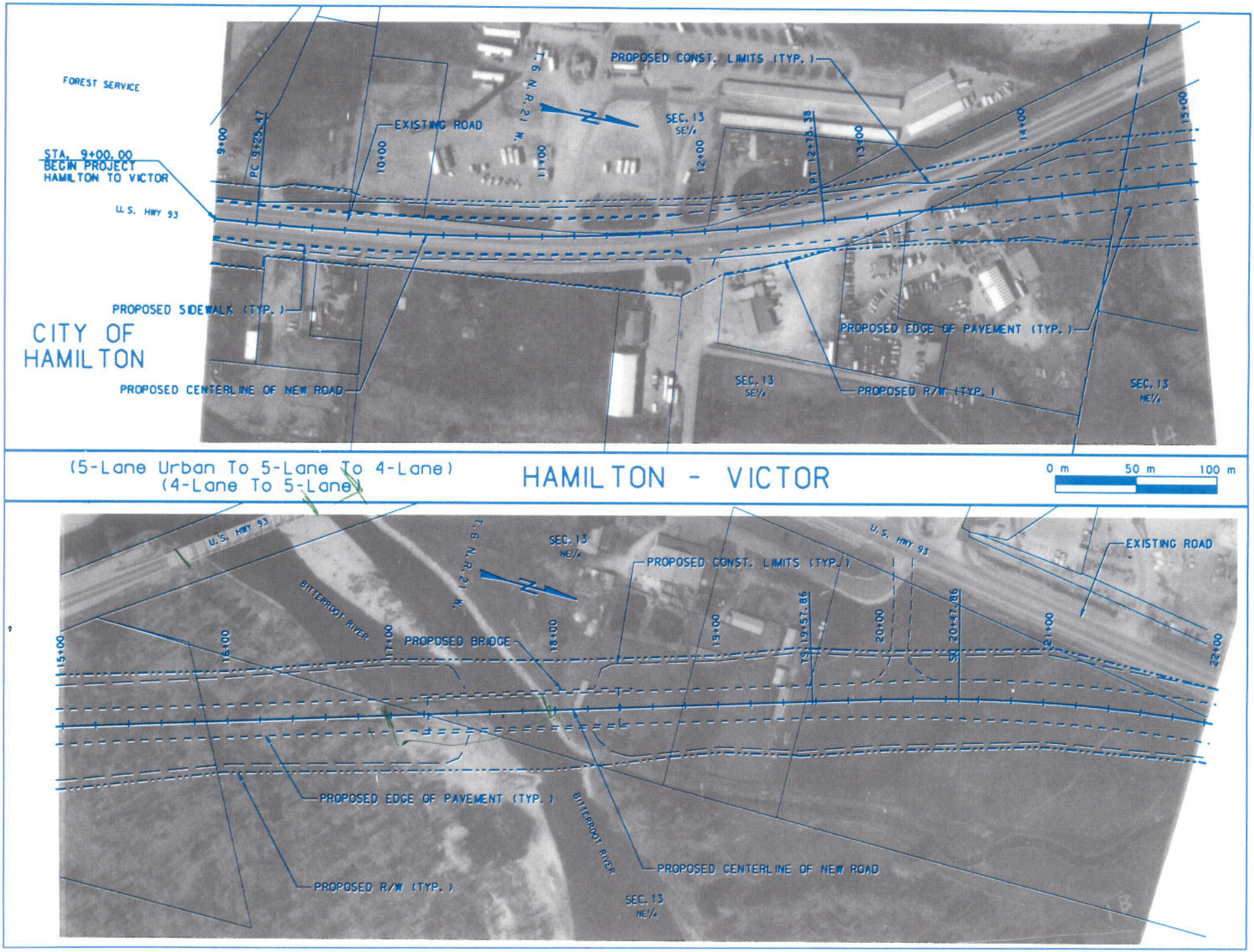
It is likely the project corridor will be broken up into segments for the purpose of developing projects to implement any proposed improvement alternatives. The following identifies those segments:

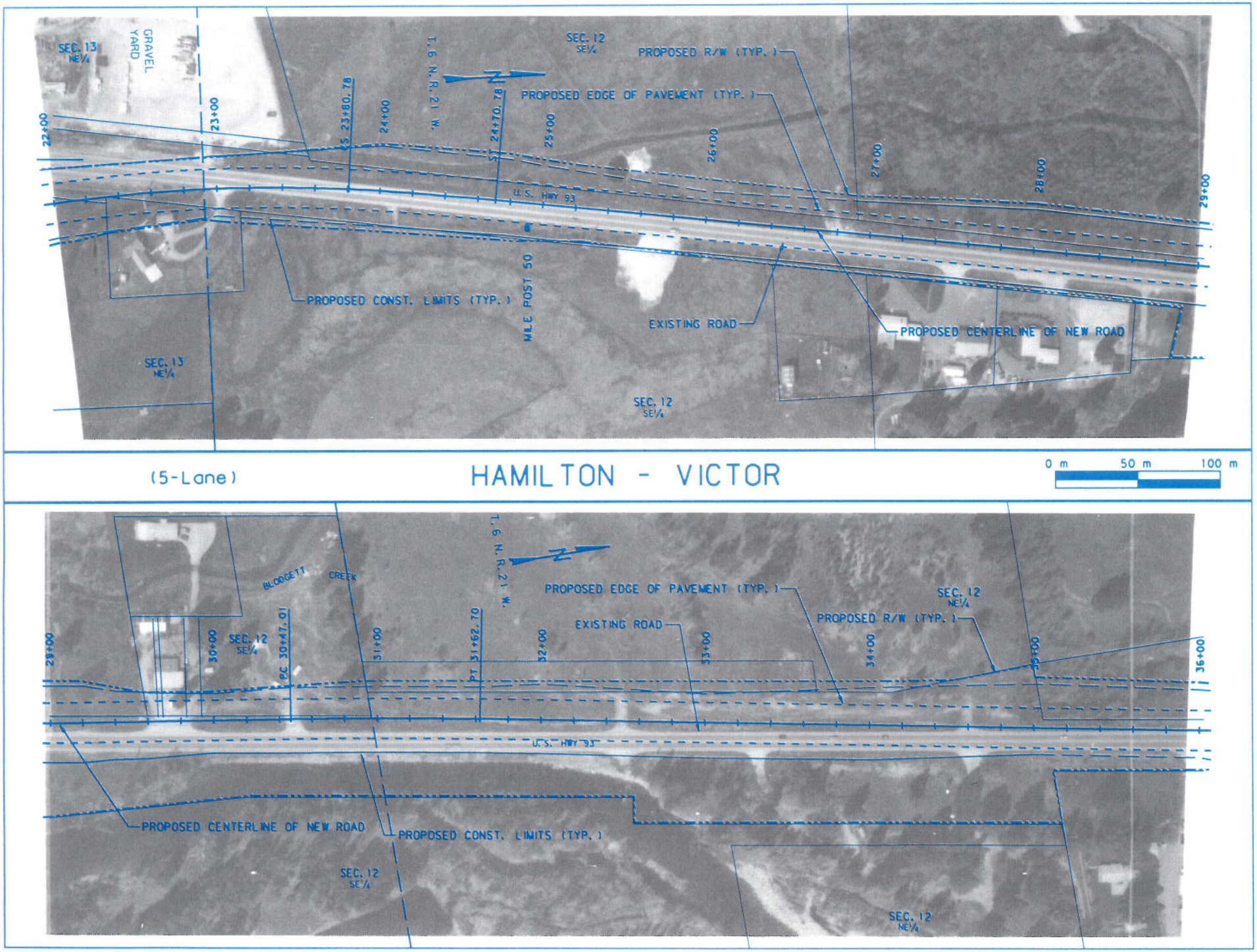
Segment	Milepost Limits	Length	Metric Stationing *
Hamilton to Victor	49.0 - 59.0	16.1 km (10.0 mi)	9+00 to 169+07
Victor to Florence	59.0 - 74.1	24.3 km (15.1 mi)	10+00 to 251+88
Florence to Lolo	74.1 - 83.2	14.7 km (9.1 mi)	10+00 to 159+56
		55.1 km (34.2 mi)	

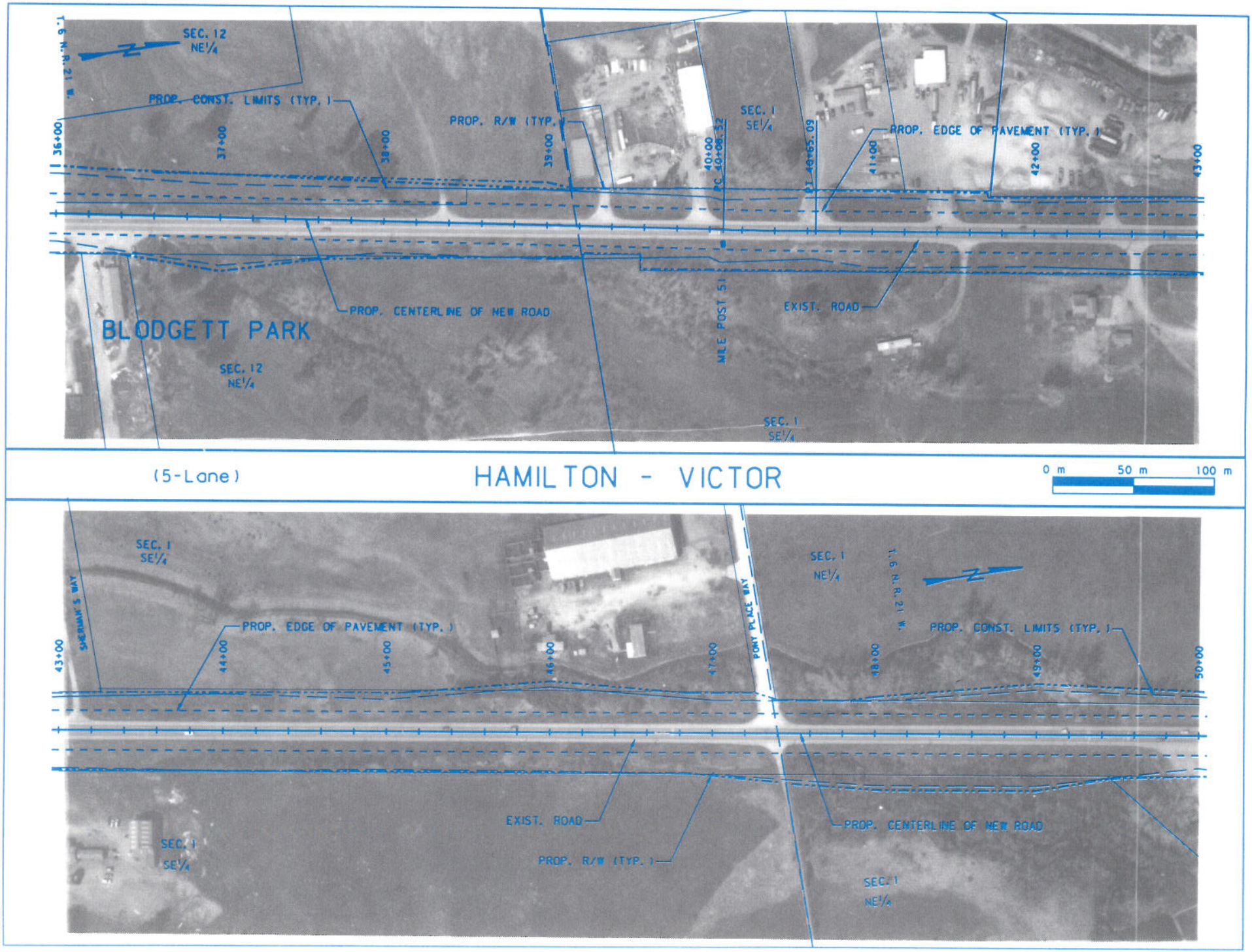
* Follows stationing given on aerial photographic mapping herein (distance in meters, 1+00 = 100 meters)

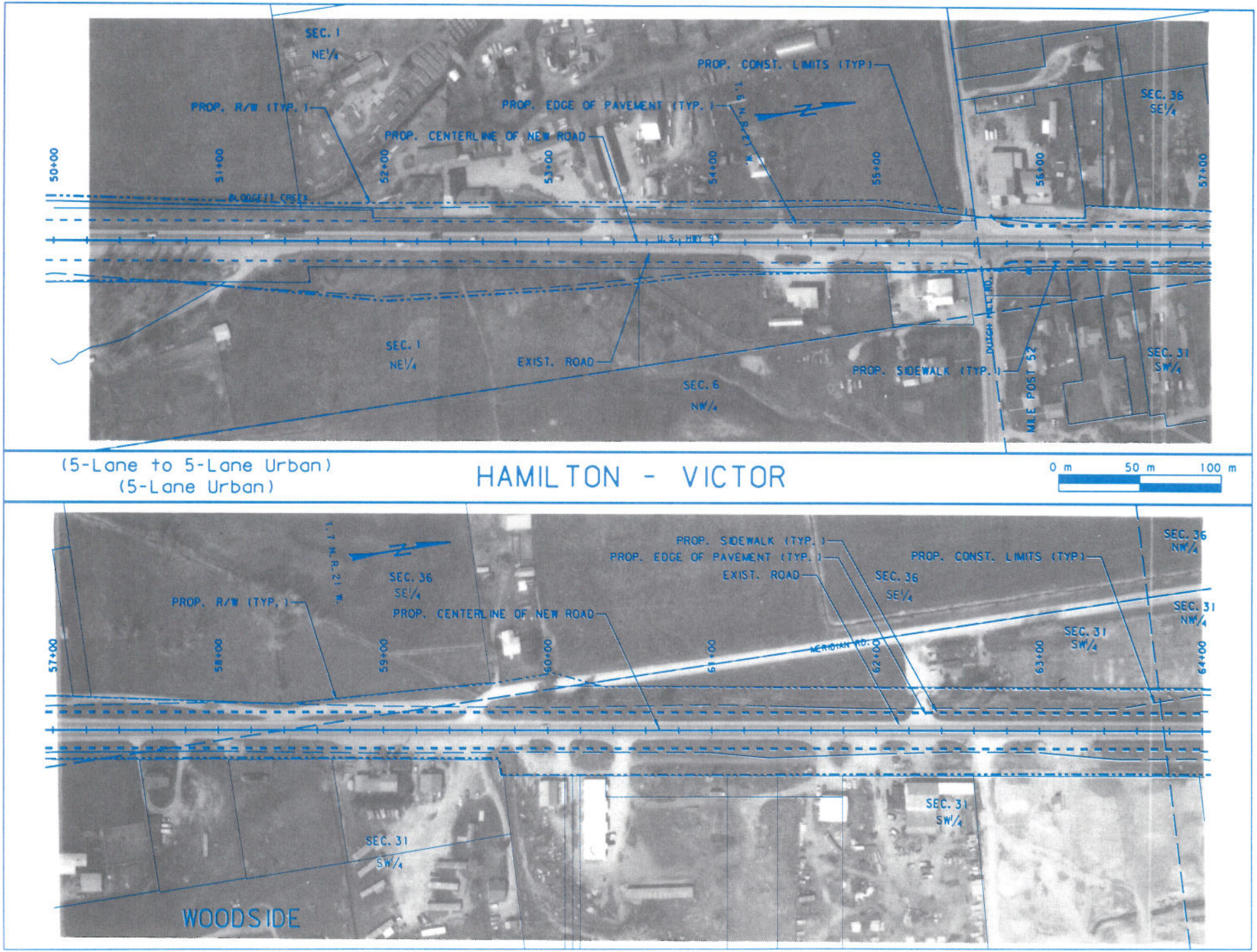
Although the information shown here represents the preferred alternative, a preliminary design overlay has been created for each of the "build" alternatives giving the same type of information shown here. Those needing further information for other alternatives or having questions about the information presented herein are invited to contact the Project Manager at 1-800-331-7548 for clarification.

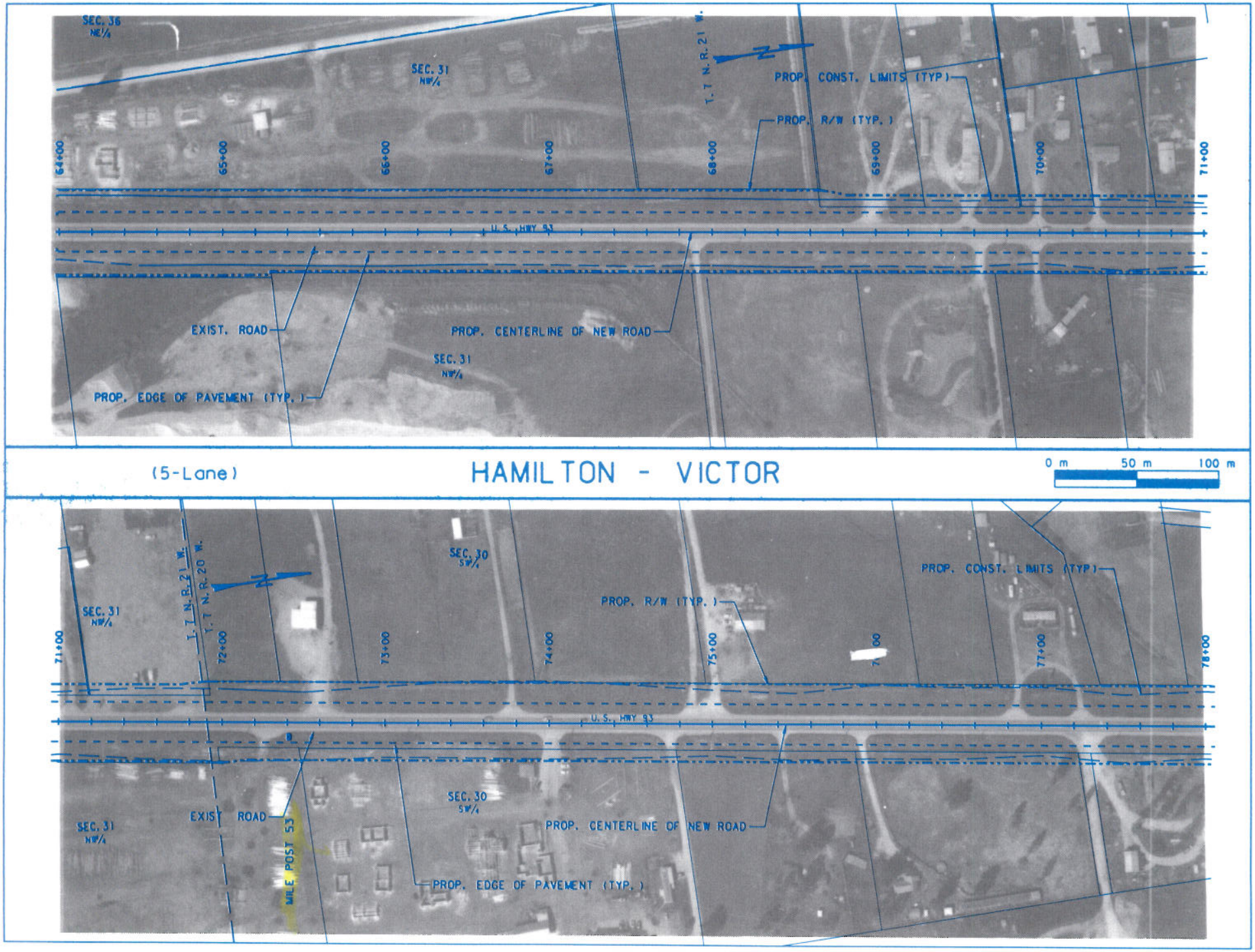
HAMILTON - VICTOR

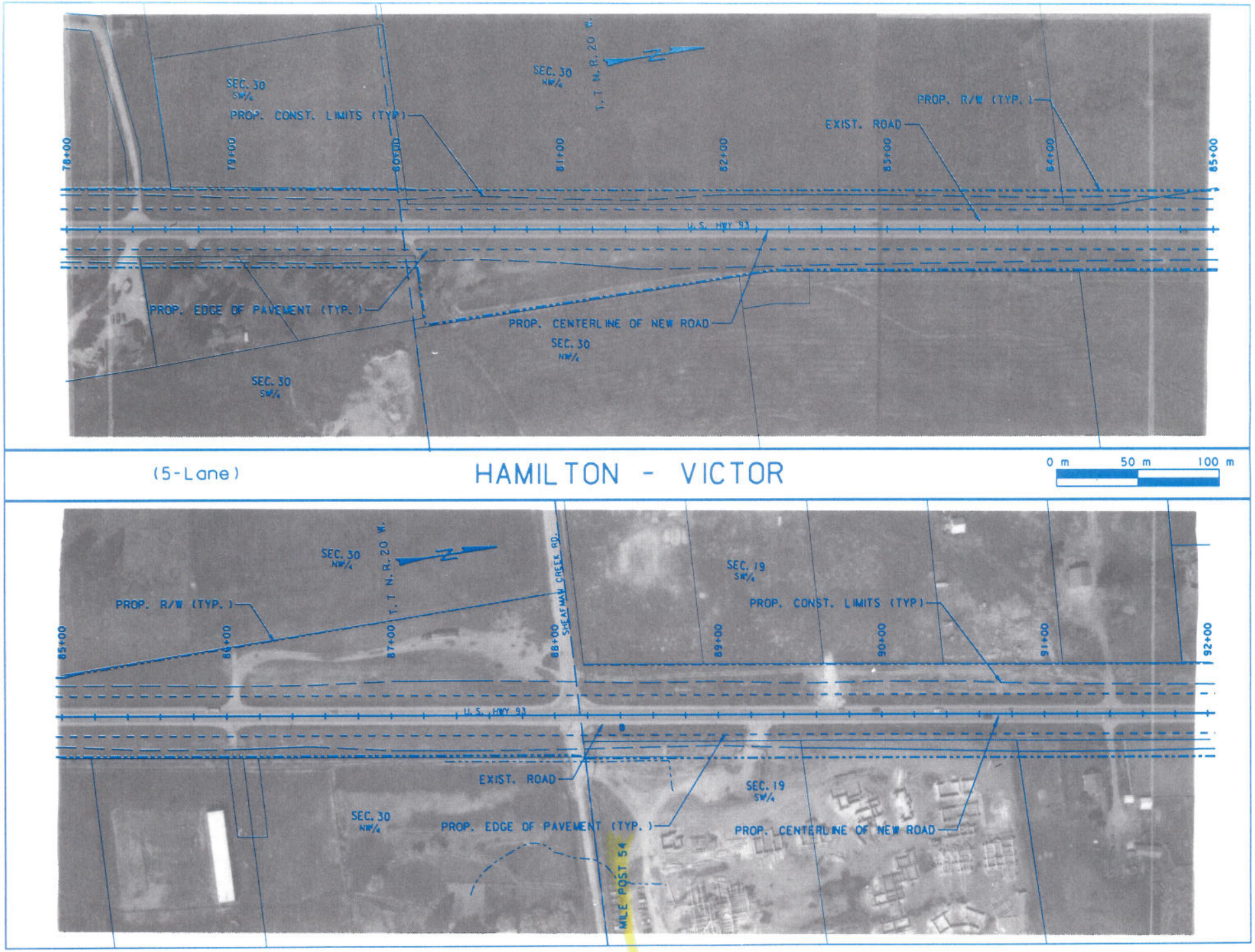

FOREST SERVICE
STA. 9+00.00
BEGIN PROJECT
HAMILTON TO VICTOR
U.S. HWY 93
CITY OF
HAMILTON
PROPOSED SIDEWALK (TYP.)
PROPOSED CENTERLINE OF NEW ROAD
EXISTING ROAD
PROPOSED CONST. LIMITS (TYP.)
PROPOSED EDGE OF PAVEMENT (TYP.)
PROPOSED R/W (TYP.)
T. 6 N., R. 21 W.
SEC. 13
SE¼
SEC. 13
NE¼
PC 9+25.47
PT 12+73.38
9+00
10+00
11+00
12+00
13+00
14+00
15+00
(5-Lane Urban To 5-Lane To 4-Lane)
(4-Lane To 5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
U.S. HWY 93
BITTERROOT RIVER
PROPOSED BRIDGE
PROPOSED CONST. LIMITS (TYP.)
EXISTING ROAD
PROPOSED EDGE OF PAVEMENT (TYP.)
PROPOSED R/W (TYP.)
PROPOSED CENTERLINE OF NEW ROAD
SEC. 13
NE¼
TS 19+57.86
SC 20+47.86
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00

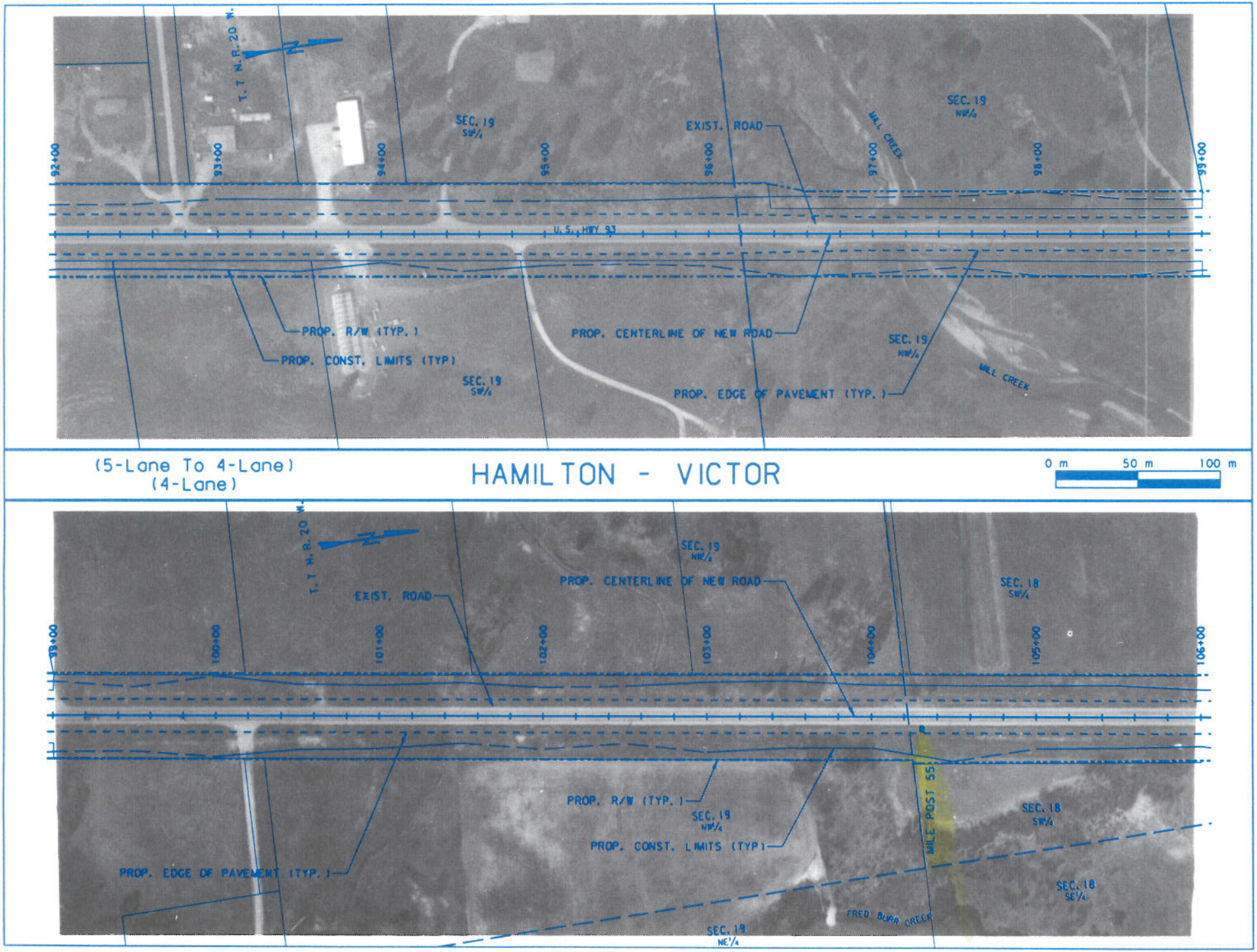

SEC. 13
NE¼
GRAVEL
YARD
T. 6 N., R. 21 W.
SEC. 12
SE¼
PROPOSED R/W (TYP.)
PROPOSED EDGE OF PAVEMENT (TYP.)
22+00
23+00
PC 23+80.78
24+00
ST 24+70.78
25+00
26+00
27+00
28+00
29+00
U.S. HWY 93
MILE POST 50
PROPOSED CONST. LIMITS (TYP.)
EXISTING ROAD
PROPOSED CENTERLINE OF NEW ROAD
SEC. 13
NE¼
SEC. 12
SE¼
(5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
T. 6 N., R. 21 W.
BLODGETT
CREEK
PROPOSED EDGE OF PAVEMENT (TYP.)
EXISTING ROAD
SEC. 12
NE¼
PROPOSED R/W (TYP.)
28+00
30+00
SEC. 12
SE¼
PC 30+47.01
31+00
PT 31+62.70
32+00
33+00
34+00
35+00
36+00
U.S. HWY 93
PROPOSED CENTERLINE OF NEW ROAD
PROPOSED CONST. LIMITS (TYP.)
SEC. 12
SE¼
SEC. 12
NE¼

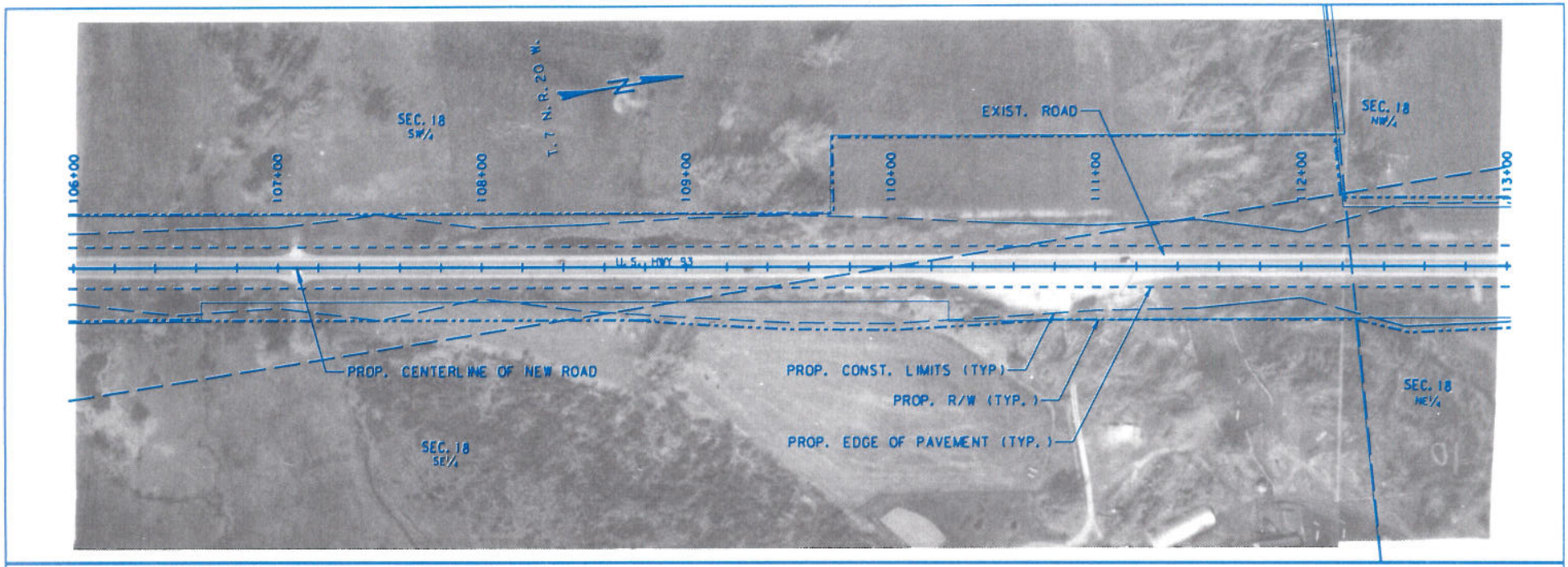

SEC. 12
NE¼
T. 6 N., R. 2 W.
PROP. CONST. LIMITS (TYP.)
PROP. R/W (TYP.)
SEC. 1
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
36+00
37+00
38+00
39+00
40+00
PC 40+08.32
40+65.09
41+00
42+00
43+00
PROP. CENTERLINE OF NEW ROAD
MILE POST 51
EXIST. ROAD
BLODGETT PARK
SEC. 12
NE¼
SEC. 1
SE¼
(5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
SEC. 1
SE¼
SHERMAN'S WAY
PROP. EDGE OF PAVEMENT (TYP.)
43+00
44+00
45+00
46+00
47+00
PONY PLACE WAY
SEC. 1
NE¼
T. 6 N., R. 2 W.
PROP. CONST. LIMITS (TYP.)
48+00
49+00
50+00
EXIST. ROAD
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 1
SE¼
SEC. 1
NE¼


SEC. 1
NE¼
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CONST. LIMITS (TYP)
T. 19 N., R. 2 W.
SEC. 36
SE¼
50+00
51+00
52+00
53+00
54+00
55+00
56+00
57+00
BLODGETT CREEK
U.S. HWY 93
SEC. 1
NE¼
EXIST. ROAD
SEC. 6
NW¼
PROP. SIDEWALK (TYP.)
DIXON MELT RD.
MILE POST 52
SEC. 31
SW¼
(5-Lane to 5-Lane Urban)
(5-Lane Urban)
HAMILTON - VICTOR
0 m
50 m
100 m
T. 7 N., R. 21 W.
SEC. 36
SE¼
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
PROP. SIDEWALK (TYP.)
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
PROP. CONST. LIMITS (TYP)
SEC. 36
NW¼
SEC. 36
SE¼
SEC. 31
NW¼
SEC. 31
SW¼
57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
MERIDIAN RD.
SEC. 31
SW¼
SEC. 31
SW¼
WOODSIDE


SEC. 36
NE¼
SEC. 31
NW¼
T. 7 N. R. 21 W.
PROP. CONST. LIMITS (TYP.)
PROP. R/W (TYP.)
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
U. S. HWY 53
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 31
NW¼
PROP. EDGE OF PAVEMENT (TYP.)
(5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
SEC. 31
NW¼
T. 7 N. R. 21 W.
T. 7 N. R. 20 W.
SEC. 30
SW¼
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
71+00
72+00
73+00
74+00
75+00
76+00
77+00
78+00
U. S. HWY 53
SEC. 31
NW¼
EXIST. ROAD
MILE POST 53
SEC. 30
SW¼
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)


SEC. 30
SW/4
PROP. CONST. LIMITS (TYP.)
SEC. 30
NW/4
T. 7 N. R. 20 W.
PROP. R/W (TYP.)
EXIST. ROAD
78+00
79+00
80+00
81+00
82+00
83+00
84+00
85+00
U.S. HWY 93
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 30
NW/4
SEC. 30
SW/4
(5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
SEC. 30
NW/4
T. 7 N. R. 20 W.
PROP. R/W (TYP.)
SHEAFMAN CREEK RD.
SEC. 19
SW/4
PROP. CONST. LIMITS (TYP.)
85+00
86+00
87+00
88+00
89+00
90+00
91+00
92+00
U.S. HWY 93
EXIST. ROAD
SEC. 19
SW/4
SEC. 30
NW/4
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
MILE POST 54

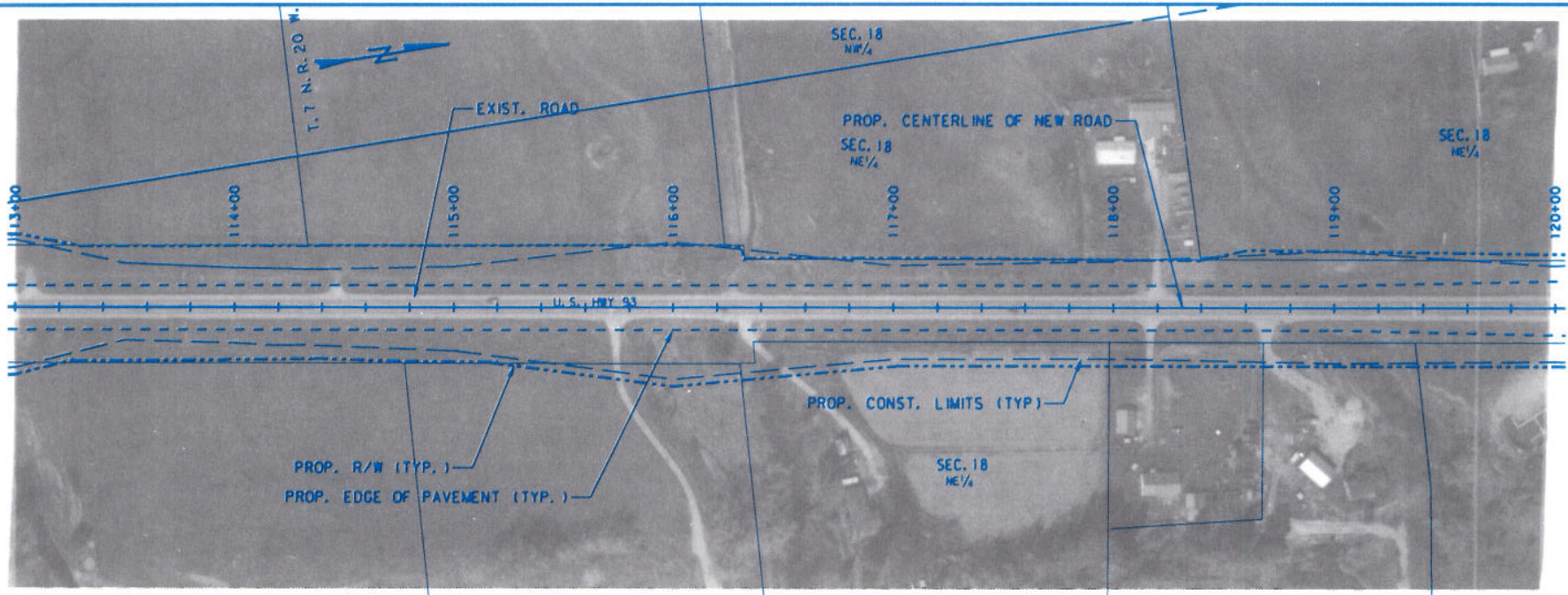

T. 7 N. R. 20 W.
SEC. 19 SW¼
EXIST. ROAD
MILL CREEK
SEC. 19 NW¼
92+00
93+00
94+00
95+00
96+00
97+00
98+00
99+00
U.S. HWY 93
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP)
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 19 SW¼
SEC. 19 NW¼
MILL CREEK
(5-Lane To 4-Lane)
(4-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
T. 7 N. R. 20 W.
SEC. 19 NW¼
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
SEC. 18 SW¼
99+00
100+00
101+00
102+00
103+00
104+00
105+00
106+00
PROP. R/W (TYP.)
SEC. 19 NW¼
PROP. CONST. LIMITS (TYP)
MILE POST 55
SEC. 18 SW¼
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 18 SE¼
FRED BURR CREEK
SEC. 19 NE¼

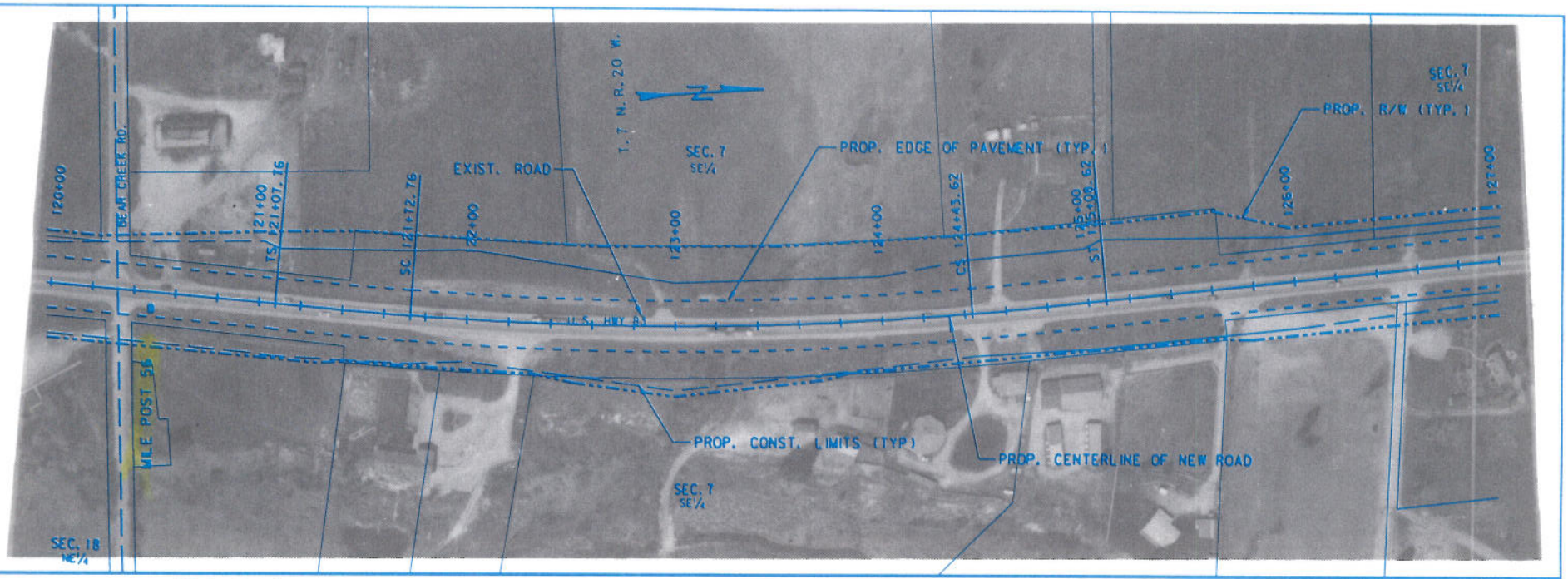


(4-Lane)
(4-Lane To 5-Lane)

HAMILTON - VICTOR

0 m 50 m 100 m

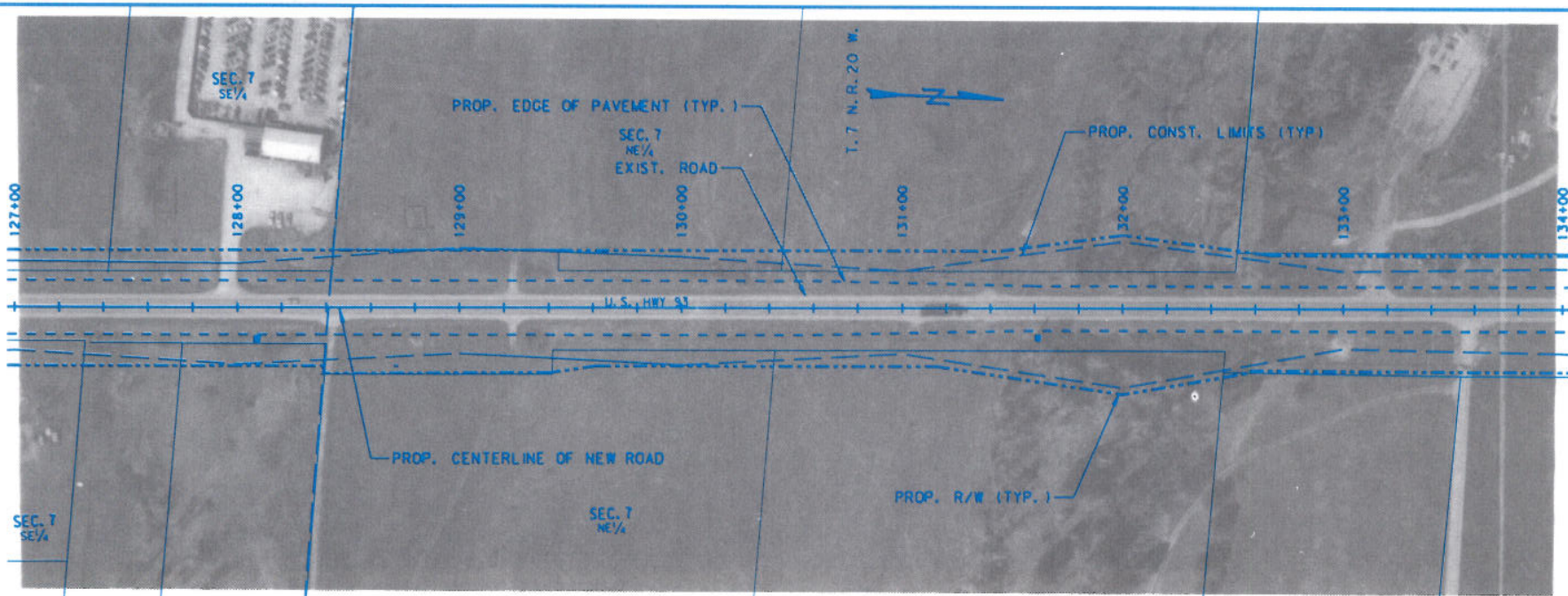


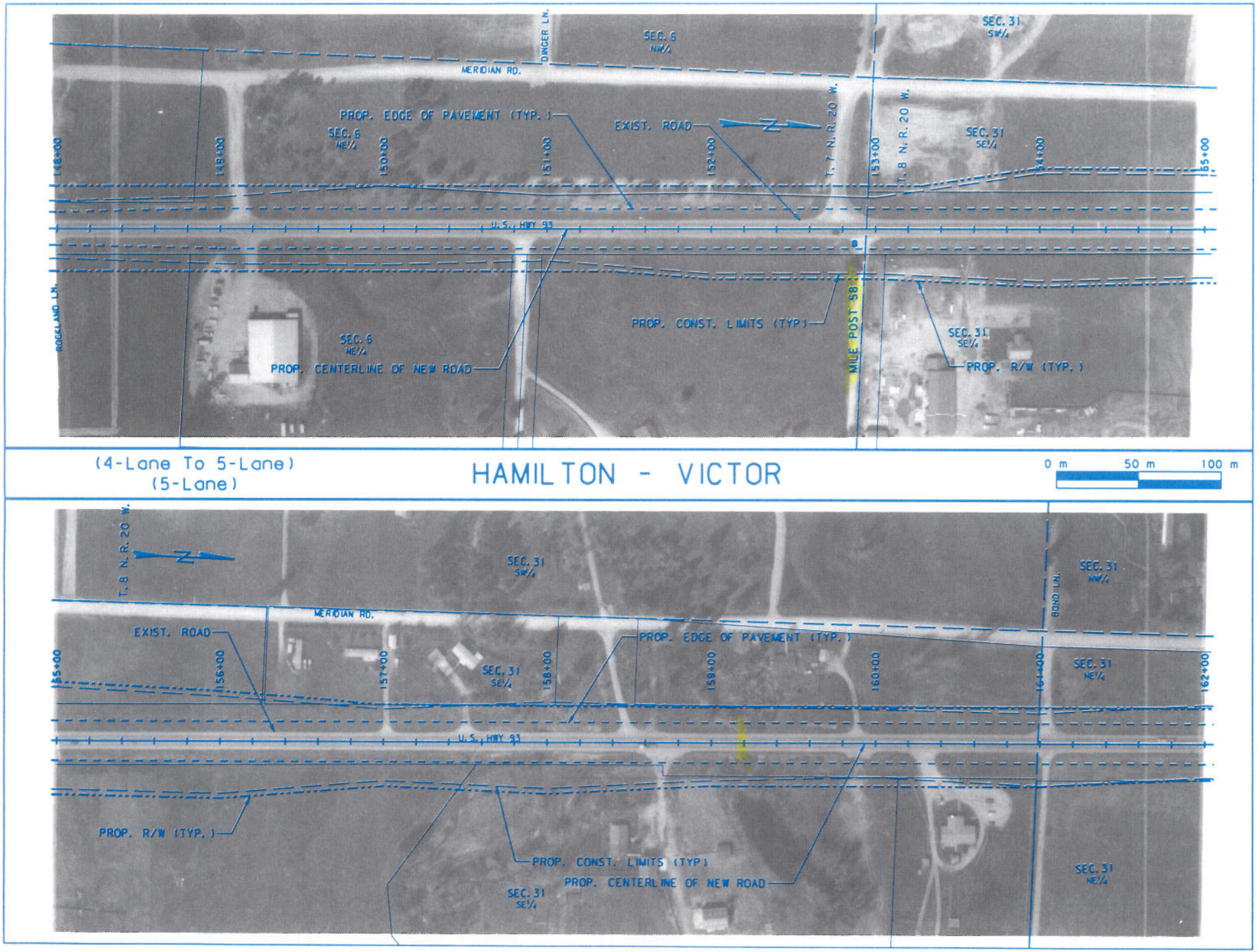


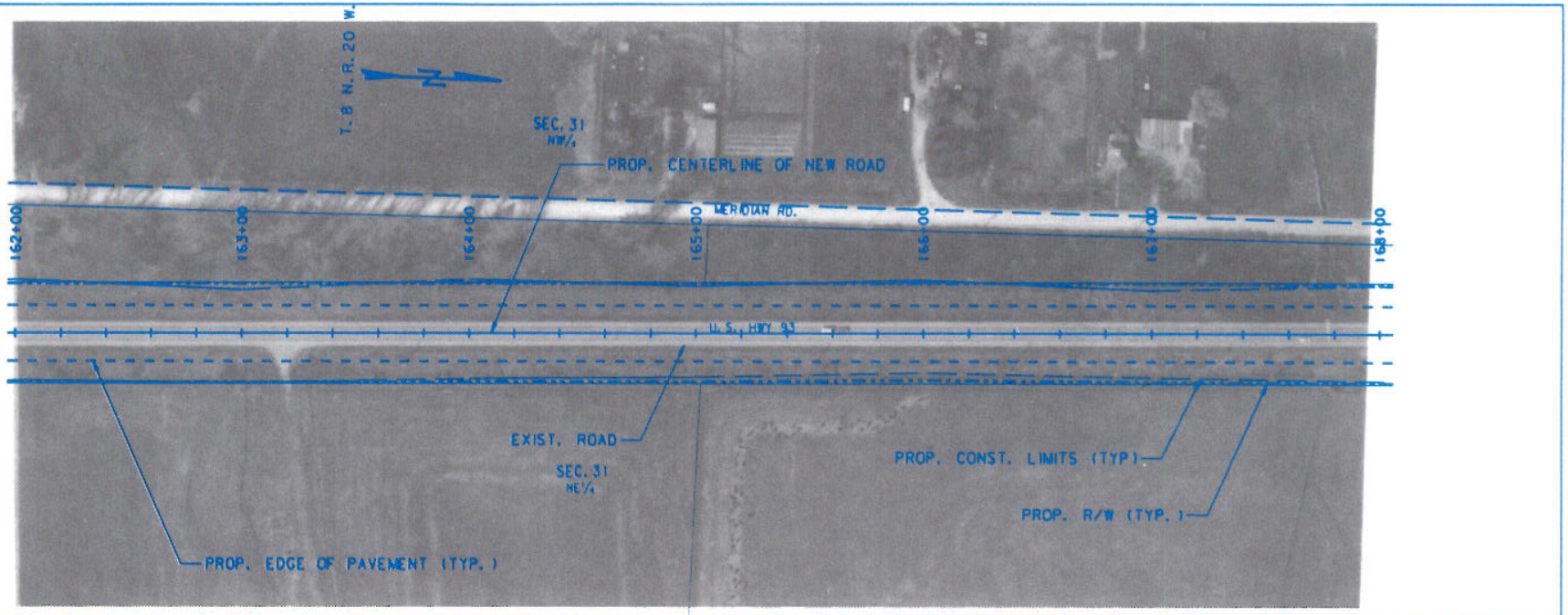
(5-Lane)
(5-Lane To 4-Lane)

