



# Izembek

## National Wildlife Refuge

### Land Exchange/Road Corridor

---

*Final Environmental Impact Statement*

## Appendix E Water Sources and 35 Percent Road Design





## **U.S. Fish and Wildlife Service Mission Statement**

*The Mission of the U.S. Fish & Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.*



## **Refuge System Mission Statement**

*The Mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.*

*—National Wildlife Refuge System Improvement Act of 1997*

**APPENDIX E**  
**Water Sources and 35 Percent Road Design**

---

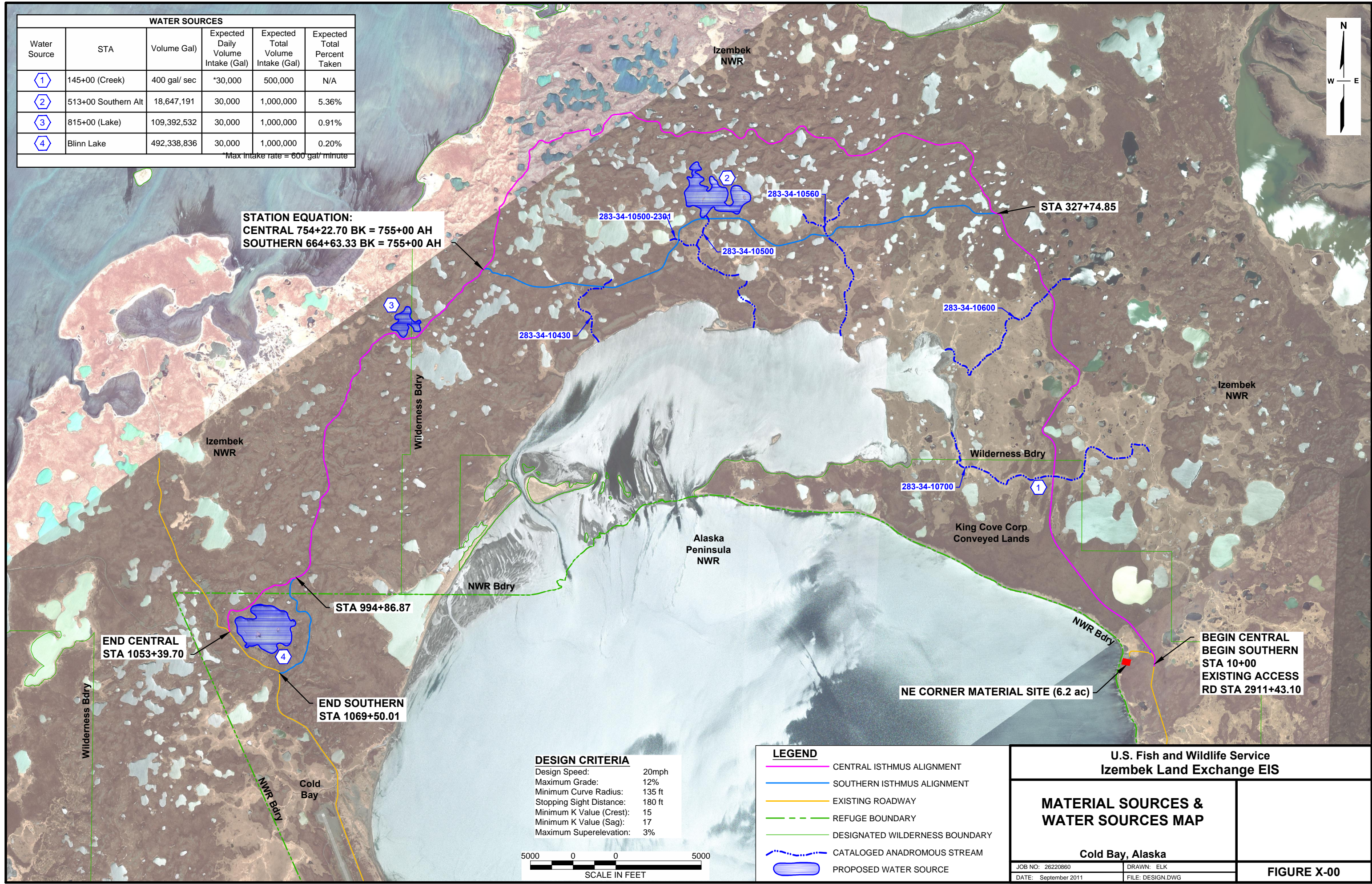
WATER SOURCES					
Water Source	STA	Volume Gal	Expected Daily Volume Intake (Gal)	Expected Total Volume Intake (Gal)	Expected Total Percent Taken
1	145+00 (Creek)	400 gal/ sec	*30,000	500,000	N/A
2	513+00 Southern Alt	18,647,191	30,000	1,000,000	5.36%
3	815+00 (Lake)	109,392,532	30,000	1,000,000	0.91%
4	Blinn Lake	492,338,836	30,000	1,000,000	0.20%