HAMILTON - VICTOR

0 m 50 m 100 m



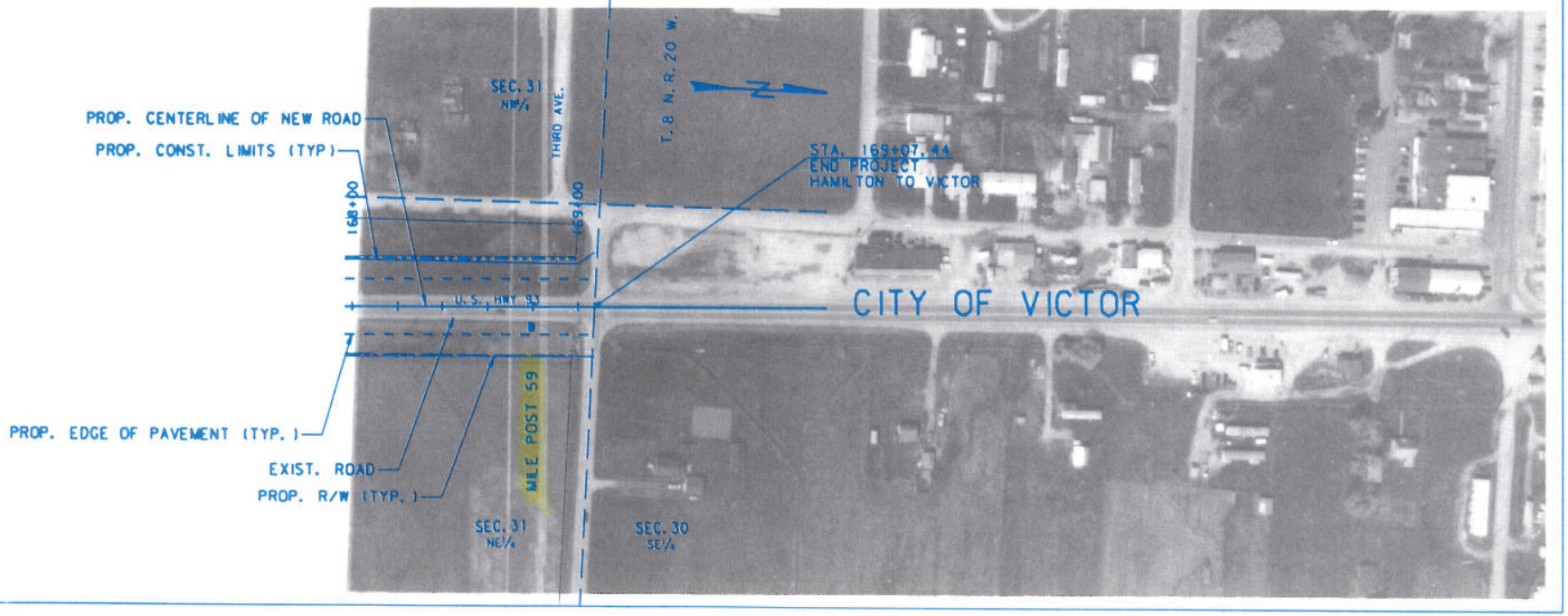

SEC. 6
NW¼
SEC. 31
SW¼
DINGER LN.
MERIDIAN RD.
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
SEC. 6
NE¼
T. 7 N. R. 20 W.
T. 8 N. R. 20 W.
SEC. 31
SE¼
148+00
149+00
150+00
151+00
152+00
153+00
154+00
155+00
U.S. HWY 93
ROCKLAND LN.
SEC. 6
NE¼
PROP. CENTERLINE OF NEW ROAD
PROP. CONST. LIMITS (TYP)
MILE POST 58
SEC. 31
SE¼
PROP. R/W (TYP.)
(4-Lane To 5-Lane)
(5-Lane)
HAMILTON - VICTOR
0 m
50 m
100 m
T. 8 N. R. 20 W.
SEC. 31
SW¼
SEC. 31
NW¼
BOND LN.
MERIDIAN RD.
EXIST. ROAD
PROP. EDGE OF PAVEMENT (TYP.)
155+00
156+00
157+00
158+00
159+00
160+00
161+00
162+00
SEC. 31
SE¼
SEC. 31
NE¼
U.S. HWY 93
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP)
PROP. CENTERLINE OF NEW ROAD
SEC. 31
SE¼
SEC. 31
NE¼



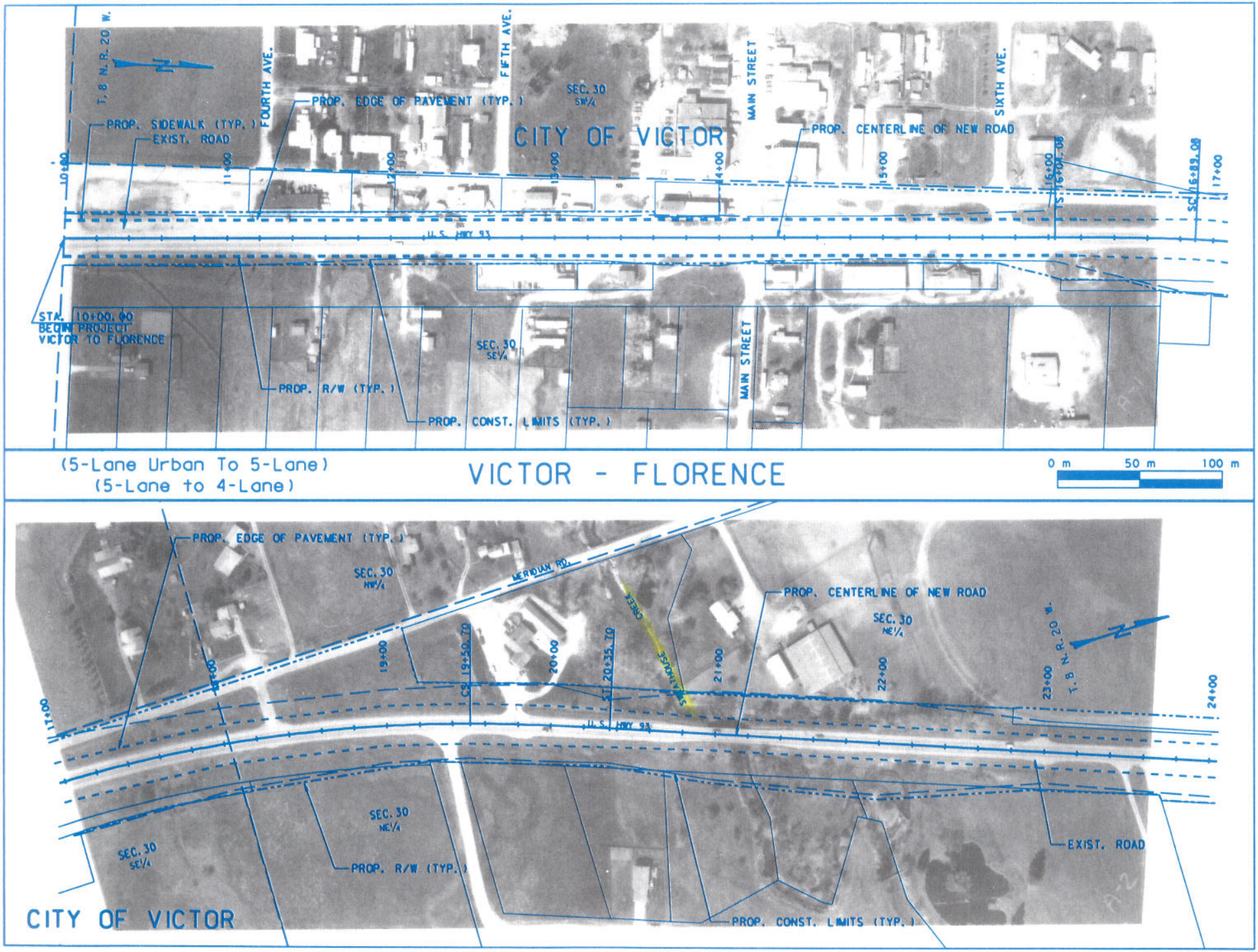
(5-Lane)

HAMILTON - VICTOR

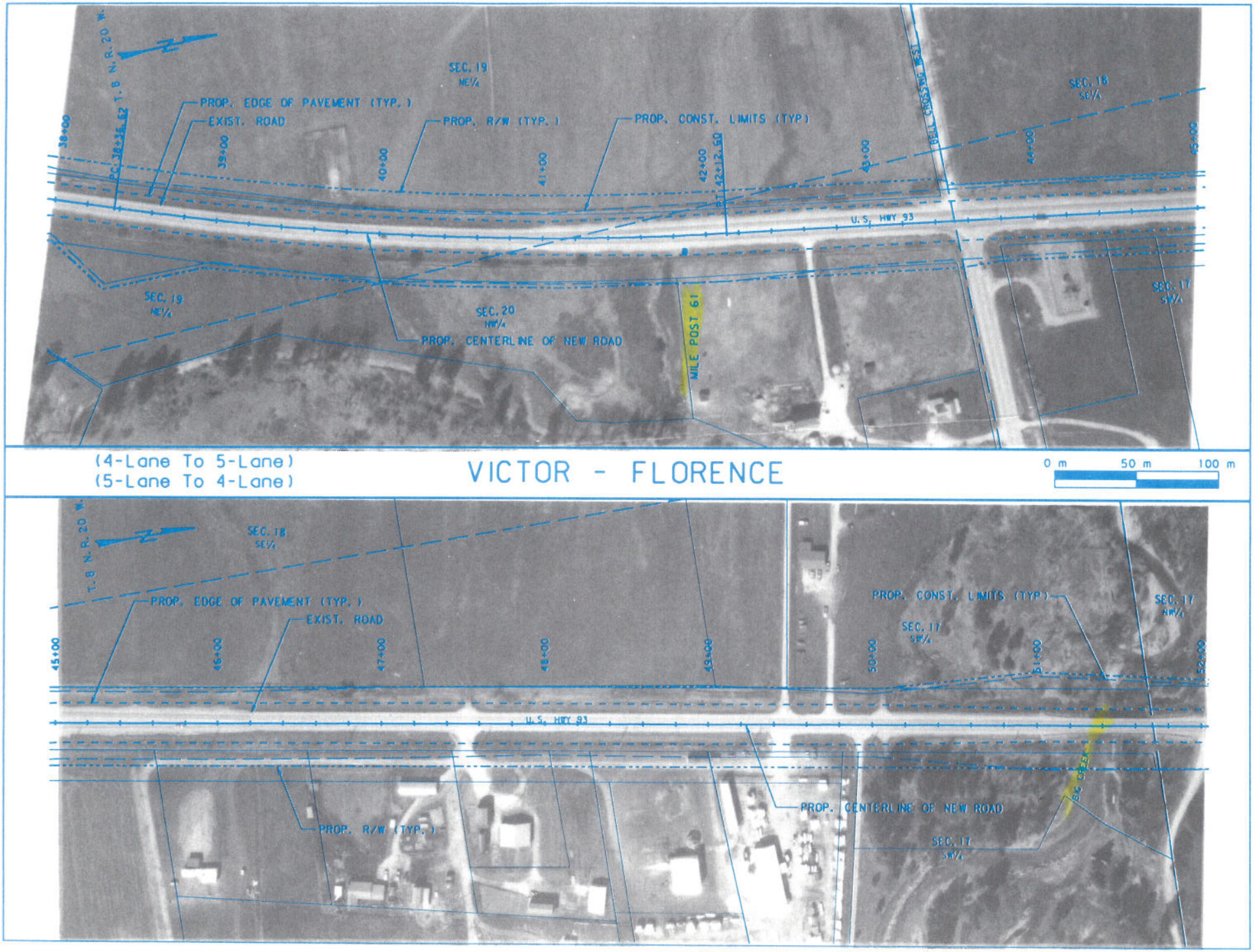
0 m 50 m 100 m

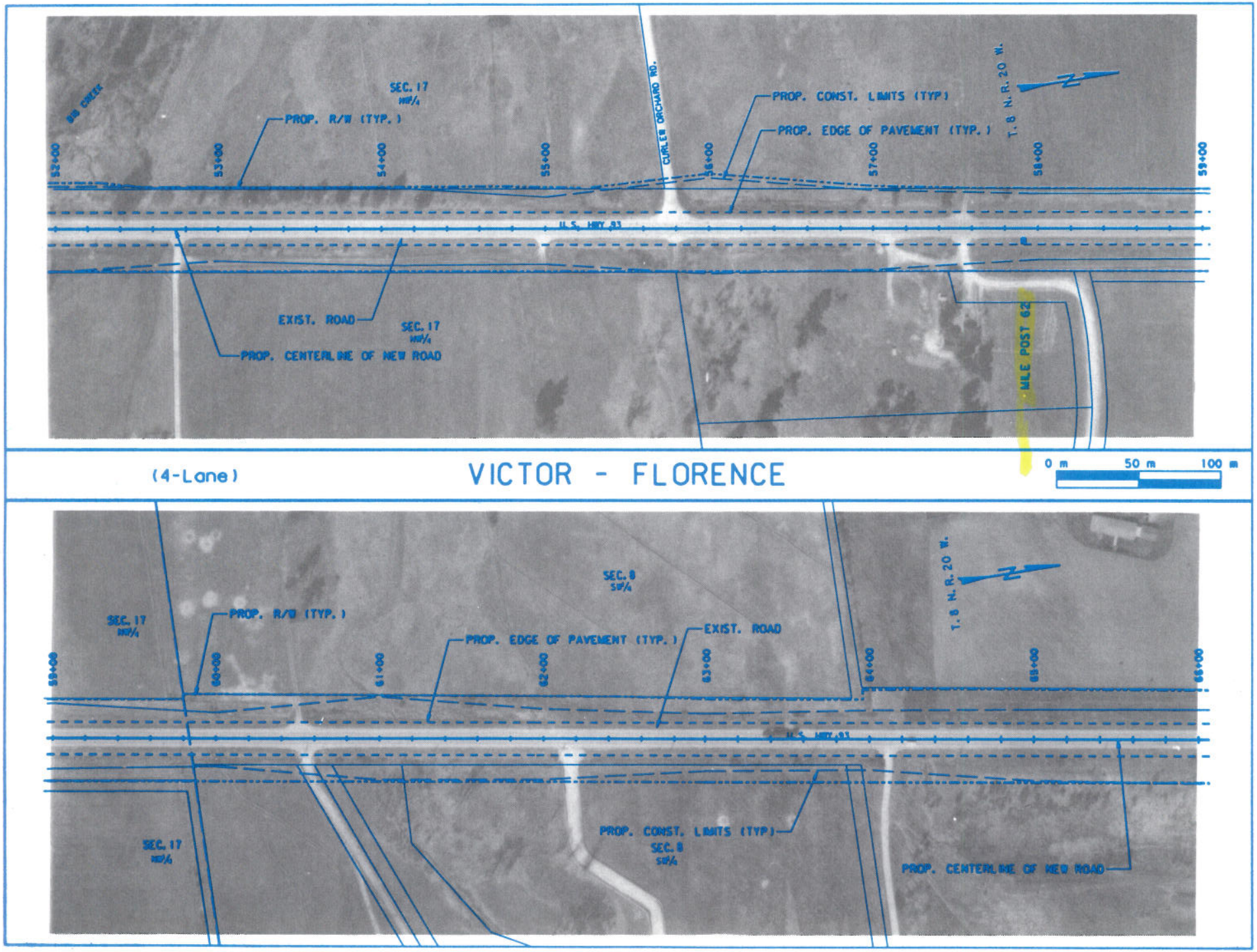


VICTOR - FLORENCE


T. 8 N. R. 20 W.
FOURTH AVE.
FIFTH AVE.
SIXTH AVE.
MAIN STREET
SEC. 30 SW¼
CITY OF VICTOR
PROP. SIDEWALK (TYP.)
EXIST. ROAD
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
10+00
11+00
12+00
13+00
14+00
15+00
16+00
16+07.08
TS 16+07.08
SC 16+83.08
17+00
U.S. HWY 93
STA. 10+00.00
BEGIN PROJECT
VICTOR TO FLORENCE
SEC. 30 SE¼
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
MAIN STREET
(5-Lane Urban To 5-Lane)
(5-Lane to 4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 30 NW¼
MERIDIAN RD.
CREEK
PROP. CENTERLINE OF NEW ROAD
SEC. 30 NE¼
T. 8 N. R. 20 W.
17+00
18+00
19+00
CS 19+50.70
20+00
ST 20+35.70
21+00
22+00
23+00
24+00
U.S. HWY 93
SEC. 30 NE¼
SEC. 30 SE¼
PROP. R/W (TYP.)
EXIST. ROAD
CITY OF VICTOR
PROP. CONST. LIMITS (TYP.)

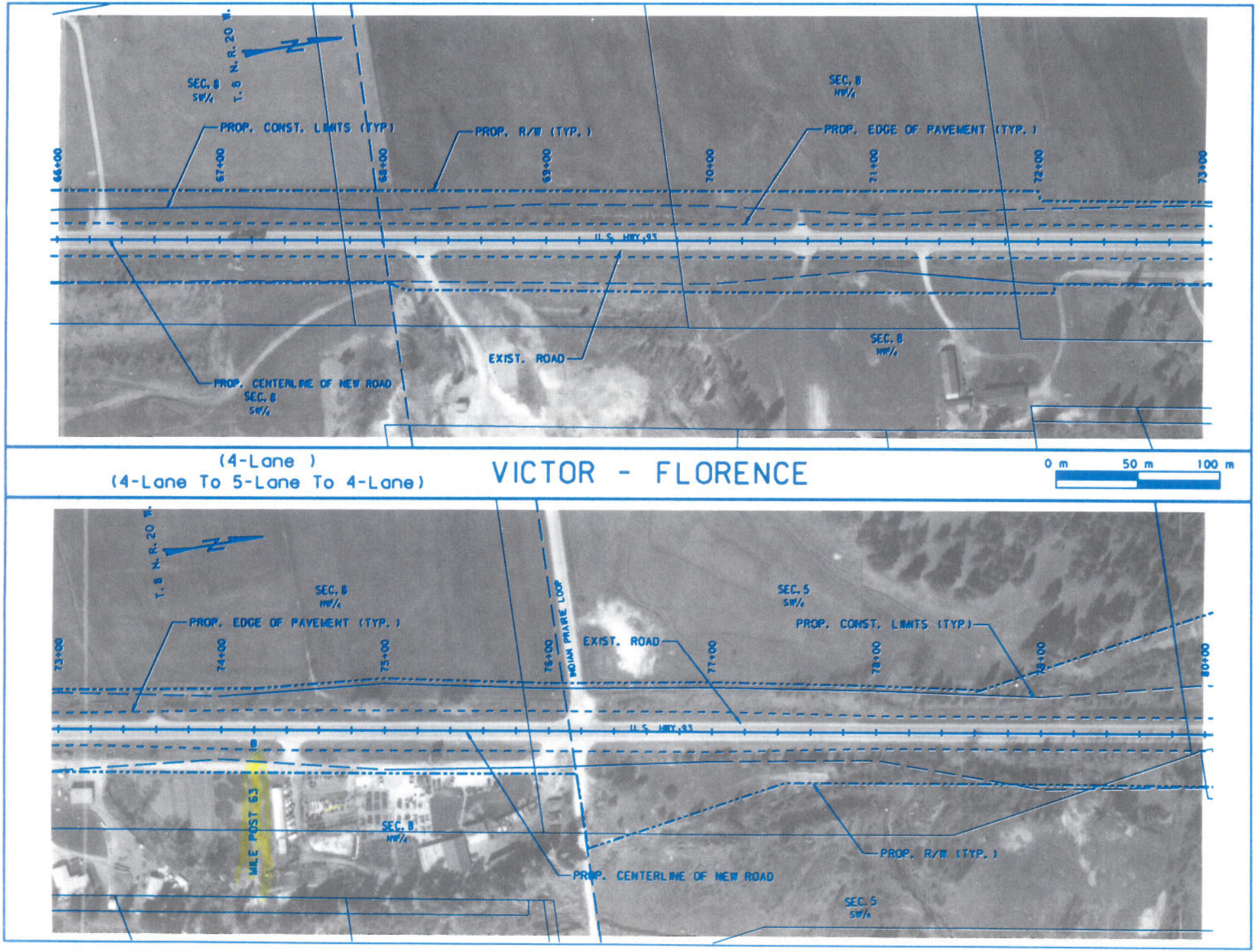

T. 8 N., R. 20 W.
SEC. 30
NE¼
PROP. EDGE OF PAVEMENT (TYP.)
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
SEC. 19
SE¼
PROP. CENTERLINE OF NEW ROAD
U.S. HWY 93
EXIST. ROAD
SEC. 30
NE¼
MILE POST 60
SEC. 19
SE¼
PROP. CONST. LIMITS (TYP)
PROP. R/W (TYP.)
(4-Lane To 5-Lane)
(5-Lane To 4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 8 N., R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 19
SE¼
PROP. R/W (TYP.)
31+00
32+00
33+00
34+00
35+00
36+00
37+00
38+00
SEC. 19
NE¼
PROP. CENTERLINE OF NEW ROAD
U.S. HWY 93
EXIST. ROAD
SEC. 19
SE¼
SEC. 19
NE¼
PROP. CONST. LIMITS (TYP)

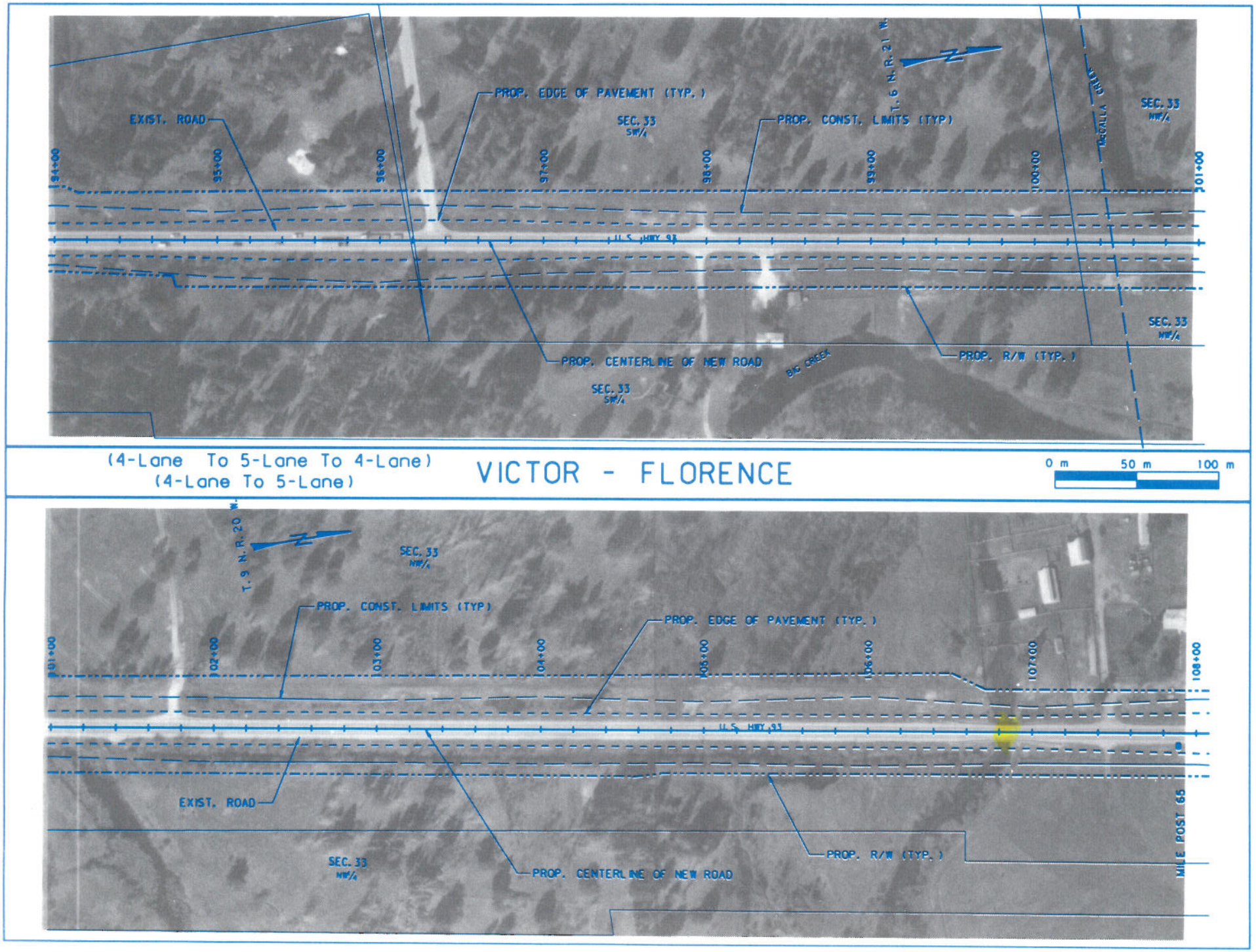

T. 8 N., R. 20 W.
SEC. 19
NE¼
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP)
BEGIN CROSSING WEST
SEC. 18
SE¼
38+00
39+00
40+00
41+00
42+00
42+12.50
43+00
44+00
45+00
PC 38+26.62
PT
U.S. HWY 93
SEC. 19
NE¼
SEC. 20
NW¼
PROP. CENTERLINE OF NEW ROAD
MILE POST 61
SEC. 17
SW¼
(4-Lane To 5-Lane)
(5-Lane To 4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 8 N., R. 20 W.
SEC. 18
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
45+00
46+00
47+00
48+00
49+00
PROP. CONST. LIMITS (TYP)
SEC. 17
SW¼
50+00
51+00
52+00
SEC. 17
NW¼
U.S. HWY 93
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 17
SW¼
BIG CREEK

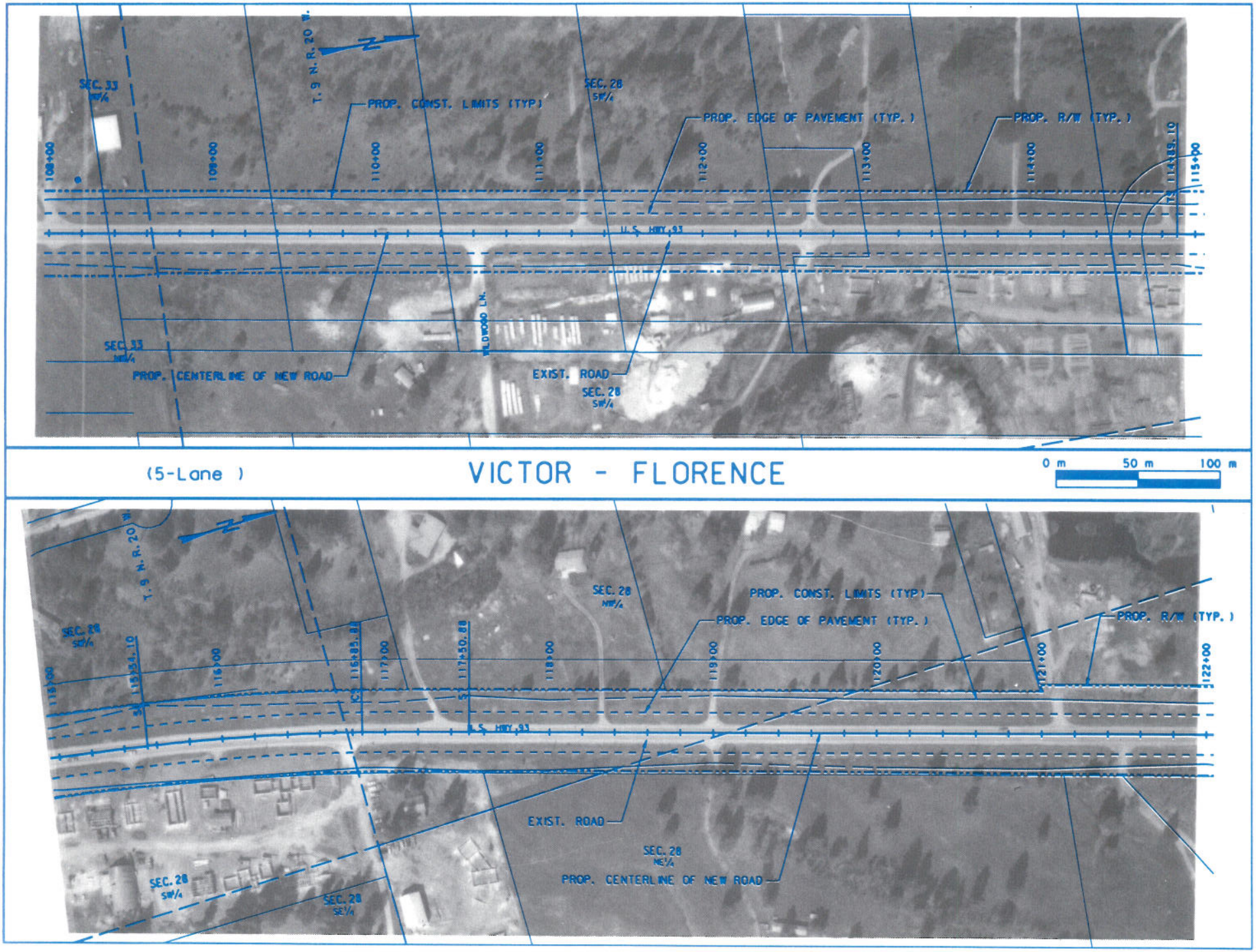


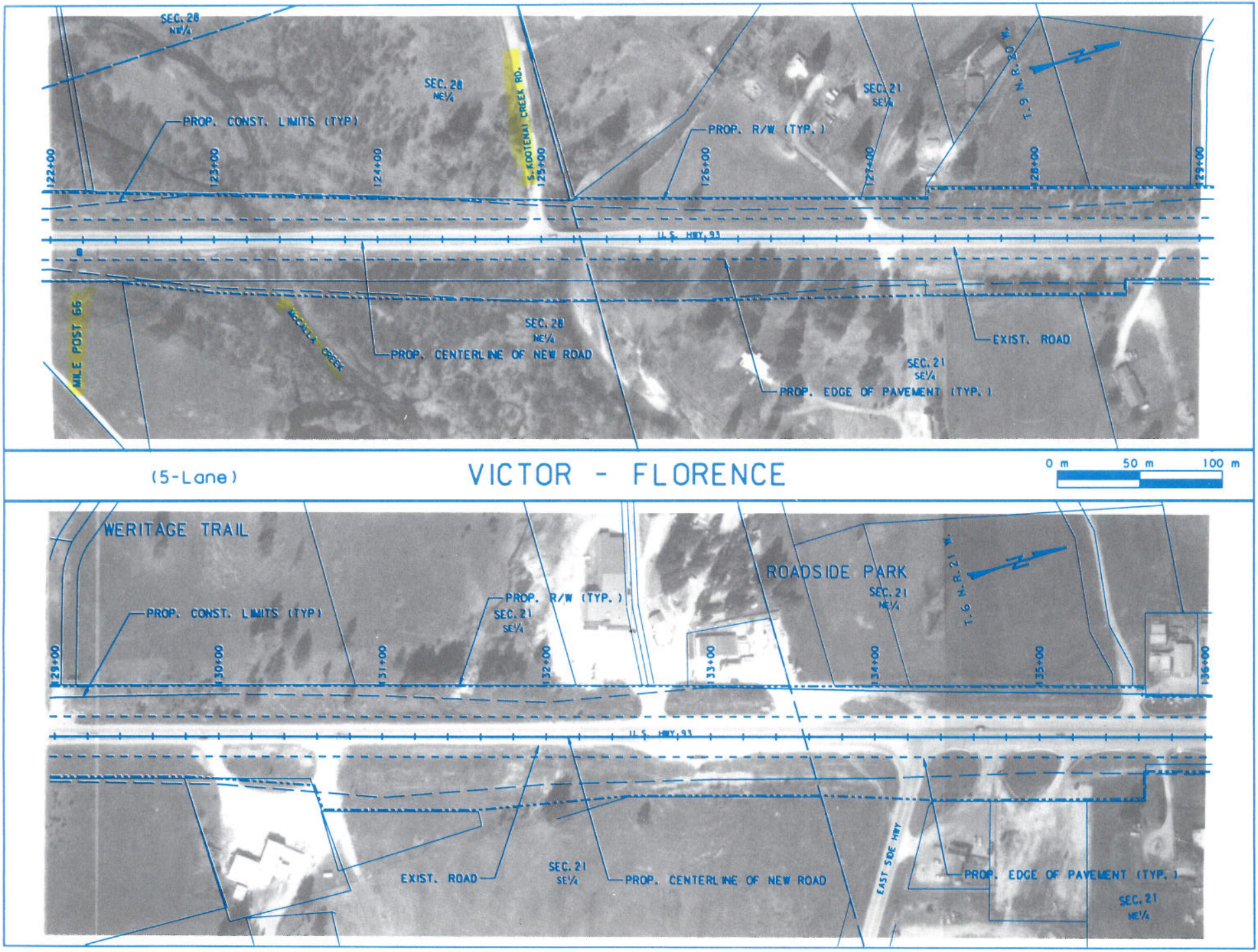
(4-Lane)

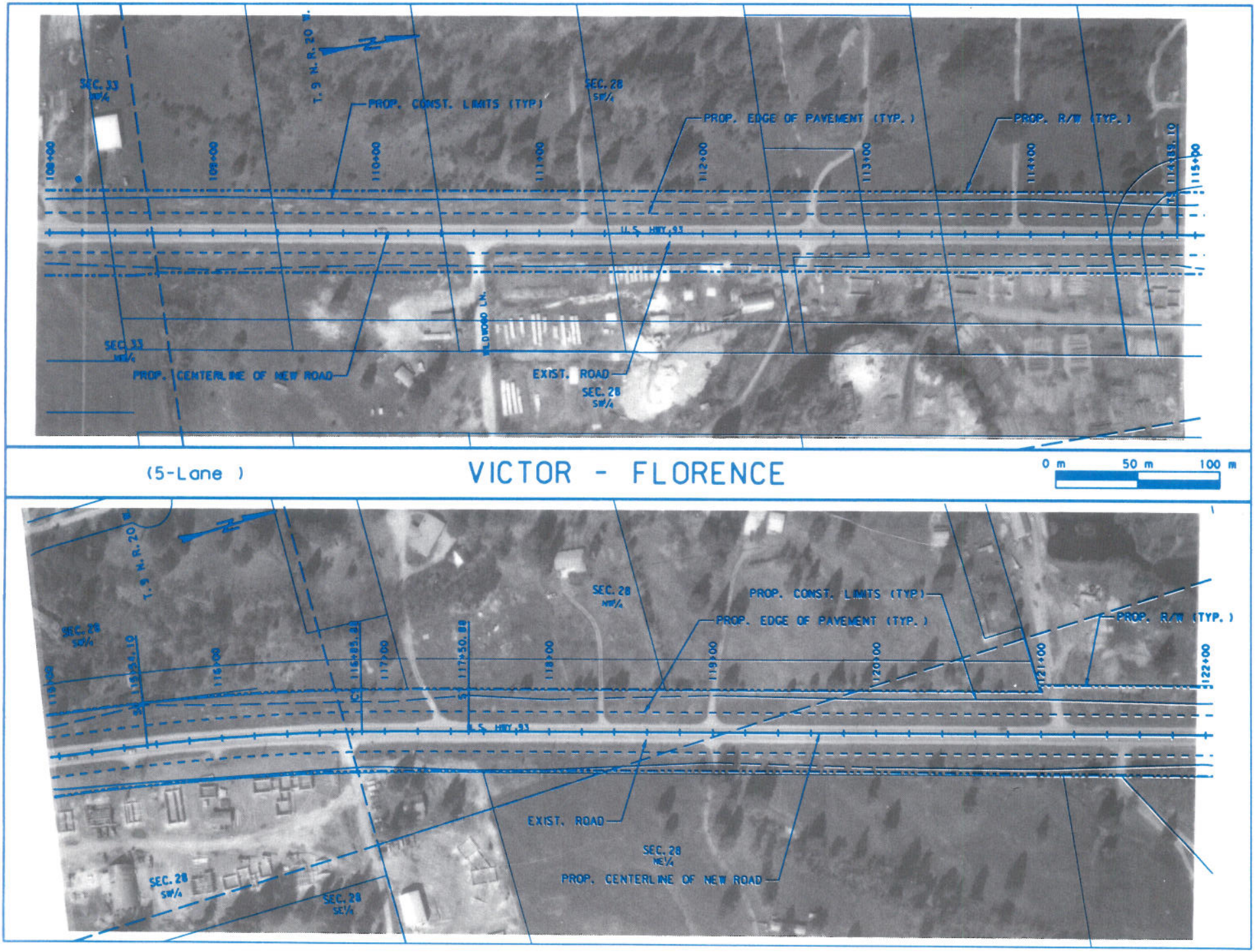
VICTOR - FLORENCE

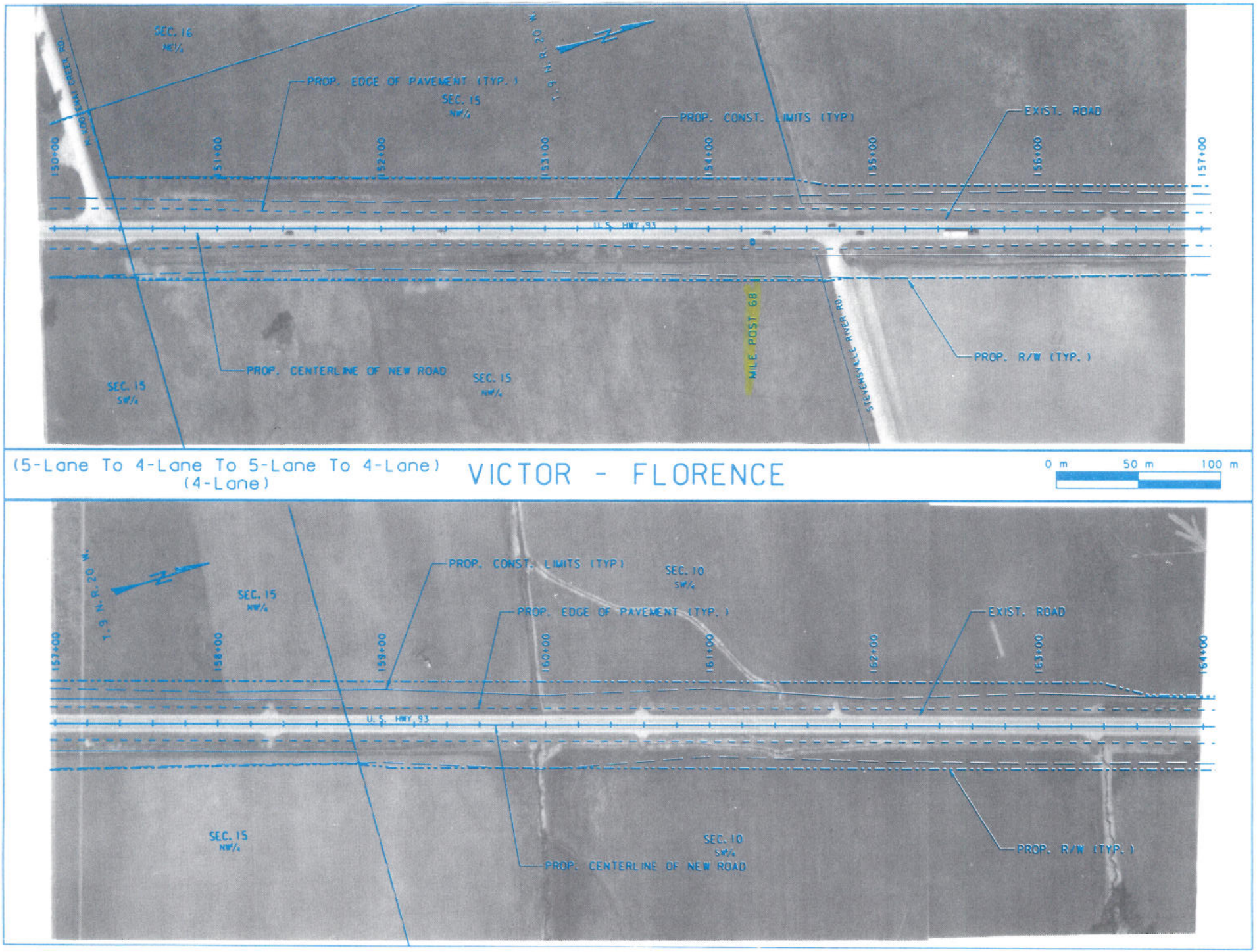

T. 8 N. R. 20 W.
SEC. 8 SW/4
PROP. CONST. LIMITS (TYP.)
PROP. R/W (TYP.)
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 8 NW/4
66+00
67+00
68+00
69+00
70+00
71+00
72+00
73+00
U.S. HWY. 93
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 8 SW/4
SEC. 8 NW/4
(4-Lane)
(4-Lane To 5-Lane To 4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 8 N. R. 20 W.
SEC. 8 NW/4
PROP. EDGE OF PAVEMENT (TYP.)
73+00
74+00
75+00
76+00
INDIAN PRAIRIE LOOP
EXIST. ROAD
SEC. 5 SW/4
PROP. CONST. LIMITS (TYP.)
77+00
78+00
79+00
80+00
U.S. HWY. 93
MILE POST 63
SEC. 8 NW/4
PROP. CENTERLINE OF NEW ROAD
PROP. R/W (TYP.)
SEC. 5 SW/4

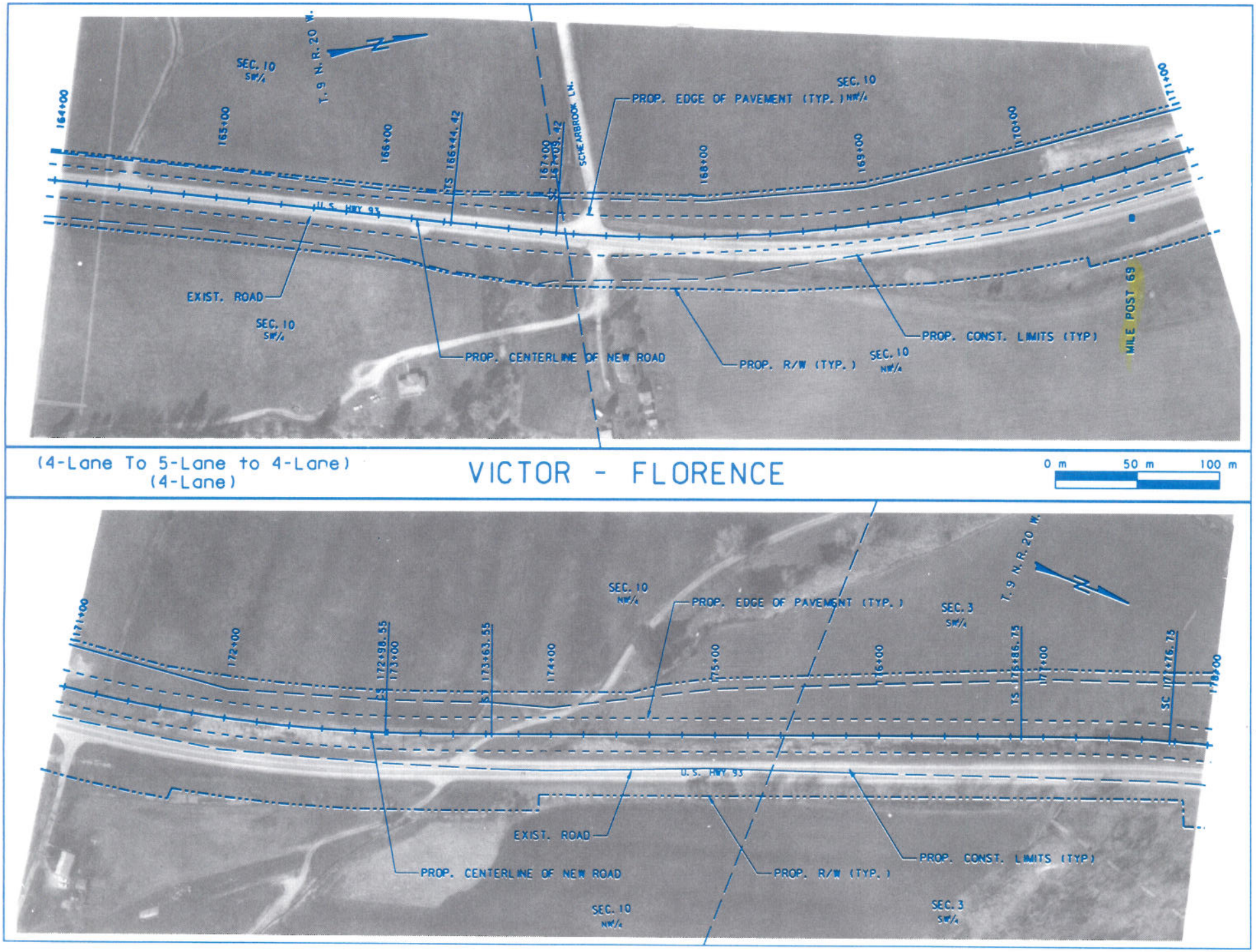

EXIST. ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 33
SW/4
PROP. CONST. LIMITS (TYP)
T. 6 N. R. 21 W.
MAZALLA CREEK
SEC. 33
NW/4
94+00
95+00
96+00
97+00
98+00
99+00
100+00
101+00
U.S. HWY 93
SEC. 33
NW/4
PROP. CENTERLINE OF NEW ROAD
BIG CREEK
SEC. 33
SW/4
PROP. R/W (TYP.)
(4-Lane To 5-Lane To 4-Lane)
(4-Lane To 5-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 9 N. R. 20 W.
SEC. 33
NW/4
PROP. CONST. LIMITS (TYP)
PROP. EDGE OF PAVEMENT (TYP.)
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
U.S. HWY 93
EXIST. ROAD
SEC. 33
NW/4
PROP. CENTERLINE OF NEW ROAD
PROP. R/W (TYP.)
MILE POST 65

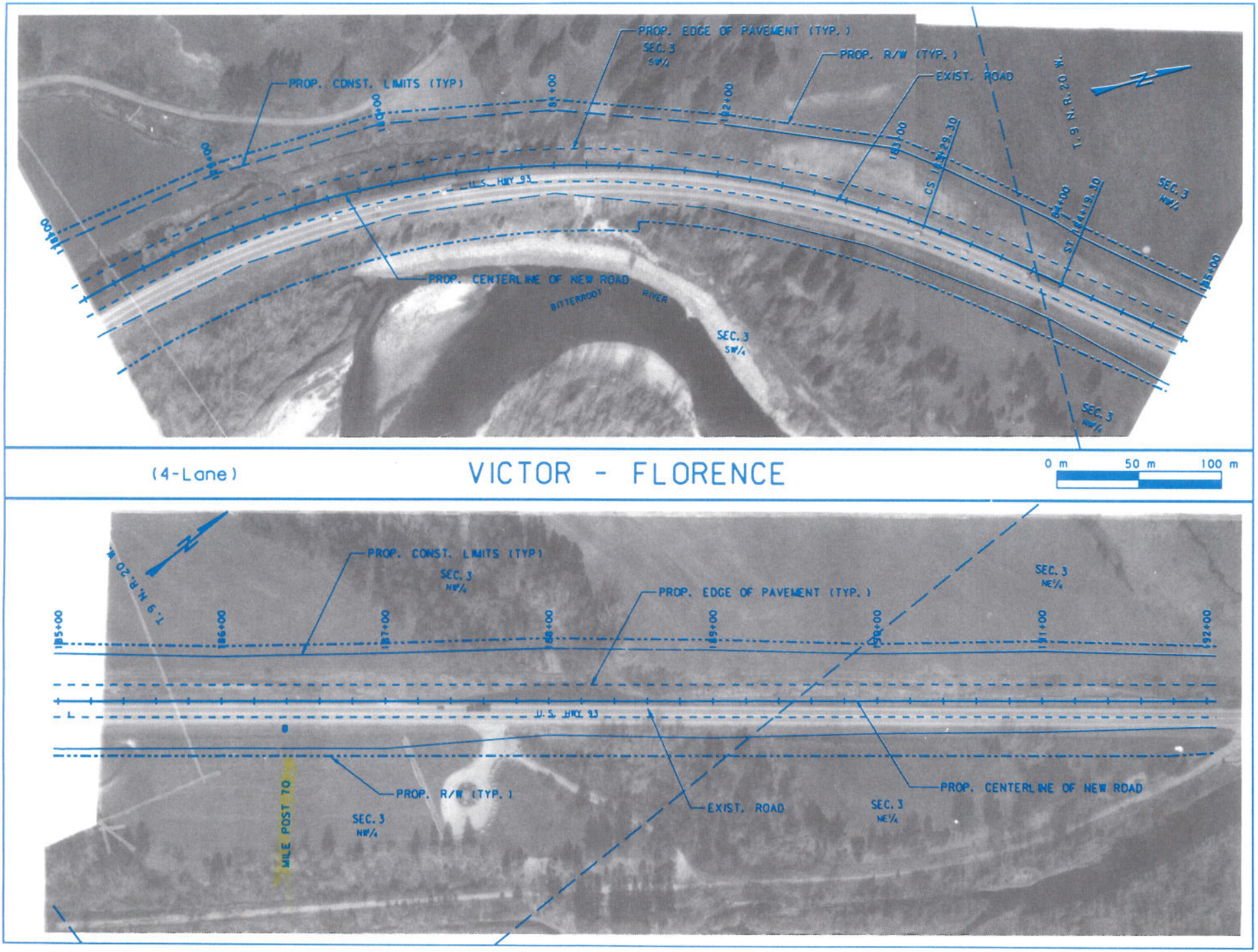

SEC. 33 NW¼
T. 9 N. R. 20 W.
PROP. CONST. LIMITS (TYP.)
SEC. 28 SW¼
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
108+00
109+00
110+00
111+00
112+00
113+00
114+00
114+55.10
115+00
U.S. HWY. 93
WILDWOOD LN.
SEC. 33 NW¼
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
SEC. 28 SW¼
(5-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 9 N. R. 20 W.
SEC. 28 NW¼
SEC. 28 SW¼
PROP. CONST. LIMITS (TYP.)
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
115+00
115+34.19
116+00
116+83.88
117+00
117+50.88
118+00
119+00
120+00
121+00
122+00
U.S. HWY. 93
EXIST. ROAD
SEC. 28 NE¼
PROP. CENTERLINE OF NEW ROAD
SEC. 28 SW¼
SEC. 28 SE¼

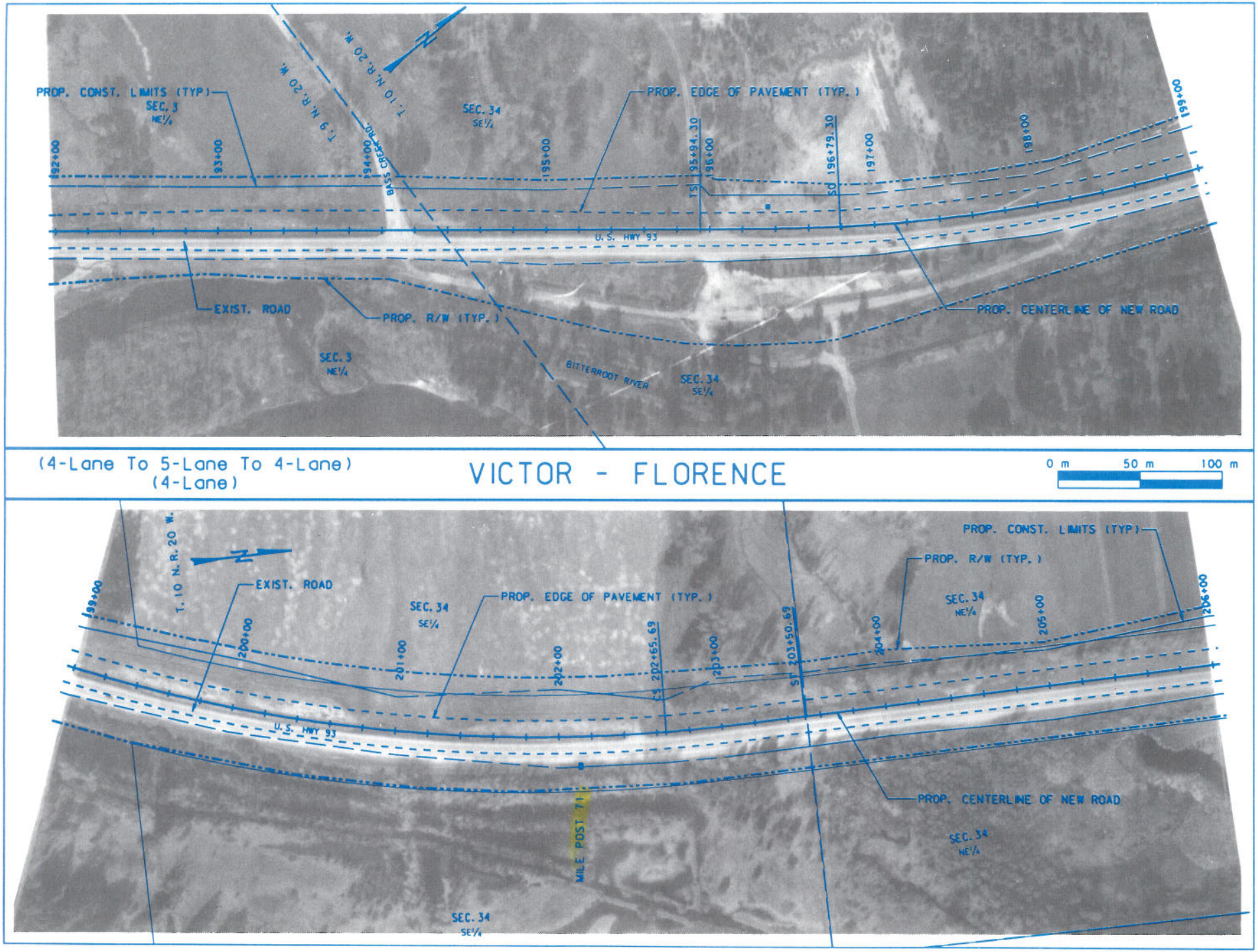

SEC. 28
NW¼
SEC. 28
NE¼
PROP. CONST. LIMITS (TYP)
S. KOOTENAI CREEK RD.
SEC. 21
SE¼
PROP. R/W (TYP.)
T. 9 N. R. 20 W.
122+00
123+00
124+00
125+00
126+00
127+00
128+00
129+00
U.S. HWY. 93
MILE POST 66
MOCALLA CREEK
SEC. 28
NE¼
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
SEC. 21
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
(5-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
WERITAGE TRAIL
PROP. CONST. LIMITS (TYP)
PROP. R/W (TYP.)
SEC. 21
SE¼
ROADSIDE PARK
SEC. 21
NE¼
T. 6 N. R. 21 W.
129+00
130+00
131+00
132+00
133+00
134+00
135+00
136+00
U.S. HWY. 93
EXIST. ROAD
SEC. 21
SE¼
PROP. CENTERLINE OF NEW ROAD
EAST SIDE HWY
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 21
NE¼

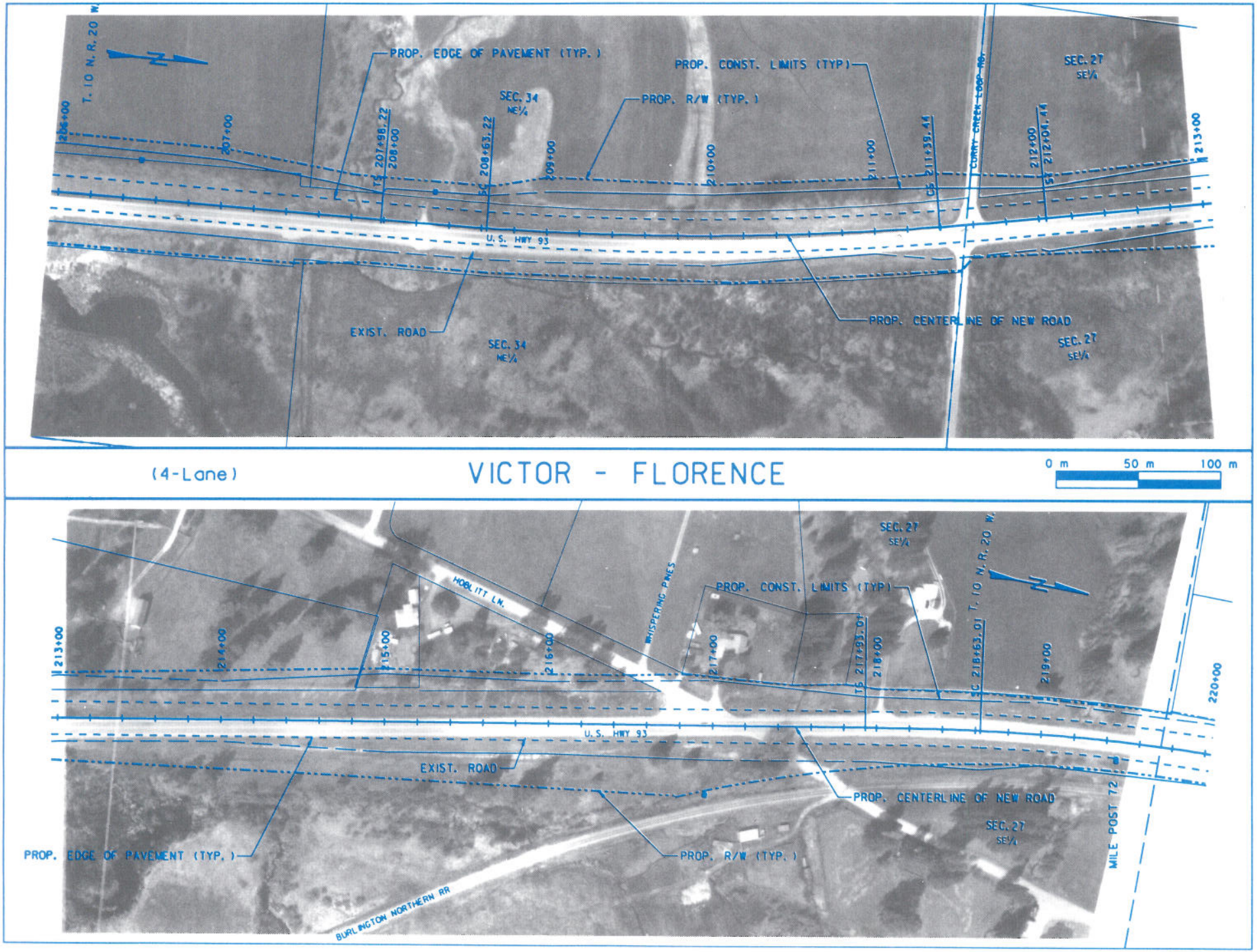

T. 9 N. R. 20 W.
SEC. 33 NW¼
SEC. 28 SW¼
PROP. CONST. LIMITS (TYP)
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
108+00
109+00
110+00
111+00
112+00
113+00
114+00
114+39.10
115+00
U.S. HWY. 93
WILDWOOD LN.
SEC. 33 NW¼
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
SEC. 28 SW¼
(5-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 9 N. R. 20 W.
SEC. 28 NW¼
SEC. 28 SW¼
PROP. CONST. LIMITS (TYP)
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
116+39.10
116+85.28
117+00
117+50.88
118+00
119+00
120+00
121+00
122+00
U.S. HWY. 93
EXIST. ROAD
SEC. 28 NE¼
PROP. CENTERLINE OF NEW ROAD
SEC. 28 SW¼
SEC. 28 SE¼

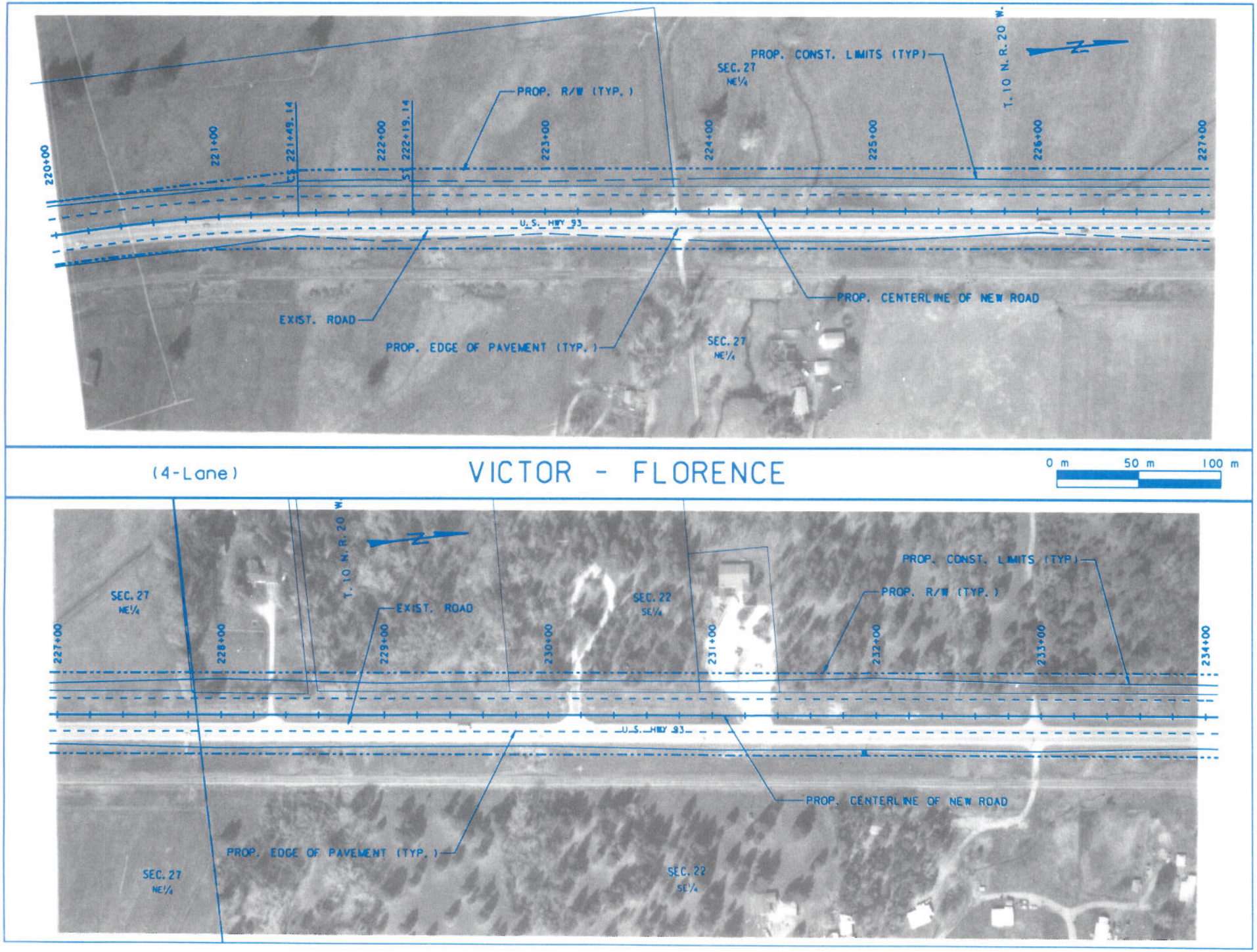

SEC. 16
NE¼
T. 9 N., R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 15
NW¼
PROP. CONST. LIMITS (TYP)
EXIST. ROAD
150+00
151+00
152+00
153+00
154+00
155+00
156+00
157+00
U.S. HWY. 93
MILE POST 68
STEVENSVILLE RIVER RD.
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 15
SW¼
SEC. 15
NW¼
(5-Lane To 4-Lane To 5-Lane To 4-Lane)
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 9 N., R. 20 W.
SEC. 15
NW¼
PROP. CONST. LIMITS (TYP)
SEC. 10
SW¼
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
157+00
158+00
159+00
160+00
161+00
162+00
163+00
164+00
U.S. HWY. 93
SEC. 15
NW¼
SEC. 10
SW¼
PROP. CENTERLINE OF NEW ROAD
PROP. R/W (TYP.)

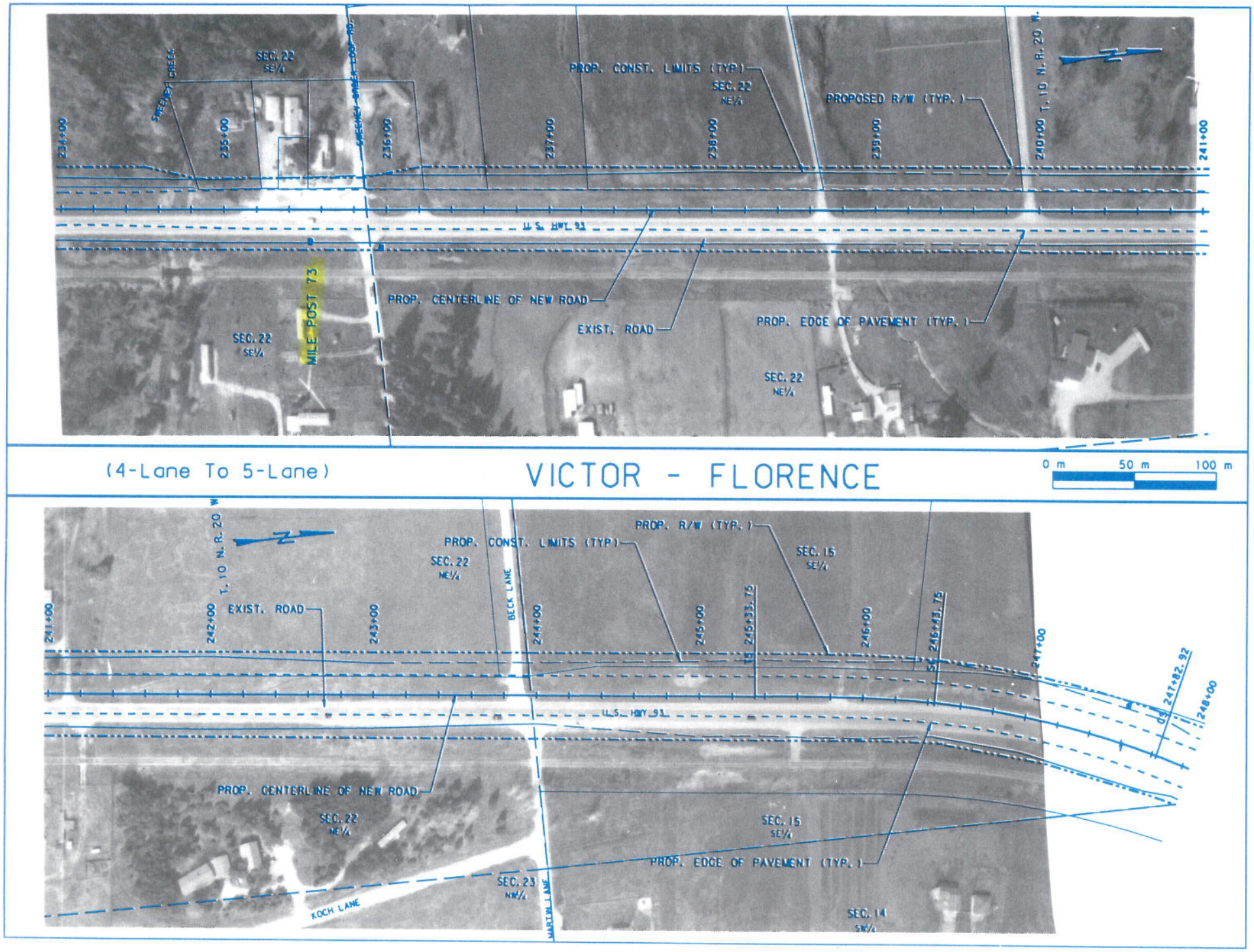

SEC. 10
SW/4
T. 9 N. R. 20 W.
164+00
165+00
166+00
PTS 166+44.42
167+00
167+09.42
SCHEARBROOK LN.
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 10
NW/4
168+00
169+00
170+00
171+00
U.S. HWY 93
EXIST. ROAD
SEC. 10
SW/4
PROP. CENTERLINE OF NEW ROAD
PROP. R/W (TYP.)
SEC. 10
NW/4
PROP. CONST. LIMITS (TYP)
MILE POST 69
(4-Lane To 5-Lane to 4-Lane)
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
171+00
172+00
ES 172+98.55
173+00
SCS 173+63.55
174+00
SEC. 10
NW/4
PROP. EDGE OF PAVEMENT (TYP.)
175+00
176+00
SEC. 3
SW/4
T. 9 N. R. 20 W.
TS 176+86.75
177+00
SC 177+76.75
178+00
U.S. HWY 93
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP)
SEC. 10
NW/4
SEC. 3
SW/4

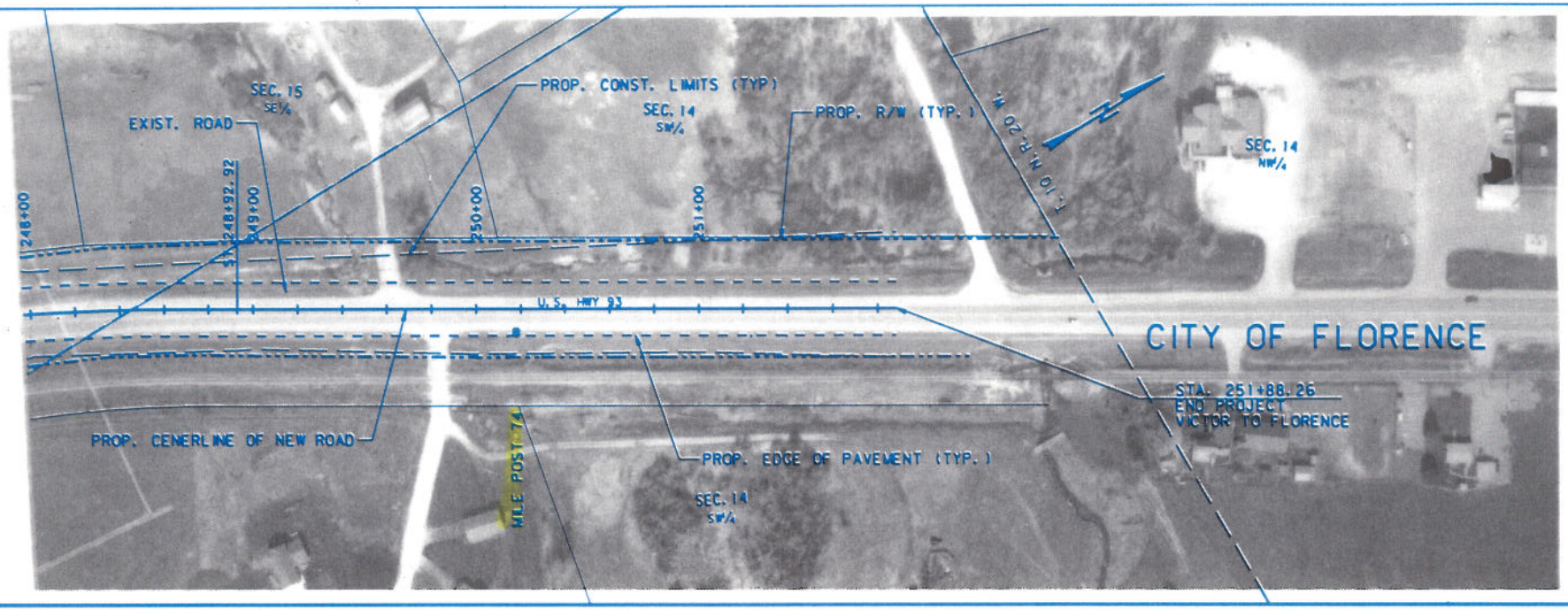

PROP. EDGE OF PAVEMENT (TYP.)
SEC. 3
SW¼
PROP. R/W (TYP.)
EXIST. ROAD
PROP. CONST. LIMITS (TYP)
T. 9 N., R. 20 W.
U.S. HWY 93
PROP. CENTERLINE OF NEW ROAD
BITTERROOT RIVER
SEC. 3
SW¼
SEC. 3
NW¼
SEC. 3
NW¼
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
PROP. CONST. LIMITS (TYP)
SEC. 3
NW¼
T. 9 N., R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 3
NE¼
U.S. HWY 93
PROP. R/W (TYP.)
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
MILE POST 70
SEC. 3
NW¼
SEC. 3
NE¼


PROP. CONST. LIMITS (TYP)
SEC. 3
NE¼
T. 9 N. R. 20 W.
T. 10 N. R. 20 W.
SEC. 34
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
192+00
193+00
194+00
BASS CREEK
195+00
195+94.30
TS
196+00
196+79.30
SC
197+00
198+00
199+00
U. S. HWY 93
EXIST. ROAD
PROP. R/W (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 3
NE¼
BITTERROOT RIVER
SEC. 34
SE¼
(4-Lane To 5-Lane To 4-Lane)
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 10 N. R. 20 W.
EXIST. ROAD
SEC. 34
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
199+00
200+00
201+00
202+00
CS 202+65.69
203+00
ST 203+50.69
204+00
PROP. CONST. LIMITS (TYP)
PROP. R/W (TYP.)
SEC. 34
NE¼
205+00
206+00
U. S. HWY 93
MILE POST 71
PROP. CENTERLINE OF NEW ROAD
SEC. 34
NE¼
SEC. 34
SE¼


T. 10 N. R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CONST. LIMITS (TYP)
PROP. R/W (TYP.)
SEC. 34
NE¼
SEC. 27
SE¼
206+00
207+00
TS 207+98.22
208+00
SC 208+63.22
209+00
210+00
211+00
CS 211+39.44
CORRY CREEK LOOP RD.
212+00
ST 212+04.44
213+00
U.S. HWY 93
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 34
NE¼
SEC. 27
SE¼
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
SEC. 27
SE¼
T. 10 N. R. 20 W.
HOBLITT LN.
WHISPERING PINES
PROP. CONST. LIMITS (TYP)
213+00
214+00
215+00
216+00
217+00
TS 217+63.01
218+00
SC 218+63.01
219+00
220+00
U.S. HWY 93
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 27
SE¼
MILE POST 72
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
BURLINGTON NORTHERN RR


PROP. CONST. LIMITS (TYP.)
SEC. 27
NE¼
PROP. R/W (TYP.)
T. 10 N. R. 20 W.
220+00
221+00
221+49.14
222+00
222+19.14
223+00
224+00
225+00
226+00
227+00
U.S. HWY 93
EXIST. ROAD
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 27
NE¼
(4-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 10 N. R. 20 W.
SEC. 27
NE¼
EXIST. ROAD
SEC. 22
SE¼
PROP. CONST. LIMITS (TYP.)
PROP. R/W (TYP.)
227+00
228+00
229+00
230+00
231+00
232+00
233+00
234+00
U.S. HWY 93
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 27
NE¼
SEC. 22
SE¼


SWEENEY CREEK
SEC. 22
SE¼
SWEENEY CREEK ROAD
PROP. CONST. LIMITS (TYP.)
SEC. 22
NE¼
PROPOSED R/W (TYP.)
T. 10 N. R. 20 W.
234+00
235+00
236+00
237+00
238+00
239+00
240+00
241+00
U. S. HWY. 93
MILE POST 73
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 22
SE¼
SEC. 22
NE¼
(4-Lane To 5-Lane)
VICTOR - FLORENCE
0 m
50 m
100 m
T. 10 N. R. 20 W.
PROP. CONST. LIMITS (TYP.)
SEC. 22
NE¼
PROP. R/W (TYP.)
SEC. 15
SE¼
BECK LANE
241+00
242+00
243+00
244+00
245+00
245+33.75
246+00
246+43.75
247+00
247+82.92
248+00
EXIST. ROAD
U.S. HWY. 93
PROP. CENTERLINE OF NEW ROAD
SEC. 22
NE¼
SEC. 15
SE¼
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 23
NW¼
KOCH LANE
MARTIN LANE
SEC. 14
SW¼

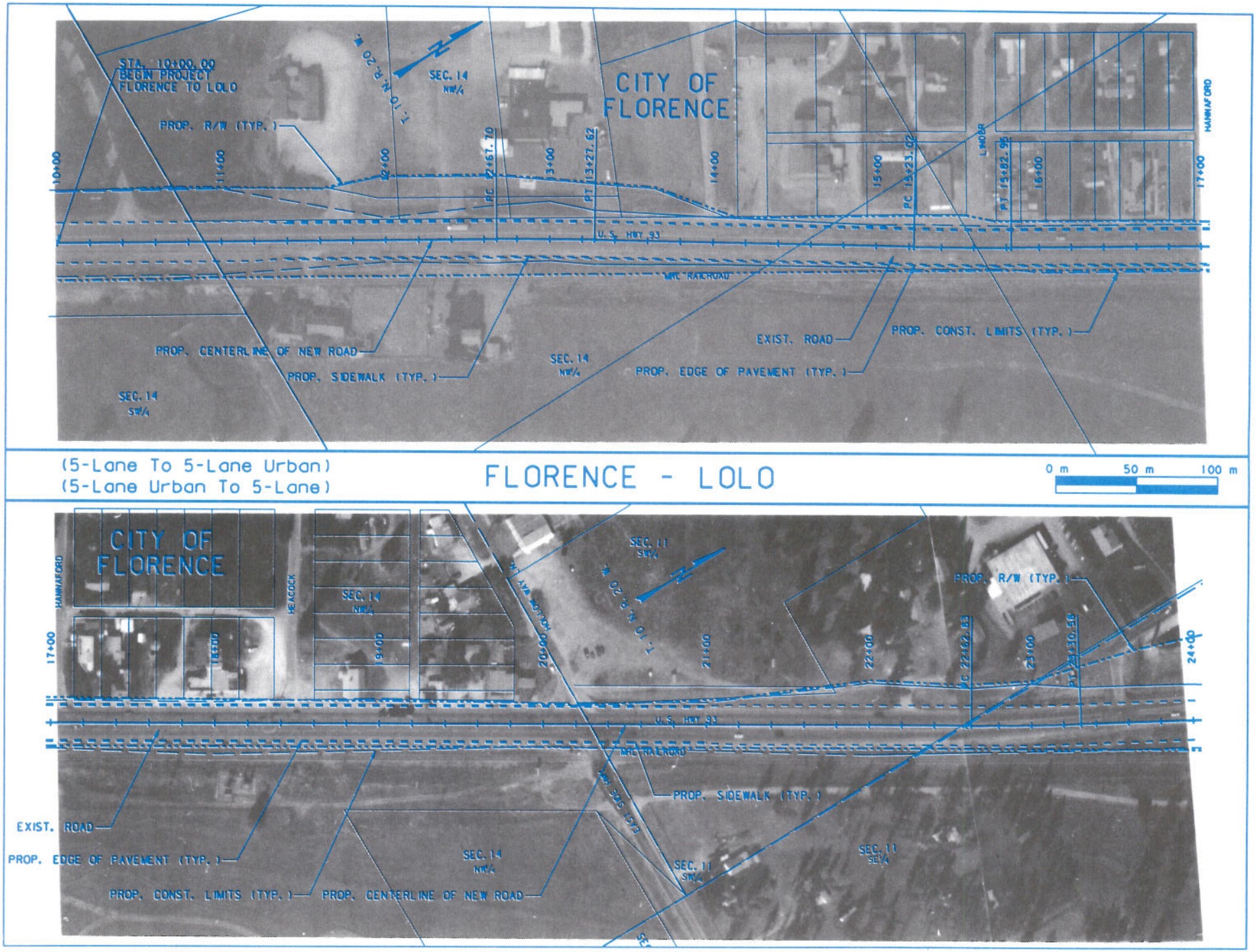


(5-Lane)

VICTOR - FLORENCE

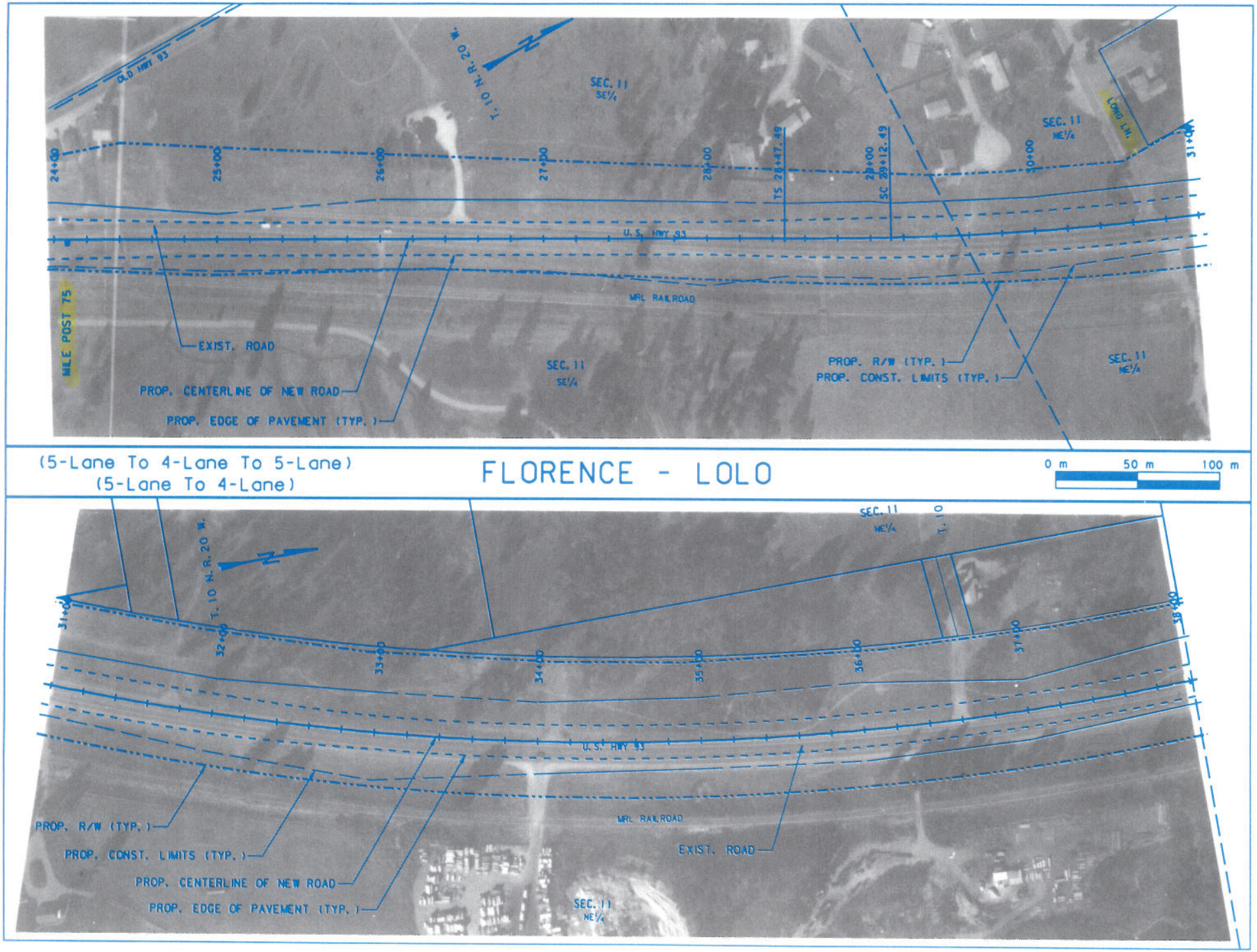
0 m 50 m 100 m

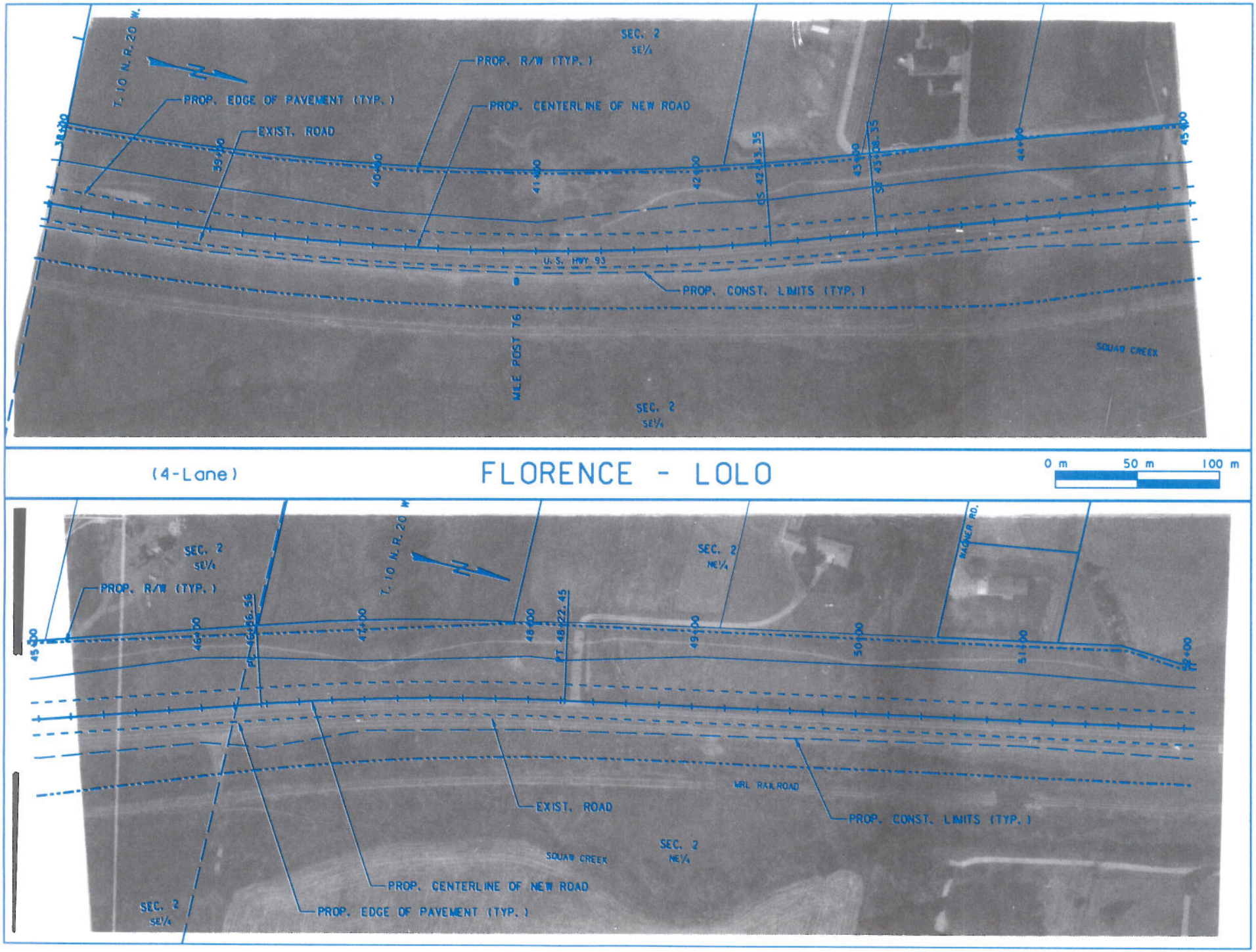
FLORENCE - LOLO

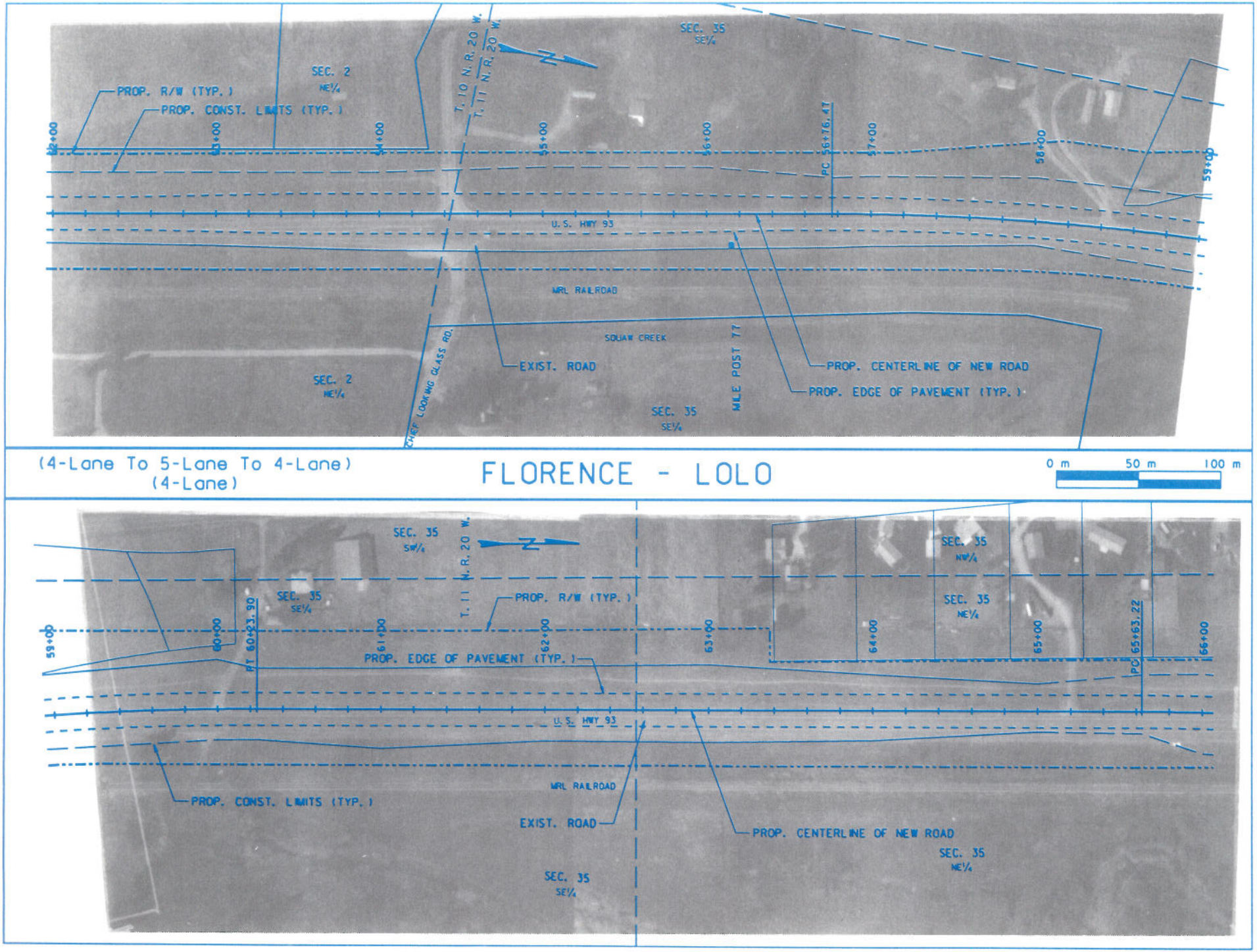


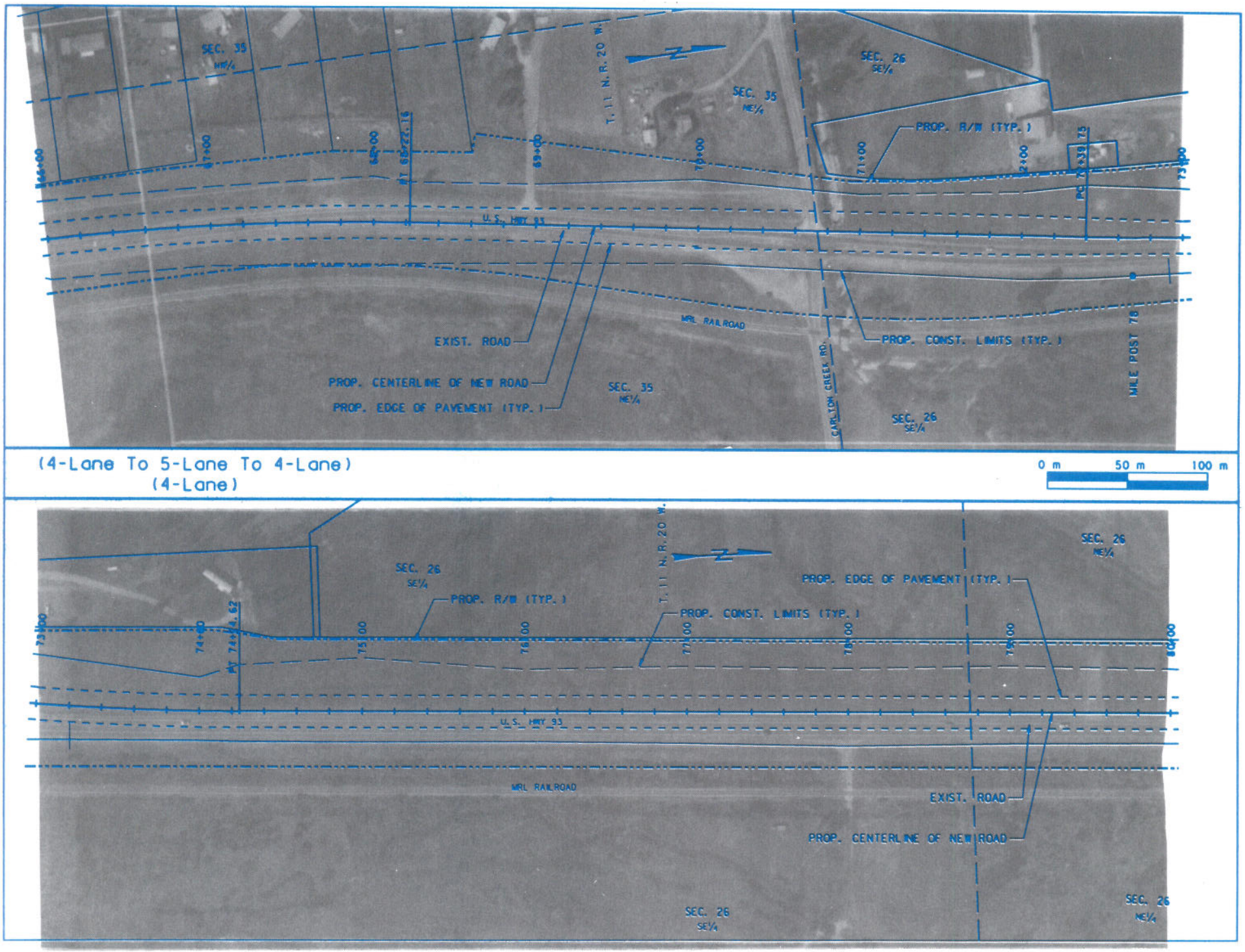
(5-Lane To 5-Lane Urban)
(5-Lane Urban To 5-Lane)

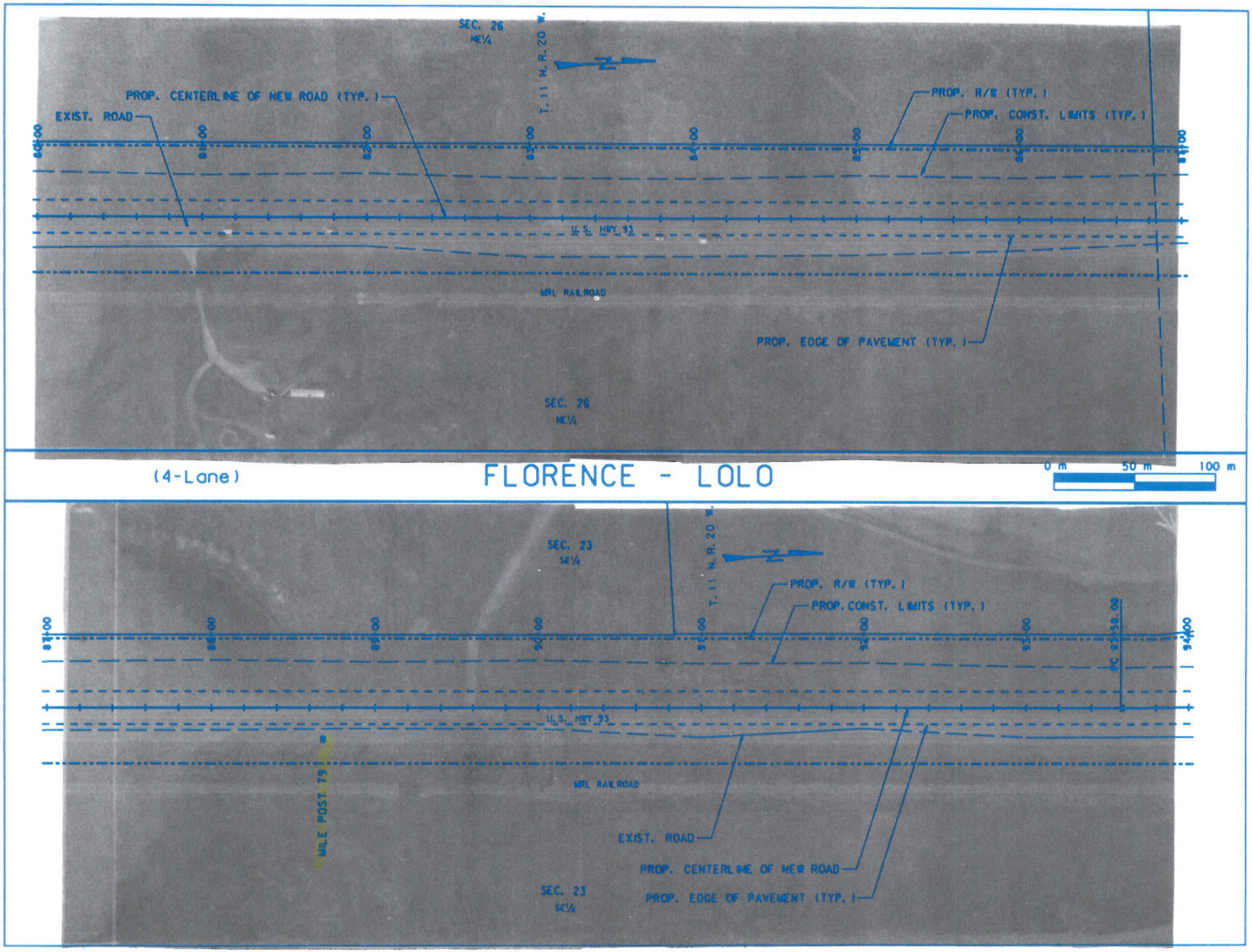
FLORENCE - LOLO

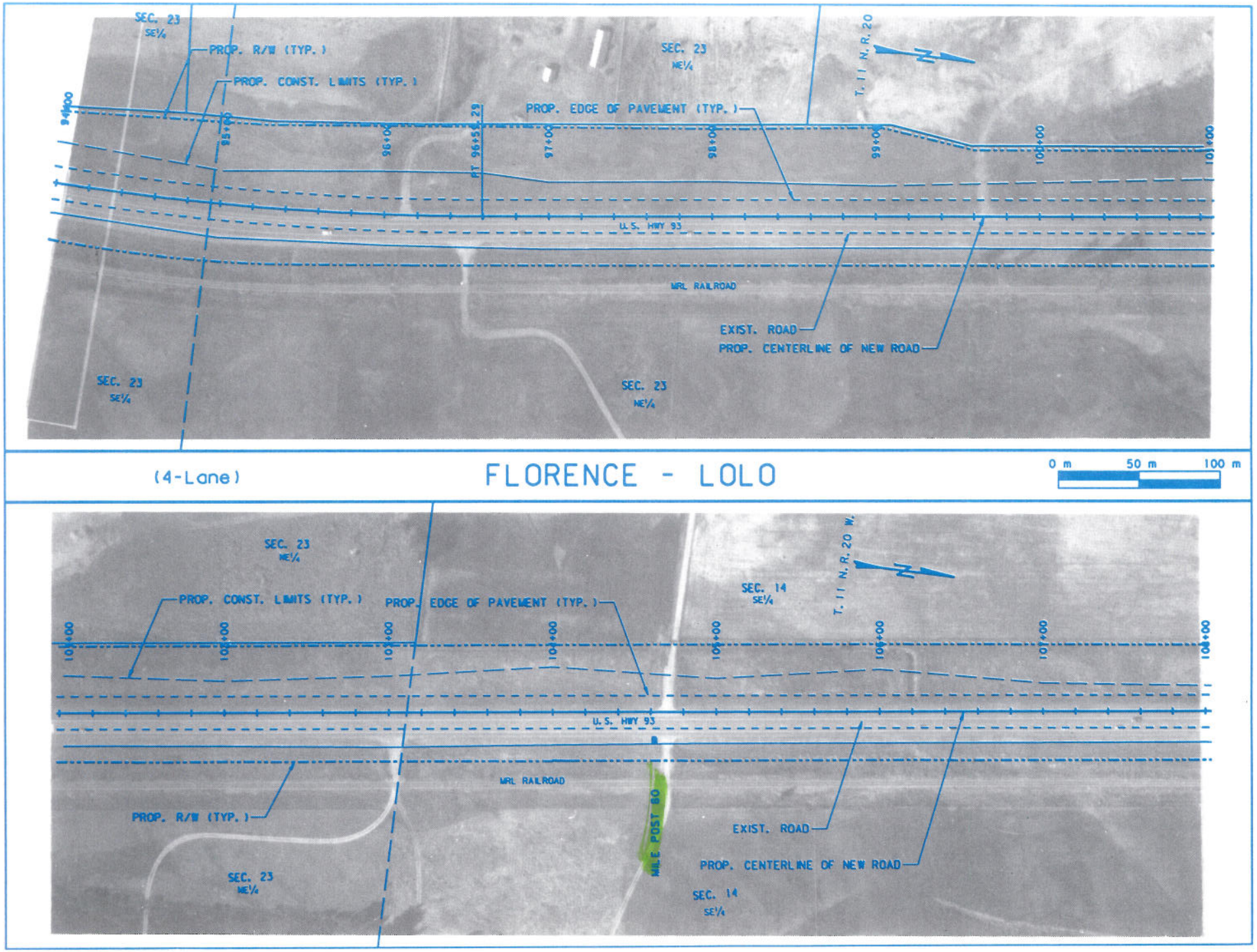

OLD HWY 93
T. 10 N. R. 20 W.
SEC. 11
SE¼
SEC. 11
NE¼
LOMO LN.
24+00
25+00
26+00
27+00
28+00
TS 28+47.49
SC 29+12.49
29+00
30+00
31+00
U. S. HWY 93
MRL RAILROAD
MILE POST 75
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
SEC. 11
SE¼
SEC. 11
NE¼
(5-Lane To 4-Lane To 5-Lane)
(5-Lane To 4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
T. 10 N. R. 20 W.
SEC. 11
NE¼
T. 10
31+00
32+00
33+00
34+00
35+00
36+00
37+00
38+00
U. S. HWY 93
MRL RAILROAD
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
SEC. 11
NE¼