\*Max intake rate = 600 gal/ minute



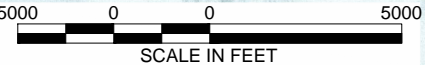
**STATION EQUATION:**  
 CENTRAL 754+22.70 BK = 755+00 AH  
 SOUTHERN 664+63.33 BK = 755+00 AH

G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\DESIGN.DWG ; Revised 10/6/2011 12:01:40 PM



**DESIGN CRITERIA**

Design Speed:	20mph
Maximum Grade:	12%
Minimum Curve Radius:	135 ft
Stopping Sight Distance:	180 ft
Minimum K Value (Crest):	15
Minimum K Value (Sag):	17
Maximum Superelevation:	3%



**LEGEND**

	CENTRAL ISTHMUS ALIGNMENT
	SOUTHERN ISTHMUS ALIGNMENT
	EXISTING ROADWAY
	REFUGE BOUNDARY
	DESIGNATED WILDERNESS BOUNDARY
	CATALOGED ANADROMOUS STREAM
	PROPOSED WATER SOURCE

**U.S. Fish and Wildlife Service  
Izembek Land Exchange EIS**

---

**MATERIAL SOURCES &  
WATER SOURCES MAP**

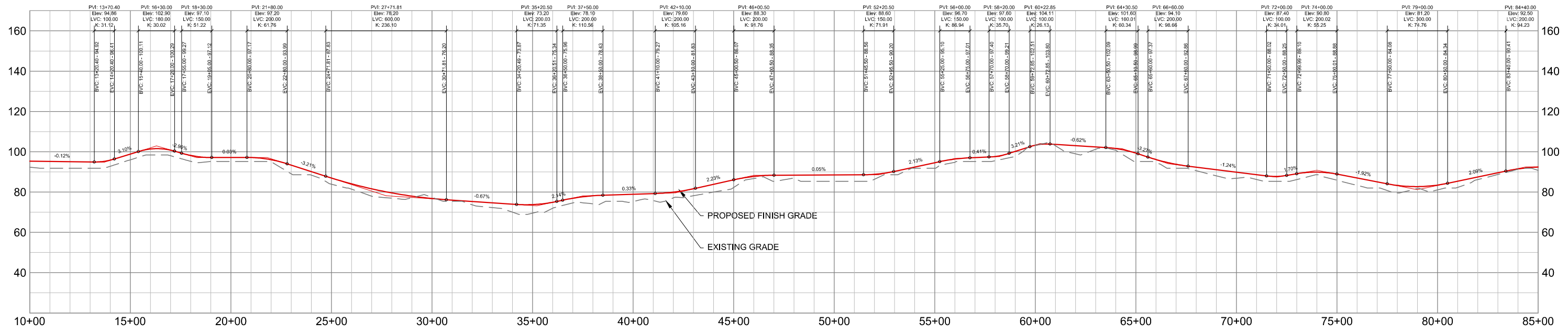
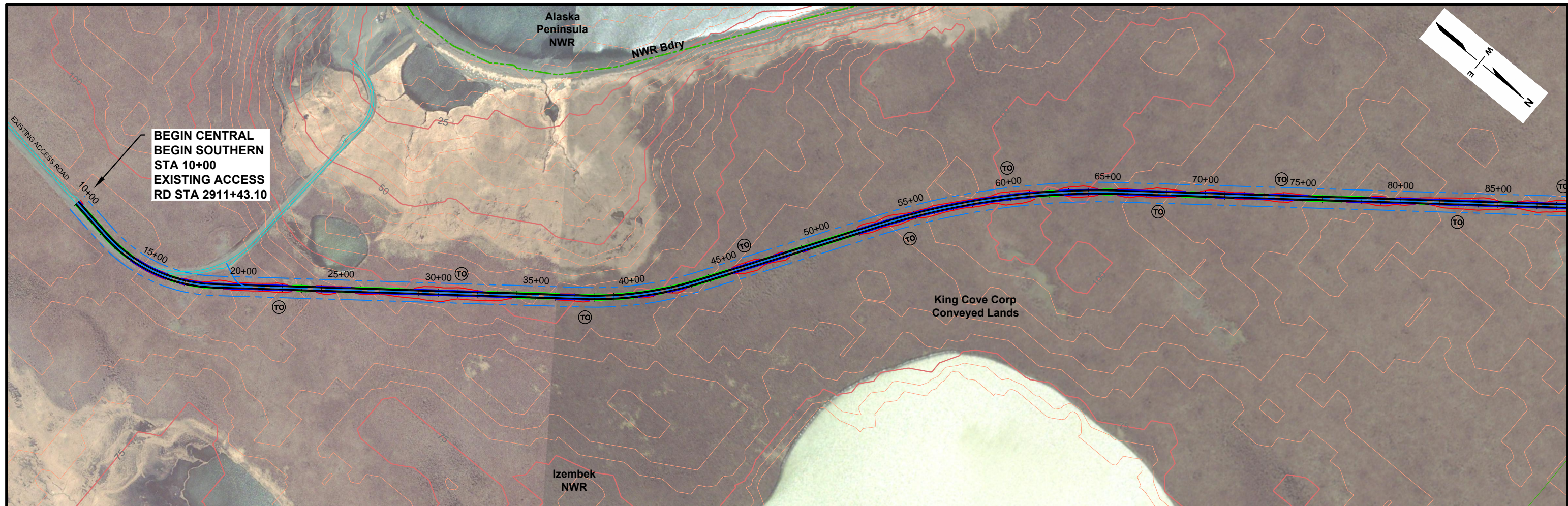
---