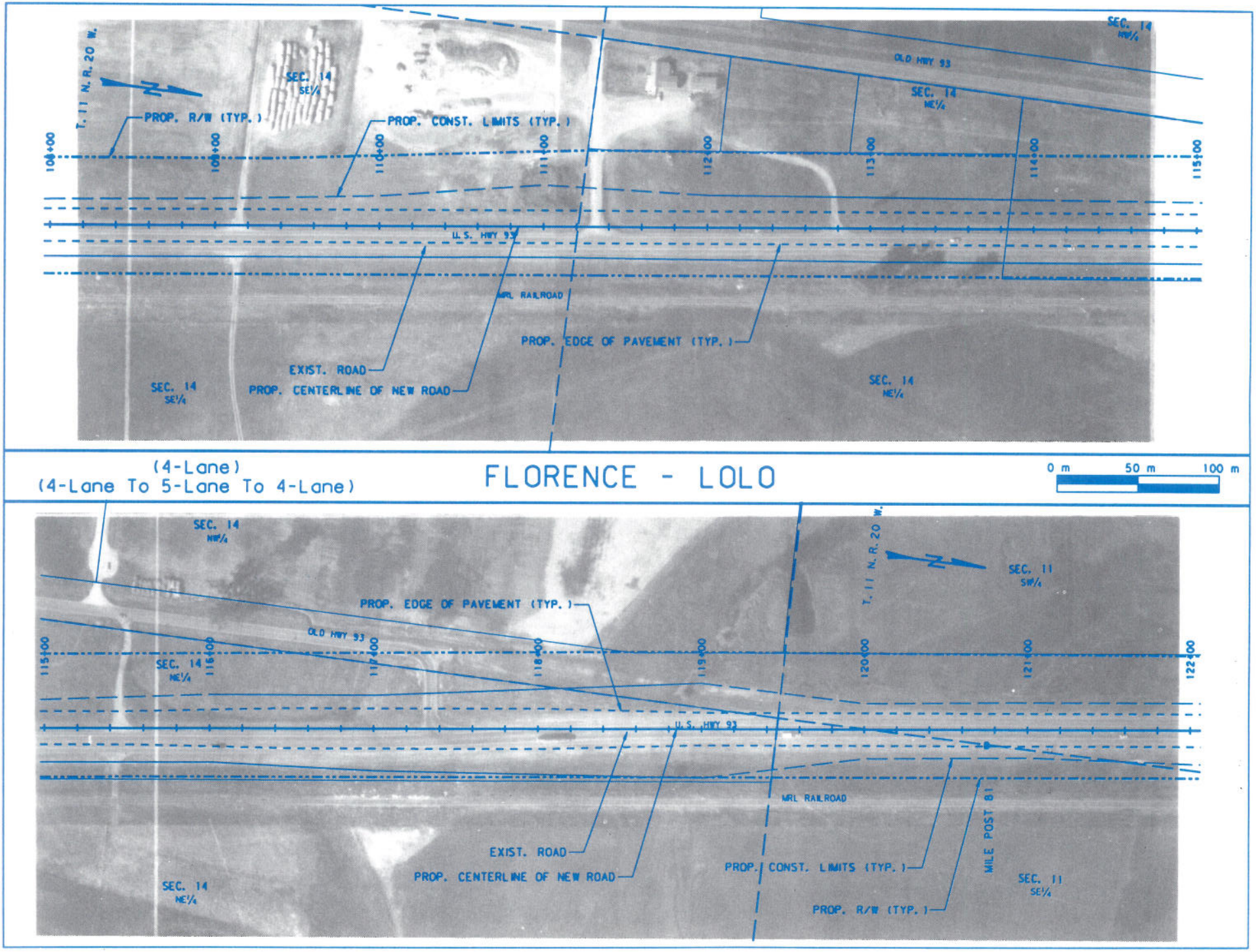

T. 10 N. R. 20 W.
SEC. 2
SE¼
PROP. R/W (TYP.)
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
EXIST. ROAD
38+00
39+00
40+00
41+00
42+00
42+33.35
43+00
43+08.35
44+00
45+00
U.S. HWY 93
PROP. CONST. LIMITS (TYP.)
MILE POST 76
SQUAW CREEK
SEC. 2
SE¼
(4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 2
SE¼
PROP. R/W (TYP.)
T. 10 N. R. 20 W.
SEC. 2
NE¼
WAGNER RD.
45+00
46+00
PT. 46+86.56
47+00
48+00
PT. 48+22.45
49+00
50+00
51+00
52+00
MRL RAILROAD
EXIST. ROAD
PROP. CONST. LIMITS (TYP.)
SQUAW CREEK
SEC. 2
NE¼
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 2
SE¼

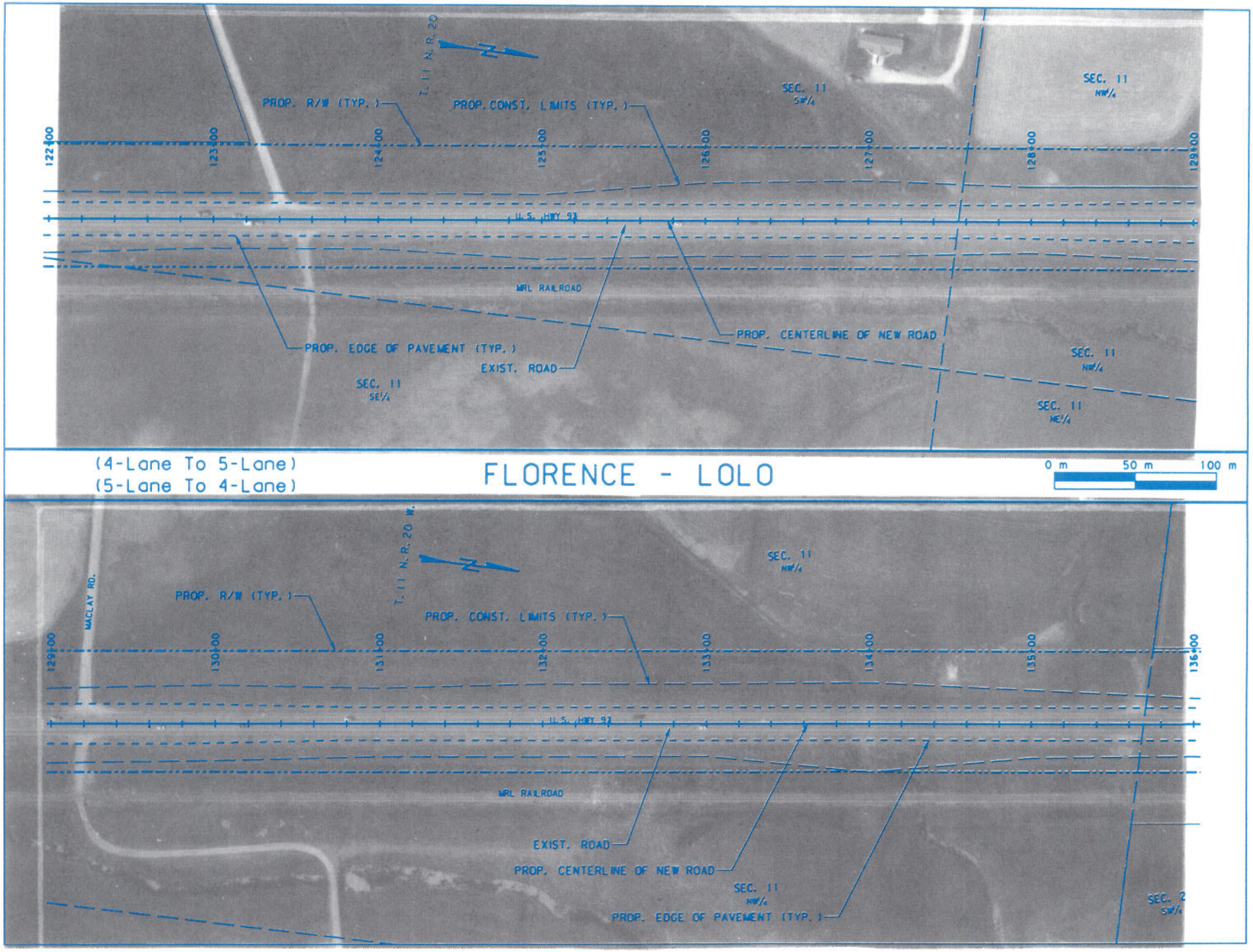

SEC. 2
NE¼
SEC. 35
SE¼
T. 10 N. R. 20 W.
T. 11 N. R. 20 W.
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
52+00
53+00
54+00
55+00
56+00
PC 56+76.47
57+00
58+00
59+00
U. S. HWY 93
MRL RAILROAD
SQUAW CREEK
CHIEF LOOKING GLASS RD.
EXIST. ROAD
MILE POST 77
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 2
NE¼
SEC. 35
SE¼
(4-Lane To 5-Lane To 4-Lane)
(4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 35
SW¼
T. 11 N. R. 20 W.
SEC. 35
SE¼
PROP. R/W (TYP.)
59+00
60+00
PT 60+23.90
61+00
62+00
63+00
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 35
NW¼
SEC. 35
NE¼
64+00
65+00
PC 65+63.22
66+00
U. S. HWY 93
PROP. CONST. LIMITS (TYP.)
MRL RAILROAD
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 35
NE¼
SEC. 35
SE¼

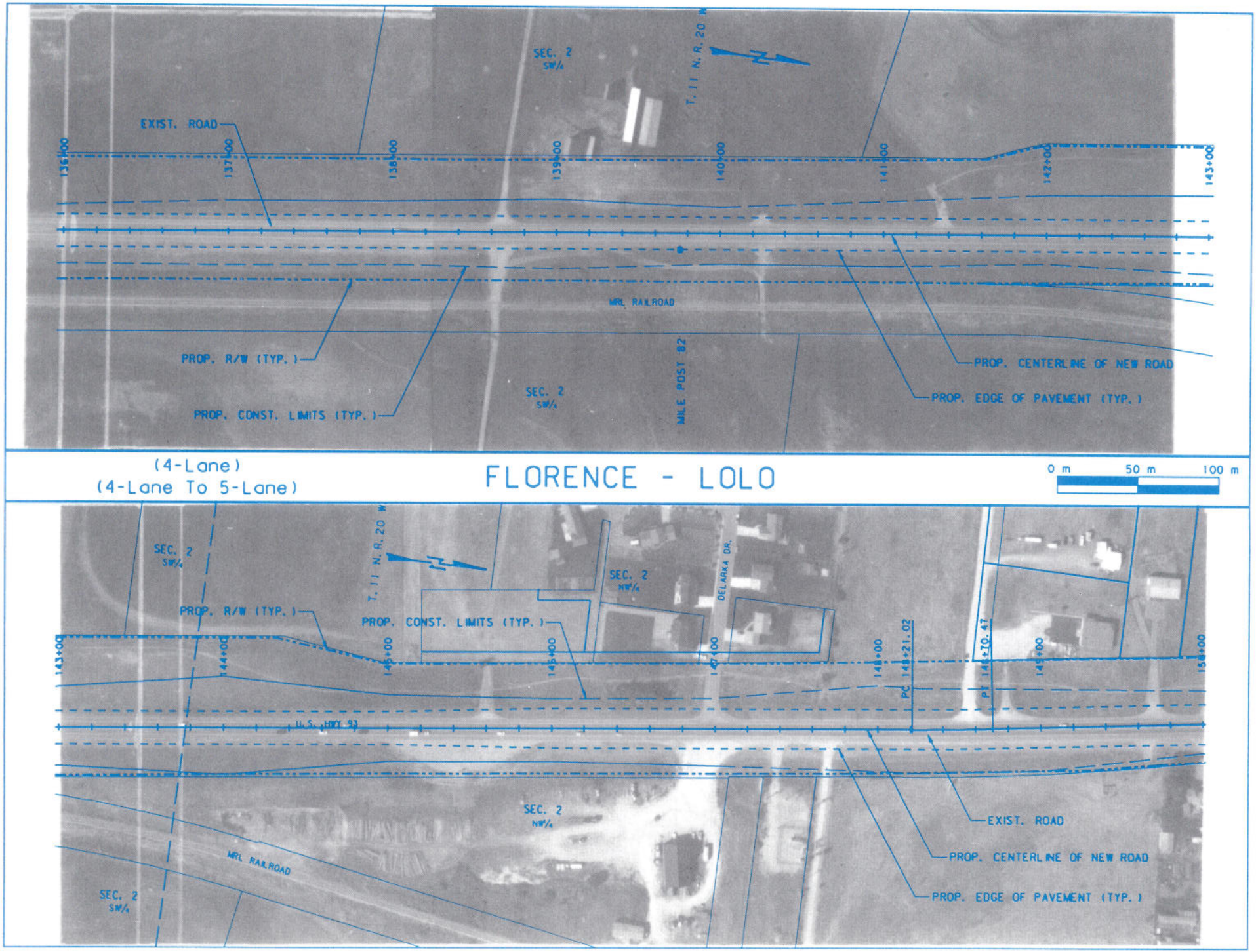

SEC. 35
NW¼
T. 11 N. R. 20 W.
SEC. 35
NE¼
SEC. 26
SE¼
PROP. R/W (TYP.)
66+00
67+00
68+00
69+00
70+00
71+00
72+00
PC 72+39.73
73+00
PT 68+22.16
U. S. HWY 93
MRL RAILROAD
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 35
NE¼
CARLTON CREEK RD.
PROP. CONST. LIMITS (TYP.)
MILE POST 78
SEC. 26
SE¼
(4-Lane To 5-Lane To 4-Lane)
(4-Lane)
0 m
50 m
100 m
SEC. 26
SE¼
PROP. R/W (TYP.)
T. 11 N. R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 26
NE¼
PROP. CONST. LIMITS (TYP.)
73+00
74+00
PT 74+14.62
75+00
76+00
77+00
78+00
79+00
80+00
U. S. HWY 93
MRL RAILROAD
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 26
SE¼
SEC. 26
NE¼

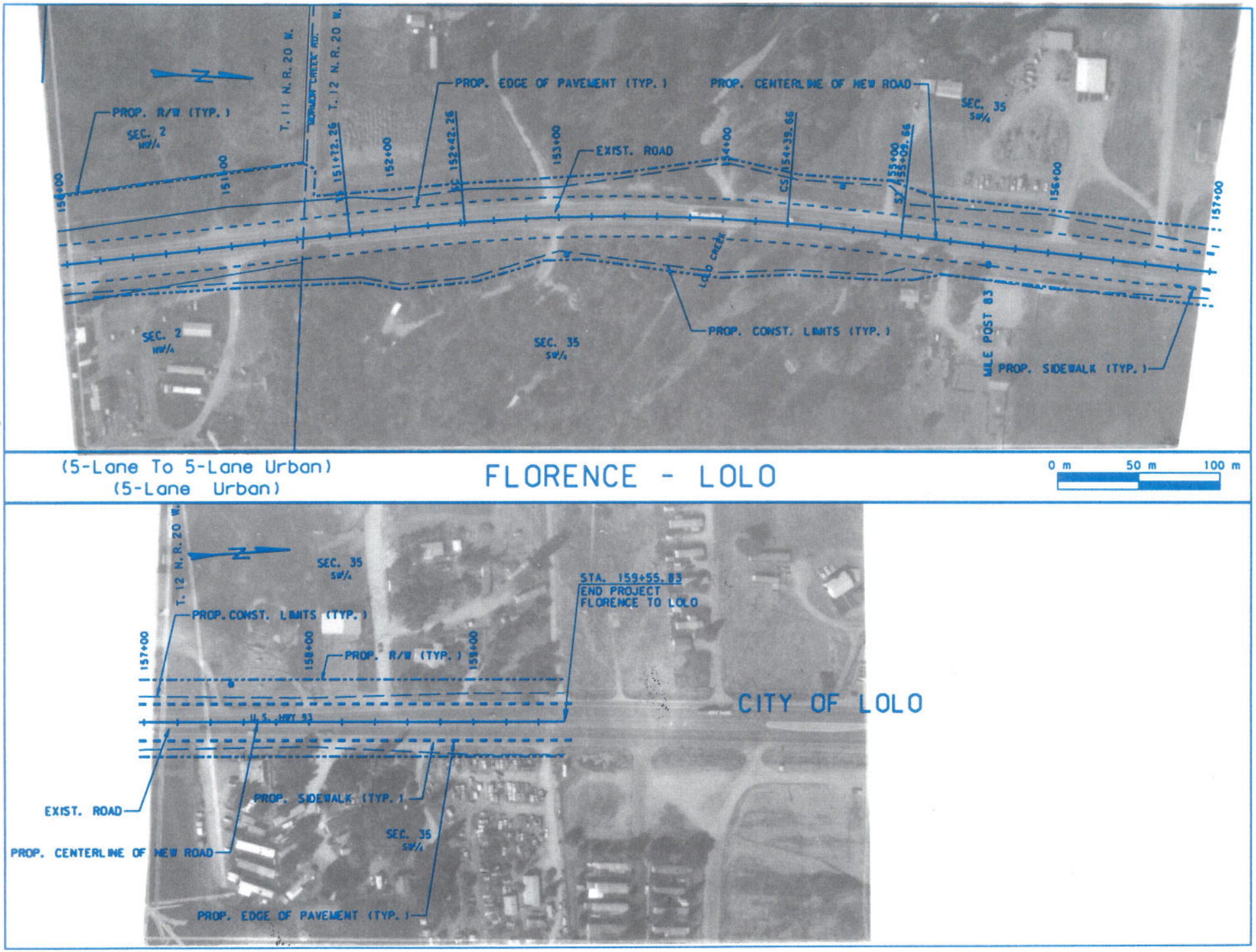

SEC. 26
NE¼
T. 11 N. R. 20 W.
PROP. CENTERLINE OF NEW ROAD (TYP.)
EXIST. ROAD
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
U. S. HWY 93
MRL RAILROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 26
NE¼
(4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 23
SE¼
T. 11 N. R. 20 W.
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
U. S. HWY 93
MRL RAILROAD
MILE POST 79
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 23
SE¼


SEC. 23
SE¼
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
SEC. 23
NE¼
T. 11 N. R. 20 W.
PROP. EDGE OF PAVEMENT (TYP.)
94+00
95+00
96+00
PT 96+55.29
97+00
98+00
99+00
100+00
101+00
U.S. HWY 93
MRL RAILROAD
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 23
SE¼
SEC. 23
NE¼
(4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 23
NE¼
PROP. CONST. LIMITS (TYP.)
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 14
SE¼
T. 11 N. R. 20 W.
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
U.S. HWY 93
MRL RAILROAD
MILE POST 80
PROP. R/W (TYP.)
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 23
NE¼
SEC. 14
SE¼


T. 11 N. R. 20 W.
SEC. 14 SE¼
SEC. 14 NW¼
OLD HWY 93
SEC. 14 NE¼
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
106+00
107+00
108+00
109+00
110+00
111+00
112+00
113+00
114+00
115+00
U.S. HWY 93
MRL RAILROAD
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 14 SE¼
SEC. 14 NE¼
(4-Lane)
(4-Lane To 5-Lane To 4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 14 NW¼
PROP. EDGE OF PAVEMENT (TYP.)
OLD HWY 93
T. 11 N. R. 20 W.
SEC. 11 SW¼
115+00
116+00
117+00
118+00
119+00
120+00
121+00
122+00
SEC. 14 NE¼
U.S. HWY 93
MRL RAILROAD
MILE POST 81
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. CONST. LIMITS (TYP.)
PROP. R/W (TYP.)
SEC. 14 NE¼
SEC. 11 SE¼


T. 11 N., R. 20 W.
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
SEC. 11 SW¼
SEC. 11 NW¼
122+00
123+00
124+00
125+00
126+00
127+00
128+00
129+00
U.S. HWY 93
MRL RAILROAD
PROP. EDGE OF PAVEMENT (TYP.)
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 11 SE¼
SEC. 11 NW¼
SEC. 11 NE¼
(4-Lane To 5-Lane)
(5-Lane To 4-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
MACLAY RD.
T. 11 N., R. 20 W.
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
SEC. 11 NW¼
129+00
130+00
131+00
132+00
133+00
134+00
135+00
136+00
U.S. HWY 93
MRL RAILROAD
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
SEC. 11 NW¼
PROP. EDGE OF PAVEMENT (TYP.)
SEC. 2 SW¼


SEC. 2
SW/4
T. 11 N. R. 20 W.
EXIST. ROAD
136+00
137+00
138+00
139+00
140+00
141+00
142+00
143+00
MRL RAILROAD
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
MILE POST 82
SEC. 2
SW/4
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)
(4-Lane)
(4-Lane To 5-Lane)
FLORENCE - LOLO
0 m
50 m
100 m
SEC. 2
SW/4
T. 11 N. R. 20 W.
PROP. R/W (TYP.)
PROP. CONST. LIMITS (TYP.)
SEC. 2
NW/4
DELARKA DR.
143+00
144+00
145+00
145+00
147+00
148+00
PC 148+21.02
PT 148+70.47
149+00
150+00
U.S. HWY 93
SEC. 2
NW/4
MRL RAILROAD
SEC. 2
SW/4
EXIST. ROAD
PROP. CENTERLINE OF NEW ROAD
PROP. EDGE OF PAVEMENT (TYP.)


N
T. 11 N. R. 20 W.
T. 12 N. R. 20 W.
HERON CREEK RD.
PROP. R/W (TYP.)
SEC. 2
NW/4
PROP. EDGE OF PAVEMENT (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 35
SW/4
EXIST. ROAD
CS 154+39.66
SY 155+05.66
150+00
151+00
151+72.26
152+00
152+42.26
153+00
154+00
156+00
157+00
LOLO CREEK
PROP. CONST. LIMITS (TYP.)
MILE POST 83
PROP. SIDEWALK (TYP.)
SEC. 2
NW/4
SEC. 35
SW/4
(5-Lane To 5-Lane Urban)
(5-Lane Urban)
FLORENCE - LOLO
0 m
50 m
100 m
T. 12 N. R. 20 W.
N
SEC. 35
SW/4
STA. 159+55.83
END PROJECT
FLORENCE TO LOLO
PROP. CONST. LIMITS (TYP.)
157+00
158+00
159+00
PROP. R/W (TYP.)
U. S. HWY 93
CITY OF LOLO
EXIST. ROAD
PROP. SIDEWALK (TYP.)
PROP. CENTERLINE OF NEW ROAD
SEC. 35
SW/4
PROP. EDGE OF PAVEMENT (TYP.)



APPENDIX B

RELATED REPORTS AND STUDIES

APPENDIX B
RELATED REPORTS, STUDIES, AND REFERENCES

A. REPORTS AND STUDIES COMPLETED FOR EIS

1. *"Hamilton - Lolo Transportation Corridor Analysis"* - Peter Schauer Associates; Boonville, MO - January 7, 1994

2. *"US Highway 93 Traffic Study"* - Keller & Associates; Boise, ID - December 1993

3. *"US Highway 93 Hamilton to Lolo Air Quality"* - Timothy Krause, Shapiro & Associates; Seattle, Washington - January 11, 1994

4. *"US Highway 93 Hamilton to Lolo Noise Report"* - Timothy Krause, Shapiro & Associates; Seattle, Washington - January 11, 1994

5. *"Evaluation of Silver Bridge Realignment Alternatives"* - Forsgren Associates; West Yellowstone, MT - June 1994

6. *"Economic Analysis"* - Forsgren Associates; West Yellowstone, MT - March 1994

7. *"Water Quality"* - Forsgren Associates, Inc; West Yellowstone, MT - March 1994

8. *"Floodplains"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

9. *"Hazardous Material Assessment US Highway 93 Right-of-Way Corridor Hamilton to Lolo - Ravalli and Missoula Counties, Montana"* - Chen-Northern, Inc.; Helena, MT - November 1992 and *"Phase II Environmental Assessment US 93 Project Hamilton-Lolo"* - Maxim Technologies, Inc. (formerly Chen-Northern); Helena, MT - October 1996

10. *"Biological Resources Report for Highway 93 Lolo to Hamilton* - OEA Research, Inc.; Helena, MT - June 7, 1994

11. *"US Highway 93 Wetlands Evaluation"* - OEA Research, Inc.; Helena, MT - June 1994

12. *Biological Assessment - Threatened and Endangered Species for Highway 93 - Lolo to Hamilton"* - OEA Research, Inc.; Helena, MT - June 7, 1994

13. *"Social/Economic Report"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

14. *"Land Use Report"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

15. *"Farmland Impacts"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

16. *"Geotechnical Reconnaissance Study - Hamilton/Lolo"* - Armstrong and Associates; Helena, MT and Forsgren Associates, Inc.; West Yellowstone, MT - October 1993

17. *"Bicycle/Pedestrian Facilities"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

18. *"A Cultural Resource Inventory Report for the Proposed Lolo to Hamilton Transportation Improvement Project in Western Montana"* - Lynelle Peterson, Ethnoscience, Inc.; Billings, MT and Joan Brownell, Headwaters Cultural Resource; Bozeman, MT - November 1993

19. *"Energy and Commitment of Resources"* - Forsgren Associates, Inc.; West Yellowstone, MT - March 1994

20. *"The Significance of Deer Kill in Montana's Bitterroot Valley with Review of Preventative Measures"* - Robert Harris; Conner, MT - March 21, 1994

21. *"Draft Section 404(b)(1) Evaluation"* - Forsgren Associates, Inc.; West Yellowstone, MT -May 1995

B. CITED REPORTS AND STUDIES

1. *"Accident Study Evaluation"* - W.H. Butzlaff; Memo to Edrie Vinson - Montana Department of Transportation; Helena, MT - December 28, 1992

2. *"Ravalli Comprehensive Plan"* - Ravalli County, Montana; Hamilton, MT - Draft April 1994

3. *"Missoula County Comprehensive Plan"* - Missoula County Montana; Missoula, MT - June 1990

4. *"The Bitterroot Futures Study"* - The Bitterroot Valley Chamber of Commerce and the Bitterroot Resource Conservation and Development Area, Inc.; Hamilton, MT 1993

5. *"RC&D Business Incubator - Business Plan"* and *"Planning Manual"* - Bitterroot Valley Chamber of Commerce and Bitterroot Resource Conservation and Development Area, Inc. (RC&D); Hamilton, MT - March 1993

6. *"National Environmental Policy Act of 1969"*, as amended - US Congress; Washington D.C.

7. *"Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act"* - Council on Environmental Quality, Executive Office of the President; Washington D.C. - July 1, 1986

9. *"US Highway 93 Evaro to Polson - Final Environmental Impact Statement and Section 4(f) Evaluation"* - US Department of Transportation Federal Highway Administration and State of Montana Department of Transportation - Morrison-Maierle, Inc.; Helena, MT - June 1996

10. Letter from US Fish & Wildlife Service to Montana Department of Transportation containing threatened and endangered species list for US 93 - Hamilton to Lolo - December 17, 1992

11. Montana Rail Link - Letter from Richard Keller, chief engineer to Kevin McCann; May 19, 1993

12. *"Montana 1994 Estimates of the Poulation"* - Montana Department of Commerce, Census and Economic Information Center - October 1995



APPENDIX C

DRAFT SECTION 404(B)(1) EVALUATION

APPENDIX C

US 93 HAMILTON TO LOLO

ENVIRONMENTAL IMPACT STATEMENT

DRAFT

SECTION 404 (b)(1) EVALUATION

MAY 1996
(Revised May 1997)

Prepared by

FORSGREN
ASSOCIATES / INC.
WEST YELLOWSTONE, MT 59758
1-800-331-7548

DRAFT
SECTION 404(b)(1) EVALUATION

APPLICANT: Montana Department of Transportation
APPLICATION NUMBER:
PROJECT: Hamilton/Lolo (US Highway 93) Ravalli & Missoula Counties, Montana, NH 7-1(52)49

SECTION I. INTRODUCTION

The 404(b)(1) guidelines, found in Title 40 of the Code of Federal Regulations, Part 230, are the substantive criteria used in evaluating discharges of dredged or fill material in waters of the United States under Section 404 of the Clean Water Act and are applicable to all 404 permit decisions. Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem unless it can be demonstrated that such discharges would not have unacceptable adverse impacts either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.

Subpart B of the guidelines establishes four conditions which must be satisfied to make a finding that a proposed discharge complies with the guidelines. Paragraph 230.10 provides that:

a) Except as provided under Section 404(b)(2), no discharge of dredged material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences;

b) No discharge of dredged or fill material shall be permitted if it violates state water quality standards, Section 307 of the Clean Water Act, or the Endangered Species Act of 1973;

c) No discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States; and

d) Except as provided under section 404(b)(2), no discharge shall be permitted unless appropriate and practicable steps have been taken which will minimize adverse impacts of the discharge on the aquatic ecosystem.

Mitigation to offset significant and insignificant adverse impacts may be developed which could result in bringing a project into compliance with the guidelines. Impacts must be avoided to the maximum extent practicable and remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and, finally, by compensation for loss of aquatic resource values.

Section 230.11 sets forth the factual determinations which are to be considered in determining whether a discharge satisfies the four conditions of compliance. These determinations are contained in the following evaluation.

SECTION II. PROJECT DESCRIPTION

A. LOCATION

US Highway 93 is a north-south highway in western Montana. The portion of the highway for this project is a 55.12 km (34.22 miles) portion from Hamilton to Lolo. Figure 1 in this report shows the project location. The project corridor is located on the Valley floor, which gently slopes from west to east toward the Bitterroot River. The terrain is generally flat, punctuated by occasional small ridges, and numerous small streams feeding down from the Bitterroot Range to the River.

B. GENERAL DESCRIPTION

An Environmental Impact Statement (EIS) has been prepared to examine various alternatives for improving transportation in the corridor and to identify the associated environmental impacts. The document is currently in final form. A draft was prepared, including a draft of this 404(b)(1) Evaluation, which was submitted to the public and regulatory agencies for review and comment.

The EIS evaluates the following alternatives:

- No Action
- Park-and-Ride
- Commuter Bus Service
- Passenger Rail Service
- Alternate A - Modified 2-lane highway
- Alternate B - 4-lane undivided (no median) highway
- Alternate C - 4-lane divided with median and turnbays
- Alternate D - 5-lane highway with center turning lane

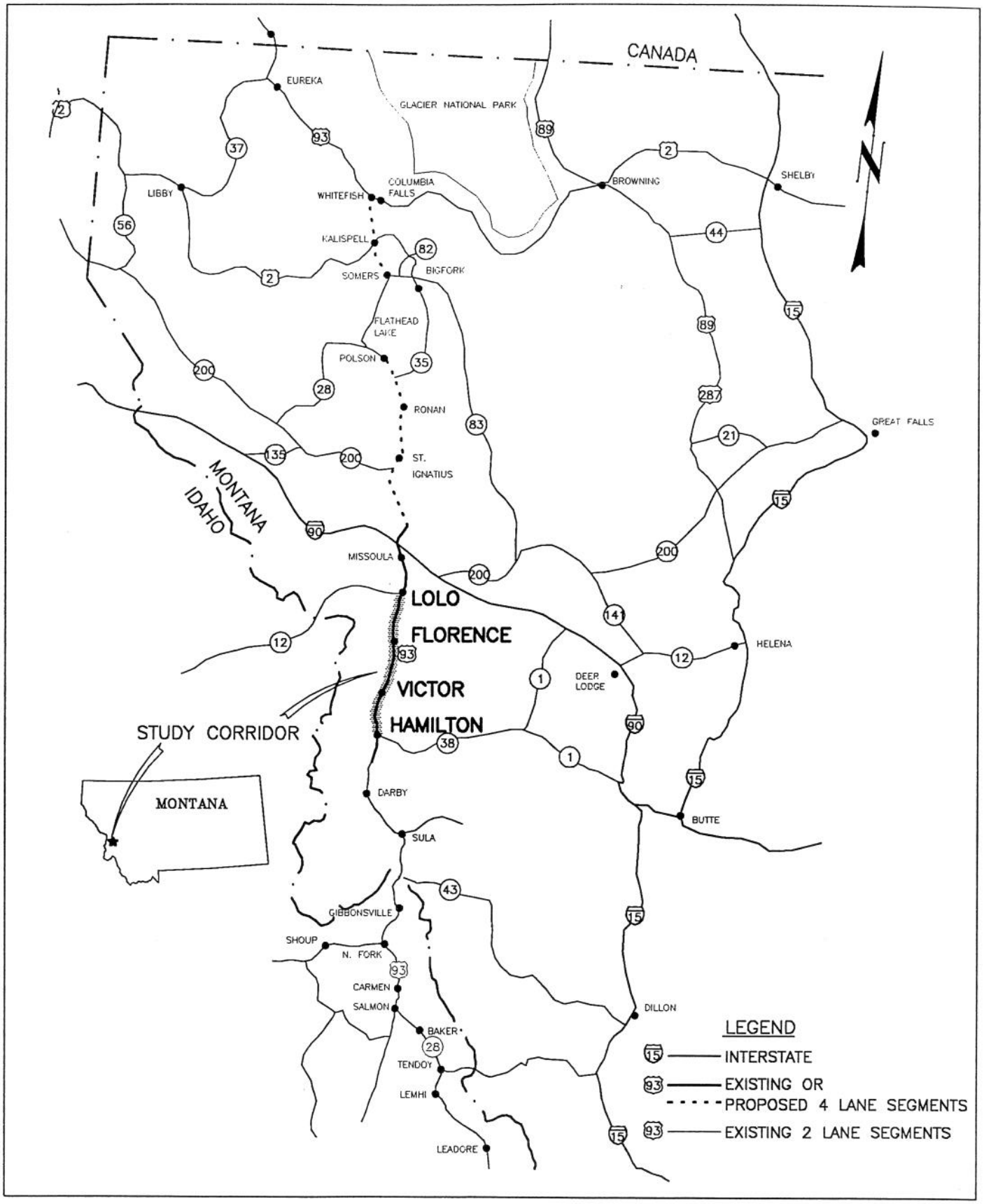
The proposed alignment for any "construction" alternatives would follow the existing US Highway 93 alignment with two exceptions, Silver Bridge realignment and Bass Creek Hill realignment. The first realignment provides for a new crossing of the Bitterroot River just north of Hamilton. The purpose of this realignment is to soften substandard horizontal curvature and provide the opportunity to construct new crossing facilities unimpeded, while still carrying the major traffic of the area on the old structure during construction. Realignment at the Bass Creek Hill area for a distance of approximately 3.2 km (2 miles) north seeks to pull the highway westerly away from the Bitterroot River and former meanders which constitute a considerable area of wetlands.

The preferred alternative recommended for implementation by the EIS is in reality a combination of several alternatives set forth in the document. The elements were recommended for their ability to economically meet the stated purposes and needs for transportation improvement in the corridor, while offering the opportunity to minimize impacts. Elements of the preferred alternative include:

- construction of park-and-ride lots and implementation of a park-and-ride system
- establishment of a local transportation management association to administrate the park-and-ride system and further enhance opportunities to reduce traffic through implementation of transportation demand management techniques
- construction of 4-lane undivided highway in undeveloped (rural) areas of the corridor
- construction of 5-lane highway (4-lanes with center turning lane) principally in "urban" areas of the corridor
- minor realignment of the highway at Silver Bridge and the Bass Creek Hill areas

U.S. Highway 93
HAMILTON TO LOLO
ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1
PROJECT LOCATION



- implementation of access control policies to enhance the function of the recommended construction alternatives
- installation of traffic signals at intersections with Woodside Crossing (Woodside) and the Eastside Highway (Florence)
- construction of auxiliary lanes (turning and acceleration/deceleration)
- construction of pedestrian and bicycle facilities
- provision for curb, gutter, and drainage facilities where appropriate

Further detailed description of the preferred alternative and its elements can be found in Chapter 2.0 of the EIS. Also, figures depicting the relocation alignments are shown in Chapter 2.0 of the EIS.

Appendix A of the EIS contains an overlay of the construction elements of the preferred alternative on an aerial photo background, along with a delineation of the construction limits and probable right-of-way boundaries.

C. AUTHORITY AND PURPOSE

The Highway Commission of the State of Montana has authorized environmental study and preliminary planning for improvements to this highway corridor in response to public demand and observed deficiencies of the existing system. These activities are being carried out under the auspices of the Montana Department of Transportation (MDT) with oversight and regulatory control from the Federal Highways Administration (FHWA), which agency is providing the majority of funding for this project through allocations to MDT.

Several deficiencies of the existing transportation system in this corridor have been identified. The following is a brief summary of the purposes and needs for improvement:

- US 93 is a highway of national significance, providing an important transportation link on a local, state, national, and international level.

- Improvements have already been completed or are in planning or design stages on other segments of US 93 resulting in incompatibility of this corridor when linking with the overall system.

- The highway in the study corridor does not have enough capacity to meet present demands and traffic is projected to increase at a rate of at least 3% annually for the next 20 years.

- The facility does not have adequate level of service presently and will not meet level of service (capacity vrs. volume) in the future.

- The heavy traffic congestion and lack of passing opportunities reduces safety, increases driver frustration, and produces a higher accident potential.

- There is strong public demand to improve transportation facilities within the corridor.

- The existing roadway is deficient in several areas in terms of geometry, shoulder width, sideslopes, sight distance, restricted width, sharp horizontal curvature, pavement rutting, potholing, and break-up. Correction of these deficiencies is needed to improve safety and performance of this transportation system.

Chapter 1.0 of the EIS offers a more detailed description of the purposes and needs for proposed improvements.

D. GENERAL DESCRIPTION OF THE DREDGED OR FILL MATERIAL

1) **General Characteristics of Material**: Although no soil borings have been taken in the project corridor, the USDA Soil Conservation Service provided soil information from the Bitterroot Soil Survey and "as-built" soil information is available from previous highway construction projects in the corridor. Except for minor variations, the vast majority of the soil in the valley is some type of loam. The most frequently occurring type of loam is a coarse or gravelly, sandy loam. Underlying the loam deposits are significant sand and gravel layers formed by alluvial deposition from erosion of the nearby Bitterroot Mountains. The depth to groundwater in the valley is generally about five to six feet. Depth to bedrock is generally several hundred to several thousand feet in the Valley floor area but decrease to very shallow depths (some surface exposure) on the finger ridges that protrude transversely out from the mountain range across the study corridor to the Bitterroot River.

   The loam soils have moderate to high infiltration rates, even when thoroughly wetted, and are well drained. The sand and gravel layers are generally well graded and highly permeable. The abundance and ready availability of this alluvial gravel material makes it the prime material of choice for use as borrow and fill material for embankments where construction alternatives are recommended for implementation.

   A geotechnical reconnaissance was performed which indicates the corridor soils are predominately reworked glacial and alluvial deposition with deep deposits of sand and gravels along with occasional pockets of fine-grained silt-clay soil deposits. Slopes of the project vary from level to moderate with level conditions being the most common.

2) **Quantity of Material**: The majority of the wetland encroachments or fills in wetland areas will be the result of the highway crossing riparian areas. Most are encroachments transversed to the direction of stream flow. Therefore, most would involve approach fills, construction of abutments and piers for bridges, or placement of fills over culverts and other required grading necessary for the crossings. Elsewhere encroachment into wetland areas would result from widening the highway to accommodate additional lanes and wider shoulders if "build" alternatives are selected.

   Wetland discharge sites which occur within riparian areas are associated with surface water sources, such as streams and creeks. Other discharge sites are wetlands which occur in the non-riparian areas and are supported by groundwater or irrigation sources. Table 1 summarizes the locations of the major stream crossings throughout the study area. Appropriate crossings (bridge or culvert) will be provided at these locations and will be selected during design on the basis of hydraulic need, cost, biologic impacts, and other applicable feasibility considerations.

   Table 2 gives the estimated fill volumes below ordinary highwater at major crossings which involve fill in riparian wetlands.

3) **Source of Material**: According to a geotechnical reconnaissance study conducted for the EIS, excellent construction materials are located throughout the corridor which should provide a ready source for fill, surfacing, and borrow materials. Sources have generally been available during the past construction projects in this area. Due to the availability of excellent construction materials, all borrow will likely be specified with a high classification such as A-1-b(0) or better to take advantage of these available soils.

   Fill material used for widening and construction of approaches to bridges and fills over culverts will likely be embankment material generated on-site or nearby through excavation of cut areas along the roadway.

No specific borrow source locations have been identified to date. Borrow will not be taken from areas without the proper environmental and archaeological clearances. Borrow sources will likely be chosen which are within the area and therefore will be similar to the on-site soils.

TABLE 1
MAJOR STREAM CROSSING LOCATIONS

Approx Station	Approx Milepost	Stream Crossing	Fishery *	Existing Structure	Potential Structure***
Hamilton- Victor					
17+80	49.5	Bitterroot River (Silver Bridge)	B,C,D,E	Bridge	Bridge
23+00	49.8	Woodside Canal	no data	Bridge	Culvert
28+95	50.3	Blodgett Creek	B (r-spawn)	Bridge	Bridge
36+60	50.8	Blodgett Creek	A(bt)**, B(r-spawn)	Bridge	Bridge
97+05	54.5	Fred Burr Creek	no data	Bridge	Bridge
137+30	56.7	S Bear Creek	A(bt)**, B(r-spawn), C**	Bridge	Bridge
149+40	57.4	N Bear Creek	B (r-spawn, r,b,bn)	Culvert	Bridge
158+00	57.9	N Bear Creek	B (r-spawn, r,b,bn)	Culvert	Bridge
Victor - Florence					
21+20	59.8	Sweathouse Creek	A(bt)**	Bridge	Bridge
51+40	61.6	Big Creek	B(r,bn-spawn,r,b,bn)**	Bridge	Bridge
101+00	64.6	McCalla Creek	no data	Culvert	Culvert
106+80	65.0	McCalla Creek	no data	Bridge	Bridge
123+25	66.0	McCalla Creek	no data	Bridge	Bridge
125+20	66.2	Kootenai Creek	B(r,bn-spawn)	Bridge	Bridge
194+70	70.5	S Bass Creek	no data	Culvert	Bridge
203+90	71.2	N Bass Creek	A(c)**	Culvert	Bridge
207+80	71.4	Larry Creek	A(c)**	Culvert	Culvert
208+60	71.5	½ Larry Creek	no data	Culvert	Culvert
209+80	71.5	½ Larry Creek	no data	Culvert	Culvert
234+80	73.0	Sweeney Creek	A(c,bt)**, B(r)	Culvert	Bridge
Florence - Lolo					
10+70	74.2	One Horse Creek	no data	Culvert	Culvert
36+10	75.8	Tie Chute Creek	no data	Culvert	Culvert
70+90	77.8	Carlton Creek	no data	Culvert	Culvert
89+10	79.0	Maple Creek	no data	Culvert	Culvert
154+00	82.9	Lolo Creek	A(c,bt)**	Bridge	Bridge

* Fisheries: A=species of concern (c=cutthroat, bt=bulltrout); B=trout(r=rainbow, b=brook, bn=brown); C=other salmonids; D=non-salmonid game fish; E=non-game rough

** Information available for areas upstream for Bitterroot or Lolo National Forest

*** Type of structure to be determined during design based on hydraulic need, cost, biologic impacts, and other applicable feasibility considerations

TABLE 2
ESTIMATED FILL VOLUMES AT MAJOR CROSSINGS FOR BUILD ALTERNATIVES

Approx Milepost	Stream Crossing	2-lane Modified		4-lane Undivided		4-lane Divided		5-lane		Preferred Alternative		Potential Structure
		CY	CM	CY	CM	CY	CM	CY	CM	CY	CM	
49.5	Bitterroot River (Silver Bridge)	9	7	13	10	16	12	19	14	13	10	Bridge
49.8	Woodside Canal	133	102	200	153	244	187	278	213	200	153	Culvert
50.3	Blodgett Creek	9	7	13	10	16	12	19	14	19	14	Bridge
50.8	Blodgett Creek	7	5	11	8	13	10	15	11	15	11	Bridge
54.5	Fred Burr Creek	5	4	8	6	10	7	11	9	11	9	Bridge
56.7	S Bear Creek	18	14	27	20	33	25	37	28	27	20	Bridge
57.4	N Bear Creek	7	5	11	8	13	10	15	11	11	8	Bridge
57.9	N Bear Creek	7	5	11	8	13	10	15	11	15	11	Bridge
59.8	Sweathouse Creek	13	10	20	15	24	19	28	21	20	15	Bridge
61.6	Big Creek	7	5	11	8	13	10	15	11	15	11	Bridge
64.6	McCalla Creek	107	82	160	123	196	150	222	170	160	123	Culvert
65.0	McCalla Creek	5	4	8	6	10	7	11	9	8	6	Bridge
66.0	McCalla Creek	6	5	9	7	11	9	13	10	13	10	Bridge
66.2	Kootenai Creek	7	5	11	8	13	10	15	11	15	11	Bridge
70.5	S Bass Creek	240	184	360	276	440	337	500	383	500	383	Culvert
71.2	N Bass Creek	227	174	340	260	416	318	472	362	340	260	Culvert
71.4	Larry Creek	100	77	150	115	183	140	208	160	150	115	Culvert
71.5	½ Larry Creek	80	61	120	92	147	112	167	128	120	92	Culvert
71.5	½ Larry Creek	90	69	135	103	165	126	188	144	135	103	Culvert
73.0	Sweeney Creek	6	5	9	7	11	9	13	10	13	10	Bridge
74.2	One Horse Creek	200	153	300	230	367	281	417	319	417	319	Culvert
75.8	Tie Chute Creek	400	306	600	460	733	562	833	638	600	460	Culvert
77.8	Carlton Creek	140	107	210	161	257	197	292	223	292	223	Culvert
79.0	Maple Creek	70	54	105	80	128	98	146	112	105	80	Culvert
82.9	Lolo Creek	12	9	17	13	21	16	24	18	24	18	Bridge
	TOTALS	1,905	1,459	2,859	2,187	3,494	2,674	3,970	3,040	3,238	2,475	

Notes: 1) Fill volumes in the table are the amount of additional fill which would be required at each crossing if the corresponding alternative were selected.

2) For each crossing where a bridge may be used, it was assumed that the entire creek would be spanned with no constriction of flow. See note in Table 1 on determination of structure type.

3) These values are just estimates and may change significantly during final design.

E. DESCRIPTION OF THE PROPOSED DISCHARGE SITES

A Wetlands Evaluation Report was prepared for this study area by an ecological consulting firm (OEA Research, Inc., 1994). This report is on file with MDT. It documents the methodology used in delineating the wetlands; tabulates location, size, and type of wetlands identified within the project corridor; and proposes mitigation alternatives for impacts. Table 3 is a summary of the wetland occurrence and disturbed acreage for each construction alternative, including the preferred alternative.

1) **Location of Sites**: All of the wetlands and surface waters impacted by the construction alternatives are part of the Bitterroot River drainage. The locations of wetland sites are described and identified in the Wetland Evaluation Report which was prepared for the study corridor and they are listed in Table 3.

2) **Size of Sites**: The wetlands were delineated using the US Army Corps of Engineers' Environmental Laboratory Method (1987). A study corridor width of 158 m (520 ft) (half on either side of centerline) was inventoried. Because of the extent of wetlands in and adjacent to the highway right-of-way, the entire corridor was walked. Boundaries of the wetland areas were surveyed with Global Positioning system equipment to accurately determine the area.

   The total delineated amount of jurisdictional wetland acreage occurring within the study corridor is 170.1 hectares (260.5 acres). Table 3 shows the total acreage of wetlands within the corridor at each specific location and also the acreage which would be disturbed by each construction alternative.

3) **Type of Sites**: The highway crosses numerous perennial and intermittent creeks, many of which are dominated by riparian communities. Wetlands typically comprise 50% to 90% of these areas.

   The corridor hosts a variety of wetland resources. Table 3 shows the type of wetlands occurring at each site. Numerous right-of-way ditch wetlands occur due to a high groundwater table and surface water flow meanders caused by the highway berm. Most of these types have standing water in the spring and possibly early summer depending on the amount of runoff from the nearby mountains. Many of the areas along the railroad paralleling the highway have standing water for more than six months in the deeper borrow areas.

4) **Types of Wetlands Habitat**: Table 3 gives the type of wetland at each delineated site including the hydrologic category, vegetation dominance type, and the hydrologic source.

5) **Timing and Duration of Discharge**: The timing and duration of construction activities will depend on the alternative chosen for that specific location and the type of construction (bridge, road widening or new road construction). Detailed schedules and phasing plans would be prepared during final design. The timing and duration will be determined to minimize turbidity and other disturbances in the wetlands and streams. Construction schedules will be specified to not conflict with spawning and migration periods.

   The construction periods and duration are described in Section 4.24 -*Implementation* of the EIS.

TABLE 3
SUMMARY OF WETLAND OCCURRENCE AND DISTURBANCE ACREAGE

SITE #	MILEPOST		WETLAND TYPES		Function & Value Rating***	158 m (520 ft) STUDY CORRIDOR		ALTERNATIVES									
								2-Lane Modified		4-Lane Undivided		4-Lane Divided		5-Lane		Preferred Alternative	
			Hydrologic Category & Veg. Dominance Type*	Hydrologic Source**		hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres
HAMILTON - VICTOR																	
1	49.00	---	2AB	I	low	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	49.25	49.50	2ABC, 3ABD	R/G	mod	0.95	2.34	0.79	1.94	0.84	2.07	0.95	2.34	0.89	2.19	0.84	2.07
3	49.70	---	2A	G(I)	low	0.35	0.87	0.27	0.68	0.29	0.72	0.35	0.87	0.31	0.77	0.31	0.77
A1	49.80	---	2A	P	low	0.02	0.06	0.02	0.04	0.02	0.04	0.03	0.06	0.02	0.05	0.02	0.04
4	49.90	---	2A, 3AB	G	low	0.14	0.34	0.06	0.15	0.06	0.15	0.07	0.18	0.06	0.16	0.06	0.15
A2	49.90	49.95	2A	P	low	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02
5	49.90	50.10	2AB	G(I)	low	1.44	3.56	0.04	0.10	0.08	0.19	0.04	0.10	0.10	0.24	0.08	0.19
6	50.05	50.25	3ABC, 2ABC	R/I/G	mod	1.52	3.76	0.39	0.96	0.39	0.97	0.70	1.72	0.44	1.09	0.42	1.03
A3	50.15	---	2A	P	low	0.01	0.03	0.00	0.01	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03
7	50.30	50.50	3ABC(D), O	R	mod #	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A4	50.35	---	2A	P	low	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
A5	50.60	50.65	2A	P	low	0.03	0.07	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
8	50.60	50.80	3ABC, 1 DO	R	mod	1.44	3.55	0.25	0.62	0.27	0.66	0.50	1.23	0.31	0.77	0.31	0.77
A6	50.85	50.95	2AB	P	low	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
9	51.15	51.45	O, 1D, 2ABC	G/P(I)	mod #	2.02	5.00	0.79	1.94	0.88	2.18	1.34	3.32	1.00	2.47	1.00	2.47
10	51.45	51.85	2AB, 1D	I/G	low	2.17	5.35	0.52	1.28	0.69	1.71	0.73	1.79	0.75	1.84	0.75	1.84
11	54.40	54.65	2ABC, 3ABC,-1DO	R/G	mod	3.08	7.60	0.27	0.68	0.43	1.05	0.79	1.96	0.56	1.38	0.46	1.13
12	54.80	---	1 D	I/P	low	0.05	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A7	54.95	---	2A/B	I/P	low	0.14	0.34	0.02	0.05	0.02	0.05	0.03	0.08	0.03	0.07	0.02	0.05
15	54.95	55.30	2AB, 1D, O	G	mod #	2.20	5.43	0.06	0.16	0.09	0.23	0.10	0.25	0.11	0.27	0.09	0.23
13	55.15	---	2AB, 1D	I	low	0.09	0.23	0.02	0.06	0.02	0.06	0.06	0.14	0.03	0.08	0.02	0.06
14	55.20	55.40	2AB(C), 1DO	G/P(I)	low	0.92	2.27	0.29	0.71	0.29	0.73	0.47	1.17	0.36	0.89	0.29	0.73
16	55.45	55.50	3ABC, 2BC, O	R/G	mod	0.85	2.09	0.24	0.60	0.28	0.68	0.39	0.96	0.33	0.81	0.28	0.68
17	55.70	55.75	1D, 2AB	I(P)	low	0.45	1.11	0.06	0.14	0.07	0.17	0.09	0.21	0.07	0.18	0.07	0.17
19	55.75	56.30	2AB, 1D	G	mod #	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	56.20	---	2AB, 1D	I	low	0.21	0.52	0.08	0.19	0.09	0.21	0.11	0.28	0.10	0.25	0.10	0.25
20	56.40	56.50	2A	P/I	low	0.21	0.52	0.10	0.25	0.12	0.29	0.18	0.44	0.14	0.34	0.14	0.34
21	56.65	56.75	2ABC	G	low	1.54	3.82	0.18	0.43	0.20	0.50	0.33	0.81	0.27	0.66	0.21	0.52
22	56.90	---	1D, 2A	I(P)	low	0.05	0.12	0.04	0.10	0.05	0.12	0.06	0.15	0.05	0.13	0.05	0.12
23	57.00	57.05	3ABC, 2AB(C)	R	mod	0.49	1.22	0.22	0.55	0.23	0.58	0.40	0.99	0.27	0.66	0.23	0.58
24	57.40	57.45	2A	P/I	low	0.14	0.35	0.11	0.26	0.12	0.30	0.14	0.35	0.13	0.31	0.12	0.30
25	58.85	59.00	2AB, 1D	P/I	low	1.66	4.11	0.38	0.93	0.41	1.00	0.75	1.84	0.50	1.23	0.50	1.23
SUBTOTALS HAMILTON - VICTOR						22.27	55.03	5.21	12.87	5.96	14.73	8.63	21.32	6.86	16.92	6.40	15.80

TABLE 3
SUMMARY OF WETLAND OCCURRENCE AND DISTURBANCE ACREAGE

SITE #	MILEPOST		WETLAND TYPES		Function & Value Rating***	158 m (520 ft) STUDY CORRIDOR		ALTERNATIVES									
								2-Lane Modified		4-Lane Undivided		4-Lane Divided		5-Lane		Preferred Alternative	
			Hydrologic Category & Veg. Dominance Type*	Hydrologic Source**		hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres
VICTOR - FLORENCE																	
26	59.50	---	2A(B), 1D	G/P	low	0.80	1.98	0.19	0.46	0.23	0.56	0.28	0.68	0.23	0.57	0.23	0.57
27	59.65	59.80	3AB, 2AB	R/G	mod	1.00	2.46	0.28	0.69	0.31	0.77	0.38	0.95	0.33	0.82	0.31	0.77
28	60.05	60.30	O, 1D, 2AB	G	low	1.71	4.23	0.19	0.47	0.19	0.47	0.74	1.84	0.27	0.66	0.19	0.47
29	60.60	60.70	2AB, 3AB	I	low	0.76	1.88	0.40	0.98	0.41	1.00	0.58	1.42	0.47	1.15	0.41	1.00
A8	61.35	61.50	2A	P	low	0.13	0.32	0.13	0.33	0.13	0.33	0.13	0.33	0.13	0.33	0.13	0.33
30	61.50	61.70	2AB, 3ABC, 2A	R	mod	1.44	3.56	0.51	1.26	0.56	1.38	0.75	1.86	0.62	1.53	0.57	1.41
31	61.85	61.90	2AB	G/I	low	0.76	1.88	0.27	0.67	0.29	0.73	0.35	0.86	0.32	0.79	0.29	0.73
32	62.20	62.30	2AB	G/I	low	1.12	2.77	0.24	0.60	0.28	0.70	0.43	1.05	0.33	0.82	0.28	0.70
A9	62.75	---	2A	P	low	0.05	0.11	0.03	0.07	0.03	0.07	0.05	0.11	0.03	0.08	0.03	0.07
33	62.85	62.95	2A, 2BC, O	G	low	0.88	2.17	0.19	0.47	0.19	0.47	0.47	1.16	0.23	0.57	0.19	0.47
34	63.20	63.55	2AB(C), 1D	G	mod	3.28	8.10	0.97	2.41	1.06	2.63	1.31	3.22	1.20	2.97	1.10	2.72
35	63.65	63.90	O, 1D, 2ABC	G	mod #	1.67	4.13	0.07	0.17	0.16	0.39	0.19	0.48	0.22	0.54	0.16	0.39
A10	63.80	63.90	2A	P	low	0.09	0.23	0.09	0.22	0.09	0.22	0.09	0.23	0.09	0.23	0.09	0.22
A11	64.20	---	2AB, 1D	P	low	0.06	0.15	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.01
36	64.20	64.30	O, 2AB, 1D	G	mod	1.03	2.55	0.37	0.92	0.48	1.18	0.55	1.35	0.54	1.32	0.51	1.25
A12	64.55	---	2A	P	low	0.06	0.14	0.06	0.14	0.06	0.14	0.06	0.14	0.06	0.14	0.06	0.14
37	64.60	64.70	1DO, 2ABC, 3ABC	R/G	mod #	0.22	0.53	0.11	0.27	0.14	0.34	0.22	0.53	0.17	0.42	0.14	0.34
A13	64.75	65.05	combine w/site 38														
38	64.70	65.05	2AB, 3AB, 1OBD	G/R/P	mod #	1.70	4.20	0.74	1.86	0.87	2.17	1.07	2.63	0.99	2.44	0.87	2.17
39	65.15	---	2ABC	I/G	mod	0.17	0.43	0.03	0.06	0.04	0.10	0.04	0.10	0.04	0.11	0.04	0.11
A14	65.30	65.40	2A	P	low	0.03	0.07	0.02	0.04	0.02	0.04	0.03	0.07	0.02	0.05	0.02	0.05
40	65.40	65.50	3BC (est.)	R/G	unknown	0.40	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	65.55	65.70	2AB(C)	G	mod #	0.79	1.96	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
42	65.80	---	3AB	G/I	low #	0.14	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
A15	65.70	65.95	2AB	P	low	0.06	0.16	0.05	0.12	0.05	0.12	0.06	0.14	0.05	0.13	0.05	0.13
43	65.95	66.30	O, 1BCD, 2AB, 3AB	R/P		3.85	9.52	0.86	2.12	1.00	2.48	1.35	3.33	1.14	2.82	1.14	2.82
A16	67.50	67.60	2AB	P	low	0.15	0.38	0.06	0.15	0.06	0.15	0.08	0.19	0.06	0.15	0.06	0.15
A17	67.75	68.00	2AB	P	low	0.71	1.74	0.14	0.34	0.16	0.41	0.27	0.67	0.17	0.43	0.17	0.42
44	68.05	68.20	2A	G	low	0.79	1.96	0.27	0.67	0.27	0.67	0.50	1.24	0.31	0.76	0.28	0.69
A18	68.35	69.00	2A	P/I	low	1.21	2.99	0.28	0.70	0.30	0.75	0.29	0.73	0.28	0.70	0.30	0.75
45	69.00	69.20	2A(B)	P	low	0.52	1.28	0.48	1.20	0.49	1.20	0.50	1.23	0.49	1.21	0.49	1.20
46	69.15	69.55	2AB, O, 1D	P/G	mod #	0.66	1.63	0.63	1.55	0.63	1.55	0.66	1.63	0.63	1.57	0.63	1.55

TABLE 3
SUMMARY OF WETLAND OCCURRENCE AND DISTURBANCE ACREAGE

SITE #	MILEPOST		WETLAND TYPES		Function & Value Rating***	158 m (520 ft) STUDY CORRIDOR		ALTERNATIVES									
								2-Lane Modified		4-Lane Undivided		4-Lane Divided		5-Lane		Preferred Alternative	
			Hydrologic Category & Veg. Dominance Type*	Hydrologic Source**		hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres
47	69.40	70.45	2ABC, 2A, 3B-C(D)	G/R	mod #	2.84	7.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A19	69.80	70.50	2A	I/G	low	0.08	0.20	0.08	0.20	0.08	0.20	0.08	0.20	0.08	0.20	0.08	0.20
48	69.95	---	2A	I	low	0.18	0.43	0.06	0.14	0.06	0.14	0.10	0.25	0.06	0.16	0.06	0.14
49	70.30	---	2AB, 3AB	P/R(I)	low	0.41	1.00	0.23	0.58	0.23	0.58	0.27	0.68	0.24	0.59	0.23	0.58
50	70.50	70.65	3BC, 2AB	R	mod #	0.13	0.33	0.09	0.22	0.09	0.22	0.12	0.30	0.09	0.23	0.09	0.23
51	71.10	71.20	2ABC	I	low	0.27	0.66	0.11	0.26	0.11	0.26	0.15	0.37	0.12	0.29	0.11	0.26
52	71.40	71.55	2AB, 3A	R(I)	low	0.55	1.36	0.30	0.75	0.30	0.75	0.38	0.95	0.32	0.80	0.30	0.75
53	71.60	---	2A, 3B	R	low	0.13	0.32	0.05	0.12	0.05	0.12	0.07	0.18	0.05	0.13	0.05	0.12
54	71.85	72.00	2AB(C), 1AD	G	mod	0.33	0.81	0.05	0.14	0.07	0.17	0.13	0.32	0.08	0.19	0.07	0.17
55	70.65	71.90	3ABC, 2ABC, 1DO	R/G	mod #	6.29	15.54	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.03	0.00	0.01
A20	72.25	72.40	2A	P(I)	low	0.19	0.46	0.06	0.15	0.06	0.15	0.06	0.15	0.06	0.15	0.06	0.15
A21	72.60	72.70	2A(B)	P	low	0.10	0.24	0.11	0.27	0.10	0.26	0.11	0.26	0.11	0.28	0.10	0.26
56	72.95	---	3BC	R	mod	0.15	0.38	0.04	0.10	0.04	0.10	0.07	0.16	0.04	0.11	0.04	0.11
A22	73.70	74.00	2AB	P(R,I)	low	0.38	0.94	0.16	0.40	0.16	0.40	0.32	0.79	0.19	0.46	0.19	0.46
57	74.00	74.20	2A, 1D, 2BC	G/R	mod	2.40	5.94	0.09	0.22	0.09	0.22	0.46	1.13	0.15	0.37	0.15	0.37
SUBTOTALS VICTOR - FLORENCE						40.67	100.48	9.09	22.49	9.94	24.61	13.76	33.95	11.03	27.32	10.27	25.45
FLORENCE - LOLO																	
58	75.60	---	3BC	G	low	0.15	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	75.90	---	2AB	I	low	0.20	0.50	0.07	0.16	0.07	0.16	0.10	0.25	0.08	0.19	0.07	0.16
60	76.20	76.40	1DAO, 2ABC	P(I)	mod #	0.78	1.93	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
61	75.50	76.30	1DO, 2ABC	G/R	mod #	2.67	6.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	76.30	76.85	3AB, 2AB, 1D0	G/R	mod	1.50	3.70	0.00	0.00	0.00	0.01	0.01	0.03	0.02	0.05	0.00	0.01
A23	76.45	76.85	2A, 3A, 1D	P	low	0.31	0.76	0.30	0.74	0.30	0.74	0.31	0.76	0.30	0.74	0.30	0.74
63	76.75	77.15	1DO, 2AB	G	mod	1.12	2.77	0.41	1.02	0.41	1.02	0.75	1.86	0.45	1.10	0.43	1.06
64	76.90	77.85	1ADO, 2AB	G	mod #	6.56	16.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
65	77.95	78.30	2AB, 1DO, 3ABC	G/R/P	mod #	5.41	13.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A24	77.35	77.70	2A	P	low	0.41	1.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00
66	78.05	79.00	2ABC, 1DO	G	mod #	1.76	4.35	0.44	1.08	0.44	1.08	0.79	1.96	0.49	1.21	0.44	1.08
A26	77.95	78.50	combine w/site 65														
A25	78.50	78.85	2A	P	low	0.04	0.10	0.03	0.06	0.03	0.06	0.04	0.10	0.03	0.07	0.03	0.06
67	78.55	79.10	1D, 2AB	P/G	mod #	2.47	6.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A27	79.15	79.40	2A	P	low	0.88	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	79.50	79.75	1DO, 2A	G/P	mod #	1.87	4.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 3
SUMMARY OF WETLAND OCCURRENCE AND DISTURBANCE ACREAGE

SITE #	MILEPOST		WETLAND TYPES		Function & Value Rating***	158 m (520 ft) STUDY CORRIDOR		ALTERNATIVES									
								2-Lane Modified		4-Lane Undivided		4-Lane Divided		5-Lane		Preferred Alternative	
			Hydrologic Category & Veg. Dominance Type*	Hydrologic Source**		hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres	hectares	acres
A28	79.60	79.75	combine w/site 68														
A29	80.35	---	2ABC	G/P	low	0.06	0.15	0.03	0.07	0.03	0.07	0.06	0.14	0.03	0.08	0.03	0.07
69	80.85	81.45	1ADO, 2A	G/P	mod #	12.82	31.69	0.55	1.34	0.58	1.42	2.43	6.01	0.98	2.41	0.61	1.51
A30	80.80	81.55	combine w/site 69														
70	81.50	81.85	combine w/site 69														
A31	81.55	81.90	combine w/site 69														
71	81.85	82.00	2A, 1ADO	G/P	mod	4.09	10.09	0.30	0.75	0.30	0.75	0.71	1.75	0.38	0.93	0.30	0.75
A32	81.50	82.00	combine w/site 71														
72	82.80	82.90	3BC, 2A	R/G	mod	1.37	3.38	0.07	0.17	0.07	0.17	0.16	0.39	0.07	0.18	0.07	0.18
SUBTOTALS FLORENCE - LOLO						44.47	109.88	2.20	5.40	2.23	5.51	5.37	13.27	2.84	7.00	2.28	5.63
GRAND TOTAL						107.41	265.39	16.50	40.76	18.13	44.85	27.76	68.54	20.73	51.24	18.95	46.88

* Wetland Types follow the Montana Interagency Wetlands Group (1988) as modified from Novitsky 1979.

1 Hydrologic Category = sites with permanent shallow (<6.6 ft) water [>9 mos/yr]
Vegetative Dominance Type
- A - Floating
- B - Rooted Submerged
- C - Rooted Floating-Leaved
- D - Rooted Emergent
- O - Open Water

2 Hydrologic Category = sites with seasonal or permanent water tables, but without permanent standing water
- A - Herbaceous
- B - Shrub
- C - Forested
- D - Unvegetated

3 Hydrologic Category = riparian sites adjacent to streams or rivers with seasonally saturated soil conditions
- A - Herbaceous
- B - Shrub
- C - Forested
- D - Unvegetated

** Hydrologic Source: I=irrigation supported; R=riparian; P=ponded generally due to highway or railroad berms; g=groundwater supported

*** Function and Value Rating: See Wetlands Evaluation Report. "#" = slight increase due to professional judgement

F. DESCRIPTION OF DISPOSAL METHOD

The type of disposal methods will depend on the type of construction that is undertaken in a specific location. The following sections describe the general construction methods which would be used for "build" alternatives selected to widen the existing highway, build a new highway, or construct a bridge or culvert in the vicinity of surface waters and wetlands.

- **Roadway Widening**: When widening the highway, it would be necessary to place fill in wetlands which are encountered along the highway. The fill material would be placed in the wetlands by large earth-moving and excavation equipment. The material would likely be from nearby source pits or excess material from other areas within the project corridor. The fill would be necessary to construct the proper side slopes and adjust the elevation of the roadway.

- **New Roadway Construction**: The construction method for new roadway construction would be similar to the methods used when widening the highway. Where necessary, the area where fill is to be placed would first be cleared of trees and shrubs then fill material would be placed and compacted in relatively thin lifts. Disturbance of the area would be more pronounced due to the larger areas of wetlands which would be filled and the need to clear vegetation where new fill is to be placed.

- **Bridge and Culvert Construction**: Bridge construction would require that the streambed be excavated to construct the footings, piers and abutments for the structure. Culvert construction would also require excavation in the streambed to lay the pipe or box culvert.

  To minimize the impacts, the Contractor would isolate the construction activities from the stream channel. This can be accomplished by using cofferdams. Cofferdams are temporary structures which are constructed in the streambed and enclose the construction activities. After they are in place, the river water trapped within the dam is pumped out to expose the river-bed and facilitate the excavation and construction activities. The excavated materials and pumped water from within the cofferdams would be transferred to a temporary settling pond to remove the sediment. The sediment would be disposed of in proper locations and the water would be returned to the stream. The locations of the settling ponds would be identified before the construction permits were obtained.

  Cofferdams can be constructed by wrapping sheet pile or heavy plastic around steel piles which are driven into the streambed. For piers and abutments, a concrete base is usually poured to seal the cofferdam. Temporary ladders and scaffolding would be required for equipment and workers to use during construction.

SECTION III. FACTUAL DETERMINATIONS (Section 230.11)

Determinations include both the individual and cumulative effects of the discharges for both the short and long-term where applicable.

A. PHYSICAL SUBSTRATE DETERMINATIONS

1) **Substrate Elevation and Slope**: The elevation and slope of the streambeds which will be impacted by US Highway 93 improvement alternatives would not be adversely affected by any of the construction alternatives. In nearly all cases the existing channel characteristics will be preserved. The placement of fill materials along the banks of the streams paralleling the highway may require some minor localized changes to the elevation, and slope of the stream channel. Overall stream flow gradients and regimes in these limited areas would not change or create velocity changes sufficient to cause or abnormal deposition or scour problems.

2) **Compare Fill Material and Substrate at Discharge Site**: At the stream crossings, the substrate is expected to be smooth cobbles with clean gravels and fine sediments along the embankments and in the streambed. The fill used would be select granular backfill having very similar characteristics.

   Substrates in wetland areas would be fine sediments supplied by feeder streams and precipitation runoff. The fill material placed in the wetlands or stream crossings would either be granular material from nearby sources or excess material from the project itself. Therefore, the two materials would be expected to have similar constituents and be compatible to the native soils.

3) **Dredged/Fill Material**: The fill materials used in the stream crossings would be granular materials which are not susceptible to movement by water action. Since the water velocity in the wetland areas is relatively negligible, material movement will not be a problem.

4) **Physical Effects on Benthos Invertebrates/Vertebrates**:

   a) **Physical Effects on Benthos**: Benthic organisms would only be impacted along the streambanks or in the wetland areas where fill materials would be placed. In the long term, the benthic organisms would relocate and re-establish themselves in the fill material. Therefore, the only physical effects on benthos should be short-term localized impacts.

   b) **Invertebrates**: Similar to the physical effects on benthos, the impacts to aquatic invertebrates will also primarily be short term. Fill material placed along the river bank or in wetlands would bury existing organisms, but new organisms would be expected to quickly re-establish themselves in these areas. Additionally, construction activities could cause localized increases in suspended sediment, which would adversely effect aquatic insects that rely upon sight to find food. Increased sediment levels also clog interstitial spaces in the river-bed which invertebrates use for habitat, but such will quickly regenerate when turbidity is abated and "flushing" occurs.

   c) **Vertebrates**: Sediment from the erosion of disturbed areas is the primary source of adverse impacts to aquatic vertebrates. For the study area, "aquatic vertebrates" applies primarily to fish. Sediment in streams affects fish by increasing silt in spawning gravel and rearing habitat. This suffocates the eggs or fry and affects the aquatic organisms that fish rely on for food. Sediment is also abrasive to fish gills. The use of best management practices for erosion control should alleviate these adverse impacts or reduce them to short-term and tolerable levels.

Whenever possible, recommended construction should be timed so that it does not coincide with spawning runs when migration movements could be disrupted or blocked.

Toxic materials can also cause problems for fish. Toxins can be introduced to the streams by runoff or through accidental spills or contact with hazardous materials. Again, best management practices during construction should minimize these problems.

The effects of the proposed action on fish and other vertebrates found in the study corridor are described in Section 4.11 of the EIS.

5) **Erosion and Accretion Patterns**: Except for the Silver Bridge realignment, none of the alternatives would alter erosion or accretion processes that are currently naturally associated with the streams in the project area. At the Silver Bridge realignment site (milepost 49.5), the existing flow pattern of the Bitterroot River has caused undesirable erosion and accretion patterns. When the bridge was originally constructed, the floodplain was narrowed by approach fills and directed westward in order to narrow the crossing.

   This condition has caused scour and erosion at the bridge location. This eroded material has been deposited downstream from the bridge and altered the original course of the river by blocking the main easterly channel and forcing the water through a smaller westerly channel that runs past the mouth of Blodgett Creek and then passes Blodgett Park where subsequent erosion is occurring.

   By realigning the highway, the narrow crossing could be removed and the river could be returned to its original course; therefore the impact of the proposed alternatives would be beneficial.

6) **Actions Taken to Minimize Impacts**: Measures can be incorporated into the proposed action to minimize the impacts to the streams and wetlands:

   a) Select the "no action" or "no build" alternatives if practicable.

   b) Design to avoid wetland or stream areas if at all possible by shifting alignment or altering grade.

   c) Place the fill in the smallest area possible.

   d) Use fill materials that are similar to the substrate whenever possible.

   e) Schedule the timing and duration of the construction activities to coincide with the lowest flows possible.

   f) Use the Montana Department of Transportation Highway Construction Standard Erosion Control Work plan to identify best management practices for erosion control that are specific to any proposed actions. The goal of the plan will be to prevent erosion of disturbed areas and minimize the discharge of pollutants and sediments into surface waters. The Contractor for improvements will be required to follow the recommended BMP's. The selection of the BMP's would be done during the final design activities and at the discretion of the highway designer.

B. WATER CIRCULATION, FLUCTUATION AND SALINITY DETERMINATIONS

1) **Water**: The EIS contains a discussion of surface waters and their associated quality. The following sections discuss the proposed action's impact on various components of the water quality.

a) **Salinity**: No site specific tests for salinity have been performed. However, observations of streams and wetlands in the project corridor showed no saline areas. Although velocities are slow, water in wetland areas is continually resupplied and drained away. There are no known impoundment areas where water could be reasonably expected to increase in salinity. Such changes would most likely result from altering the hydraulic regime and interconnection of wetlands and streams or the use of fill materials significantly different from native soils -- neither of which are expected to occur as a result of the proposed action.

b) **Water Chemistry**: Although no site specific tests have been performed, there is no reason to suspect that the proposed action would significantly alter the alkalinity, hardness, pH level, or mineral concentration in the surface waters. Information obtained on ambient water quality shows water chemistry to be within acceptable limits.

c) **Suspended Sediments**: Construction improvements would cause temporary, localized, minor increases in suspended sediments during construction activities especially near streams where fines in the new fill material are transported from the disposal sites by water currents. Stable, granular fill materials would be used to minimize these impacts.

d) **Clarity**: During the placement of fill materials along stream embankments, there may be temporary, localized increases in turbidity. These increases in turbidity would be very minor compared to the increases which naturally occur during spring run-off conditions or after heavy rainstorms.

e) **Color**: The placement of fill materials in wetlands and streams could disrupt the substrate and increase the suspended sediments and turbidity in the water. This would have the effect of temporarily and locally altering the color of the waters in the vicinity of the construction activity, especially immediately following the fill placement. This change in color would be similar to the change in color during the spring runoff when high concentration of sediments from the surrounding drainages give the river a milky color.

   This short-term impact would be minimal.

f) **Odor**: The project would not significantly cause any unnatural odors in the streams and wetlands.

g) **Taste**: The project would not significantly alter the taste of the surface water or the groundwater in the project area precluding any unforeseen spills or highly abnormal conditions.

h) **Dissolved Gas Levels**: Because improvements are not expected to significantly increase the turbulence of flows, stagnation in the streams and wetlands, or cause other changes to hydraulic regimes, it is unlikely that the existing dissolved gas levels will be altered in any way.

i) **Nutrients**: Nutrient loads such as phosphorus and nitrogen predominantly come from non-point agricultural sources along the river or stream course, point discharges such as wastewater treatment plants, and other naturally occurring high organic loads such as decaying algae. None of these conditions are expected to be impacted by the proposed action and since the hydraulics of wetlands and surface waters through the project area will be maintained, there should be no impact from nutrient loading.

   Nitrate residual could be found on rock blasted for removal during construction. If such is placed in water courses, it could provide a temporary low level source of nitrogen. Presently

there are no known areas on the project where blasting of rock will be necessary. If shotrock is used for rip-rap, nitrate residuals would be quickly flushed and diluted to insignificant levels.

j) **Eutrophication**: The proposed action is not expected to contribute significant quantities of sediments or nutrients to the Bitterroot River drainage. The waters impacted by the project are primarily streams and wetlands, not lakes. Streams are generally well-mixed and plant growth induced by excessive nutrients is generally not a problem. Wetlands are, by their nature, already subject to eutrophication. Since there will be no significant increase in nutrients and the hydraulic regimes will be preserved, there should be no impacts from increased eutrophication.

2) **Current Patterns and Circulation**:

a) **Current Patterns, Drainage Patterns, Normal and Low Flows**: All the local cross-highway drainage crossings and patterns will be maintained. In areas where entirely new fills are to placed (i.e. near the Silver Bridge crossing) a foundation blanket of granular material could be constructed for the fills that would allow passage of surface water through areas not already served by culverts and bridges. Seasonal variations in stream flow and groundwater table do naturally affect flow volumes and hydraulic patterns. However, none of the proposed improvements are expected to change or alter these patterns and the total flow of water in the Bitterroot River drainage should not be altered.

b) **Velocity**: The intent of the design of the new bridges will be to maintain the existing velocities in the streams. The drainage culverts will be designed to keep velocities low enough to minimize erosion at the outfalls.

c) **Stratification**: Proposed improvements are not expected to alter the current stratification of waters in any of the streams or wetlands.

d) **Hydrologic Regime**: Improvements would not be expected to affect the hydrologic regime currently existing in the Bitterroot River or its tributaries.

e) **Aquifer Recharge**: The proposed action would not have any adverse effect on the quality or extent of the aquifer recharge.

3) **Normal Water Level Fluctuations**: Wherever possible, the bridge openings and culverts would be sized and designed to accommodate the 50-year discharges without significantly altering the stream elevation or causing backwater problems. Additionally, bridges will also be designed to safely pass a 100-year flow.

4) **Salinity Gradients**: Because there are no known locations of salinity within the project area, salinity gradients will not be a problem.

5) **Actions That Will Be Taken to Minimize Impacts**: To minimize impacts the following measures will be taken:

a) Bridge and culvert openings will be sized to maintain the existing water levels and velocities in the streams, as much as possible.

b) Culverts and hydraulic structures will be placed and sized to maintain the existing cross-highway drainage and to allow for fish passage. Additional culverts may be added to preserve or restore flow between connected or bisected wetlands.

c) Whenever possible, the fill material will be placed to maintain the existing hydraulic properties of the streams and wetlands.

d) Granular material will be used as a foundation for new embankments, thus maintaining flow through them.

C. SUSPENDED PARTICULATE/TURBIDITY DETERMINATIONS

1) **Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site**: The placement of fill at stream channel crossings may introduce some fine materials to the surface waters, which would cause temporary increases in the level of suspended particulates during construction. The placement of fill may also cause unnatural turbulence, which may resuspend bottom sediments. As a result, turbidity levels may temporarily increase in the vicinity of stream or wetland encroachments.

   Stormwater runoff from areas in the vicinity of streams and wetlands can also transport sediments to the surface waters. This would result in an increase in suspended particulates and turbidity levels. It will be necessary to ensure that a standard erosion control work plan is carefully established and followed to keep erosion to a minimum.

2) **Affects on Chemical and Physical Properties of the Water Column**:

   a) **Light Penetration**: Increased levels of suspended particulates and turbidity in the surface waters near the construction site can also decrease the amount of light penetration. These impacts would be short-term and would occur only temporarily during the construction activities.

   b) **Dissolved Oxygen**: The suspended particulates introduced to the surface waters by the placement of soil will be for the most part inorganic. Therefore, no additional biochemical oxygen demand (BOD) should occur. In addition, the proposed action should not result in any increased turbulence or stagnation of the surface waters to the point of affecting the dissolved oxygen levels.

   c) **Toxic Metals and Organics**: Since the fill materials used for construction would be obtained locally, they should be similar to the soils at the existing stream crossings. Water quality data for surface waters in the Bitterroot Valley indicates that toxic metals and organics are not excessive or a problem. No fill material would be taken from any hazardous material site identified in the Hazardous Material Section of the EIS.

   d) **Pathogens**: There are no known major sources of viruses or pathogenetic organisms in the project area, although livestock and wildlife waste is evident in several places throughout the corridor. The use of clean, inorganic fill material would prevent introducing pathogens.

   e) **Aesthetics**: The project would affect the aesthetics of surface water in the Valley similar to the spring runoff conditions but at a much smaller scale. The effects would only be temporary, localized, and occur near or just downstream of the actual construction activities. The expected impacts are the increased suspended particulate levels in the surface waters near the placement activity which would rapidly disperse as distance from the source increases.

3) **Effects on Biota**:

a) **Primary Production, Photosynthesis**: The project should not substantially lower the rate of photosynthesis and primary productivity in surface waters. As indicated in the previous section, changes in suspended particulates and turbidity levels are expected to be localized and temporary. These conditions should not be significant enough to effect the level of dissolved oxygen in the surface waters.

b) **Suspension/Filter Feeders**: Examples of collectors and filter feeders include net spinning caddis larvae and burrowing mayfly nymphs, which capture and use organic particles suspended in the water current. Due to the increased levels of suspended particulates and turbidity near construction activities, these organisms would be impacted. Excessive sediment can bury organisms, abrade their gills, and damage their habitat. However, the impacts would be very localized and short-termed. The organisms would be expected to naturally repopulate the area very quickly after the construction activities have been completed.

c) **Sight Feeders**: Sight feeders, like stonefly nymphs, rely on clear water to find their food. Therefore, they would be impacted by the short-term, localized increases in suspended particulates and turbidity due to the placement of fill materials. Similar to filter feeders, excessive sediment can bury these organisms, abrade their gills, and damage their habitat. Suspended particulates and turbidity should rapidly diminish after the actual placement of fill materials, allowing quick recovery for sight feeders.

4) **Actions Taken to Minimize Impacts**: The primary actions taken to minimize impacts resulting from suspended particulates and turbidity in the surface waters are to establish an erosion control plan. An erosion control work plan will be selected and designed to prevent or reduce erosion and release of sediment from construction areas. For this purpose, the Standard Erosion Control Work Plan for the Montana Department of Transportation will be used. Temporary, site-specific erosion control structures or practices will be selected based on best management practices (BMP's) for highway construction projects.

The work plan will be used to acquire a Montana Pollutant Discharge Elimination System (MPDES) permit. The goals of the erosion control plan will be to plan the development to fit the project setting, to avoid or minimize the extent of disturbed area and duration of exposure, to stabilize and protect disturbed areas as soon as possible in order to keep runoff velocities low, to protect disturbed areas from runoff, retain sediment within the corridor, and implement a thorough maintenance and follow-up program. BMP's used may include slope roughening, temporary seeding, mulching, erosion control blankets, straw bales, gravel filter berms, ditches, silt fences, and settling basins.

D. CONTAMINANT DETERMINATIONS

1) **Evaluation of the biological availability of pollutants in dredge or fill material**:

a) **Physical Characteristics**: The physical characteristics of any fill or dredge materials would have particle sizes and constituents very similar to those of the project area since the fill would be obtained from local sources. Fill material would be clean and free of hazardous and toxic pollutants, pathogens, and organics.

b) **Hydrography in Relation to Known or Anticipated Sources of Contamination**: The project crosses many small streams, drainages, and the Bitterroot River. This presents the possibility of contaminants from highway runoff or accidental hazardous material spills being introduced

to surface waters. During the construction phase, storm water runoff would be controlled by an erosion control plan. By widening the highway and improving the crossings, the potential for accidents at these crossings would be reduced.

c) **Results from Previous Testing of Material or Similar Material in the Vicinity of Project**: A detailed Hazardous Materials Assessment was performed for the US Highway 93 right-of-way corridor. Although areas of concern were identified throughout the project corridor, no documented evidence of significant existing contamination was observed. The assessment included a physical site investigation, review of public and agency records, and maps. Several historic spills were noted but have since been cleaned up. Storage tanks exist but have not been documented as leaking. All sources of fill material used throughout the project will have the required environmental clearances.

d) **Known Significant Sources of Persistent Pesticides from Land Runoff or Percolation**: Although there is a fair amount of agricultural activity in the project corridor, there are no known significant point or non-point sources of pesticides present. Water quality data in the area shows no present concern for these constituents.

e) **Spill Records for Petroleum Products or Designated Hazardous Substances**: The hazardous materials assessment provides detailed information on spill records in the project area. In summary, a diesel fuel spill occurred in 1986 at milepost 50.0, which is near a wetland. However, the spill was cleaned up and Water Quality Bureau personnel authorized termination of monitoring the site in 1992 when they believed residual contamination no longer presented a threat to human health or the environment. Also in 1986, a fertilizer spill occurred at milepost 51.6 where a wetland exists. Water Quality Bureau personnel also considered this spill to be adequately cleaned up.

f) **Other Public Records of Significate Introduction of Contaminants from Industries, Municipalities, or Other Sources**: To complete the hazardous material assessment, public records were closely examined in order to find any evidence of contaminants from these sources. Although industries, municipalities, gas stations, and other businesses exist throughout the project corridor, no documented evidence of significant contamination within the right-of-way was observed in the public records.

g) **Known Existence of Substantial Material Deposits of Substances that Could be Released in Harmful Quantities to the Aquatic Environmental by Man Induced Discharge Activities**: As shown by the hazardous materials survey, substantial material deposits of substances that could be released in harmful quantities to surface waters by construction activities are not known to exist in the project area.

h) **Other Sources of Contaminants**: Other sources of pollutants that may be present in dredged or fill materials include road salts, de-icing chemicals, and dust suppressants. FHWA research has concluded that these sources have minimal impacts to receiving surface waters providing standard, acceptable construction practices are followed. Vegetation and soils play an active role in filtering, diluting, and neutralizing the pollutant levels from these sources.

2) **Contaminant Determination**: The material given in the Hazardous Material Assessment Report was carefully examined and it was concluded that there is no reason to expect that any proposed fill material would be a carrier of contaminants.

The fill material will be obtained from sources that have the required environmental clearances to assure that no fill material with pollutants is used on project.

An evaluation of the above information indicates that there is reason to believe the proposed dredge or fill material is a carrier of contaminants. Therefore, the material meets the testing exclusion criteria.

E. AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

1) **Effects on Plankton**: Plankton will be primarily affected by changes in suspended sediments, turbidity, and pollutant levels resulting from the construction activities. As previously discussed, these effects will only be short-term and localized.

2) **Effects on Benthos**: The project effects on benthos were discussed in Section III. A. 4 of this evaluation.

3) **Effects on Nekton**: Nektons are aquatic organisms such as fish that are able to move independently of water current. These were discussed previously in Section III. A. of this evaluation.

4) **Effect on Aquatic Food Web**: Due to the proposed improvements not significantly impacting organisms at any intermediate level of the aquatic food web, the overall, long-term cumulative effect on the aquatic food web is expected to be insignificant.

5) **Effects on Special Aquatic Sites**:

   a) **Sanctuaries and Refuges**: State, federal, or local agencies have not designated any wildlife or water fowl, sanctuaries, or refuges within the project area. Therefore, none would be impacted by the project. The closest, the Metcalf National Wildlife Refuge, is located between Stevensville and Florence on the east side of the Bitterroot River which is well away from the river. Therefore, this refuge should not be impacted by the proposed improvements.

   b) **Wetlands**: The delineated amount of jurisdictional wetland acreage occurring within the study corridor is 170.1 hectares (260.5 acres). There is a variety of wetland resources in the area. Several extensive wetland areas are already bisected by the highway (and railroad). These occur at Squaw Creek (mp 75 - 80), McCalla Creek (mp 63 - 66), and Fred Burr Creek (mp 54 - 56). These areas are hydrologically tied to the Bitterroot River. The highway also crosses numerous perennial and intermittent creeks. Many of these areas are dominated by riparian communities. Wetlands typically comprise 50 to 90 percent of these areas.

   For the preferred alternative approximately 19.4 hectares (48 acres) of wetlands would be impacted as a result of the proposed action. This amount is substantially reduced from the 36.4 to 46.9 hectares (90 to 116 acres) initially estimated for the individual "build" alternatives. Substantial efforts have already been made to redesign the roadway alignment and grade to reduce impacts to this significantly lower level as discussed in the EIS. Approaches to mitigate the impacts to these wetlands will be discussed in Section III. E. 9.

   c) **Mud Flats**: There are no mud flats in the project area, and the project would not create any new mud flats.

   d) **Vegetated Shallows**: These are areas that are permanently inundated and support rooted, aquatic vegetation like cat-tails and sedges. These areas are generally classified as wetlands. Approximately 36.3 hectares (89.6 acres) of wetlands in the project corridor have been identified as vegetated shallows with rooted emergent growth. Of these 36.3 hectares (89.6 acres), approximately 10.8 hectares (26.8 acres) would be impacted by the preferred alternative.

e) **Riffle and Pool Complexes**: Riffle and pool complexes occur when the gradient of the stream channel varies from steep to shallow. Most of the crossings associated with the highway are in reaches of streams where the gradient is beginning to flatten out as it approaches the Valley floor and the main stem of the Bitterroot River. There remains sufficient gradient, meanders, and cobbles and boulders to create riffle and pool complexes. However, there are a few such as McCalla Creek, Fred Burr Creek, and Squaw Creek that are sufficiently low in gradient and placid as to not have riffle/pool complexes in the vicinity of the highway crossings. Whereas bridges and other hydraulic structures will be engineered to maintain existing hydraulic characteristics, adverse impacts on these complexes are not anticipated.

6) **Effects on Threatened and Endangered Species and Their Habitat**: Habitat and foraging areas for two federally listed wildlife species (bald eagle and peregrine falcon) occur in or near the project area. Waterfowl concentrations, fish populations and carrion (primarily roadkill) are abundant and provide foraging opportunities for the eagles and falcons. Nesting habitat for the bald eagle is also present.

A detailed Biological Assessment of the project's impact on threatened and endangered species has been prepared and is being reviewed by the USFWS. It indicates no adverse impacts on threatened or endangered species are associated with the proposed action and USFWS is expected to concur.

7) **Effects on Other Wildlife Mammals, Birds, Herptiles, Fish, Invertebrates, Candidate Endangered Species, State Endangered Species, and Species of Special Interest or Concern and their Habitat**: A diversity wildlife habitat and use occurs in and near the study corridor. Most outstanding is the amount of wetland and riparian habitat. These areas provide habitat for a variety of wildlife, such as the neotropical migrant song birds, waterfowl, raptors, small mammals, and white-tailed deer. Fox and coyote also occur within the project area. A Biological Assessment has been prepared to evaluate the project's impact on the wildlife in the area. A separate field study was also conducted to specifically address deer roadkill within the project area. Although deer mortality from vehicle collisions will likely continue, the assessment concludes there will be no adverse impacts to wildlife resulting from the proposed action.

Two sensitive species listed by the Forest Service that could occur within the project are the bulltrout and the westslope cutthroat trout. Impacts to these species from the proposed action were evaluated in the Biological Assessment and were found to be negligible since they occur in upstream reaches, well away form the project corridor.

8) **Actions Taken to Avoid and Minimize Impacts**: According to the Clean Water Act, Section 404 Guidelines, and the State of Montana's Interagency Memorandum of Understanding (1992), permit issuance will only be allowed for the least environmentally damaging, practicable alternatives. No discharge of materials into wetlands or waters of the United States can be permitted if there is a practical alternative to the proposed discharge, which would have less adverse effects to the aquatic ecosystem and as long as the alternative did not have other significant adverse environmental consequences. Therefore, the preferred alternative, identified in the EIS, was carefully selected to represent the least damaging, practicable alternative.

After initial evaluations of "build" alternatives indicated wetland impacts on the order of 36.4 to 46.9 hectares (90 to 116 acres) for the 56.3 km (35 mi) corridor, it was determined by MDT and the Interagency Wetland Group that further efforts at avoidance were required. Accordingly, the alignment and grade of the preferred alternative were carefully re-engineered to first maximize avoidance and then to minimize unavoidable impacts to the extent possible.

The results of this effort are commendable -- unavoidable wetland impacts have been reduced to 19.4 hectares (48 acres) for the 56.3 km (35 mi) corridor. Compensatory mitigation including 1:1 replacement of acreage and replacement or enhancement of wetland functions and values is being developed. The hydraulic and hydrologic character of the corridor present ample opportunity for constructing new wetlands and a successful mitigation project has already been constructed by MDT and cooperative agencies on the Lee Metcalf National Wildlife Refuge. Efforts are currently underway to develop a 20.2 hectares (50 acres) wetland replacement site with specific vegetation and monitoring plans to demonstrate achievement of replacing or enhancing functions and values lost through impacts to wetland areas resulting from the proposed action.

Additional efforts to minimize impacts to wetlands are as follows:

a) Whenever possible, steeper sideslopes and smaller fill volumes will be used for construction in wetlands and at stream crossings.

b) Fill material will be used that is similar to the existing substrate in particle size and constituents. Only fill material from sources with the appropriate environmental clearances will be used.

c) MDT's Highway Construction Standard Erosion Control Work Plan will be used to identify Best Management Practices for control of erosion and sediment transport both in areas impacted and in nearby areas avoided.

d) All disturbed areas will be restored to an acceptable condition. This will include mulching, reseeding, and the use of other erosion control or best management practices.

e) Lengthening of bridges or guardrail may be considered in riparian crossing areas to minimize fill in these areas.

f) Any water pumped from inside cofferdams will go to a settling pond before it is reintroduced to the surface waters.

g) Any unavoidable construction related to disturbances will be timed, whenever possible, to occur during periods that will create the least damaging impacts.

Other measures will be taken to minimize environmental impacts of the proposed project. These measures are further discussed in the EIS.

9) **Compensatory Actions Taken to Mitigate Impacts**: Although all possible action will be taken to avoid and minimize impacts to wetlands and surface waters, some compensatory mitigation will still be required. It is the current policy of the Environmental Protection Agency and the Department of Army - Corps of Engineers to provide compensatory mitigation in areas adjacent or within the project area whenever possible. After these efforts are exhausted, then off-site compensatory mitigation should be pursued.

The over-riding concept of compensatory mitigation is to replace or mirror functions and values of wetlands that will be unavoidably lost through the proposed action. The approach to compensatory mitigation is being developed by MDT in concert with the Montana Interagency Wetlands Group, which includes representatives of State and Federal agencies. The approach adopted by MDT policy is to follow a sequence of compensatory mitigation -- to first look at developing replacement wetlands on-site, then look at off-site opportunities, and as a last resort considering "banking" if additional replacement is still required.

It is recognized that replacement of a natural wetland community is a difficult and challenging process that requires a lengthy period of time, careful design, thorough development of vegetation plans, and constant monitoring to evaluate the success and to modify the plans where measures have not met with success.

While other considerations are discussed below under off-site mitigation, the key to any replacement or enhancement option is to maintain or establish a reliable source of water to the new area. Even though wetland hydrology is the most difficult parameter to replicate or create in newly constructed wetlands, it is felt the prevailing conditions in the project corridor (and Bitterroot Valley) are conducive to providing both surface and groundwater sources that can be utilized to increase the chances for long-term success in wetland mitigation.

Surface water sources are abundant in the streams flowing down from the Bitterroot Mountains across the study corridor to the Bitterroot River. Groundwater also makes its way through sand and gravel layers interspersed with clay lenses that perch the groundwaters at relatively shallow levels throughout much of the area. It is these very conditions that have created the frequency of wetland occurrences in the project area and the prevalence of such conditions greatly increases the chance for successful mitigation.

An example of successful wetland mitigation has already occurred at the Lee Metcalf National Wildlife Refuge immediately east of the project corridor. MDT and other agencies collaborated on a successful project to create additional wetlands on the property. The result has been very successful in replacing and enhancing functions and values lost in other wetland areas that were disturbed for construction. Thirteen hectares (32 acres) are still available at this site as credit for compensatory mitigation.

A description of the sequential considerations for compensatory wetland mitigation follows:

a) **On-Site Mitigation**: The definition used for on-site mitigation is any areas within reasonable proximity (1.6 km [1 mi]) of a disturbed wetland area. Use of on-site mitigation has generally been discouraged by the biological experts who studied the corridor. After much study and collaboration, these experts agree that more wetlands in close proximity to the highway contribute to the deer kill problem; therefore accentuating monetary losses from property damage.

   There are thin ribbons of wetlands along the borrow areas of the existing highway. These areas are low in function and value with regard to wildlife habitat and are generally felt to be non-consequential in relation to the deer kill problem. However, they do provide important functions and values in terms of sediment storage, filtration, and nutrient removal from roadside runoff. These areas occur as a natural consequence of highway construction and will likely be recreated when new borrow ditches along the widened highway are constructed.

   Proper coordination during engineering design, coupled with development of aggressive wetland vegetation plans and a thorough monitoring program should assure the successful recreation of many of these areas with functions and values matching existing conditions.

   Another opportunity for on-site mitigation could be the enlargement of existing wetland areas adjacent to the highway that are not directly impacted by new construction. Perennial and intermittent water sources are common in these areas together with hydrologic, soil conditions, and vegetation similar to the adjacent site. In most cases, it would be a straightforward matter of purchasing additional property or obtaining land owner permission to excavate the border areas to match elevations in the existing wetland and aggressively revegetate them with similar plantings.

It may be possible to expand or enhance the area around sites 15, 28, 35, 38, 61, 65, 66, 69, 70, and 71, as shown on wetland maps in the EIS. Other possible areas include between milepost 80 and 81 on the east side of the highway and old gravel pits near milepost 57, although they would likely need to be sealed and inundated with water only to a shallow depth. Many suitable wetland plant species are already available on site for propagation and planting.

Other opportunities for enhancement of existing wetlands exist. This could be accomplished by improving the hydraulic flow regimes, excavation to allow greater influence of surface water, and/or planting of additional species to provide habitat and cover. While such enhancement does not provide for 1:1 replacement of lost areas, it can provide for improvements in the functions and values of the wetlands in the area.

b) **Off-Site Mitigation**: Off-site mitigation is defined as greater than one mile from the disturbed area but within or near the study corridor. For the purposes of this project, the study corridor is approximately 3.2 to 4.8 km (2 to 3 mi) wide extending from the base of the Bitterroot Mountain foothills on the west, eastward to the Bitterroot River. US 93 essentially bisects this corridor through the length of the project. In looking at possible mitigation sites, it is important to identify criteria that will contribute to successful implementation and long-term performance for the functions and values required. Although not necessarily in order of priority, the following criteria have been established and will be considered in selecting off-site mitigation areas:

- Land use and growth - the west side of the Valley (through which the highway passes) has been largely developed or will be developed into subdivisions or tract development. Figure 4-5 in the EIS shows the areas developed or platted for development sometime in the future. Areas where the ground is not platted for development is primarily due to its non-developable nature (floodplains or wetlands). These areas are mostly east of US 93 between the highway and the Bitterroot River.

  To assure the success of off-site mitigations it will be necessary to avoid the future development areas where the man/biota conflict is likely to occur. From Figure 4-5 in the EIS it appears the mitigation opportunities are more prevalent near the river where the Valley floor is flatter, the incidence of ponded surface water is greater, and large blocks of undevelopable land are available to preserve extensive habitat and improve successful wetland mitigation.

- Longevity - Similar to the land use and growth discussion, wetland mitigation should be developed in areas offering the opportunity for perpetuity. Areas associated with the floodplain of the Bitterroot River will not only be replenished by surface waters on a continuing basis but by virtue of their location in the floodplain will be protected essentially forever from human development encroachment.

- Groundwater - The hydrology of the study area is very unique. The water table is higher in the summer due to irrigation than during the winter. The geologic setting and soil stratification are conducive to perched shallow water tables that are an essential ingredient in wetland establishment and growth. Groundwater maps are available (Figure 3-2 of the EIS) that clearly show areas of shallow groundwater. Additional drilling can be conducted to verify the presence and availability of groundwater at a given site. This mapping can be overlain on the land use and growth maps to quickly identify the areas with maximum conditions conducive to successful wetland establishment.

- Distribution of "Refuge" Areas - Since wetland habitat exists throughout the Valley corridor, it would be advisable to distribute the replacement refuge areas. This distribution may help assure the success of mitigation efforts by utilizing a number of

different sites to take advantage of the resources available. It would also reduce the chances of developmental impacts affecting a large volume of wetlands all at once if the site were in only one area.

Having already examined these conditions, project biologists feel there is substantial opportunity for successful mitigation.

Several private land owners with suitable sites for wetland development in accordance with the foregoing criteria have been in contact with project personnel and MDT. Additionally, a local Land Trust organization has identified several other land owners that have interest in wetland development.

Currently a significant wetland restoration project has just been completed at the Tucker Crossing Ranch. This property formerly belonged to Carl Rey and was sold to Charles Schwab who has desired to develop a portion of it as a wetlands restoration project. MDT has a formal written agreement with the landowner and provided funding for the project. The area is protected and preserved as a conservation easement. The project restored degraded wetlands back to their original functions and values and created additional new wetlands with high functions and values. Over 12 hectares (30 acres) of restored or newly created wetland areas has been achieved.

Successful on- or off-site mitigation will require careful attention to specific design details of the wetland areas in terms of hydraulics and hydrology, the establishment of an aggressive vegetation plan utilizing indigenous wetland material from nearby complexes, and the development of a thorough monitoring plan that will provide for mid-course corrections as needed. The monitoring plan would basically allow a two to three year period to observe the success of the vegetation plan. It would continue to monitor the successful growth and survival over perhaps a five or even ten year period to assure the mitigation "takes" and will preserve aquatic resources and functions and values in the long-term.

c) **Wetland Banking**: The last option of compensatory mitigation is the establishment of a wetland bank. Similar in criteria, development, and establishment to the off-site mitigation described in the foregoing section, the wetland banking would generally be considered as being outside the project corridor and probably larger in size (acreage). Banking attempts to maximize the mitigation and improve the efficiency of developing large areas of wetland mitigation in a single effort.

Banking has successfully been accomplished in other areas of the Bitterroot Valley. Biologist feel the opportunities for successful off-site mitigation are high enough that wetland banking may not need to be considered. While MDT biologist are keeping an eye on banking opportunities such as the Lee Metcalf Wildlife Refuge and their ability to satisfy the compensatory mitigation requirements of several individual highway projects, the current main emphasis is on successful development of off-site mitigation areas such as the Tucker Crossing Ranch project.