**Cold Bay, Alaska**

JOB NO: 26220860	DRAWN: ELK
DATE: September 2011	FILE: DESIGN.DWG

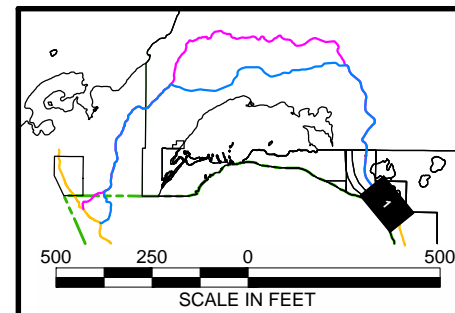
**FIGURE X-00**

G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/4/2011 9:09:43 PM



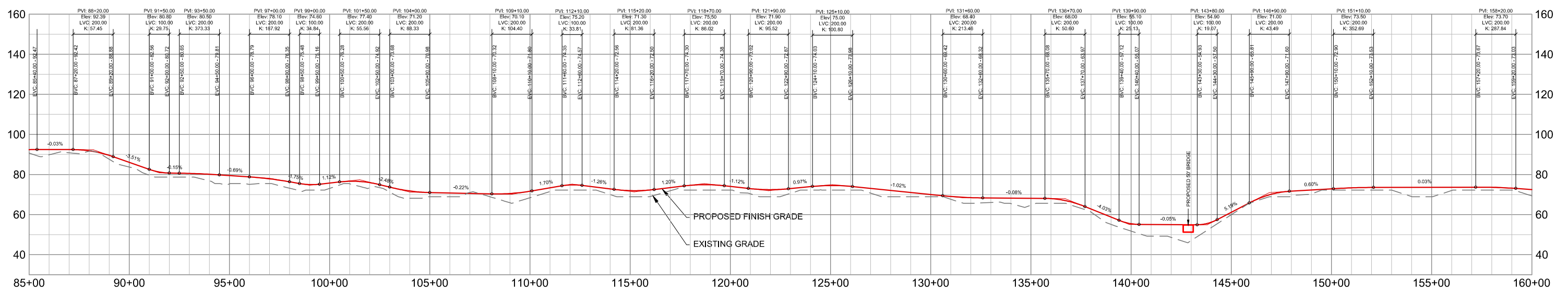
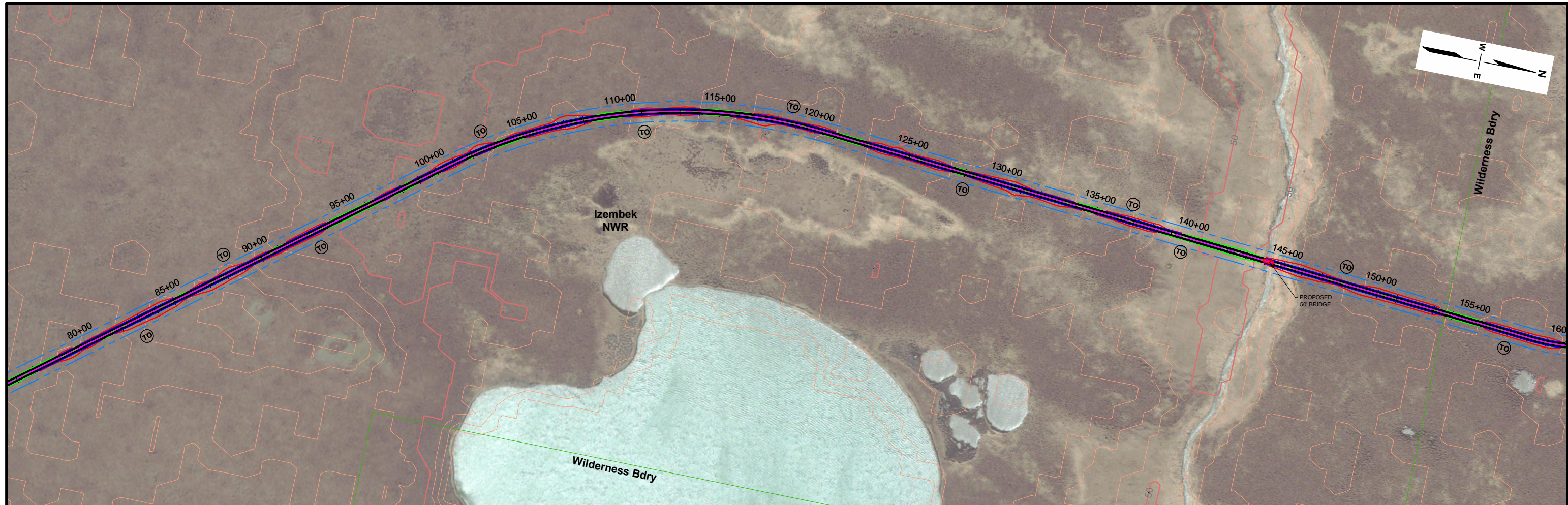
- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - - - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - - - NWR BOUNDARY
  - - - DESIGNATED WILDERNESS BOUNDARY