10) **Monitoring of Mitigative Actions**: To ensure compliance with wetlands policy and increase the chance for successful mitigation efforts, inspections will be made by the Project Manager, MDT's Wetland Biologist, and other interested agency representatives before, during, and after the wetlands replacement. These inspections are likely to occur as follows:

a) During the plan-in-hand visit prior to initiating development of the wetland.
b) At a visit made prior to the final grading for the wetlands.
c) When the wetland is planted.

d) The first full summer after the completion of the wetlands construction to determine the preliminary success of the project.
e) During the next three to four growing seasons (interim inspections).
f) In the fourth or fifth season after establishment of the wetland area to obtain enough data and observation to determine whether or not the mitigation has been successful (final inspection). If not, plans can be formulated for correction or a decision made to abandon the site and try elsewhere if solutions to assure success at the site are not apparent.
g) On a periodic basis to assure no adverse changes in groundwater hydrology (long-term monitoring).

Implementation of the proposed action will also be field-reviewed during construction by various agencies including MDT, the Corps of Engineers, the State of Montana - Department of Environmental Quality (DEQ), and the Montana Department of Fish, Wildlife, and Parks to ensure that the construction activities will not unacceptably impact surface waters or wetlands, that additional impacts requiring additional mitigation are not being created, and that provisions of all the permits issued are properly being met.

F. PROPOSED DISPOSAL SITE DETERMINATION

1) **Mixing Zone Determination**:

a) **Depth of Water at the Disposal Site**: The depths of water at the disposal sites for this project vary considerably from season to season and from one site to the next. The depth of the non-riparian wetlands is relatively shallow (0 to 0.6 m [0 to 2 ft] deep). The depth of water at the minor stream and drainage crossings is generally 0.3 to 1.2 m (1 to 4 ft) deep. The depth of water at the Bitterroot River crossing can be as high as 3.0 to 3.7 m (10 to 12 ft).

b) **Current Velocity, Direction, and Variability at Disposal Site**: The current patterns and circulation patterns associated with the disposal sites are discussed in Section III. B. 1 of this evaluation.

c) **Degree of Turbulence**: Minor, localized, and temporary turbulent conditions could possibly be created by the discharge of the fill materials into surface waters or by the temporary construction of cofferdams or work platforms for bridge piers or abutments.

d) **Water Column Stratification**: The majority of the surface waters affected by the proposed action are flowing, well-mixed streams and rivers. The project's impact to stratification patterns will be insignificant.

e) **Discharge Vessel and Speed**: This consideration is not applicable to this project.

f) **Rate of Discharge**: See Section II.E.5 of this Report.

g) **Ambient Concentration of Constituents of Interest**: Existing water quality of the Bitterroot River and its tributaries is very good as discussed in Section 3.2 of the EIS. Accordingly, there are no significant ambient concentrations of any constituents of interest and none are anticipated to result from the placement of fill material.

h) **Dredged or Fill Material Characteristics**: The characteristics of the proposed fill materials are discussed in Section III. D. 1 of this evaluation.

i) **Number of Discharges per Unit of Time**: See Section II.E.5 of this Report.

j) **Other Factors Affecting Rates and Patterns of Mixing**: No other unusual factors or consequences are expected at any disposal sites.

2) **Evaluation of the Appropriate Factors in F(1) above**: An evaluation of the appropriate factors indicates that the disposal sites and sizes of mixing zones are acceptable.

3) **Actions to Minimize Adverse Discharge Effects**: All appropriate and practicable steps will be taken through application of recommendation of Section 230.702 through 230.77 to ensure minimal adverse effects of the proposed discharges. These actions are listed elsewhere in this evaluation and in Section 4.9 the EIS.

4) **Potential Effects on Human Use Characteristics**:

a) **Municipal, Private, and Potential Water Supply**: The only anticipated significant effects of the project on water quality in the Bitterroot Valley is to increase the level of suspended sediments and turbidity in the surface waters. However, these increases are expected to be much less than those that naturally occur during spring runoff conditions or major rainfall events. Neither the quantity or quality of municipal and private water supplies would be affected by the proposed action since area water supplies come exclusively from groundwater sources.

b) **Recreational and Commercial Fisheries**: The project waters do not support harvestable fish, crustaceans, shellfish, or other aquatic organisms that would support commercial fisheries. However, there is some recreational sport fishing for cutthroat trout, brown trout, rainbow trout, and other fish. Construction activities will be timed to avoid, whenever possible, sensitive periods when fish populations could be damaged. The project could temporarily and locally disrupt fish habitat, thus causing some short-term displacement of fish. This type of impact is expected to be insignificant and will not have a long-term impact or a cumulative impact on the project area's fisheries. The EIS and the Biological Assessment discuss these impacts in more detail.

c) **Water-Related Recreation**: Recreation fishing was discussed in the previous section. Canoeing and boating are other water-related recreational sports taking place primarily on the Bitterroot River. During bridge construction, some access to these activities may be temporarily disrupted due to necessary detours.

d) **Aesthetics of the Aquatic Ecosystem**: The aesthetic value of the aquatic ecosystems in the Bitterroot Valley is very high. Because the proposed project would involve the placement of fill in wetlands and streams, aesthetic quality could be affected. However, effects are expected to be short-termed and very localized. By restoring and revegetating all disturbed construction areas and fill embankments, the new material will quickly become part of the natural landscape and blend with the surrounding terrain. No significant impact to the value of private property near aquatic areas is expected. Existing accesses to the river will be maintained and enhanced where desirable (e.g., Bass Creek fishing access).

e) **Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, Refuges, Sanctuaries, and Similar Preserves**: The project's impact on these sites is fully discussed in the EIS. The only sites of importance connected with the waters of the Bitterroot Valley are the historic site where Lewis and Clark camped on the Bitterroot near the mouth of Lolo Creek and the Lee Metcalf National Wildlife Refuge that borders the Bitterroot River. The proposed action will not affect these sites.

The Bitterroot River is not currently on the federal list of Wild and Scenic Rivers or the list of Study Rivers. The project would not affect the river in any way to diminish future eligibility for either list.

G. DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such changes can result in degradation of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.

Past losses of wetland and aquatic resources in the area and region have resulted primarily from the direct conversion of wetlands to developmental uses such as agricultural and residential/commercial development. Highway improvement projects also contributed to a lesser extent to these losses up to the time that regulations protecting wetlands were adopted and became law.

Since the time of adoption of these regulations, all federally funded projects (including nearly all transportation projects of consequence in the area and region) have been required to first avoid, then minimize, then mitigate for wetland impacts resulting in no net loss of wetlands and aquatic resources. As discussed in this evaluation, the current proposal is governed by these regulations and appropriate steps for eliminating and reducing adverse impacts have been and are being taken to the extent possible.

The primary source of adverse impacts to wetlands and waters of the United States comes from outright loss through current development pressures and degradation of functions and values through encroachment of new developments. Private wetlands are being filled in for projects developed locally with private funds that currently are exempt from wetland regulations. Conversion of wetlands to agricultural uses is another example of this situation.

More development creates more opportunity for both point and non-point sources of pollution degrading surface water quality and threatening aquatic resources. Timber sales and increased mining activity could create indirect adverse impacts through runoff from these areas degrading water quality.

All federally funded future actions are subject to the requirements of Section 404 of the *Clean Water Act* and thus will be developed in such a way as to avoid, minimize, or effectively mitigate impacts to wetlands and waters of the United States. This includes federally funded highway projects. It is anticipated the breadth of wetland protection regulations will be expanded and the corresponding restrictions will be tightened to include regulation of private and agricultural development to the point that their direct impacts and losses of wetlands will either be avoided, minimized, or wholly compensated through mitigation. Indirect impacts such as increased surface runoff with its attendant potential for water quality degradation may become a further problem unless a corresponding increase in regulations governing such runoff is adopted.

As clearly set forth in the EIS, the pressures for growth and development in the project area and region in general result from economic conditions, market forces, affordability of land and housing, aesthetic appeal of the area, and other conditions totally unrelated to implementation of transportation improvements. Thus, the pressures for increased development and cumulative impacts it represents are more related to local growth and land use issues independent of transportation or highway improvements.

H. DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

These secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials but do not result from the actual placement of the dredged or fill material. The most significant secondary effect involved with this project results from surface runoff. For this reason, a Highway Construction Standard Erosion Control Work Plan will be established to prevent surface runoff from transporting materials that could degrade water quality.

Another secondary effect is the possibility of accidental spills of hazardous materials during construction activities and the subsequent use of the facility. Any improvements to the existing highway that increase capacity and reduce congestion would decrease the chance of these accidental spills resulting from the use of the highway by vehicles transporting hazardous materials. Other secondary or indirect effects of the project are discussed in more detail in the EIS.

If the preferred alternative is implemented, more sand and de-icing materials would be required to cover the larger surface area (additional lanes). Therefore, sediment traps with a scheduled maintenance program to clean the traps periodically may be constructed. A well-established vegetative cover on the sideslopes would also help prevent sedimentation from entering the stream/wetland systems.

SECTION IV. FINDINGS OF COMPLIANCE

A. ADAPTION OF THE SECTION 404(b)(1) GUIDELINES TO THIS EVALUATION

This evaluation is based on a conceptual and preliminary design of the project alternatives and identifies and quantifies the environmental impacts associated with the proposed action insofar as present design data allows. Before the project can be advanced to the design stage, the preferred alternative must be approved and a formal design for it must be developed and approved.

Some project specific information required for the Section 404(b)(1) evaluation may not be accurately predicted until final design plans are available.

B. EVALUATION OF AVAILABILITY OF PRACTICABLE ALTERNATIVES TO THE PROPOSED DISCHARGE SITE WHICH WOULD HAVE LESS ADVERSE IMPACT ON THE AQUATIC ECOSYSTEM:

Section 230.01(a) of the Guidelines states "except as provided under 404(d)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." A discussion of the alternatives evaluated with respect to this requirement follows.

The EIS clearly documents the "no action" alternative would have serious environmental consequences and would not provide for meeting the stated purposes and needs for transportation improvements; therefore it is not practicable.

Although implementation of a park-and-ride system has been recommended as part of the preferred alternative to reduce traffic on the highway and provide for further encouragement of traffic reduction measures, none of the "no build" alternatives (including park-and-ride) can meet the stated purposes and needs for transportation improvements either individually or taken in any combination. The EIS discusses the fact that conditions conducive to encouraging ridership of public transportation are virtually non-existent in the Bitterroot Valley. A study of traffic reduction measures (including public transportation systems) and public opinion surveys and responses indicate that anticipated ridership will be very low; therefore their implementation will not suffice to meet the needs for reduced traffic congestion, increased safety, and improved transportation efficiency (among other stated purposes and needs). Therefore, adoption of these alternatives or combinations thereof are not practicable.

The modified 2-lane "build" alternative provides for reduced traffic congestion and improved efficiency in localized areas. However, traffic in the opposite direction and traffic in areas where a second lane is not added will still be congested, will still have a higher accident potential, and will not meet the other stated objectives for transportation improvements. Although the physical dimensions of the alternative reduce the extent of direct environmental impacts, construction of the additional lane in limited stretches actually produces a more serious environmental consequence as drivers make the mad dash to take advantage of the passing lane and then jockey for position as the highway narrows back from two lanes to one, severely increasing the possibility of accidents. The capacity and safety limitations of this alternative cannot meet the stated purposes and needs either by itself or in combination with other "build" or "no build" alternatives; therefore it is not practicable.

Closer examination of Table 3 in this evaluation reveals a least damaging alternative resulting from the correct combination of the four basic "build" alternatives. In essence, the alternative producing the least direct impact to wetlands and waters of the United States at a given individual wetland site could be adopted so the combined effect when added together would provide the least impact. This combination

would yield a direct impact of 16.5 hectares (40.9 acres). However, this design would require a nearly random and patchwork combination of 2-lane modified, 4-lane divided, 4-lane undivided, and 5-lane facility. There is no practicality in accomplishing this either in meeting the stated purposes and needs or for the adverse environmental impact resulting from the chaos this would cause in both design and highway safety.

Dropping the 2-lane modified alternative, since it has been established it will not meet the stated purposes and needs, examination of the remaining three principal alternatives would suggest the 4-lane undivided alternative would then become least environmentally damaging. Indeed, adoption of the 4-lane undivided alternative seems to be most practical in the vast rural and undeveloped areas of the project corridor and does in most cases represent the least environmental impact.

However in developed areas requiring a higher degree of access, the 4-lane alternative creates an adverse environmental impact in terms of access (and related social and economic impacts) and safety. Where there is a high demand for turning movements and access in these developed areas the EIS clearly indicates use of the 5-lane facility (4-lanes with center two-way turning lane) minimizes these environmental impacts, increases safety, reduces congestion, and removes the barrier effect. Therefore, the 4-lane undivided in these areas is not practicable and the 5-lane option offers the better solution, more thoroughly meeting the stated purposes and needs, while offering an appreciable reduction in other environmental impacts over the 4-lane undivided alternative.

Adoption of the preferred alternative with its specific elements is a direct result of assembling the combination of least environmentally damaging and most practicable alternatives at any given location within the corridor. Thus the preferred alternative also represents the environmentally preferred plan. Major elements and their considerations are:

- Construction of a park-and-ride system and establishment of a transportation management association will help reduce traffic and encourage future traffic reduction measures as the success of this system becomes apparent and more users are enticed to take advantage of its benefits.

- Construction of 4-lane undivided highway in undeveloped and rural areas of the corridor meets the purposes and needs while providing for minimum physical, direct, and indirect impacts on the environment, including wetlands and waters of the United States.

- Construction of 5-lane highway in "urban" areas of the corridor is the only practicable alternative to meet the stated purposes and needs and minimize environmental impacts.

- The adoption of restrictive access control policies in conjunction with 4-lane segments and permissive access control policies with 5-lane segments will discourage further growth and development of undeveloped and agricultural lands (resulting in reduced adverse environmental impacts to wetland areas) and encourage densification of existing developed areas where such growth can be safely and acceptably accommodated by existing facilities.

- Realignment of the highway at Silver Bridge will allow a better stream crossing, reducing adverse hydraulic impacts presently occurring (negatively affecting aquatic resources) and providing increased safety through elimination of substandard curvature and restricted horizontal and vertical clearance. Similarly, adoption of the Bass Creek Hill realignment physically pulls highway improvements westward away from wetland areas avoiding impacts altogether.

Development of the preferred alternative has been made after considerable public involvement, lengthy coordination and interaction of Interdisciplinary Team members (some of whom are specifically charged with protection of wetlands and waters of the United States), and approval from Advisory Committee members who are chosen representatives of local civic and citizen groups. The charge to each of these

entities was to examine the impact studies related to proposed improvements in the transportation corridor and come up with the most practicable, least environmentally damaging alternative. This has been done through development and recommendation of the preferred alternative reviewed in this analysis and set forth in the EIS.

Furthermore, the preferred alternative has been carefully engineered first to avoid impacts to wetlands and waters of the United States (a reduction of over 50% from initial preliminary engineering), secondly to minimize the impacts through the application of such techniques and criteria as can be applied without jeopardizing safety, and lastly to provide a specific plan for compensatory mitigation -- sequentially looking at on-site/off-site replacement, and banking (if necessary).

C. COMPLIANCE WITH APPLICABLE STATE WATER QUALITY STANDARDS

Provided that the following permits were issued, the project would be in compliance with the State Water Quality Standards:

1) A Montana Stream Protection Act Permit (124 permit) must be issued by the Department of Fish, Wildlife, and Parks of the State of Montana (MFWP). The purpose of the permit is to protect and preserve fish and wildlife resources in their natural existing state. MFWP will examine application information including projected impacts and determine if the proposed action can be approved. Issuance of the permit constitutes compliance.

2) A short-term exemption from Montana's Surface or Water Quality Standards (3a authorization) will be required. The Montana DEQ will issue this permit. The purpose of the law is to protect water quality, minimize sedimentation, and provide short-term exemptions from water quality standards to certain activities carried out in accordance with conditions prescribed by Montana DEQ. Approval of the application (outlines impacts) and issuance of the permit constitutes compliance.

3) The Montana Floodplain and Floodway Management Act will require Floodplain Development permits issued by the Floodplain Administrators for Ravalli County and Missoula County. The purpose of this law is to restrict floodplain and floodway areas to uses that will not be seriously damaged or present a hazard to life if flooded; thereby limiting the expenditure of public tax dollars for emergency operations and disaster relief. Application for the permit provides specific engineering information to evaluate impacts and approval of the application and issuance of the permit constitutes compliance.

4) The project will require a Montana Pollutant Discharge and Elimination System permit from the Montana DEQ. The purpose of this law is to minimize soil erosion and sedimentation; therefore maintaining water quality and protecting aquatic resources. Specific plans for stormwater pollution prevention are developed and submitted for review by Montana DEQ, demonstrating how and where best construction management practices will be used to minimize adverse impacts to aquatic resources. Approval of the plan and establishment of such additional conditions as may be necessary through issuance of the permit constitute compliance.

5) Section 401 of the Clean Water Act requires the Montana DEQ certify that any discharges into State waters comply with water quality standards before Federal permits or licenses are granted. The purpose of this law is to restore and maintain the chemical, physical, and biological integrity of Montana's surface waters. Montana DEQ will review plans for construction of a given project as well as reviewing the status of other permits requested from and issued by other agencies before approving the proposal. Issuance of the permit constitutes compliance.

In all cases, review of proposed plans and possible impacts associated with implementation of the proposed action may require agencies to request modification of the design, implement mitigation measures, or meet other specified requirements before compliance is achieved through permit issuance. Strict adherence to the permits and their associated provisions and conditions constitute compliance during construction and after for the life improvement. Unapproved deviations or non-adherence to these conditions would constitute non-compliance with the law, requiring the owner to take corrective action or face associated penalties or civil action.

As long as acceptable construction practices and design procedures are followed, the acquisition of these permits should be fairly routine. Best management practices will be identified using MDT's Highway Construction Standard Erosion Control Work Plan to ensure compliance with the State of Montana's Pollutant Discharge Elimination System regulations.

The EIS further discusses the project relative to the State of Montana's Water Quality standards. Contractors will be required to strictly adhere to the provision of all permits and regulations.

The project is in compliance with the following federal water quality standards:

a) **Clean Water Act, as Amended (Federal Water Pollution Control Act), 33 USC 1251 et seq**: The project is in compliance. Although Section 404 permit processing has not be initiated, FHWA has already been in contact with the US Army Corps of Engineers and the US Environmental Protection Agency and early coordination is allowing proper planning to meet all requirements.

b) **Fish and Wildlife Coordination Act, as Amended, 16 USC 661, et seq**: In compliance. The Montana Department of Fish, Wildlife and Parks and the US Fish and Wildlife Service were contacted and their comments have been incorporated into the EIS.

c) **Floodplain Management (Executive Order 11988)**: In compliance. The project will be design to not have significant effects on floodplains.

d) **Protection of Wetlands (Executive Order 11990)**: In compliance. The project will involve work below the highwater line but appropriate measures to first avoid, then minimize, then compensatorily mitigate impacts have been established. An only Practicable Alternative Finding has been issued in the Final EIS.

The following federal water quality standards are not considered to be applicable to this project:

a) **Coastal Zone Management Act, as Amended, 16 USC 1531, et seq.**: This Act is not applicable because the project area does not involve a coastal zone.

b) **Estuary Protection Act, 16 USC 1221, et seq**: This Act is not applicable because the project does not involve an estuary.

c) **Federal Water Project Recreation Act, as Amended, 16 USC 460-1(12) et seq**: This Act is not applicable because the project is not considered to be a water recreation project.

d) **Marine Protection, Research, and Sanctuaries Act, 33 USC, 1401, et seq**: This Act is not applicable because the project does not involve the discharge of materials into the ocean.

e) **Rivers and Harbors Act, 33 USC, 401, et seq**: This Act is not applicable because the project would not place obstruction in a navigable waterway.

f) **Watershed Protection and Flood Prevention Act, 16 USC 1101, et seq**: This Act is not applicable because the project does not involve the construction of dams in an upstream watershed.

D. COMPLIANCE WITH APPLICABLE TOXIC EFFLUENT STANDARD OR PROHIBITION UNDER SECTION 307 OF THE CLEAN WATER ACT

Section 307 of the Clean Water Act imposes effluent limitations or prohibitions on discharge of materials containing toxic pollutants into surface waters, specifically aldrin/dieldrin, several DDT compounds, endrin, toxaphene, benzidine, and polychlorinated biphenyls (PCB). The project will not discharge any of these specified toxic pollutants; therefore it will be in compliance with Section 307 of the Clean Water Act.

E. COMPLIANCE WITH ENDANGERED SPECIES ACT OF 1973, AS AMENDED

A biological assessment (BA) has been prepared for this project that addresses impacts to threatened and endangered species. The BA concluded that the project would not adversely affect the endangered bald eagles or peregrine falcons that occur in and near the project area. The US Fish and Wildlife Service has reviewed the Biological Assessment and has issued concurrence.

F. COMPLIANCE WITH SPECIFIC MEASURES FOR MARINE SANCTUARIES DESIGNATED BY THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972

Due to the fact that this project does not involve the ocean, this act is nonapplicable.

G. EVALUATION OF EXTENT OF DEGRADATION OF THE WATERS OF THE UNITED STATES

Each of the following sections have previously been discussed in this evaluation. The following statements represent the conclusions of these discussions.

1) **Significant Adverse Effects on Human Health and Welfare**: This project will not adversely affect municipal or private water supplies, recreation and commercial fisheries, aesthetics, or water-borne disease rates. Although temporary water quality degradation associated with turbidity and sedimentation would occur during construction, no long-term adverse impacts on water quality or the human environment are anticipated.

2) **Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems**: Short-term temporary disruption to wildlife habitat, benthos, invertebrates and vertebrates, photosynthesis, plankton, and sight feeders are expected to result from the turbidity and sedimentation caused by construction. However, this project would not significantly or adversely produce long-term effects on the life stages of aquatic organisms or other wildlife dependant upon aquatic ecosystems.

3) **Significant Adverse Effects on Aquatic Ecosystem, Ecosystem Diversity, Productivity, and Stability**: This project would not produce significant adverse effects on the diversity, productivity, or stability of the aquatic ecosystems in the project area.

4) **Significant Adverse Effects on Recreational, Aesthetic, and Economic Values**: This project would not have a significant adverse effect on the recreational, aesthetic, or economic value of any waters of the United States or aquatic ecosystems in the project area.

H. APPROPRIATE AND PRACTICABLE STEPS TAKEN TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE DISCHARGE ON THE AQUATIC ECOSYSTEM

The measures taken to minimize the adverse impacts of the discharge on the aquatic ecosystems have previously been described in this evaluation. To summarize, the most significant impact of the proposed project would be erosion of disturbed areas producing increased levels of suspended sediments and turbidity in the surface waters. To minimize these adverse impacts during and after construction, a Highway Construction Standard Erosion Control Work Plan will be established to identify and assure implementation of Best Management Practices. General steps to minimize adverse impacts include:

1) Ensure that the project conforms to the natural existing characteristics of the aquatic ecosystem and surrounding terrain.

2) Limit the duration and the area of disturbed land.

3) Restore and reseed the disturbed areas immediately after construction.

4) Control storm runoff by reducing velocities, retaining sediments, and properly maintaining erosion control features.

5) Ensure proper maintenance of erosion control structures and methods.

6) Time disturbances of the aquatic ecosystem to avoid sensitive periods such as breeding, migration, etc.

7) Emphasize the avoidance and minimization of impacts to wetlands before the mitigation of wetlands.

8) Assure perpetuation of wetland functions and values.

9) Employ additional measures as discussed in detail in the EIS.

I. CONCLUSIONS

On the basis of the guidelines, the proposed disposal sites for the direct discharge of dredged or fill material is specified as complying with the requirements and the guidelines, with the inclusion of appropriate and practicable conditions to minimize pollution or adverse effects on the aquatic ecosystem. These conditions are discussed in Section H above.

SECTION V. EVALUATION RESPONSIBILITY

Prepared By: *Forsgren Associates, Inc. for FHWA and MDT*

Date: *May 1997*

Reviewed By: _____

Date: _____

C. PUBLIC INVOLVEMENT DOCUMENTS

1. *"US 93 Hamilton to Lolo Public Participation Plan"* - Forsgren Associates; West Yellowstone, MT - September 1992

2. *"US Highway 93 Summary Report of Telephone Survey"* - Dr. Joe W. Floyd, PhD; Billings, MT - January 29 to February 1, 1993

3. *"US Highway 93 Verbal and Written Surveys Final Report"* - Dr. Joe W. Floyd, PhD; Billings, MT - October 1992

4. Letter from Dale Paulson (FHwA) to Federal Register; September 17, 1992

5. Letter from Winston Dyer (Forsgren Associates, Inc.) to Interested Agencies and Property Owners; November 27, 1992

6. *"US 93 Hamilton to Lolo Transportation Improvements Study, Newsletter #1"* - Forsgren Associates, Inc.; West Yellowstone, MT - February 1994

7. *"US 93 Hamilton to Lolo Transportation Improvements Study, Newsletter #2"* - Forsgren Associates, Inc.; West Yellowstone, MT - April 1996

D. DESIGN CODES AND STANDARDS

1. A Policy on Geometric Design and Highways of Streets - American Association of State Highway and Transportation Officials (AASHTO); Washington D.C. - 1994 Edition

2. Montana Road Design Manual - Montana Department of Transportation; Helena, MT - April 1994

3. Highway Capacity Manual, Special Report 209, Third Edition - Transportation Research Board, National Research Council; Washington, DC - 1994

4. Multi-Lane Design Alternatives for Improving Suburban Highways, National Cooperative Research Program Report 282 - Transportation Research Board, National Research Council, March 1986



APPENDIX D

PERTINENT CORRESPONDENCE

MISSOULA COUNTY

BOARD OF COUNTY COMMISSIONERS
200 W BROADWAY ST
MISSOULA MT 59802-4292

PHONE: (406) 721-5700
FAX: (406) 721-4043

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BCC-96-355
July 3, 1996

MASTER FILE COPY

J. Marshik
C Pull

Mr. Joel Marshik, Manager-Environmental Services
Montana Department of Transportation
Box 201001
Helena, MT 59620-1001

Dear Mr. Marshik:

I would like to voice my whole hearted support for the preferred alternative identified in the Draft EIS for US-93, between Hamilton and Lolo.

It will certainly take creative approaches like TDM, formation of a Transportation Management Association, bicycle/pedestrian facilities, and access management to address the transportation problems in the Bitterroot. But it will also require a four lane highway. Anybody who believes the safety problems can be addressed without dealing with the congestion is just kidding themselves.

Please move forward as quickly as possible.

Sincerely,

Barbara Evans

Barbara Evans, Commissioner

BE/gb

COUNTY OF RAVALLI

STATE OF MONTANA

The Bitterroot Valley

Hamilton, Montana 59840

July 9, 1996

RECEIVED JUL 15 1996

Winston Dyer, PE
PO Box 1032
West Yellowstone, MT 59758

Dear Mr. Dyer,

Please be advised that the BOARD OF RAVALLI COUNTY COMMISSIONERS does hereby support the Department of Highway's decision to construct a four lane highway with a portion of the highway having five lanes providing a turn lane.

We appreciate your diligent work and effort on this Highway 93 project.

Sincerely,
BOARD OF RAVALLI COUNTY COMMISSIONERS

Jerry L. Allen

Jerry L. Allen, Chairman

"Smut" Warren

"Smut" Warren, Member

John M. Atthowe

John M. Atthowe, Member

Ravalli County Road Department

244 Fairgrounds Road • Hamilton, Montana 59840
(406) 363-2733

COUNTRY ROADS TAKE ME HOME

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cc: J. Marshik
E. Peil

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July 10, 1996

MDOT
Jim Weaver
District Engineer
2100 W. Broadway
Missoula, Montana 59801

RE: Highway 93 Hamilton to Florence - Proposed Widening

Dear Jim

As I suppose you know, we had two more fatalities over the Fourth of July weekend on Highway 93.

Obviously, there is a desperate need to widen and improve this stretch of Highway. The traffic is excessive and intersections with our County roads are frequent accident sites.

This Department whole heartedly supports the preferred alternatiive for widening and improving Highway 93 in Ravalli County.

Sincerely,

W.L. Higginbotham
Road Supervisor

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
P.O. Box 25007 (D-108)
Denver, Colorado 80225-0007

MASTER COPY

July 3, 1996

cc: J. Marshik
E Peil

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ER 96/362

Mr. Joel Marshik, PE
Manager, Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, Montana 59620-1001

Dear Mr. Marshik:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for Project No. NH 7-1(64)49, Highway 93 - Hamilton to Lolo, Control # 2315, Milepost 49.0 to Milepost 83.2, Ravalli and Missoula Counties, and has no comments.

Sincerely,

Barbara M. Schmaltz

for Robert F. Stewart
Regional Environmental Officer

The Big Sky Country

MONTANA HOUSE OF REPRESENTATIVES

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REPRESENTATIVE BILL CAREY
HOUSE DISTRICT 67

HELENA ADDRESS:
CAPITOL BUILDING
HELENA, MONTANA 59620-0400
PHONE: (406) 444-4800

HOME ADDRESS:
721 WOODFORD STREET
MISSOULA, MONTANA 59801-4036
PHONE: (406) 721-5008

COMMITTEES:
JUDICIARY
HUMAN SERVICES & AGING
STATE & FEDERAL RELATIONS

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cc: J. Marshik
Phil

July 19, 1996

Hamilton/Lolo DEIS Comment
c/o Joel Marshik
MT DOT
P.O. Box 201001
Helena, MT 59620-1001

Dear Mr. Marshik:

I am writing with regard to the Department of Transportation's plans to rumble strip Highway 93 from Lolo to Florence.

Why is this necessary? Rumble strips put the lives of bicyclists at risk and, for this and other reasons, make for a very unpleasant ride. I think we need to get beyond a "technical requirement" to what riding a bike on a rumble-stripped highway is really like. (1)

Surely, if we put our minds to it, we can find a better way to protect motorists as well as cyclists.

Sincerely,

Bill Carey

Bill Carey

cc: Gayl Teichert

US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: Montana House of Representatives
Author: Representative Bill Carey
Dated: July 19, 1996

(1) Run off the road accidents by sleepy or inattentive drivers have been a concern of highway engineers for many years. Research conducted nationally, in other states, and in Montana indicates that the number of run off the road accidents can be substantially reduced through the use of rumble strips on the shoulders. Research has also been conducted into accommodation of bicycle and pedestrian facilities on highways. References for all these studies is available from MDT on request.

The Montana Department of Transportation has issued a Management Memo 96-01 (effective 3/01/96), which recognizes the need to provide for safety and yet be compatible with the needs of bicyclists utilizing the same transportation facility. This policy was adopted following a public involvement effort that demonstrated strong public support for rumble strips on Montana's rural highways. It also reflects input from bicyclists who suggested changes such as the reduction in strip width from 16 inches to 12 inches.

The resulting policy is that rumble strips will be milled into asphalt shoulders to provide for safety and the remainder of the shoulder will be left unchanged and will be swept as needed considering bicycle usage and other maintenance activities.

The rumble strips are to start 6 inches outside the fog stripe (the white line separating travel lane from shoulder) and will be 12 inches wide and ½ to ¾ inches deep. The individual rumble strips are on 12 inch center to center spacing. On National Highways they are discontinued across the full width of all public and private road approaches and can be eliminated in "urban" areas based on a case-by-case basis of engineering judgement.

For this project, the rumble strips will only occupy the first 1½ feet of shoulder width, leaving 6½ feet of smooth shoulder available for pedestrian and bicycle activity. In this manner, design for the improved facility can provide both enhanced safety and accommodation for these alternative modes of transportation.

MDT designers will work closely with bicycle experts/groups/organizations on the setup of pedestrian/bicycle facilities when and if recommended corridor transportation improvements are approved for design.

Montana Department of Fish, Wildlife & Parks

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JUL 19 1996
ENVIRONMENTAL

3201 Spurgin Road
Missoula, MT 59801
July 11, 1996

cc: J. Marshik
C Peil
G Stockstad

Joel Marshik, PE
Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Dear Mr. Marshik:

These comments are in reference to the Hamilton to Lolo DEIS for U.S. Highway 93. The department manages eight fishing access sites (Chief Looking Glass, Florence Bridge, Poker Joe, Bass Creek, Bell Crossing, Wood Lot, Tucker Crossing, and Woodside Bridge) along the Bitterroot River. Highway 93 is the main travel corridor that provides access to these sites either directly or indirectly. The following is a list of the concerns regarding these sites:

1. As you know, signs are expensive to replace and maintain. Five of the eight FAS sites have directional signs within the highway right-of-way. We would like to request that great care be given to these signs as they get moved and relocated as a result of the road construction. We can't stress the importance of this enough as past projects have often damaged our signs by carelessness of the contractor. (1)

2. Often times construction workers camp at our sites during a highway project. The only FAS site of the eight that we allow camping is Chief Looking Glass and there we allow only a 7 day camp limit within a 30 day period. We also charge a $5.00 per night per camp unit fee. This will be strictly enforced. (1)

3. If any of our toilet facilities are used by the construction workers during the project period, a licensed toilet pumper should be hired to empty the vault when the project is over. (1)

4. Bass Creek FAS is the only site that accesses directly onto Hwy 93. I would hope that the approach to our FAS site will be paved to the right-of-way line to facilitate safe egress. (2)

I would assume that written comments will be addressed in your Decision Notice and become part of the final EIS. If you have any questions regarding these comments, please call at 542-5517.

Thanks for the opportunity to comment.

Sincerely,
Lee Bastian
Regional Park Manager

US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: Montana Department of Fish, Wildlife and Parks
Author: Lee Bastian, Regional Park Manager
Dated: July 11, 1996

(1) These comments have been duly noted and passed on to the Montana Department of Transportation's Preconstruction Section for consideration in any formal designs and/or actual construction that may arise out of implementation of recommendations in this document.

Additionally, a preconstruction coordination meeting is usually held prior to initiation of any construction or highway improvements. Montana Fish, Wildlife and Parks should be advised to track project progress and attend preconstruction conferences that are held prior to construction to assure these items are properly addressed with construction personnel.

(2) The preliminary design for proposed improvements does include an access at the Bass Creek Fishing Access Site since it is considered as a "public approach." It will be paved to the right-of-way line.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

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JUL 16 1996
ENVIRONMENTAL

cc: Jim Weaver
Carl Peil
Joel Marshik
D. Stockstad

Ref: 8MO

July 15, 1996

Mr. Joel Marshik, P.E.
Montana Department of Transportation
P.O. Box 201001
Helena, Montana 59620-1001

Re: Draft Environmental Impact Statement, U.S. Highway 93, Hamilton-Lolo, Montana

Dear Mr. Marshik:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U. S. Environmental Protection Agency, Region VIII, Montana Office (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for U.S. Highway 93, Hamilton to Lolo, Montana.

We commend the Federal Highway Administration, Montana Department of Transportation, and your consultant Forsgren & Associates for preparing a well organized and informative DEIS. The wetlands impact analysis is one of the better ones we have seen. We are pleased that efforts have been made to avoid and minimize impacts to wetlands along the highway corridor. (1)

The EPA does not object to the preferred alternative. We agree that improvements to the highway along the existing corridor are preferred over new valley alignments. We particularly like the recommendation to construct park and ride lots and establish a Transportation Management Association (TMA) to manage the park and ride system and promote traffic reduction measures.

We are concerned, however, about the secondary or indirect effects of the preferred alternative. Indirect effects include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate and related effects on air and water and other natural systems, including ecosystems. (2)

It is important that a comprehensive environmental analysis of proposed highway improvements include a detailed analysis and disclosure of the indirect effects. This is particularly important for the Hamilton-Lolo project since it is stated in the DEIS that the most intense local issue in regard to the proposed (2)

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US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: United States Environmental Protection Agency
Author: John F. Wardell, Director Montana Office
Dated: July 15, 1996

(1) The support of Environmental Protection Agency (EPA) as a member of the Interdisciplinary Team and assistance in preparing the Environmental Impact Statement (EIS) is gratefully acknowledged. Input from the EPA and other interested agencies has been a primary factor in conducting a thorough study and organizing the effectual presentation of information, including wetlands.

(2) Each individual section of Chapter 4.0 - *Environmental Consequences* sets forth what can reasonably be foreseen as the indirect, secondary or cumulative impacts associated with any of the proposed improvements on the particular area of interest being addressed by that section. Such impacts are often difficult to predict exactly although many can be derived intuitively. Therefore a range of opinions (differing intuitions) is sometimes expressed about what these impacts may actually be.

The EIS has identified these types of impacts as best foreseen by those who have spent considerable time and effort in studying the corridor and who have also had experience with similar situations elsewhere. A recurring conclusion relative to area growth, as set forth in the following paragraphs, indicates a degree of consensus among the experts that growth of the area is and will remain a result of many factors: land availability and cost/value, economy, availability of goods and services (nearby Missoula is definitely an attractor), aesthetic appeal, schools, taxes, etc. -- of which transportation facilities are only a small part.

Accordingly, improvements to transportation facilities will have a proportionate (small part) effect on the indirect, secondary and cumulative impacts but will not, as some suggest, be the primary factor or anything close to it.

The Traffic Study, Land Use Report, and other studies conducted for the EIS all indicate that the projected growth of the area and corresponding increase in traffic will occur regardless of whether improvements to the transportation facility are made. Indeed, both the population projections and the growth projections have been made on statistical analysis of past growth in the area, which is completely independent of the condition of the transportation facilities.

The EIS has addressed the issue of potential secondary growth in the "Future Population Growth" subsection of 3.13 - *Social*, in Section 4.13 - *Social*, and in Section 4.15 - *Land Use*. Discussion indicates that such growth commonly occurs when new transportation facilities are constructed in areas that have none or are constructed in such a manner as to attract traffic away from other possible routes in the area. National experience has shown that where transportation facilities already exist and where there are no other

highway improvements are population growth and associated land use changes (page 4-60).

While we recognize that rapid growth is occurring presently in the Bitterroot Valley, and the proposed highway improvements are a response to this growth, we believe highway improvements do influence the timing and location of growth to a greater extent than is implied in the DEIS. We believe additional analysis and disclosure of the potential for the preferred alternative to induce or hasten land use changes and growth rates, that may result in adverse effects to environmentally sensitive areas such as wetlands, streams, riparian areas, floodplains, and wildlife habitat, should be included in the FEIS. (2)

We note that a draft Ravalli County Comprehensive Plan (April 1994) is referenced in the DEIS (pages 1-16 and 1-31). It is surprising to EPA, given the intense local interest in growth issues, that Ravalli County has not developed a final Comprehensive Plan. The preferred highway transportation alternative should be consistent with the Ravalli Comprehensive Plan that is finally adopted. The DEIS does not indicate when the Ravalli Comprehensive Plan may be finalized. (3)

We concur with the suggestion at the bottom of page 4-60 of the DEIS that local governments should develop and enforce local land use plans rather than leaving such planning to the State Department of Transportation through highway planning. Perhaps development of the final preferred alternative in the FEIS should be deferred until the Ravalli Comprehensive Plan is finalized, otherwise the highway will drive the land use plan rather than the preferred method of the local land use plan establishing objectives for the highway. We encourage Ravalli County to develop a Final Comprehensive Plan to encourage new development within existing communities and discourage development in rural agricultural and environmentally sensitive areas. (3)

The EPA supports the MDT and FHWA proposal to use access control in the preferred alternative to the greatest extent possible to promote compact development within existing communities rather than strip development, and to discourage induced development in environmentally sensitive areas such as wetlands, riparian areas, floodplains, important wildlife habitat, and in prime and unique farmland. We commend the MDT and FHWA for including access control in the preferred alternative.

Additional discussion of our concerns and recommendations regarding indirect or growth related effects as well as our more detailed comments, questions, and concerns regarding the analysis, documentation, or potential environmental impacts of the U.S. Highway 93, Hamilton to Lolo, Montana project DEIS are enclosed for your review and consideration as you complete the Final Environmental Impact Statement (FEIS). (4)

routes or choices for alternative travel, then improvements to facilities generally affect only the rate of growth depending on whether access to adjacent properties is facilitated or denied.

Section 4.15 - *Land Use* discusses the effects of an improved commute in the section on cumulative impacts. This discussion points out that there is a physiological "maximum" commute time and the net effect of the proposed action could be to push development pressure further southward in the project corridor than presently exists due to the reduced commuting time. Statistical information from surveys is then discussed that predicts a 10 km (6.2 mile) extension of the commuting range which would densify existing residential development in this "bedroom" community sector and possibly accelerate pressure to convert undeveloped land to residential use.

Discussions in the land use section point out that while an improved facility may have an impact on the rate of growth and the areas in which it is expected to occur, transportation improvements will not create additional growth beyond that projected for the "no action" alternative.

Lastly, discussions with local planning officials regarding the growth issue have indicated a definite expectation that growth in the area will hit a maximum ceiling beyond which it is non-sustainable. Discussion in the future land use section of Section 4.15 - *Land Use*, sets forth the anticipated checks and balances to growth resulting from availability of construction, labor, materials, and also increases in land values that result from strong growth. The planning office feels these factors will help control growth to keep it within the range projected in the EIS whether or not improvements to transportation facilities are made.

Given these conditions, secondary/indirect/cumulative impacts identified in the EIS are reasonably portrayed and adequately disclose the type and degree of such impacts to be expected.

(3) It is the responsibility of any transportation planning to be consistent with local land use plans of which the Ravalli County Comprehensive Plan is a good example. The proposed policies in the land use plan are well known; a draft of the document has been in public circulation for over two years. Extensive public involvement by the County has been held on the draft plan that has helped to solidify issues and more clearly identify the policies that will be enacted as a result of adoption of the Comprehensive Plan.

The County Planning Office indicates further public involvement will be conducted and final adoption of the plan may be a year or more away. It is felt the EIS will be consistent with the County Plan since the probable elements and policies that will affect transportation planning are now adequately known and publicly supported. Additionally, the County Planner is a sitting member of the Citizens Advisory Committee used to help steer development of the EIS and the County Commission has written a letter indicating full support for the preferred alternative.

(4) The concerns and recommendations contained in the additional discussion have been duly noted and incorporated into the final EIS insofar as applicable and practicable.

Based on the procedures EPA uses to evaluate the adequacy of the information in the EIS and the environmental impacts of the proposed action and alternatives, the DEIS for the U.S. Highway 93 Hamilton to Lolo project will be listed in the Federal Register in category EC-2 (environmental concerns, insufficient information).

This category indicates that EPA has identified areas of potential impacts, specifically concerning indirect impacts, and the preservation of environmentally sensitive areas, which should be mitigated in order to fully protect the environment. The EPA believes additional analysis and disclosure of the potential for the preferred alternative to induce or hasten land use changes and growth rates, that may result in adverse effects to environmentally sensitive areas such as wetlands, streams, riparian areas, floodplains, and wildlife habitat, should be included in the FEIS. (2)

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 441-1140 ext. 232. Thank you for your consideration.

Sincerely,

John F. Wardell,
Director
Montana Office

Enclosure

cc: Carol Campbell, EPA, 8EPR-EP, Denver
Jeff Ryan, MDEQ-WQD, Helena
Dale Paulson, FHWA, Helena
Bob McInerney, COE, Helena
Candace Thomas, COE, Planning Division, Omaha
Kemper McMaster, USFWS, Helena

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO ATTENTION OF
Planning Division

July 12, 1996

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cc: J. Marshik
C Peil

Mr. Joel Marshik, PE, Manager - Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, Montana 59620-1001

Dear Mr. Marshik:

Omaha District has reviewed the Draft EIS concerning the Hamilton to Lolo U.S. Highway 93 Project (Project No. NH 7-1(64)49). The following comments are provided for your use in preparation of the Final EIS.

As noted on page S-6, detailed wetland mitigation plans and locations need to be developed and approved before a permit decision can be made by the Corps of Engineers. (1)

Page 3-36, last sentence before Figure 3-10: This should state that there has been a 200 percent increase in deer-vehicle collisions. ("Increase" is that amount over and above some base quantity. The increase is double, or 200 percent of that base.) (2)

If you have any questions, please contact Dwight Olson, (402)221-4628.

Sincerely,

Candace Thomas

Candace M. Thomas
Chief, Environmental Analysis Branch
Planning Division

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US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: Department of Army Corps of Engineers Omaha District
Author: Candace M. Thomas, Chief Environmental Analysis Branch
Dated: July 12, 1996

(1) MDT is intimately involved with the Corps of Engineers with regard to wetland mitigation planning for the proposed improvements. A draft 404 Permit has been prepared and submitted for review. Specific details of the proposed mitigation site and its components have been developed and forwarded to the agency for review. The development and eventual approval of these mitigation plans is on a separate track being handled by representatives of Environmental Services Bureau of MDT and will be accomplished concurrently with final development and completion of the Environmental Impact Statement (EIS) process.

(2) Corrected as noted.

To: Joel Marshik, PE, Manager Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, Montana 59620-1001
(406) 444-7228

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cc: J. Marshik
C. Peil

RECEIVED
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ENVIRONMENTAL

From: Friends of the Bitterroot, Inc.
P.O. Box 442
Hamilton, Montana 59840

Date: July 19, 1996

Subject: Comments on Project # NH 7-1(64)49
U.S. Highway 93 - Hamilton to Lolo
Control # 2315
Milepost 49.0 to Milepost 83.2
Ravalli and Missoula Counties

Draft Environmental Impact Statement (DEIS)

(Responsible agencies)
U.S. Dept. of Transportation
Mt. Dept. of Transportation

Dear Mr. Joel Marshik:
Friends of the Bitterroot (hereinafter FOB) appreciates the opportunity to submit these comments on the DEIS for Project # NH 7-1(64)49 regarding proposals for improving the U.S. Highway 93 corridor - Hamilton to Lolo.

The DEIS's proposal is a significant action, requiring the preparation of an environmental impact statement under applicable federal and state laws and regulations.

FOB is greatly concerned that the comment period for this proposal is of such limited duration when one considers the overall duration, severity, complexity, and societal implications of the potential impacts on the Bitterroot Valley and its residents. (1)

The issues presented in the DEIS are complex and far-reaching in nature, and we question if the affected publics have truly been "adequately informed" of the implications of the DEIS's proposed action.

The Ravalli Republic newspaper in an "opinion" article by editor Rob Breeding, dated July 18, 1996, stated that "officials at the last round of public hearings in June said they'd still consider public input received after the July 19 deadline."

We applaud the willingness of the responsible agencies to continue to accept comments from the concerned publics after the published deadline. FOB and/or its members will likely avail themselves of the option to submit additional comments and concerns in addition to this current submission.

We support the Missoula Transportation Management Association and appreciate your efforts to work with this group. (2)

US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: Friends of the Bitterroot, Inc.
Author: James Olsen, President
Dated: July 19, 1996

(1) At the request of Friends of the Bitterroot, Inc. (FOB) and a few other individuals, the comment period was publicly extended by announcement in the public hearings that input would be taken whenever it could be given. Accordingly, the comment period was left open for an unspecified period of time and all comments received by September 30, 1996 were accepted. This effectively constitutes a period of 112 days from the initial date of release of the Draft Environmental Impact Statement (DEIS) to the public, far in excess of the 45 days usually given.

(2) Formation of the Transportation Management Association (TMA) is a strong indicator of MDT's support toward improving transportation in the Bitterroot. As soon as local interest in transportation demand management (TDM) measures was expressed, MDT authorized and funded a significant study of such in relation to this project, which culminated in the recommendation of the formation of a TMA. MDT then provided funding, administrative support and guidance, and convinced local governments to get involved (including funding) so the TMA could organize and become a reality. MDT is committed to maximizing the opportunity for TDM measures to work in the Bitterroot, and supporting the formation of a TMA is evidence of their cooperative effort and sincere interest in improving transportation in the area via the best possible means.

(3) It is the responsibility of any transportation planning to be consistent with local land use plans of which the Ravalli County Comprehensive Plan is a good example. The proposed policies in the land use plan are well known; a draft of the document has been in public circulation for over two years. Extensive public involvement by the County has been held on the draft plan that has helped to solidify issues and more clearly identify the policies that will be enacted as a result of adoption of the Comprehensive Plan.

The County Planning Office indicates further public involvement will be conducted and final adoption of the plan may be a year or more away. It is felt the EIS will be consistent with the County Plan since the probable elements and policies that will affect transportation planning are now adequately known and publicly supported. Additionally, the County Planner is a sitting member of the Citizens Advisory Committee used to help steer development of the EIS and the County Commission has written a letter indicating full support for the preferred alternative.

(4) At the time the DEIS was prepared and released for public distribution, a final EIS on US 93 from Evaro to Polson was publicly available. That document identified recommendations for a preferred alternative that included upgrading the facility to four lanes

The Planning Board of Ravalli County has developed a draft Comprehensive Plan that is currently in the process of being reviewed, and we strongly urge that any final plan for highway improvements should be adopted only after a Comprehensive Plan is adopted. To do otherwise, we believe, will significantly affect and/or compromise the ability of the residents to determine the future direction of our Valley. (3)

Unfortunately, it appears that the "Preferred Alternative" (DEIS at 2-21) as presented has been substantially predetermined outside of the required NEPA process. We say this because of the "regional transportation network" map disclosed in figure 1-1, chapter 1.0 and page 3 of 37 in appendix C which are discussed elsewhere in this letter. (4)

The DEIS states that the majority of residents want to retain the rural character. It then proceeds to ignore these concerns and proposes a plan that it states encourages the demise of the rural character of the valley.

One apparent flaw in the DEIS is the conclusion in Table 2-11, page 2-31 that the preferred alternative preserves community character. (5)
A wider highway, by definition, changes the interaction between people in populated areas in a significant way.
The attempts at permissively restricting access to preserve the rural character have almost no chance of working. (6)

Further, Table 2-11 claims that the preferred alternative meets public demands, yet it appears this assertion is not substantiated by the surveys taken. (7)

Table 2-11 claims that the preferred alternative is consistent with economic plans.
However, it appears it is really only consistent with the plans of developers and some members of the Chamber of Commerce. No effort is evident that the economic plans of the population as a whole were considered. (8)

The DEIS fails to adequately address the direct, indirect, and cumulative impacts resulting from increasing the capacity of highway 93. (9)

The DEIS admits that the preferred alternative will make it more convenient to commute to Missoula and was designed to accommodate growth.
It also admits that a major public concern is that a highway with greater capacity will encourage growth. (Ref page 1-16 paragraph titled "Future Growth").

The need for the highway is based on population growth projections which appear to be flawed and/or biased. (10)

Safety claims are unwarranted because of the unsubstantiated claim that "growth will happen anyway".
In Figure 3-13, page 3-43, the "low" projected growth assumes continuous infrastructure improvements to accommodate development. However, decisions not to provide infrastructure (including road improvements) will limit growth. (11)

throughout, except one area bypassing a community. That information was incorporated into Figure 1-1 of this EIS and also Figure 1 of Appendix C. While the legend of the figures uses the terminology "planned 4-lane", a better choice of words would have been "proposed 4-lane", which terminology is now incorporated in the final EIS.

(5) Table 2-11 is merely a brief summary of discussions and conclusions found in Chapter 4.0 - *Environmental Consequences*. Section 4.13 of the EIS contains a discussion concerning community character in which it is noted that utilizing the same alignment, avoiding bypasses, and enacting access controls to prevent infilling of undeveloped areas and overrunning of communities by strip growth all tend to enhance and protect community character. This is also summarized in appropriate sections of Table 2-12.

Also in Section 4.13 is discussion of access, barriers, and isolation. The barrier effect associated with some of the "build" alternatives that has been duly noted and summarized in Table 2-12.

(6) Careful reading of the EIS will disclose that the desired access control will be a mandatory condition and not voluntary as some have erroneously concluded. The State will buy the rights of the access from all adjacent property owners for a fair market price; thereby being in total control of access to the facility. The restrictive access policy in undeveloped areas will not allow new subdivisions or potential "strip" growth development to have multiple, uncontrolled access to the highway. They will be required to consolidate their access to a limited number of discrete access points. This has been successfully applied in a number of locations as described in Response #13.

(7) Study of the discussion in Sections 1.7 (and Figures 1-8, 1-9, and 1-10), 7.19, 7.20, and 7.25 will indicate that by far the number one problem identified by all types of surveys and participants is excess traffic on the current facility. Similarly, the most preferred solution to improving transportation is the inclusion of additional lanes. The principal elements of the preferred alternative speak directly to reducing congestion and increasing capacity of the facility. Other elements of the preferred alternative (such as access control and formation of a TMA) are also in direct response to other key concerns identified by the public in the scoping process.

(8) Economic information was researched in the project corridor and the only information readily available came through the organized Chamber of Commerce. By definition and by charter, the Chamber of Commerce exists to represent the needs and objectives of the business community, and is known to have a wide enough cross-section of membership to be in a position to provide the best representation of the overall economic climate. Accordingly, information from the Chamber, including the *Bitterroot Futures Study*, surveys, and other public involvement efforts was used exclusively for information contained in the EIS on the basis that such information is reasonable and justifiably indicative of the local business community's climate and goals.

There is no evidence of any effort study, survey, or research the obvious alternative of limiting highway capacity while making it safer in conjunction limits on other types of infrastructure that would have the affect of limiting growth. (11)

A safe, lower capacity road would meet two main public desires cited by the DEIS: 1) A safe road and 2) retention of the rural character of the valley.

Table 2-11, page 2-31 and the discussion and analysis regarding the retention of the community character is seriously flawed.

First, the restricted access feature developed for the 4-lane preferred alternative should be included in additional alternatives. Such as the Modified 2-lane alternative modified to implement limited access. (12)
Second, there is a serious question as to whether the voluntary limited access plan will work. (6)

During the June 27, 1996 hearing on the DEIS, the question was asked as to whether or not someone who chose to retain access could later improve it. The answer was yes.
It appears clear that only a few inholdings, or even one, in the "rural" stretches of highway would be enough to allow major "strip malls" to spring up all along the highway. During this same hearing the Government representative was asked if a limited access scheme like this had ever worked. The only example given was interstate highways - hardly an appropriate example. (13)

In summary, the major feature that is designed to meet the most important social need identified in the study has not been shown to work and probably will not work. And, if it is a workable approach, there is nothing to preclude its application to other alternatives, such as a modified two lane. (12)

Economic plans: The plan relies on the planning done by the Chamber of Commerce, business growth advocacy group, as the primary source of economic planning information.
The valley has a long history of cottage industry as well as small scale manufacturing that is generally not well represented by the Chamber of Commercial. (8)
The DEIS fails to account for the economic plans and interests of the majority of the valley, since it uses information from only a portion of the business interests.

There are many unsubstantiated statements that influence the choice of the desired alternative. These statements amount to no more than the opinion of the author or a small group of people who may have influenced the author, but are not backed up by surveys, studies, research or other data. (14)
Examples,
- page 1-17: "...NAFTA will undoubtedly give further impetus to use of the highway..."
- page 3-48. Claims that reductions in timber in the surrounding forest placed a "serious burden on the timber industry". (The timber industry itself has claimed that Canadian imports is a significant factor. Further, we can observe that there is plenty of logs in the yards of the mills and log home operations in the valley).

Other information that may be available, particularly with regard to small business or the "population as a whole" would be gratefully appreciated.

(9) Each individual section of Chapter 4.0 - *Environmental Consequences* sets forth what can reasonably be foreseen as the indirect, secondary or cumulative impacts associated with any of the proposed improvements on the particular area of interest being addressed by that section. Such impacts are often difficult to predict exactly although many can be derived intuitively. Therefore a range of opinions (differing intuitions) is sometimes expressed about what these impacts may actually be.

The EIS has identified these types of impacts as best foreseen by those who have spent considerable time and effort in studying the corridor and who have also had experience with similar situations elsewhere. A recurring conclusion relative to area growth, as set forth in the following paragraphs, indicates a degree of consensus among the experts that growth of the area is and will remain a result of many factors: land availability and cost/value, economy, availability of goods and services (nearby Missoula is definitely an attractor), aesthetic appeal, schools, taxes, etc. -- of which transportation facilities are only a small part.

Accordingly, improvements to transportation facilities will have a proportionate (small part) effect on the indirect, secondary and cumulative impacts of growth and effect on quality of life but will not, as some suggest, be the primary factor or anything close to it. Evidence to support this is that the area has had the highest growth rate in Montana the past several years despite the poor physical and heavily traffic congested condition of the existing primary arterial through the area. If transportation facilities were a major factor in growth, development should have gone elsewhere in view of the poor conditions and congestion of existing US 93.

The Traffic Study, Land Use Report, and other studies conducted for the EIS all indicate that the projected growth of the area and corresponding increase in traffic will occur regardless of whether improvements to the transportation facility are made as has been the case for the last two decades. Indeed, both the population projections and the growth projections have been made on statistical analysis of past growth in the area, which is completely independent of the condition of the transportation facilities.

The EIS has addressed the issue of potential secondary growth in the "Future Population Growth" subsection of 3.13 - *Social*, in Section 4.13 - *Social*, and in Section 4.15 - *Land Use*. Discussion indicates that significant growth can commonly occur when new transportation facilities are constructed in areas that have none or are constructed in such a manner as to attract traffic away from other possible routes in the area. National experience has shown that where transportation facilities already exist and where there are no other routes or choices for alternative travel (such as the existing study corridor), then improvements to facilities generally affect only the timing and location of growth depending on whether access to adjacent properties is facilitated or restricted.

Section 4.15 - *Land Use* discusses the effects of an improved commute in the section on cumulative impacts. This discussion points out that there is a physiological "maximum" commute time and the net effect of the proposed action could be to push development

On page 3-48 the assumption is made that the decline in the timber business in the valley is due to "regulatory changes and environmental restrictions" and "adversely affects the economy.
This self-serving statement ignores the impact of NAFTA's affect of increasing competition and increasing automation in the timber industry, both of which have the affect of removing money from the economy. (14)

Table 3-11 lumps the forestry with agriculture. If forestry were separated, it would be found to have a relatively small percentage of influence on the local valley economy when compared with the "total" economy. (14)

The survey defining the problem is used as one of the primary definitions of need in the DEIS.
The DEIS lacks the sufficient information needed for the public or the decision maker to determine its meaning. The sampling methods and wording of questions asked are missing. (15)

A full disclosure of how the survey was taken should be included including sampling methods and the questionnaires. The wording of the questions has a lot of influence on the outcome of the survey. It appears from the results that people were asked to respond to a menu of possible problems and solutions without restriction on how many could be chosen or without reference to the combinations of solutions that are evident in the alternatives. (15)

It also appears that the choice of solutions were offered without asking the respondent to rank them in terms of preference. (15)

Page 1-18: The conclusion drawn in the fourth paragraph on the page is statistically flawed and incorrect.
The discussion of the apparent discrepancy between the telephone survey and the traffic survey ignores the difference in the makeup of the two sample populations.
The telephone survey (assuming a random sampling from the telephone book) is a random sample of households with telephones. As such, it is a statistically closer approximation of a random sample of households in the valley. (15)

In contrast, the traffic survey (assuming a random sampling of cars on the road taken a random times of day) is a sample of persons making trips that in turn take them past the survey point.
As such, it is biased toward members of the population who use that portion of that road the most. (15)
We believe a more proper characterization of the two surveys might be:
Traffic survey: "Here is what the people who use the highway a lot think".
Telephone survey: "Here is what the people in Ravalli County think."

It also appears there is no meaningful disclosure in the DEIS that discloses and discusses the fact that both the Mt. and U.S. DOT are bureaucracies that will likely "benefit" from the infusions of millions of dollars in highway construction funds.
It is obvious it is in the self-interest of those DOT agencies to propose major projects while essentially dismissing or "overlooking" other viable alternatives which would circulate less monies through those agencies. (16)

pressure further southward in the project corridor than presently exists due to the reduced commuting time. Statistical information from surveys is then discussed that predicts a 10 km (6.2 mile) extension of the commuting range which would densify existing residential development in this "bedroom" community sector and possibly accelerate pressure to convert undeveloped land within this zone to residential use.

Discussions in the land use section point out that while an improved facility may have an impact on the timing of growth and the areas in which it is expected to occur, transportation improvements will not create additional growth beyond that projected for the "no action" alternative. Figure 4-5 - *Projected Land Use* clearly shows the vast majority of the corridor is already platted for development even though much is currently undeveloped. This is strong evidence of the potential and actual plans for future growth and these plans were developed long before any serious discussions were held about possible improvements to US 93 in the area.

Lastly, discussions with local planning officials regarding the growth issue have indicated a definite expectation that growth in the area will hit a maximum growth rate beyond which it is non-sustainable. Discussion in the future land use section of Section 4.15 - *Land Use*, sets forth the anticipated checks and balances to growth resulting from availability of construction, labor, materials, and also increases in land values that result from strong growth. The planning office feels these factors will help control growth to keep it within the range projected in the EIS whether or not improvements to transportation facilities are made. Implementation of land use policies proposed in the Comprehensive Plan (protect undeveloped land, densify existing development) will also help to control and direct growth; thereby helping to preserve the "quality of life" in the Bitterroot.

Given these conditions, secondary/indirect/cumulative impacts identified in the EIS with respect to growth and "quality of life" issues are reasonably portrayed and adequately disclose the type and degree of such impacts to be expected.

(10) Population and growth projections contained in the EIS were taken from three different sources; the *Ravalli County Comprehensive Plan*, the Bitterroot Chamber of Commerce's *Bitterroot Futures Study*, and current and historical traffic data from MDT. Statistical evaluation of the data in these sources was based on widely accepted methodologies and techniques. Analysis of traffic growth from the MDT traffic data was made utilizing state-of-the-art non-linear, numerical analysis techniques that allow even closer degrees of correlation with past and present data than conventional methods and which have consistently proven to be superior to classical methods of analysis.

The recent explosive growth of the Bitterroot Valley (last 20 years as shown in Figure 3-12) has seen a doubling of population, and area growth currently continues to lead the State in terms of percentage of annual increase. This growth is a matter of record and no changes have been observed in local conditions that might suggest any drastic deviations in this trend into the foreseeable future. Specific information as to how or why the population growth projections "appear to be flawed and/or biased" would be greatly appreciated.

There are also private developers and businesses that support the major actions proposed by those agencies because they expect (or hope) to financially benefit during or after the construction of the more major projects.
This situation can create self-serving and somewhat hidden incentives to construct more major projects than necessary in the name of the "public good". It can also significantly affect the range of reasonable alternatives as they are presented in the NEPA analyses. (16)

Additionally, the DEIS appears to be arbitrarily and capriciously "segmenting" this required NEPA analysis, which then ignores or overlooks significant environmental impacts that would become readily apparent if the (total eventual) proposal was first examined in its entirety. (17)

The segmentation in question starts to become apparent when one views the "regional transportation network" map (figure 1-1, chapter 1.0; also found at page 3 of 37 in appendix C). The two "existing" sections of four lane highway are south of Hamilton and the segment north of Missoula. (17)

Essentially, the rest of the four lane Highway 93 system is currently in the "planning" stages, but it clearly demonstrates the actual eventual intent of the two DOT agencies to construct a major highway system north-south through western Montana. (4)
Furthermore, while only partially disclosed or discussed in the DEIS, the apparent intent is to eventually construct another major north-south highway system from Mexico to the Canadian borders. This eventual overall proposal will basically duplicate the current I-15 Highway system 80 miles to the east. (17)

Our concern with the apparent "segmentation" of the DEIS analyses is that the two DOT agencies focus their environmental analyses only on one portion at a time, and (if successful in building a portion), then use that section to further rationalize the construction of other portions of the predetermined highway system. (17)

This type of segmented environmental analysis process then overlooks or dismisses the direct, indirect and cumulative environmental impacts that that would be more readily obvious if the overall proposed highway system was instead first looked at in its entirety. (17)

Additionally, this segmenting of the analysis overlooks the major environmental and social impacts to Western Montana which is already in social turmoil from the rapid expansion of population growth when compared with Eastern Montana. (17)

We strongly urge that the U.S. and Mt. DOT agencies consider instead preparing an environmental analysis that, (1) looks at the eventual proposed major highway system running from national border to national border, and, (2) takes a "hard look" at the environmental impacts emanating from a major highway system through western Montana from its south border to its north border. (17)
This could perhaps be achieved by preparation of supplemental DEIS to analyze the overall cumulative environmental impacts in a more meaningful context and would then more likely provide the necessary "hard look" required by the NEPA and federal courts.

(11) The statement that "growth will happen anyway", made by all the experts who studied this corridor as a part of the EIS process (see Appendix B), is accurate because that is exactly what has been happening the last decade. Already the transportation facility is severely hampered in its ability to handle transportation demand (level of service D and E) throughout the corridor and the corresponding traffic congestion is a well known fact.

If transportation and infrastructure are the primary determinants in area growth as some suggest, then why has the area been, and continues to be, the fastest growing in the State? One important answer to this is explained in Section 4.13 - Social of the EIS, which discloses that area growth is a result of a combination of many factors such as land availability and cost/value, local economy, availability of goods and services (Missoula definitely provides), aesthetic appeal, school system, taxes, etc. The availability and condition of transportation facilities assuredly play a part, but past history and present trends indicate it is only a small part of the overall picture.

Lastly, it is not the charter of MDT to stipulate or direct land use policies. Such are clearly the responsibility of local governments. Transportation planning is charged with assuring that such planning efforts are consistent with and support local land use planning. The EIS clearly describes how proposed improvements are consistent with this objective and discloses that desired efforts to achieve or control land use planning are best made through local governments.

(12) Access control has been discussed and evaluated separately in the EIS (as have the alternatives) so that it could readily be combined with any alternative and the impacts would already been known and identified. There is nothing to preclude utilizing the access control concepts with any of the alternatives presented in the EIS. In fact, they should be included in order for any proposals to be consistent with and support local land use planning efforts.

Even though the preferred alternative is the only combination of alternatives specifically discussed as a combination in the EIS, the intent is that other combinations of alternatives could be made as long as they meet the stated purposes and needs for transportation improvement in the corridor. Other combinations were considered but were not promoted into the document due to their failure to meet the purpose and need.

(13) As described earlier in the response to Item #6, access control will be mandatory rather than voluntary. Even though those holding rights to highway access may utilize it for future development of the property, any proposed development would first have to be permitted by the County government in accordance with land use policies and secondly all access demands for the improvements would be required to utilize the existing access for ingress/egress. Therefore, "strip" growth is unlikely to occur since free and unrestricted access to highway frontage will be denied. If such development were to occur, the multiple individual accesses would need to be collected onto a frontage road or similar facility in order to access the highway through the existing permitted approach.

This policy has been successfully enacted in many areas and has worked successfully. Montana currently has over 420 miles of limited access control on primary highways that

There appears to be a consensus there is a clear need to improve the current conditions found on Highway 93 from Hamilton to Missoula. The question instead appears to be what alternatives will suffice for a given time period while still preserving the highly-prized attributes of the Bitterroot Valley (and western Montana).

Given the existing information, we would advocate another alternative that was not considered in the current DEIS that has been termed the "Super Two Package". The Confederated Salish Kootenai Tribes have advocated a similar highway design in the Flathead Valley. (16)

This alternative consists of a mile-by-mile, site-specific designed two-lane highway, widened to ample lanes and serviceable shoulders (wide enough for farm machinery), with right-hand and left-hand turn lanes, slow-vehicle turnouts, and frequent north and southbound passing lanes. Design would include separate bike lanes and walking paths and horse trails. In conjunction with the highway, there would be a well thought-out public transit system that would work in conjunction with vehicle reduction programs, including park-and-ride lots with coffee stations, computerized ride-sharing, car pools, and van pools. (18)

We believe the "Super Two Package" would be an acceptable alternative to the DEIS's current "preferred alternative" that could achieve strong support while better preserving the quality of life in the Bitterroot Valley. (18)

Please place our organization on your mailing list, and please send us any future documents pertaining to this proposal. (19)

Sincerely,

James Olsen,
President

has worked very well in preserving the capacity of the highway and serving as a deterrent to growth in the areas where it is used. Examples include US 93 Darby North and South, US 93 Elmo to Somers, US 93 Dickey Lake to Eureka, US 12 Avon to Elliston, and US 191 Bozeman to Four Corners.

(14) It is difficult to conduct an EIS or any other study without having to make some intuitive judgements. Wherever possible in the EIS, reference has been made to previous studies, background data, etc., in order to give the best information possible. However, some statements are necessarily made on the basis of reasonableness and best judgement of a situation based on previous experience or intuitive prediction of knowledgeable experts.

The statement about NAFTA giving impetus to use the highway is simply a repeat of the US Congress' declarations about the increase in commerce and trade and the resulting increased use of the american transportation system that were publicly predicted during the debate and signing of the Agreement.

Statements in the EIS about the decline and burdens on the local timber industry were taken directly from the Chamber of Commerce's *Bitterroot Futures Study* and *Economic Development Plan.* These documents represent statements by local people with a charter and authorization to speak for and represent local businesses and economy.

Similarly, Table 3-11 was taken from the Chamber of Commerce's study. Unfortunately, forestry and agriculture were included together and information was not available from the Chamber or any other known source as to the differences between the two. Again, presentation of such information is not at all intended to mislead, but to disclose the best and most reasonable information practicably available. One of the goals of the public involvement process is to gain additional input and clarify anything that might not be accurate. If better information is available, disclosure to the project manager will be most appreciated.

(15) While it is true that the surveys taken were part of the scoping process, it is not true that they were the major portion. Intensive efforts at public scoping were undertaken including nine public meetings where extensive written and oral public input as to problems with transportation in the corridor and possible solutions was obtained. Out of all of this wealth of information, of which the surveys were a part, came a clear picture of public concerns and reasonably justifiable alternatives for problem resolution.

Bibliographic references to both surveys were disclosed in the EIS and specific write-ups on the surveys, their methodologies, survey forms, and results is available for review upon request from MDT. The surveys were prepared and administered under the direction of Dr. Joe Floyd, PhD of Eastern Montana College who has significant experience in conducting non-biased surveys for information gathering. Consultation on survey content was given by a nationally renowned expert in TDM, Peter Schauer.

Extensive efforts were made to keep the surveys non-biased. For example, an oral portion of the traffic survey asked the question, "What is the first thing that comes to mind in providing solutions for transportation problems in this corridor of US 93?" Respondents

were asked this question and given the opportunity to answer prior to being handed a written form for survey response on which there was an extensive list of potential solutions and for which the respondent was free to choose as many as they felt were applicable.

Organization of items in the written list was completed by the use of a random number generator in order to remove potential bias from the way items were presented on the page. At the end of the list was a blank space for respondents to write in anything else that may have come to mind in making a response.

At the same time, the survey was structured to remove bias on the part of the respondent. There were no opportunities to identify priorities and no limitations were placed on what could be selected or presented. This method allowed for determining public commonality and consensus merely by being able to count the number of times an issue was selected or mentioned by different respondents -- the more times counted, the more the issue was on the minds of different respondents. This information, coupled with a similar analysis of other public input received in the scoping effort (which was considerable), gave clear and strong indications about the general public's views on transportation problems in the corridor and potential solutions.

Statements in the EIS already acknowledged the differences in the two surveys, the types of respondents, and the results obtained, but additional clarification has been added between highway users and general population.

(16) Both MDT and FHWA are non-profit organizations established by legitimate recognized governments to assist in providing for the health and welfare of the people they serve. While there is little doubt that governmental agencies often become "bureaucratic", charges that they are self-serving and have hidden agendas to create more work when they already have more than they can handle are nothing short of ridiculous.

Federal distribution of transportation funds is governed by formulas established by Congress. These formulas provide approximately the same level of annual funding to Montana throughout the 6 year authorization period. The scopes of individual projects have no bearing on the amount of funding Montana receives through Federal formulas. It is therefore incorrect to assume that MDT or FHWA will receive more funds if the preferred alternative is built.

The EIS considers a thorough and full range of reasonable alternatives. It discusses other alternatives that were considered and eliminated due to not being reasonable. The scoping process, and development and evaluation of alternatives have been closely monitored by regulatory agencies and the Interdisciplinary Team to assure they are in compliance with current law, including NEPA and MEPA requirements.

(17) A wonderful article about US Highway 93 throughout the Western United States was printed in a 1992 issue of National Geographic. The article explored the various facets of this national highway and the diversities of the cultures, population, and locales through which it passes. The article is extremely indicative of the changing conditions that occur along different portions of US Highway 93.

FHWA and MDT, both of which are charged by law to properly evaluate environmental impacts in the process of transportation planning, have both looked at US Highway 93 through Western Montana and realized the same conclusion -- that various areas are unique in many respects and as such require a finer level of detail in environmental analysis in order to properly identify adverse impacts. For example, conditions on the

Hamilton-Lost Trail Pass portion of US 93 are uniquely different than in the area between Hamilton and Lolo.

What may not be an environmental concern in one area of US 93 may well be in another, and vice-versa. In order to provide a greater level of detail and attention to the environmental analysis process, the agencies have categorized the US 93 route through Western Montana down into sub-regions with similar conditions related to the natural, biologic, and human environments. At the same time, this allows environmental analysis work to be assembled into manageable portions, which helps improve applicability and reliability of the results for the same reasons stated above.

NEPA regulations specifically prohibit using the improvement or conditions of one already completed segment of highway to justify similar improvements in an adjacent region. Specifically, it is required to look at "logical termini", which means that a given project must begin and end at locations logically corresponding with beginnings or endings of transportation trips on those facilities. In this respect, conducting an EIS from Hamilton to Lolo (Missoula) is completely reasonable and justifiable since both ends of the corridor are major population centers and traffic generators.

The EIS fully discloses environmental analyses and plans for improvement on other segments of US 93 in Western Montana (Section 4.25, et.al.) and specific discussion in each section of Chapter 4 has been included to identify the anticipated secondary, indirect, and cumulative impacts associated with each of the alternatives studied.

(18) The "Super Two Package" promoted by the Highway 93 Citizens' Coalition for Responsible Planning and supported by Friends of the Bitterroot, Inc. has already been thoroughly developed and evaluated in the EIS. Each of the components listed have been evaluated as a separate alternative and the aggregate impacts of the "package" can readily be determined by adding the impacts of each of the subelements together. For example, physical layout of the highway itself is the "modified 2-lane" alternative carried throughout the EIS. The preliminary design for this alternative was very carefully analyzed as to where passing lanes could be located in order to provide improved safety and reduce impacts to adjacent sensitive environmental areas such as wetlands.

The alternative included wider shoulders, and right and left hand turn lanes (amenities) where appropriate. Bike paths and pedestrian facilities were evaluated separately and could easily be added to the package. Similarly, a considerable effort was put into evaluating TDM techniques and alternatives for park-and-ride, carpooling and vanpooling, ridesharing, etc., were explored and the results presented throughout the EIS.

As discussed in the EIS, the reason the "Super Two Package" has not been presented as the preferred alternative is simply that it does not meet the stated purposes and needs for transportation improvements as effectively or completely as do other combinations of alternatives studied. Preeminate among its deficiencies is the inability to improve capacity and level of service on the facility with present and predicted traffic volumes. Safety of the alternative is also a primary concern. These and many other impacts are thoroughly discussed in the EIS and summarized in Tables 2-11, 2-12, and 4-18 in the document.

The elements of the preferred alternative have been judged as being the most cost effective for meeting the stated purposes and needs for improving transportation in this corridor by the Interdisciplinary Team (multiple review and regulatory agencies) and the Citizen's Advisory Committee that were assembled to specifically review this environmental analysis throughout its development. The preferred alternative received significant support through the public hearing process on the DEIS and has the specific support and approval of the County Commissions of both Missoula and Ravalli counties in which the facility is located. By law and by charter, these local governments have the right and responsibility to speak for the people they represent.

(19) Friends of the Bitterroot, Inc. has been placed on the mailing list; thus assuring notification of the availability of future documents pertaining to this project. Public notification of the availability of future documents will also be given through the media including newspapers and radio.

Appreciable public comment and response was received on the draft Environmental Impact Statement (EIS) and the public hearings held on it June 25-27, 1996. Chapter 7 of the final EIS presents a Responsiveness Summary which summarizes the input comments received and ranks them from greatest to least in order of the number of times the issue was mentioned. The following discussion presents the most frequently mentioned issues from the Responsiveness Summary.

ISSUES

1. More Consideration Needs to be Made for "Super Two Package"
2. Concerns about Preservation of "Quality of Life" in the Bitterroot and About Further Area Growth
3. 2-Lane Facility will be More Safe than 4-Lane Undivided
4. Stockpasses are needed for Proposed Improvements

US 93 HAMILTON TO LOLO MONTANA
RESPONSES TO COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Letter From: Various Individuals and Groups as Part of the DEIS Public Input Project
Author: N/A
Dated: June-September, 1996

(1) Significant input was received in support of the "Super Two Package" being promoted as a preferred alternative by the US Highway 93 Citizens' Coalition for Responsible Planning and other supportive groups and individuals. In addition to several individual letters supporting this alternative, there were significant numbers of form letters and nearly 800 signatures on petitions in support of this concept.

The "Super Two Package" has already been thoroughly developed and evaluated in the EIS. Each of the components listed have been evaluated as a separate alternative and the aggregate impacts of the "package" can readily be determined by adding the impacts of each of the subelements together. For example, physical layout of the highway itself is the "modified 2-lane" alternative carried throughout the EIS. The preliminary design for this alternative was very carefully analyzed as to where passing lanes could be located in order to provide improved safety and reduce impacts to adjacent sensitive environmental areas such as wetlands.

The alternative included wider shoulders, and right and left hand turn lanes (amenities) where appropriate. Bike paths and pedestrian facilities were evaluated separately and could easily be added to the package. Similarly, a considerable effort was put into evaluating TDM techniques and alternatives for park-and-ride, carpooling and vanpooling, ridesharing, etc., were explored and the results presented throughout the EIS.

As discussed in the EIS, the reason the "Super Two Package" has not been presented as the preferred alternative is simply that it does not meet the stated purposes and needs for transportation improvements as effectively or completely as do other combinations of alternatives studied. Preeminate among its deficiencies is the inability to improve capacity and level of service on the facility with present and predicted traffic volumes. Safety of the alternative is also a primary concern. These and many other impacts are thoroughly discussed in the EIS and summarized in Tables 2-11, 2-12, and 4-18 in the document.

The elements of the preferred alternative have been judged as being the most cost effective for meeting the stated purposes and needs for improving transportation in this corridor by the Interdisciplinary Team (multiple review and regulatory agencies) and the Citizen's Advisory Committee that were assembled to specifically review this environmental analysis throughout its development. The preferred alternative received significant support through the public hearing process on the DEIS and has the specific support and approval of the Ravalli County Commission in which most of the facility is located.

(2) A number of respondents, especially those supporting the "Super Two Package", indicated concern for preserving the quality of life in the Bitterroot and particular fears that the proposed highway improvement project would be a major or deciding factor in substantially impacting or destroying this area attribute.

A nearly identical issue expressed in other terms is the "growth" issue in which many have expressed fears that highway improvements will cause significant growth in the corridor.

The EIS has identified these types of impacts as best foreseen by those who have spent considerable time and effort in studying the corridor and who have also had experience with similar situations elsewhere. A recurring conclusion relative to area growth, as set forth in the following paragraphs, indicates a degree of consensus among the experts that growth of the area is and will remain a result of many factors: land availability and cost/value, economy, availability of goods and services (nearby Missoula is definitely an attractor), aesthetic appeal, schools, taxes, etc. -- of which transportation facilities are only a small part.

Accordingly, improvements to transportation facilities will have a proportionate (small part) effect on the indirect, secondary and cumulative impacts of growth and effect on quality of life but will not, as some suggest, be the primary factor or anything close to it. Evidence to support this is that the area has had the highest growth rate in Montana the past several years despite the poor physical and heavily traffic congested condition of the existing primary arterial through the area. If transportation facilities were a major factor in growth, development should have gone elsewhere in view of the poor conditions and congestion of existing US 93.

The Traffic Study, Land Use Report, and other studies conducted for the EIS all indicate that the projected growth of the area and corresponding increase in traffic will occur regardless of whether improvements to the transportation facility are made as has been the case for the last two decades. Indeed, both the population projections and the growth projections have been made on statistical analysis of past growth in the area, which is completely independent of the condition of the transportation facilities.

The EIS has addressed the issue of potential secondary growth in the "Future Population Growth" subsection of 3.13 - *Social*, in Section 4.13 - *Social*, and in Section 4.15 - *Land Use*. Discussion indicates that significant growth can commonly occur when new transportation facilities are constructed in areas that have none or are constructed in such a manner as to attract traffic away from other possible routes in the area. National experience has shown that where transportation facilities already exist and where there are no other routes or choices for alternative travel (such as the existing study corridor), then improvements to facilities generally affect only the timing and location of growth depending on whether access to adjacent properties is facilitated or restricted.

Section 4.15 - *Land Use* discusses the effects of an improved commute in the section on cumulative impacts. This discussion points out that there is a physiological "maximum" commute time and the net effect of the proposed action could be to push development pressure further southward in the project corridor than presently exists due to the reduced commuting time. Statistical information from surveys is then discussed that predicts a 10

km (6.2 mile) extension of the commuting range which would densify existing residential development in this "bedroom" community sector and possibly accelerate pressure to convert undeveloped land within this zone to residential use.

Discussions in the land use section point out that while an improved facility may have an impact on the timing of growth and the areas in which it is expected to occur, transportation improvements will not create additional growth beyond that projected for the "no action" alternative. Figure 4-5 - *Projected Land Use* clearly shows the vast majority of the corridor is already platted for development even though much is currently undeveloped. This is strong evidence of the potential and actual plans for future growth and these plans were developed long before any serious discussions were held about possible improvements to US 93 in the area.

Lastly, discussions with local planning officials regarding the growth issue have indicated a definite expectation that growth in the area will hit a maximum growth rate beyond which it is non-sustainable. Discussion in the future land use section of Section 4.15 - *Land Use*, sets forth the anticipated checks and balances to growth resulting from availability of construction, labor, materials, and also increases in land values that result from strong growth. The planning office feels these factors will help control growth to keep it within the range projected in the EIS whether or not improvements to transportation facilities are made. Implementation of land use policies proposed in the Comprehensive Plan (protect undeveloped land, densify existing development) will also help to control and direct growth; thereby helping to preserve the "quality of life" in the Bitterroot.

Given these conditions, secondary/indirect/cumulative impacts identified in the EIS with respect to growth and "quality of life" issues are reasonably portrayed and adequately disclose the type and degree of such impacts to be expected.

(3) The issue of safety between a modified 2-lane facility and a 4-lane undivided section was brought up during the public hearings on the DEIS. Specifically, reference was made that AASHTO standards infer accident rates on multi-lane, undivided arterials are higher than that on 2-lane arterials. However, the statement is used out of context since further discussion in the same section admits to the fact that as a rule, multi-lane arterials carry heavier traffic volumes and have more frequent intersections and more development of adjacent land, all of which have appreciable bearing on accident experience and capacity.

The EIS in the "Safety" discussion of Section 4.17 reviews several projects in Montana that have been upgraded from 2-lane to 4-lane facilities with substantial decreases in both accident rate and accident severity. Examples include US 93 Missoula to Evaro, Hungry Horse to Coram, US 93 Hamilton South, US 12 Helena to Elliston, and Great Falls Southeast.

Such a blanket statement as presented in AASHTO is clearly not applicable as evidenced by the two to four lane safety improvements realized on the projects noted above and also in other transportation planning literature. For example, analysis of data on traffic fatalities and accidents taken from "*Traffic Safety Facts 1994*" published by the National Highway Traffic Safety Administration indicates that "fatal accidents are more than twice as likely to take place on two lane roads than on highways with four or more lanes". The

study indicates the fatal accident rate per 100 million miles traveled on 2-lane roads was 2.03, while the same rate on roads with four or more lanes averaged 0.95. Similarly, there were more than 2.7 million traffic accidents on 2-lane roads in 1994 compared to about 1.4 million accidents on roads with four or more lanes. This is significant in view of the fact that the total vehicle miles traveled on each is nearly the same.

Other elements of the "Safety" discussion of Section 4.17 in the EIS clearly indicate a distinct advantage of a multi-lane facility over the 2-lane alternative. This concern over safety is one of two primary reasons (the other is inability to improve level of service and capacity) why the 2-lane modified alternative has not been recommended as part of the preferred alternative presented in the EIS.

(4) Input was received from a number of agricultural and livestock operations in the project corridor concerning the need to move livestock and other agricultural equipment safely from one side of the highway to the other. Several made specific requests for inclusion of stockpasses under the proposed highway improvements for their specific operations.

Construction of stockpasses is very expensive; thus their use is only considered where significant benefits in terms of safety and operation of the highway can be realized. Since it is difficult to enact a blanket policy concerning this, each individual situation is looked at on a case-by-case basis to determine the warrants, justification, and corresponding benefits of providing a stockpass structure.

If, and at such time as the improvement alternatives go to design and right-of-way is acquired, then right-of-way agents or other designated representatives of MDT will visit with each property owner concerning the need for access, operational characteristics of the adjacent land use, and the potential need for special considerations such as stockpasses. The information obtained from the property owner will be analyzed to see if operational and safety conditions warrant consideration for a stockpass and whether the potential benefits justify the investment. If so, then plans for stockpasses will be incorporated and, if not, other accommodations for livestock and agricultural operations on adjacent lands will need to be made.



APPENDIX E

INDEX

INDEX

124 permit 4-97
3-lane highway S-4, 2-7
3A authorization 4-97
4-lane S-1, S-3, S-4, 1-8, 2-3, 2-14, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-24, 2-26, 2-30, 4-7, 4-8, 4-13, 4-15, 4-16, 4-20, 4-23, 4-25, 4-27, 4-29, 4-34, 4-45, 4-46, 4-54, 4-55, 4-56, 4-60, 4-64, 4-65, 4-67, 4-69, 4-73, 4-74, 4-75, 4-76, 4-77, 4-78, 4-79, 4-80, 4-88, 4-93, 4-104, 7-16, 7-20
4-lane divided highway S-3, 4-8, 4-13, 4-16, 4-20, 4-67, 4-80, 4-88
4-lane undivided highway S-3, 2-22, 2-30
5-lane S-3, S-4, 1-5, 2-3, 2-14, 2-17, 2-18, 2-19, 2-20, 2-21, 2-23, 2-24, 2-26, 4-3, 4-7, 4-15, 4-23, 4-26, 4-27, 4-34, 4-46, 4-54, 4-55, 4-56, 4-60, 4-64, 4-65, 4-67, 4-69, 4-74, 4-77, 4-78, 4-79, 4-80, 4-83, 4-104, 7-16
5-lane highway S-3, 2-21, 2-23
AASHTO S-6, 1-1, 1-4, 1-26, 2-22, 2-30, 3-61, 4-76, 4-77, 4-79, 4-81
acceleration lane 4-64
access S-1, S-2, S-3, S-4, S-5, 1-4, 1-5, 1-6, 1-14, 1-15, 1-16, 1-17, 1-18, 1-22, 1-30, 2-4, 2-5, 2-7, 2-14, 2-17, 2-18, 2-21, 2-22, 2-23, 2-24, 2-26, 2-36, 3-9, 3-40, 3-45, 3-47, 3-48, 3-53, 3-56, 3-58, 3-61, 3-62, 3-67, 3-68, 3-69, 4-12, 4-18, 4-19, 4-22, 4-23, 4-36, 4-46, 4-48, 4-50, 4-53, 4-54, 4-55, 4-56, 4-58, 4-59, 4-60, 4-61, 4-62, 4-64, 4-65, 4-66, 4-67, 4-68, 4-70, 4-71, 4-73, 4-74, 4-76, 4-77, 4-78, 4-79, 4-81, 4-82, 4-83, 4-84, 4-85, 4-89, 4-90, 4-91, 4-92, 4-95, 4-96, 4-99, 4-100, 4-101, 4-102, 4-103, 4-104, 4-106, 4-108, 4-109, 4-110, 4-111, 7-15, 7-16, 7-21, 7-22
access control S-1, S-3, S-4, S-5, 1-16, 2-4, 2-14, 2-17, 2-18, 2-21, 2-22, 2-23, 2-24, 2-26, 3-53, 3-58, 3-61, 4-12, 4-19, 4-22, 4-23, 4-53, 4-55, 4-58, 4-59, 4-60, 4-61, 4-62, 4-64, 4-66, 4-67, 4-68, 4-70, 4-73, 4-74, 4-82, 4-84, 4-99, 4-100, 4-102, 4-108, 4-109, 4-110, 7-21
accident 1-14, 2-7, 3-60, 4-20, 4-21, 4-75, 4-76, 4-77, 4-78, 4-79, 4-80, 4-81, 4-106
additional lanes S-3, 1-5, 1-8, 1-18, 2-25, 3-58, 4-10, 4-16, 4-17, 4-19, 4-22, 4-45, 4-46, 4-53, 4-56, 4-64, 4-71, 4-75, 4-76, 4-78, 4-79, 4-82, 4-84, 4-88, 4-92, 4-109, 7-9, 7-10, 7-17
Advisory Committee S-1, S-3, S-4, 1-4, 2-1, 2-2, 2-14, 2-25, 2-29, 2-30, 2-31, 4-101, 5-1, 5-2, 6-4, 7-6, 7-15, 7-17, 7-21
aerial photo S-4, 2-21
aesthetic 1-6, 1-17, 2-31, 3-16, 3-43, 3-44, 4-21, 4-42, 4-67, 4-71
air pollution S-5, 1-17, 2-39, 2-40, 4-9, 4-73, 4-86, 4-98
air quality S-2, S-7, 1-12, 1-18, 1-30, 3-8, 3-9, 4-9, 4-10, 4-11, 4-12, 4-29, 4-67, 4-82, 4-95, 4-96, 4-98, 4-102, 4-104, 4-106, 4-111, 5-5, 6-1, 7-15, 7-21
air quality permit 4-98
Air Quality Study 4-9
alignment S-1, S-5, 1-26, 2-5, 2-14, 2-15, 2-21, 2-23, 2-27, 2-30, 3-2, 3-8, 3-16, 3-17, 3-57, 4-3, 4-5, 4-8, 4-11, 4-16, 4-18, 4-19, 4-23, 4-24, 4-27, 4-35, 4-45, 4-47, 4-48, 4-49, 4-54, 4-55, 4-58, 4-64, 4-71, 4-73, 4-74, 4-86, 4-87, 4-88, 4-89, 4-90, 4-91, 4-93, 4-106, 4-107, 4-108, 4-110, 7-6
alternatives S-1, S-3, S-4, S-6, 1-1, 1-4, 1-16, 1-17, 1-18, 2-1, 2-2, 2-3, 2-4, 2-5, 2-8, 2-11, 2-12, 2-13, 2-14, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-25, 2-26, 2-27, 2-29, 2-30, 2-31, 2-36, 2-38, 2-40, 3-5, 3-6, 3-13, 3-37, 3-40, 3-54, 3-61, 4-1, 4-2, 4-3, 4-5, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-15, 4-16, 4-17, 4-18, 4-20, 4-21, 4-22, 4-23, 4-27, 4-28, 4-29, 4-34, 4-35, 4-41, 4-42, 4-44, 4-45, 4-46, 4-48, 4-49, 4-51, 4-52, 4-53, 4-54, 4-55, 4-56, 4-57, 4-59, 4-60, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-76, 4-77, 4-78, 4-79, 4-80, 4-81, 4-82, 4-83, 4-86, 4-87, 4-88, 4-90, 4-91, 4-92, 4-93, 4-94, 4-95, 4-96, 4-98, 4-99, 4-100, 4-103, 4-104, 4-106, 4-107,

4-109, 5-4, 7-1, 7-2, 7-3, 7-6, 7-8, 7-10, 7-11, 7-12, 7-13, 7-14, 7-15, 7-16, 7-17, 7-19
amphibians 3-36, 4-44, 4-46, 4-94, 4-95
animal collisions 1-14, 1-15, 3-61, 4-46, 4-80, 4-81, 4-84, 4-102, 4-109, 4-110, 7-9
Appendix A S-4, 2-21, 3-48, 3-52, 3-55, 4-69
Appendix B S-4, 1-4, 2-29, 3-31, 4-34
Appendix C 3-2, 4-7, 4-28, 4-35, 4-40, 4-97, 7-2
Appendix D S-4, 4-50, 4-51, 7-6, 7-19
aquatic resources 3-19, 3-35, 3-37, 4-28, 4-35, 4-39, 4-41, 4-48, 4-49, 4-97
aquifer 3-1, 3-5, 4-5
archaeological 3-66, 4-89, 4-110
arterial S-1, S-2, 1-1, 1-4, 1-5, 1-6, 1-12, 1-16, 1-29, 2-5, 2-22, 3-59, 3-60, 3-61, 3-62, 4-73, 4-82, 4-83
auxiliary lanes S-4, 2-4, 2-21, 2-24, 2-27
average cost per user 2-17, 2-19, 2-20
average daily traffic S-2, S-6, 1-8, 1-12, 1-30, 4-2, 4-9, 4-71
avoidance 2-30, 4-9, 4-21, 4-28, 4-29, 4-35, 4-36, 4-37, 4-42, 4-46, 4-47, 4-49, 4-52, 4-69, 4-89, 4-107, 4-108, 4-110
background landscape 3-16, 3-17, 3-18, 4-22, 4-23
background studies 3-1, 4-1
bald eagles 1-17, 3-36, 3-41, 4-50
barrier effect 4-46, 4-54, 4-56, 4-57, 4-66, 4-108
Bass Creek Hill S-3, S-4, 1-26, 2-3, 2-14, 2-21, 2-23, 2-27, 3-18, 3-34, 3-35, 3-36, 3-37, 4-3, 4-7, 4-10, 4-11, 4-16, 4-23, 4-27, 4-35, 4-45, 4-49, 4-50, 4-54, 4-66, 4-71, 4-80, 4-86, 4-93, 7-16
bedroom communities 4-67
best management practices S-6, 4-2, 4-3, 4-4, 4-7, 4-35, 4-36, 4-42, 4-49, 4-97, 4-105, 4-106, 4-107
bicycle S-1, S-4, S-5, 1-17, 1-26, 1-29, 2-4, 2-21, 2-24, 3-56, 3-61, 4-56, 4-61, 4-70, 4-81, 4-82, 4-83, 4-84, 4-85, 4-91, 4-96, 4-103, 4-104, 4-109, 4-110, 7-20
bike paths 2-24, 3-61, 4-22, 4-81
biological assessment 2-29, 3-40, 3-41, 4-50, 4-51, 4-108
Biological Resources Report 3-19, 3-36, 4-27, 4-44, 4-50
biologist 4-39, 4-40, 4-49, 4-51, 4-107, 4-108
birds 3-34, 3-35, 3-36, 3-41, 4-44, 4-46, 4-51, 4-94, 4-95
Bitterroot Futures Study 1-16, 3-45, 3-49, 3-51, 4-58, 4-82
Bitterroot Mountain 3-1, 3-2, 4-38
Bitterroot River S-1, S-3, S-4, 1-26, 2-14, 2-23, 3-1, 3-2, 3-5, 3-6, 3-8, 3-16, 3-17, 3-19, 3-21, 3-34, 3-35, 3-36, 3-39, 3-40, 3-41, 3-58, 3-62, 3-64, 3-68, 3-69, 4-3, 4-7, 4-8, 4-23, 4-35, 4-37, 4-38, 4-48, 4-49, 4-50, 4-71, 4-87, 4-90, 4-91, 4-98
Bitterroot Valley 1-4, 1-5, 1-6, 1-7, 1-8, 1-12, 1-15, 1-16, 1-17, 1-18, 1-29, 2-5, 2-8, 2-22, 2-24, 2-36, 2-37, 2-38, 2-39, 2-40, 3-1, 3-2, 3-6, 3-16, 3-21, 3-34, 3-36, 3-37, 3-41, 3-42, 3-44, 3-45, 3-47, 3-48, 3-49, 3-50, 3-51, 3-52, 3-53, 3-56, 3-59, 3-61, 3-62, 3-63, 3-66, 3-67, 4-4, 4-37, 4-39, 4-41, 4-45, 4-51, 4-58, 4-61, 4-67, 4-69, 4-70, 4-94, 4-103, 4-105, 6-4, 7-8, 7-10
bridges S-1, 1-5, 2-17, 3-57, 3-58, 3-60, 3-64, 4-4, 4-20, 4-22, 4-36, 4-47, 4-48, 4-49, 4-94, 4-98, 4-105, 4-107
build S-3, S-4, S-6, 1-16, 2-2, 2-3, 2-8, 2-11, 2-12, 2-13, 2-17, 2-18, 2-19, 2-20, 2-21, 2-26, 2-30, 3-5, 3-40, 4-3, 4-5, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-15, 4-16, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-27, 4-29, 4-34, 4-35, 4-41, 4-42, 4-44, 4-45, 4-46, 4-48, 4-49, 4-51, 4-52, 4-53, 4-54, 4-55, 4-56, 4-59, 4-60, 4-62, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-76, 4-77, 4-79, 4-80, 4-81, 4-82, 4-83, 4-86, 4-88, 4-90, 4-91, 4-92, 4-93, 4-96, 4-102, 4-106, 4-107, 4-109, 7-1, 7-3, 7-15, 7-16, 7-17
bull trout 1-17, 3-39, 3-40, 4-49
burn permit 4-98

bus service S-1, S-3, 2-3, 2-11, 2-17, 2-18, 2-19, 2-20, 2-22, 2-38, 3-56, 4-8, 7-10
business 1-12, 1-17, 1-18, 2-5, 2-7, 2-14, 2-17, 2-23, 2-24, 2-37, 3-12, 3-17, 3-42, 3-45, 3-48, 3-49, 3-52, 3-53, 3-59, 4-18, 4-53, 4-54, 4-58, 4-59, 4-60, 4-61, 4-62, 4-65, 4-66, 4-71, 4-83, 4-96, 4-109, 7-9
capacity S-2, S-3, S-5, 1-1, 1-5, 1-6, 1-7, 1-8, 1-9, 1-12, 1-14, 1-16, 1-18, 1-30, 2-3, 2-4, 2-5, 2-7, 2-8, 2-11, 2-22, 2-23, 2-24, 2-25, 2-26, 2-38, 3-53, 3-56, 3-59, 3-60, 3-61, 4-42, 4-59, 4-62, 4-67, 4-68, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-76, 4-77, 4-78, 4-82, 4-83, 4-84, 4-86, 4-95, 4-101, 4-104, 4-109
car pooling S-4, 7-10
carbon monoxide S-7, 3-8
center turning lane S-1, S-3, S-4, 2-7, 2-14, 2-21, 2-23, 3-56, 4-64
Chamber of Commerce 1-16, 3-45, 3-48, 4-58, 5-2, 6-4, 7-8, 7-17
Clean Water Act S-7, 3-21, 4-2, 4-41, 4-97, 7-2
clear zone 1-28, 4-75
clearance 1-26, 1-28, 2-7, 4-36, 4-71, 4-98
climate 3-1, 3-48, 4-58, 4-59, 4-60
CO S-7, 3-8, 3-9, 4-9, 4-10, 4-11, 4-12, 6-2, 6-5
code of federal regulations S-6
cohesion S-2, S-5, 1-16, 1-18, 1-30, 2-5, 4-53, 4-57, 4-66, 4-89, 4-96, 4-102, 4-104, 4-108, 7-17
community character 1-16, 1-17, 4-57, 4-89, 4-102, 4-108, 7-20
community cohesion S-2, S-5, 1-18, 1-30, 2-5, 4-53, 4-57, 4-96, 4-104, 4-108
community service 4-53
commuting S-1, 1-4, 1-6, 1-12, 1-17, 1-29, 2-11, 2-25, 2-31, 2-36, 2-37, 3-52, 3-53, 3-59, 4-52, 4-53, 4-57, 4-68, 4-71, 4-82, 4-93, 4-108, 7-9, 7-10
compatibility S-2, S-6, 1-17, 1-18, 1-30, 2-24, 3-51, 4-61, 4-71
compensatory mitigation 4-28, 4-35, 4-37, 4-39, 4-41
comprehensive plan S-3, 1-5, 1-16, 3-42, 3-43, 3-51, 3-54, 3-61, 3-62, 4-61, 4-66, 4-68, 4-109
congestion S-1, S-2, S-5, 1-1, 1-5, 1-6, 1-12, 1-14, 1-15, 1-16, 1-18, 1-22, 1-30, 2-3, 2-4, 2-5, 2-7, 2-11, 2-31, 2-36, 2-37, 2-38, 2-39, 2-40, 2-41, 3-12, 3-56, 3-59, 3-60, 3-62, 4-3, 4-5, 4-10, 4-11, 4-12, 4-13, 4-19, 4-21, 4-22, 4-23, 4-44, 4-46, 4-52, 4-53, 4-54, 4-56, 4-57, 4-58, 4-59, 4-60, 4-62, 4-64, 4-66, 4-67, 4-68, 4-70, 4-72, 4-73, 4-74, 4-75, 4-77, 4-82, 4-83, 4-86, 4-91, 4-92, 4-96, 4-101, 4-102, 4-108, 4-111, 7-11, 7-15
construction S-1, S-2, S-4, S-6, 1-1, 1-5, 1-7, 1-12, 1-22, 1-26, 1-28, 1-29, 1-30, 2-3, 2-5, 2-7, 2-11, 2-14, 2-17, 2-18, 2-20, 2-21, 2-22, 2-23, 2-24, 2-30, 2-31, 2-36, 2-39, 2-40, 3-9, 3-10, 3-12, 3-40, 3-49, 3-57, 3-59, 3-60, 3-62, 3-63, 4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-15, 4-16, 4-17, 4-19, 4-20, 4-21, 4-22, 4-27, 4-29, 4-34, 4-35, 4-36, 4-37, 4-38, 4-40, 4-42, 4-44, 4-45, 4-46, 4-47, 4-48, 4-49, 4-50, 4-51, 4-55, 4-56, 4-58, 4-59, 4-60, 4-62, 4-64, 4-65, 4-67, 4-69, 4-73, 4-83, 4-85, 4-86, 4-88, 4-89, 4-91, 4-92, 4-93, 4-94, 4-95, 4-96, 4-97, 4-98, 4-99, 4-100, 4-101, 4-102, 4-105, 4-106, 4-107, 4-108, 4-109, 4-110, 4-111, 5-1, 5-4, 7-6, 7-16, 7-22, 7-23
construction blasting permit 4-98
construction noise 4-13, 4-15, 4-16, 4-17, 4-19, 4-95
construction permits 4-36
controlled access S-3, 2-5, 7-16
controversy S-5, 4-101
cost effective 1-18, 2-22, 3-6, 4-1, 4-8, 4-93
County S-2, S-3, S-4, 1-5, 1-6, 1-16, 2-1, 2-23, 2-24, 2-28, 2-36, 2-37, 2-40, 3-2, 3-6, 3-13, 3-42, 3-43, 3-44, 3-45, 3-47, 3-48, 3-49, 3-50, 3-51, 3-52, 3-54, 3-56, 3-58, 3-59, 3-60, 3-61, 3-62, 3-63, 4-7, 4-9, 4-12, 4-61, 4-62, 4-64, 4-66, 4-69, 4-82, 4-86, 4-87, 4-90, 4-101, 4-105, 4-106, 5-2, 6-4, 6-5, 7-6, 7-8, 7-9, 7-11, 7-21
criteria for historic preservation 3-63
critical receptors 3-12, 4-18, 4-19, 4-106

cultural 1-17, 1-18, 2-29, 3-42, 3-44, 3-62, 3-66, 3-67, 4-85, 4-88, 4-89, 4-94, 4-96, 4-98, 4-103, 4-104, 4-110, 5-4, 7-3, 7-22
Cultural Resources Inventory Report 3-62
culverts 2-17, 3-40, 3-58, 4-4, 4-36, 4-47, 4-48, 4-49, 4-81, 4-94, 4-105, 4-107, 4-110
cumulative impacts 4-1, 4-3, 4-4, 4-6, 4-9, 4-11, 4-18, 4-21, 4-23, 4-27, 4-41, 4-42, 4-46, 4-51, 4-60, 4-67, 4-68, 4-70, 4-83, 4-87, 4-88, 4-91, 4-93, 4-96, 4-100, 4-101, 4-102, 4-103, 4-104
curb and gutter S-1, 1-28, 2-4, 2-23, 2-24, 2-25, 4-59
deer S-2, S-5, 1-15, 1-16, 1-17, 1-30, 3-34, 3-35, 3-36, 3-37, 3-38, 3-41, 3-61, 4-37, 4-44, 4-45, 4-47, 4-52, 4-80, 4-81, 4-107, 4-108, 4-110, 5-6, 7-15
Deer Kill Study 3-37, 4-45, 5-6
delays S-6, 4-73, 4-77, 4-78, 4-92, 4-93, 4-96, 4-106
delineation 2-21
densification S-1, S-4, S-5, 2-23, 2-38, 2-41, 3-53, 4-23, 4-53, 4-57, 4-64, 4-66, 4-83, 4-101, 4-108
density S-2, 1-14, 1-16, 1-29, 1-30, 2-25, 2-38, 3-16, 3-17, 3-19, 3-54, 3-58, 4-22, 4-46, 4-62, 4-73, 4-74, 4-78, 4-79
design S-2, S-7, 1-1, 1-4, 1-7, 1-8, 1-12, 1-22, 1-26, 1-28, 1-30, 2-2, 2-3, 2-11, 2-17, 2-18, 2-22, 2-23, 2-24, 2-25, 2-30, 3-6, 3-10, 3-59, 3-60, 4-3, 4-4, 4-6, 4-8, 4-9, 4-10, 4-12, 4-16, 4-19, 4-21, 4-22, 4-29, 4-34, 4-35, 4-36, 4-37, 4-38, 4-39, 4-47, 4-48, 4-49, 4-51, 4-52, 4-55, 4-58, 4-61, 4-64, 4-65, 4-68, 4-70, 4-73, 4-76, 4-77, 4-78, 4-80, 4-84, 4-85, 4-86, 4-87, 4-88, 4-89, 4-93, 4-94, 4-96, 4-99, 4-100, 4-101, 4-105, 4-106, 4-107, 4-108, 4-109, 4-110, 5-1, 5-3, 5-4, 5-5, 7-1, 7-3, 7-11, 7-23
design hour volume 1-12, 3-60, 4-12, 4-16
design hourly volume S-7
design life 2-18
detours 4-11, 4-12, 4-19, 4-36, 4-73, 4-93, 4-96, 4-106
developed areas S-2, S-4, S-5, 1-14, 1-18, 1-30, 2-7, 2-17, 2-23, 2-24, 2-25, 3-37, 3-45, 3-52, 3-67, 4-19, 4-23, 4-45, 4-54, 4-57, 4-60, 4-62, 4-67, 4-68, 4-102, 4-108, 4-109
DHV S-7, 1-12, 4-13
displacement 2-23, 3-48, 4-29, 4-34, 4-35, 4-44, 4-47, 4-54, 4-65, 4-91, 4-95, 4-102, 4-104, 4-107
drainage S-4, 2-21, 2-23, 2-25, 3-1, 3-2, 3-5, 3-6, 3-16, 3-40, 3-57, 4-6, 4-7, 4-8, 4-47, 4-49, 4-97, 4-105, 4-107, 7-22
drivers 1-8, 1-12, 1-15, 1-26, 4-19, 4-23, 4-46, 4-77, 4-84, 4-109, 7-9, 7-11, 7-17
Eastside Highway S-2, 1-9, 2-5, 2-21, 2-24, 2-28, 3-68, 3-69, 4-12, 4-62, 4-66, 4-67, 4-72, 4-79, 4-82, 4-89, 4-90, 4-91, 4-101
economic S-1, S-2, S-4, S-5, 1-1, 1-4, 1-16, 1-17, 1-18, 1-29, 1-30, 2-4, 2-5, 2-7, 2-17, 2-29, 2-31, 2-40, 3-42, 3-44, 3-45, 3-47, 3-48, 3-49, 3-53, 3-62, 3-63, 3-66, 4-13, 4-42, 4-52, 4-58, 4-59, 4-60, 4-66, 4-67, 4-82, 4-83, 4-92, 4-94, 4-95, 4-96, 4-101, 4-103, 4-104, 4-109, 7-22
economic development S-2, S-5, S-6, 1-18, 1-30, 2-4, 3-45, 3-62, 3-63, 4-58, 4-59, 4-82, 4-83, 4-95, 4-101, 4-103, 4-104
Economic Report 3-42, 4-52
efficiency S-5, S-7, 1-1, 1-12, 1-17, 2-3, 2-7, 2-11, 2-22, 2-23, 2-24, 2-25, 3-53, 3-56, 3-62, 4-36, 4-39, 4-60, 4-68, 4-70, 4-71, 4-82, 4-83, 4-84, 4-85, 4-92, 4-93, 4-94, 4-99, 4-102, 4-109, 4-110
EIS S-1, S-3, S-6, S-7, 1-5, 2-25, 2-29, 3-51, 4-28, 4-34, 4-40, 4-94, 4-99, 4-101, 5-3, 6-1, 6-2, 7-6, 7-8, 7-17, 7-19, 7-23
emergency services 3-47, 4-21, 4-56, 4-106
emergency vehicle 1-18
employment 1-4, 1-6, 2-31, 2-36, 2-38, 2-40, 2-41, 3-47, 3-48, 3-49, 4-13, 4-58, 4-66, 4-96, 4-111
encroachment 3-6, 3-8, 4-7, 4-8, 4-9, 4-39, 4-41, 4-49, 4-66, 4-80, 4-82, 4-87, 4-102, 4-107

Endangered Species Act 3-40
Energy and Commitment of Resources Study 4-92
engineering design 2-30, 4-3, 4-34, 4-38, 4-48, 4-49, 4-55, 4-86, 4-88, 4-100, 4-107
enhancements 2-8, 4-76
environmental document 2-21, 2-22, 2-29, 3-1, 4-28, 4-42, 4-87, 5-1, 6-1, 7-1, 7-2, 7-3, 7-6
Environmental Impact Statement S-1, S-3, S-7, 1-1, 4-3, 7-8
Environmental Protection Agency S-7, 3-21, 4-5, 4-28, 4-37, 4-97, 5-2, 5-3, 6-1, 6-4, 7-6
EPA S-7, 3-5, 3-8, 3-13, 3-21, 4-4, 4-5, 4-6, 4-9, 4-15, 4-20, 4-21, 4-49, 4-106, 4-107, 6-2
erosion control 4-4, 4-42, 4-49, 4-96, 4-105, 4-106, 4-107, 4-111
ethnic groups 4-53, 4-54
extra lane 2-11
farmland S-5, S-7, 1-17, 2-5, 2-7, 2-29, 3-49, 3-52, 3-53, 3-54, 3-55, 4-68, 4-69, 4-70, 4-103, 4-104, 4-109
Farmland Impact Study 4-69
farmland of state-wide importance 3-53, 3-55, 4-70
feasibility S-4, 2-11, 2-22, 2-25, 2-36, 2-39, 4-18, 7-1
Federal Emergency Management Agency S-6, S-7, 3-6, 6-2
Federal Highways Administration 3-40, 4-99
FEMA S-6, S-7, 3-6, 3-8, 4-97, 4-98
FHWA S-3, S-7, 2-1, 2-21, 3-6, 3-10, 3-12, 3-64, 4-2, 4-29, 5-1, 7-2, 7-23
fish passage 3-40, 4-36, 4-48, 4-49, 4-107
fisheries 3-31, 3-35, 3-37, 3-39, 3-40, 3-49, 4-29, 4-35, 5-4, 5-6
flex time 2-36, 2-38
Floodplain Administrator 4-9, 4-105
floodplains S-5, 2-30, 3-2, 3-6, 3-8, 3-21, 4-7, 4-8, 4-9, 4-24, 4-38, 4-97, 4-102, 4-104, 4-105, 4-106
Florence S-2, S-4, 1-1, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-12, 1-22, 1-27, 1-30, 2-7, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 3-5, 3-10, 3-12, 3-41, 3-45, 3-48, 3-52, 3-55, 3-56, 3-58, 3-59, 3-63, 3-67, 4-15, 4-17, 4-18, 4-61, 4-62, 4-64, 4-65, 4-74, 4-79, 4-81, 4-91, 4-99, 4-100, 5-2, 6-1, 6-4, 6-5, 6-6, 7-8, 7-12, 7-17
focus groups 2-1, 2-2, 2-36, 2-37, 2-38, 2-39, 7-10
foraging 3-34, 3-35, 3-36, 3-41, 3-66, 4-34, 4-45, 4-46, 4-50, 4-51, 4-52, 4-95, 4-108
foreground landscape 3-16, 3-17, 4-22
Forsgren Associates 2-1, 2-14, 2-17, 3-5, 3-6, 3-42, 3-51, 3-54, 3-57, 3-61, 4-2, 4-7, 4-52, 4-61, 4-69, 4-92, 5-1, 5-3, 7-1, 7-2, 7-8
fossil fuels 1-17, 4-92, 4-93
frontage road 1-28
frustration 1-15, 1-16, 4-45, 4-74, 4-75, 4-96, 4-111, 7-11
fuel consumption 4-91, 4-92, 4-93, 4-94
future development 3-12, 4-19, 4-38, 4-39, 4-61, 4-65, 4-66, 7-7
geotechnical 3-57, 4-88, 5-5
groundwater S-5, 1-27, 3-1, 3-2, 3-4, 3-5, 3-21, 3-22, 3-34, 4-2, 4-5, 4-6, 4-7, 4-34, 4-37, 4-39, 4-40, 4-41, 4-67, 4-68, 4-104, 4-105
growth S-1, S-2, S-4, S-5, S-6, 1-1, 1-6, 1-7, 1-8, 1-16, 1-17, 1-18, 1-30, 2-4, 2-5, 2-8, 2-17, 2-23, 2-24, 2-31, 2-40, 3-5, 3-18, 3-43, 3-44, 3-45, 3-47, 3-48, 3-50, 3-52, 3-53, 3-54, 3-59, 3-61, 3-62, 4-2, 4-4, 4-6, 4-9, 4-12, 4-16, 4-18, 4-21, 4-22, 4-23, 4-38, 4-39, 4-41, 4-42, 4-44, 4-46, 4-47, 4-51, 4-52, 4-53, 4-56, 4-57, 4-58, 4-59, 4-60, 4-61, 4-62, 4-64, 4-67, 4-68, 4-70, 4-71, 4-72, 4-75, 4-76, 4-80, 4-82, 4-83, 4-87, 4-92, 4-95, 4-101, 4-102, 4-103, 4-107, 4-108, 4-109, 7-15, 7-16, 7-17, 7-20, 7-22
guardrails 1-14, 4-22, 4-36
guidelines 1-4, 1-26, 2-18, 2-22, 2-30, 3-5, 3-10, 3-13, 3-60, 4-20, 4-28, 4-35, 4-40, 4-41, 4-66, 4-73, 5-1
habitat S-5, 2-5, 3-19, 3-20, 3-21, 3-34, 3-35, 3-36, 3-37, 3-41, 3-52, 3-69, 4-24, 4-34, 4-37, 4-38, 4-39, 4-44, 4-45, 4-46, 4-47, 4-50, 4-51, 4-52, 4-66, 4-67, 4-68, 4-80, 4-81, 4-91, 4-94, 4-95, 4-102, 4-106, 4-107, 4-108, 4-110

Hamilton S-1, S-2, S-3, S-4, 1-1, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-12, 1-16, 1-18, 1-26, 2-1, 2-5, 2-7, 2-11, 2-14, 2-21, 2-22, 2-23, 2-26, 2-31, 2-39, 2-40, 3-8, 3-9, 3-10, 3-12, 3-13, 3-19, 3-21, 3-40, 3-41, 3-42, 3-45, 3-47, 3-48, 3-52, 3-53, 3-55, 3-56, 3-57, 3-58, 3-61, 3-62, 3-63, 3-67, 4-8, 4-9, 4-10, 4-12, 4-15, 4-16, 4-19, 4-23, 4-27, 4-50, 4-51, 4-58, 4-61, 4-62, 4-65, 4-70, 4-71, 4-74, 4-75, 4-76, 4-81, 4-85, 4-98, 4-99, 4-100, 4-101, 6-1, 6-4, 6-5, 6-6, 7-1, 7-2, 7-3, 7-8, 7-10, 7-12, 7-17
hazardous material 1-26, 3-13, 4-19, 4-20, 4-21, 4-91, 4-98
hazardous material permit 4-98
highway users 2-22, 3-18, 7-10
historic S-6, S-7, 1-7, 3-62, 3-63, 3-64, 3-65, 3-66, 3-69, 4-85, 4-86, 4-87, 4-88, 4-94, 4-98, 4-103, 4-110, 5-2, 5-3, 5-4, 5-5, 6-1, 6-4
historic properties 3-63, 3-64, 4-85, 4-86, 4-87, 4-110
historical 1-17, 2-29, 3-13, 3-14, 3-43, 3-44, 3-62, 3-63, 3-64, 3-66, 4-61, 4-71, 4-85, 4-86, 4-87, 4-88, 4-96, 4-103, 4-104, 4-110, 7-3, 7-22
Historical Resources Inventory 2-29, 4-85
horizontal alignment 4-86
housing and income 3-49
hydraulic S-1, 2-23, 4-8, 4-9, 4-29, 4-34, 4-36, 4-38, 4-49, 4-71, 5-3, 5-4
hydrologic sources 3-22
implementation S-3, S-5, S-6, 1-18, 1-29, 2-4, 2-8, 2-11, 2-14, 2-17, 2-21, 2-22, 2-23, 2-30, 2-37, 2-39, 4-1, 4-2, 4-3, 4-10, 4-12, 4-19, 4-20, 4-21, 4-23, 4-29, 4-34, 4-38, 4-40, 4-42, 4-46, 4-47, 4-49, 4-50, 4-51, 4-52, 4-53, 4-55, 4-56, 4-57, 4-59, 4-60, 4-62, 4-64, 4-66, 4-67, 4-68, 4-69, 4-70, 4-71, 4-73, 4-77, 4-81, 4-82, 4-83, 4-87, 4-88, 4-92, 4-93, 4-94, 4-95, 4-96, 4-98, 4-99, 4-100, 4-104, 4-106, 4-108, 4-110, 7-1, 7-6, 7-10, 7-11, 7-16, 7-23
INDEX 1
industry 1-18, 3-48, 3-49, 3-63, 4-11, 4-58, 4-60, 4-76, 4-98
information depositories 1-4, 6-1, 7-8
Interdisciplinary Team S-1, S-3, S-4, S-7, 1-4, 2-1, 2-2, 2-25, 2-29, 2-30, 2-31, 4-28, 4-35, 4-51, 4-69, 4-85, 5-1, 5-3, 6-4, 7-2, 7-15, 7-17
intermodal S-2, S-7, 1-1, 1-29, 1-30, 2-24, 4-59, 4-60, 4-70, 4-82, 4-83, 4-103, 4-109
intersection 1-6, 1-14, 1-22, 2-8, 2-22, 2-23, 2-24, 2-26, 2-28, 3-17, 3-45, 3-53, 3-56, 3-60, 3-61, 4-62, 4-66, 4-74, 4-79, 4-80, 4-84, 4-101, 4-109
irrigation 3-2, 3-5, 3-34, 3-63, 4-2, 4-3, 4-6, 4-39, 4-54, 4-65, 4-105, 6-6, 7-21
isolation 4-53, 4-54, 4-55, 4-58, 4-85, 4-87, 4-103, 4-108
issues S-5, S-6, 1-16, 1-18, 2-2, 2-36, 3-2, 3-13, 3-45, 3-50, 3-54, 4-2, 4-28, 4-42, 4-44, 4-51, 4-52, 4-56, 4-57, 4-59, 4-61, 4-69, 4-74, 4-76, 4-86, 4-102, 7-1, 7-2, 7-3, 7-6, 7-8, 7-9, 7-10, 7-11, 7-12, 7-13, 7-14, 7-15, 7-16, 7-17, 7-19, 7-22
ISTEA S-7, 1-1, 1-4, 2-25, 4-82, 7-21
land ownership 3-51
land use S-2, S-3, S-5, S-6, 1-5, 1-16, 1-17, 1-18, 1-30, 2-5, 2-14, 2-17, 2-21, 2-23, 2-24, 2-36, 2-37, 2-38, 2-41, 3-6, 3-17, 3-35, 3-45, 3-48, 3-50, 3-51, 3-52, 3-53, 3-54, 3-61, 4-2, 4-12, 4-19, 4-22, 4-23, 4-38, 4-39, 4-42, 4-51, 4-52, 4-53, 4-55, 4-56, 4-57, 4-58, 4-59, 4-60, 4-61, 4-62, 4-63, 4-64, 4-65, 4-66, 4-67, 4-68, 4-71, 4-75, 4-78, 4-80, 4-82, 4-83, 4-86, 4-96, 4-98, 4-102, 4-103, 4-104, 4-108, 4-109, 7-15, 7-22
land use license 3-6, 4-98
land use policy 2-14, 3-54, 4-56
Land Use Study 3-51, 4-61
land values 3-44, 4-65
lane configurations S-1, 2-25, 4-45, 4-46
least damaging practicable alternative 4-40
Lee Metcalf Wildlife Refuge 3-34, 3-36, 4-23, 4-39
left turns 2-23, 4-78
letter of intent 2-1, 7-2, 7-7, 7-11
level of service S-2, S-5, S-7, 1-6, 1-7, 1-9, 1-12, 1-30, 2-4, 2-5, 2-8, 2-11, 2-22, 2-24,

2-25, 2-26, 3-60, 4-42, 4-70, 4-73, 4-74, 4-75, 4-76, 4-83, 4-84, 4-95
Lewis and Clark 3-62
lighting S-1, 1-14, 2-29, 4-22, 7-21
Lolo S-1, S-2, S-3, S-4, 1-1, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-12, 1-18, 1-28, 1-30, 2-1, 2-11, 2-21, 2-22, 2-23, 2-25, 2-26, 2-27, 2-40, 3-2, 3-5, 3-6, 3-8, 3-10, 3-12, 3-13, 3-19, 3-39, 3-40, 3-41, 3-42, 3-45, 3-47, 3-48, 3-52, 3-54, 3-55, 3-57, 3-58, 3-59, 3-62, 3-63, 3-66, 3-67, 3-68, 3-69, 4-7, 4-9, 4-10, 4-12, 4-15, 4-17, 4-19, 4-27, 4-49, 4-51, 4-61, 4-62, 4-64, 4-65, 4-70, 4-74, 4-75, 4-81, 4-85, 4-87, 4-90, 4-99, 4-100, 4-101, 6-1, 6-5, 7-1, 7-2, 7-3, 7-8, 7-10, 7-11, 7-12, 7-13, 7-21
LOS S-7, S-8, 1-9, 1-10, 1-11, 1-12, 3-60, 4-73, 4-74, 4-104
mailbox S-2, 1-28, 1-29, 1-30, 2-4, 3-58, 3-60
maintenance 1-18, 1-22, 2-8, 2-17, 2-18, 2-22, 3-39, 3-40, 3-41, 3-57, 3-58, 4-2, 4-4, 4-21, 4-36, 4-42, 4-47, 4-83, 4-85, 4-86, 4-91, 4-92, 4-94, 4-97, 4-105, 4-106, 4-107, 4-109, 5-4
mammals 3-35, 3-36, 3-41, 4-44, 4-45, 4-46, 4-94, 4-95
market forces 1-17, 4-42, 4-55, 4-58, 4-59
mass transit 1-29, 2-36, 2-38, 2-39, 7-11
MDFWP S-7
MDT S-2, S-3, S-7, 1-1, 1-4, 1-12, 1-22, 1-26, 2-8, 2-17, 2-18, 2-37, 2-40, 3-5, 3-10, 3-14, 3-52, 3-53, 3-58, 3-60, 3-64, 3-66, 3-67, 4-8, 4-15, 4-17, 4-18, 4-28, 4-29, 4-37, 4-39, 4-40, 4-51, 4-62, 4-64, 4-65, 4-73, 4-85, 4-88, 4-96, 4-101, 4-110, 4-111, 5-1, 5-2, 6-4, 7-1, 7-3, 7-13, 7-22, 7-23
mine reclamation permit 4-98
minimization S-4, 1-17, 2-14, 2-22, 2-23, 2-25, 2-30, 4-4, 4-9, 4-28, 4-29, 4-35, 4-36, 4-37, 4-42, 4-49, 4-51, 4-81, 4-105, 4-108
minorities 4-53
Missoula S-1, S-3, 1-1, 1-4, 1-5, 1-6, 1-7, 1-8, 1-16, 1-17, 1-29, 2-5, 2-8, 2-11, 2-22, 2-25, 2-31, 2-37, 2-38, 2-39, 2-40, 3-2, 3-8, 3-9, 3-13, 3-42, 3-44, 3-45, 3-47, 3-48, 3-49, 3-50, 3-51, 3-52, 3-54, 3-56, 3-58, 3-59, 3-62, 3-63, 4-5, 4-11, 4-17, 4-19, 4-41, 4-52, 4-60, 4-61, 4-67, 4-68, 4-71, 4-75, 4-76, 4-82, 4-83, 4-87, 4-101, 4-102, 4-109, 5-1, 5-2, 6-1, 6-2, 6-4, 6-5, 6-6, 7-6, 7-8, 7-9, 7-21
Missoula County 1-16, 3-2, 3-42, 3-47, 3-48, 3-49, 3-50, 3-51, 3-54, 3-62, 3-63, 4-82, 4-87, 5-2, 6-4, 6-5, 7-6, 7-9
mitigation S-4, S-5, S-6, 3-8, 3-21, 4-1, 4-2, 4-4, 4-6, 4-8, 4-9, 4-10, 4-11, 4-12, 4-18, 4-19, 4-21, 4-24, 4-27, 4-28, 4-29, 4-34, 4-35, 4-37, 4-38, 4-39, 4-40, 4-41, 4-42, 4-44, 4-46, 4-47, 4-48, 4-49, 4-50, 4-51, 4-52, 4-57, 4-58, 4-60, 4-68, 4-69, 4-70, 4-81, 4-82, 4-83, 4-87, 4-89, 4-91, 4-93, 4-94, 4-95, 4-96, 4-97, 4-98, 4-100, 4-101, 4-102, 4-105, 4-106, 4-107, 4-108, 7-2, 7-3, 7-15
mixed land use 2-36, 2-38
modified 2-lane S-3, 2-3, 2-11, 2-17, 2-18, 2-19, 2-20, 2-25, 2-26, 4-7, 4-15, 4-29, 4-46, 4-67, 4-76, 4-104
monitoring 3-5, 3-9, 3-10, 4-5, 4-37, 4-38, 4-39, 4-40, 7-22
Montana S-1, S-2, S-3, S-7, 1-1, 1-4, 1-5, 1-7, 1-12, 1-14, 1-15, 1-16, 1-29, 1-30, 2-11, 2-39, 3-1, 3-5, 3-8, 3-12, 3-13, 3-16, 3-21, 3-34, 3-37, 3-39, 3-40, 3-41, 3-42, 3-43, 3-47, 3-49, 3-50, 3-51, 3-56, 3-59, 3-60, 3-62, 3-63, 3-66, 4-2, 4-3, 4-4, 4-5, 4-8, 4-11, 4-13, 4-19, 4-29, 4-37, 4-40, 4-45, 4-46, 4-48, 4-49, 4-50, 4-51, 4-58, 4-60, 4-61, 4-62, 4-70, 4-71, 4-73, 4-77, 4-78, 4-83, 4-85, 4-97, 4-98, 4-101, 4-103, 4-105, 4-107, 4-108, 5-1, 5-2, 5-3, 5-4, 5-5, 6-1, 6-2, 6-4, 6-5, 7-1, 7-3, 7-5, 7-6
Montana Department of Fish, Wildlife and Parks S-7, 3-40, 4-48, 4-97, 7-1
Montana Department of Transportation S-2, S-3, S-7, 1-1, 1-14, 3-21, 3-40, 3-51, 3-60, 3-63, 4-3, 4-8, 4-11, 4-29, 4-73, 5-1, 5-3
Montana Rail Link Railroad 3-59
mortality 4-9, 4-34, 4-44, 4-45, 4-46, 4-47, 4-81, 4-91, 4-95, 4-102, 4-107, 4-110
Multi-Lane Design Alternatives for Improving Suburban Highways 2-2, 4-76

NAAQS S-7, 3-8, 3-9, 4-12
NAFTA S-7, 1-17, 4-3, 4-70, 4-83, 4-103
National Ambient Air Quality Standards S-7, 3-8, 4-10
National Environmental Policy Act S-7, 2-1
national highway system S-7, 1-1, 1-4, 3-56, 3-59, 4-79, 4-82, 4-83
National Register of Historical Places 4-85
national standards 2-30
Native American 3-62, 3-66, 7-3
natural setting 3-1, 3-6
NEPA S-7, 2-1, 5-1, 7-21
nesting 3-34, 3-35, 3-36, 3-41, 3-69, 4-45, 4-46, 4-47, 4-50, 4-51, 4-107, 4-108
no action S-1, S-3, 2-1, 2-3, 2-8, 2-17, 2-18, 2-19, 2-20, 2-26, 4-2, 4-3, 4-5, 4-7, 4-8, 4-10, 4-11, 4-12, 4-13, 4-15, 4-16, 4-17, 4-18, 4-20, 4-21, 4-22, 4-27, 4-29, 4-42, 4-44, 4-45, 4-46, 4-48, 4-51, 4-52, 4-53, 4-54, 4-55, 4-56, 4-60, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-76, 4-77, 4-79, 4-80, 4-81, 4-82, 4-83, 4-86, 4-88, 4-90, 4-92, 4-95, 4-102, 4-103, 4-104
no build S-3, S-4, 2-2, 2-3, 2-8, 2-17, 2-18, 2-19, 2-20, 2-21, 2-26, 4-3, 4-5, 4-7, 4-11, 4-16, 4-20, 4-21, 4-22, 4-27, 4-29, 4-42, 4-44, 4-45, 4-46, 4-48, 4-51, 4-53, 4-54, 4-56, 4-59, 4-60, 4-64, 4-65, 4-66, 4-68, 4-69, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-77, 4-79, 4-80, 4-81, 4-82, 4-83, 4-88, 4-90, 4-92, 4-96, 7-15
no passing 1-15, 3-56, 3-60
noise S-2, S-7, 1-12, 1-17, 1-30, 2-29, 3-9, 3-10, 3-11, 3-12, 3-13, 4-12, 4-13, 4-15, 4-16, 4-17, 4-18, 4-19, 4-29, 4-46, 4-50, 4-51, 4-55, 4-58, 4-66, 4-73, 4-86, 4-91, 4-92, 4-95, 4-96, 4-102, 4-104, 4-106, 4-108, 4-111, 5-5, 7-15, 7-22
noise abatement 3-10, 3-12, 4-15, 4-17, 4-18
Noise Analysis 3-12, 4-13
noise measurement 3-11, 3-12
non-attainment areas 4-10
non-point pollution 4-2, 4-3
North American Free Trade Agreement S-7, 4-21, 4-59
off-site mitigation 4-38, 4-39, 4-40
on-site mitigation 4-37, 4-38
one-way couplet 2-5
operation and maintenance 1-18, 2-17, 2-18, 2-22, 4-36
park-and-ride S-1, S-3, S-4, 1-29, 2-3, 2-8, 2-10, 2-11, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-25, 2-30, 2-37, 2-40, 4-3, 4-8, 4-10, 4-16, 4-20, 4-22, 4-27, 4-29, 4-45, 4-52, 4-60, 4-64, 4-65, 4-69, 4-81, 4-83, 4-90, 4-92, 4-93, 4-96, 7-11, 7-17
parking 1-26, 2-8, 2-11, 2-22, 2-31, 2-36, 2-37, 2-39, 2-40, 3-9, 3-12, 3-17, 3-68, 4-3, 4-10, 4-12, 4-59, 4-60, 4-65, 4-67, 4-74, 4-76, 4-81, 4-82, 4-84, 4-109, 7-10, 7-11
passenger rail service S-1, S-3, 2-3, 2-11, 2-17, 2-18, 2-19, 2-20, 2-22, 2-39, 4-8, 4-10, 4-16, 4-20, 4-29, 4-45, 4-52, 4-92
pavement width 2-7
peak demand 2-38
pedestrian S-1, S-4, S-5, 1-17, 1-26, 1-29, 2-4, 2-21, 2-24, 2-29, 3-48, 3-56, 3-61, 4-56, 4-58, 4-61, 4-70, 4-78, 4-81, 4-82, 4-83, 4-84, 4-85, 4-91, 4-96, 4-103, 4-104, 4-108, 4-109, 4-110, 7-20
pedestrian and bicycle facilities S-1, 1-29, 2-21, 2-24, 3-56, 3-61, 4-61, 4-70, 4-81, 4-82, 4-83, 4-84, 4-96, 4-103, 4-109
peregrine falcons 1-17, 3-36, 3-41, 4-51
permits S-6, 3-8, 3-58, 4-2, 4-8, 4-9, 4-12, 4-36, 4-40, 4-96, 4-97, 4-98, 4-106
PM10 . . . . . S-7, 3-8, 3-9, 4-9, 4-10, 4-11, 4-12, 4-102
population S-1, S-4, 1-1, 1-6, 1-7, 1-8, 1-16, 1-17, 2-8, 2-11, 2-38, 2-39, 3-5, 3-19, 3-36, 3-37, 3-39, 3-41, 3-42, 3-43, 3-44, 3-50, 3-52, 4-11, 4-18, 4-45, 4-46, 4-50, 4-52, 4-58, 4-62, 4-80
practicable alternatives 2-2, 4-42

preferred alternative S-1, S-3, S-4, S-5, 2-1, 2-2, 2-4, 2-14, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23, 2-25, 2-26, 2-40, 4-1, 4-3, 4-5, 4-7, 4-8, 4-15, 4-16, 4-23, 4-27, 4-34, 4-46, 4-54, 4-60, 4-64, 4-65, 4-67, 4-69, 4-73, 4-74, 4-78, 4-79, 4-80, 4-83, 4-86, 4-88, 4-94, 4-95, 4-100, 4-101, 4-102, 4-104, 7-6, 7-17, 7-20
preliminary design 2-11, 2-17, 2-30, 4-35, 5-4
prime farmland 3-53, 3-54, 3-55, 4-69, 4-70
property damages 1-15, 4-80
property owner contacts 2-1, 7-11
property values 4-13, 4-55
public demand S-1, S-5, 1-18, 2-8, 4-56, 4-58, 4-108
public eduction 4-83, 4-109
public hearing 7-6, 7-17, 7-18
public involvement S-3, S-5, 1-1, 1-4, 1-6, 1-18, 2-1, 2-2, 2-25, 2-40, 3-1, 4-1, 4-85, 4-110, 5-4, 7-1, 7-2, 7-6, 7-7, 7-8, 7-14, 7-21
public scoping meetings 1-4, 1-15, 2-1, 2-2, 2-5, 3-37, 3-50, 3-54, 4-101, 7-6, 7-7, 7-8, 7-11, 7-13, 7-14, 7-16, 7-17, 7-19
public transportation S-4, 2-36, 3-47, 3-61, 7-9, 7-10, 7-15
purpose and need S-1, S-4, 1-29, 2-31, 2-32, 4-103, 4-104, 7-19
quality of life S-6, 1-8, 1-16, 1-17, 2-31, 4-52, 4-56, 4-57, 4-59, 4-61, 4-67, 4-89, 7-15, 7-16, 7-20
rare and sensitive fish 3-40, 4-49
Ravalli County S-2, S-3, S-4, 1-5, 1-16, 2-36, 2-40, 3-2, 3-42, 3-43, 3-44, 3-48, 3-49, 3-50, 3-51, 3-54, 3-61, 3-63, 4-61, 4-62, 4-66, 4-82, 4-86, 5-2, 6-5, 7-6, 7-8, 7-9
realignment S-1, S-2, S-3, S-4, 1-5, 2-3, 2-14, 2-16, 2-21, 2-23, 2-27, 4-3, 4-7, 4-8, 4-10, 4-11, 4-23, 4-27, 4-45, 4-49, 4-54, 4-60, 4-71, 4-72, 4-86, 4-93, 7-6, 7-15
receptors 3-12, 4-11, 4-13, 4-15, 4-16, 4-17, 4-18, 4-19, 4-106
reconstruction S-1, S-2, S-4, 1-5, 2-3, 4-23, 4-46
recreational opportunities 1-8, 1-17, 3-67, 4-50, 4-71, 4-89
references 1-30, 2-41, 3-69, 4-111, 7-23
regulatory agencies S-3, S-6, 2-2, 3-13, 3-14, 7-1, 7-15, 7-23
regulatory floodway 3-8, 4-8
relocation 3-48, 4-35, 4-48, 4-54, 4-55, 4-58, 4-60, 4-65, 4-99, 4-100, 4-108
replacement 1-26, 4-35, 4-37, 4-38, 4-39, 4-40, 4-49, 4-54, 4-71, 4-92, 7-15
replacement property 4-54
reptiles 3-36, 4-44, 4-46
right-of-way S-5, S-7, 1-29, 2-5, 2-17, 2-21, 2-22, 2-25, 2-30, 3-13, 3-51, 3-52, 3-58, 4-11, 4-19, 4-21, 4-22, 4-24, 4-27, 4-35, 4-45, 4-54, 4-59, 4-60, 4-64, 4-65, 4-66, 4-67, 4-68, 4-73, 4-77, 4-78, 4-85, 4-86, 4-87, 4-88, 4-90, 4-94, 4-98, 4-99, 4-100, 4-104, 4-106, 4-109, 7-11
riparian 3-5, 3-16, 3-17, 3-18, 3-19, 3-20, 3-21, 3-34, 3-35, 3-36, 3-37, 3-41, 4-22, 4-23, 4-24, 4-34, 4-36, 4-44, 4-47, 4-48, 4-49, 4-68, 4-106, 4-107
roadway deficiencies 1-22, 2-4, 3-57
route continuity S-5
runoff 3-5, 3-36, 4-2, 4-3, 4-4, 4-7, 4-29, 4-34, 4-38, 4-41, 4-42, 4-46, 4-97, 4-102, 4-105, 4-107
rural areas S-1, S-4, 1-22, 2-23, 2-31, 3-47, 3-49, 3-52, 3-53, 3-54, 3-58, 4-23, 4-53, 4-59, 4-66, 4-77, 4-78, 4-80, 4-83, 4-84, 4-109
safety S-1, S-2, S-3, S-4, S-5, 1-5, 1-6, 1-14, 1-15, 1-16, 1-18, 1-22, 1-28, 1-29, 1-30, 2-3, 2-4, 2-5, 2-7, 2-8, 2-11, 2-14, 2-17, 2-22, 2-23, 2-24, 2-25, 3-48, 3-56, 3-57, 3-60, 3-61, 4-4, 4-36, 4-42, 4-58, 4-64, 4-65, 4-70, 4-71, 4-74, 4-75, 4-76, 4-77, 4-78, 4-79, 4-80, 4-83, 4-84, 4-95, 4-98, 4-101, 4-103, 4-104, 4-105, 4-108, 4-109, 7-10, 7-15, 7-16, 7-17, 7-20
Sapphire Freeway S-4, 2-3, 2-5
schedule 2-38, 4-95, 4-99, 4-100
school bus 1-18, 3-48

schools 3-10, 3-48, 4-53, 4-56
scoping S-3, S-5, 1-4, 1-15, 1-16, 1-17, 1-18, 2-1, 2-2, 2-5, 2-7, 2-11, 2-25, 3-37, 3-50, 3-54, 4-74, 4-101, 7-6, 7-7, 7-8, 7-11, 7-12, 7-13, 7-14, 7-15, 7-16, 7-17, 7-19
scoping meetings S-5, 1-4, 1-15, 1-17, 1-18, 2-1, 2-2, 2-5, 2-11, 2-25, 3-37, 3-50, 3-54, 4-101, 7-6, 7-7, 7-8, 7-11, 7-12, 7-13, 7-14, 7-15, 7-16, 7-17, 7-19
Section 106 Clearance 4-98
Section 404 Permit S-6, 4-28
sedimentation 4-3, 4-34, 4-35, 4-95, 4-96, 4-111
segment S-2, 1-1, 1-5, 1-7, 1-8, 1-9, 1-16, 1-22, 2-25, 3-48, 3-52, 3-55, 3-57, 3-58, 3-60, 3-63, 4-64, 4-74, 4-99, 4-100
sensitive plants 3-19, 4-27, 4-47, 4-106, 4-107
shoulders S-1, S-2, S-4, 1-5, 1-15, 1-26, 1-29, 1-30, 2-4, 2-11, 2-14, 2-23, 2-24, 2-25, 3-58, 3-60, 3-61, 3-68, 4-10, 4-45, 4-56, 4-64, 4-67, 4-71, 4-74, 4-75, 4-78, 4-79, 4-81, 4-82, 4-110, 7-16, 7-21
sideslopes S-2, 1-15, 1-28, 1-29, 1-30, 2-5, 3-57, 3-60, 4-4, 4-23, 4-36, 4-65, 4-71, 4-87, 4-101, 4-105, 4-110
Silver Bridge S-3, S-4, 1-26, 2-3, 2-14, 2-21, 2-23, 2-26, 2-27, 3-52, 3-64, 3-68, 4-3, 4-7, 4-8, 4-10, 4-11, 4-16, 4-23, 4-27, 4-48, 4-49, 4-50, 4-54, 4-60, 4-66, 4-71, 4-80, 4-89, 4-93, 4-107, 7-6, 7-15, 7-16
single-occupant vehicles S-1, 2-31, 2-37, 4-57, 4-93, 4-106, 4-108
snow 3-9, 3-18, 4-4, 4-9, 4-10, 4-12, 4-105
Soil Conservation Service S-7, 3-2, 3-55, 4-69, 5-2, 5-3, 6-1, 6-5
soils S-5, 3-1, 3-5, 3-16, 3-19, 3-21, 3-57, 4-2, 4-20, 4-21, 4-106, 5-4, 5-5
sole source 3-5, 4-5
speed S-2, 1-14, 1-15, 1-16, 1-22, 1-26, 1-29, 1-30, 2-11, 2-37, 2-39, 3-9, 3-12, 3-56, 4-12, 4-13, 4-16, 4-18, 4-19, 4-68, 4-77, 4-92, 4-96, 4-111, 7-20
spill prevention 4-6, 4-21, 4-105, 4-106
spills 3-14, 4-2, 4-3, 4-4, 4-5, 4-6, 4-20, 4-21, 4-49, 4-95, 4-102, 4-105, 4-107
standards S-1, S-2, S-7, 1-1, 1-5, 1-12, 1-22, 1-26, 1-28, 1-29, 1-30, 2-5, 2-23, 2-25, 2-30, 3-6, 3-8, 3-10, 3-57, 3-58, 3-61, 4-1, 4-9, 4-10, 4-12, 4-76, 4-77, 4-79, 4-81, 4-97
Stevensville S-2, S-4, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-22, 1-27, 2-5, 2-11, 2-22, 2-23, 2-24, 2-26, 2-28, 3-9, 3-35, 3-45, 3-47, 3-48, 3-52, 3-53, 3-56, 3-66, 3-68, 3-69, 4-17, 4-50, 4-61, 4-62, 4-66, 4-90, 4-101, 5-2, 6-1, 6-4, 6-5, 6-6, 7-8, 7-12
Stevensville Y 1-6, 1-22, 2-22, 2-23, 2-24, 2-26, 2-28, 3-45, 3-52, 3-53, 3-56, 4-62, 4-66, 4-101
storm water 4-3, 4-97
stream crossings 4-28, 4-36, 4-48, 4-49, 4-50, 4-97, 4-107
strip development S-5, 1-14, 1-17, 3-45, 4-18, 4-22, 4-62, 4-66, 4-102, 4-103, 7-15
strip growth S-2, S-5, 1-16, 1-18, 1-30, 2-17, 2-23, 2-24, 3-18, 3-53, 4-12, 4-23, 4-53, 4-62
substandard 1-1, 1-12, 1-22, 1-26, 2-14, 2-23, 2-26, 4-8, 4-23, 4-71
surface water S-5, 3-1, 3-2, 3-21, 3-58, 3-67, 4-2, 4-3, 4-4, 4-6, 4-34, 4-37, 4-38, 4-41, 4-97, 4-104, 4-105
suspended particulates 3-5, 3-8
system linkage S-5, 1-4, 4-71
tax 2-1, 2-36, 2-39, 3-53, 4-58, 4-60, 7-11, 7-22
telephone survey 1-4, 1-18, 2-36, 2-37, 3-52, 3-61, 4-68, 7-10
temporary 1-29, 2-23, 3-36, 4-4, 4-10, 4-11, 4-35, 4-46, 4-50, 4-59, 4-91, 4-95, 4-96, 4-97, 4-105
terrain 1-5, 1-12, 1-22, 1-28, 3-8, 3-16, 3-56, 3-60, 4-13, 4-23, 4-42, 4-75, 4-78, 4-106
threatened and endangered species 3-36, 3-40, 3-41, 4-34, 4-50, 4-51, 4-102, 4-108, 7-15
TMA S-1, S-4, S-5, S-8, 2-8, 2-21, 2-22, 2-37, 2-38, 2-40, 2-41, 4-83, 4-93, 4-106, 4-109, 7-20
topography 3-9, 4-12, 4-19, 4-22, 4-23, 4-24, 4-106

tourism 1-4, 1-18, 1-29, 3-56, 4-58
traffic control 2-11, 2-39, 3-58, 3-60, 4-18, 4-56, 4-58, 4-73, 4-82, 4-84, 4-96, 4-101, 4-108, 4-109, 4-111
traffic demand S-1, 1-6, 1-7, 1-12, 4-74
traffic operations 1-12
traffic signals S-4, 2-4, 2-21, 2-24, 2-29, 4-56, 4-76
Traffic Study 1-7, 3-44, 3-61, 4-12, 4-70, 4-92, 5-6
traffic survey 1-6, 1-8, 1-13, 1-18, 2-2, 3-59, 3-61, 4-12, 5-5, 7-7, 7-9, 7-10
traffic volumes 1-8, 1-26, 2-26, 3-12, 3-53, 3-59, 4-2, 4-3, 4-10, 4-12, 4-15, 4-17, 4-18, 4-53, 4-67, 4-74, 4-76, 4-78, 4-80, 4-92, 4-101
transportation demand S-1, S-5, S-8, 1-7, 1-12, 2-3, 2-22, 2-31, 2-36, 4-10, 4-12, 4-57, 4-66, 4-70, 4-83, 4-84, 4-93, 4-103, 4-108, 5-6, 7-10, 7-14, 7-15, 7-16
transportation management association S-1, S-4, S-8, 2-8, 2-21, 2-22, 2-37, 4-83, 4-84, 4-93, 4-106, 4-109, 4-110
transportation modes 3-56, 4-70, 4-83, 4-104, 4-109
transportation plans 3-61, 3-62, 4-82, 4-85, 4-104
transportation systems 1-5, 1-6, 1-7, 2-36, 3-56, 4-59, 4-70, 4-83, 4-85, 4-110
Travelers Rest 3-62, 3-63, 3-64, 3-69, 4-87, 4-88, 4-90, 4-110
tributaries 3-2, 3-21, 3-39, 3-40, 4-97
trip chaining 2-36, 2-37, 2-38
turbidity S-5, 3-5, 4-3, 4-34, 4-35, 4-42, 4-91, 4-95, 4-97
turning lanes S-1, S-2, S-4, 1-6, 1-14, 1-18, 1-22, 1-28, 1-29, 1-30, 2-4, 2-8, 2-11, 2-14, 2-27, 3-56, 3-58, 4-56, 4-75, 7-9, 7-15, 7-16
typical sections 2-8, 2-11, 2-13
undeveloped S-1, S-5, 1-15, 1-22, 1-28, 2-5, 2-14, 2-21, 2-23, 2-24, 3-16, 3-17, 3-18, 3-35, 3-42, 3-44, 3-52, 3-53, 3-54, 3-58, 4-11, 4-15, 4-19, 4-22, 4-23, 4-46, 4-53, 4-54, 4-57, 4-61, 4-62, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-78, 4-82, 4-102, 4-103, 4-108, 4-109
undeveloped areas S-1, S-5, 1-22, 2-23, 2-24, 3-53, 4-46, 4-53, 4-54, 4-57, 4-61, 4-62, 4-64, 4-67, 4-102, 4-103, 4-108
Uniform Relocation Assistance and Real Property Policies Acquisition Act 4-58, 4-108
upgrade 2-17, 2-22, 3-58, 4-76
urban S-1, S-3, S-4, 1-6, 1-22, 2-3, 2-5, 2-7, 2-14, 2-21, 2-24, 2-31, 2-37, 3-17, 3-18, 3-21, 3-37, 3-41, 3-42, 3-50, 3-54, 3-56, 3-67, 4-4, 4-5, 4-18, 4-22, 4-23, 4-53, 4-54, 4-55, 4-59, 4-62, 4-66, 4-67, 4-74, 4-77, 4-78, 4-81, 4-83, 4-105, 6-2, 7-17
urban bypasses S-4, 2-3, 2-5, 2-7
urban sprawl 3-54, 4-22, 4-53, 4-55
US 93 . . . . . S-2, S-3, S-8, 1-1, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-12, 1-14, 1-15, 1-16, 1-17, 1-18, 1-29, 1-30, 2-1, 2-4, 2-5, 2-8, 2-21, 2-24, 2-25, 2-40, 3-9, 3-10, 3-12, 3-13, 3-40, 3-44, 3-45, 3-47, 3-48, 3-53, 3-56, 3-58, 3-59, 3-60, 3-61, 3-62, 3-64, 3-66, 3-68, 3-69, 4-10, 4-11, 4-12, 4-13, 4-15, 4-16, 4-17, 4-19, 4-23, 4-38, 4-45, 4-50, 4-52, 4-59, 4-60, 4-62, 4-64, 4-70, 4-71, 4-72, 4-73, 4-74, 4-75, 4-79, 4-82, 4-83, 4-84, 4-92, 4-101, 4-103, 4-109, 7-1, 7-8, 7-9, 7-10, 7-20
US Army Corps of Engineers S-6, 3-21, 4-28, 4-97, 4-98, 5-1, 5-3, 6-1, 6-4, 7-6
US Fish and Wildlife Service S-8, 3-40, 3-51, 4-28, 4-50, 4-51, 4-108, 5-2, 5-3, 6-1
utilities 3-47, 3-49, 4-55, 4-65, 4-99, 4-100
vegetation 3-9, 3-16, 3-19, 3-21, 3-31, 4-2, 4-19, 4-21, 4-22, 4-24, 4-27, 4-37, 4-38, 4-39, 4-41, 4-46, 4-47, 4-48, 4-49, 4-91, 4-95, 4-106, 4-107, 7-21
vegetative types 3-22
vehicle emissions 1-12, 4-11
Victor S-4, 1-1, 1-4, 1-6, 1-7, 1-8, 1-9, 1-22, 1-27, 2-7, 2-22, 2-23, 2-26, 2-27, 3-10, 3-12, 3-45, 3-47, 3-48, 3-52, 3-55, 3-56, 3-67, 3-68, 4-12, 4-15, 4-17, 4-18, 4-61, 4-62, 4-65, 4-74, 4-81, 4-90, 4-99, 4-100, 5-2, 6-1, 6-4, 6-5, 6-6, 7-8, 7-12, 7-17
visual/aesthetics 4-102, 4-104, 4-106
volume S-7, 1-8, 1-12, 1-26, 2-17, 2-24, 2-38, 3-6, 3-9, 3-13, 3-56, 3-57, 3-58, 3-59, 3-60,

4-10, 4-11, 4-12, 4-16, 4-17, 4-18, 4-39, 4-46, 4-66, 4-72, 4-75, 4-76, 4-78, 4-99
wastewater 3-5, 3-47, 4-2, 4-5
water quality 1-17, 3-2, 3-5, 3-21, 3-52, 4-2, 4-3, 4-4, 4-28, 4-41, 4-42, 4-49, 4-58, 4-95, 4-97, 4-105, 4-108, 6-1, 7-21
Water Quality Report 3-5, 4-2
water resources 3-2, 3-63, 4-2, 4-41, 4-102, 6-2
Wellhead Protection 3-5, 4-5
westslope cutthroat trout 1-17, 3-40, 4-49, 4-50, 4-107
wetland banking 4-39
wetland functions and values 3-22, 3-31, 4-34, 4-42, 4-92
wetlands S-5, S-6, 1-15, 1-17, 2-14, 2-22, 2-29, 2-30, 3-19, 3-20, 3-21, 3-22, 3-31, 3-34, 3-35, 3-36, 3-41, 4-2, 4-4, 4-19, 4-23, 4-27, 4-28, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-38, 4-39, 4-40, 4-41, 4-42, 4-44, 4-45, 4-51, 4-62, 4-69, 4-81, 4-88, 4-95, 4-97, 4-98, 4-102, 4-104, 4-105, 4-106, 4-110, 5-4, 7-1, 7-2, 7-3, 7-14, 7-20, 7-21, 7-22
wetlands finding 4-42, 4-98
wildlife S-5, S-7, S-8, 1-16, 2-24, 3-5, 3-20, 3-22, 3-31, 3-34, 3-35, 3-36, 3-37, 3-40, 3-41, 3-51, 3-52, 3-69, 4-13, 4-23, 4-28, 4-29, 4-34, 4-37, 4-39, 4-40, 4-44, 4-45, 4-46, 4-47, 4-48, 4-50, 4-51, 4-52, 4-62, 4-66, 4-68, 4-80, 4-81, 4-90, 4-91, 4-94, 4-95, 4-97, 4-102, 4-104, 4-107, 4-108, 4-110, 5-2, 5-3, 5-4, 5-6, 6-1, 6-2, 6-4, 7-1, 7-5, 7-6, 7-14, 7-20, 7-21
Woodside S-4, 1-4, 1-6, 1-7, 1-8, 1-9, 1-22, 2-21, 2-22, 2-23, 2-24, 2-26, 2-27, 3-10, 3-12, 3-45, 3-52, 3-53, 3-56, 3-68, 4-15, 4-16, 4-18, 4-62, 4-66, 4-71, 4-79, 4-81, 4-89, 6-6, 7-15