- - - DITCH LINE
- - - DAYLIGHT LINE - CUT
- - - DAYLIGHT LINE - FILL
- ⊙ APPROX TURNOUT STATION

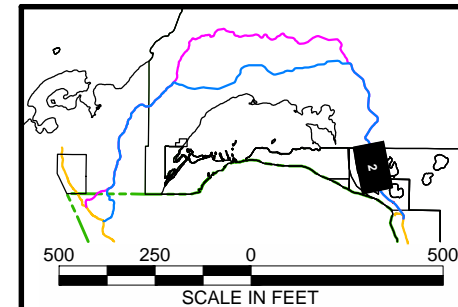


<b>U.S. Fish and Wildlife Service Izemбек Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 10+00 to 85+00 (CENTRAL) STA 10+00 to 85+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-01</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/4/2011 9:09:43 PM

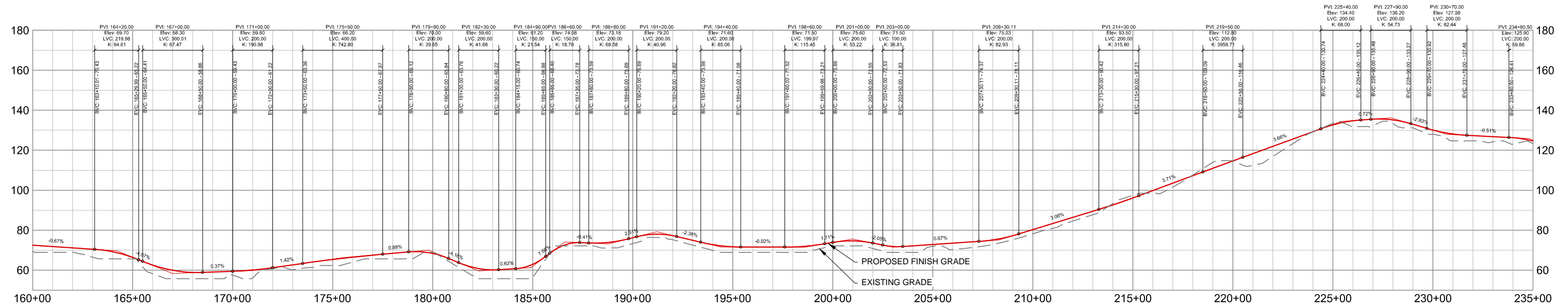
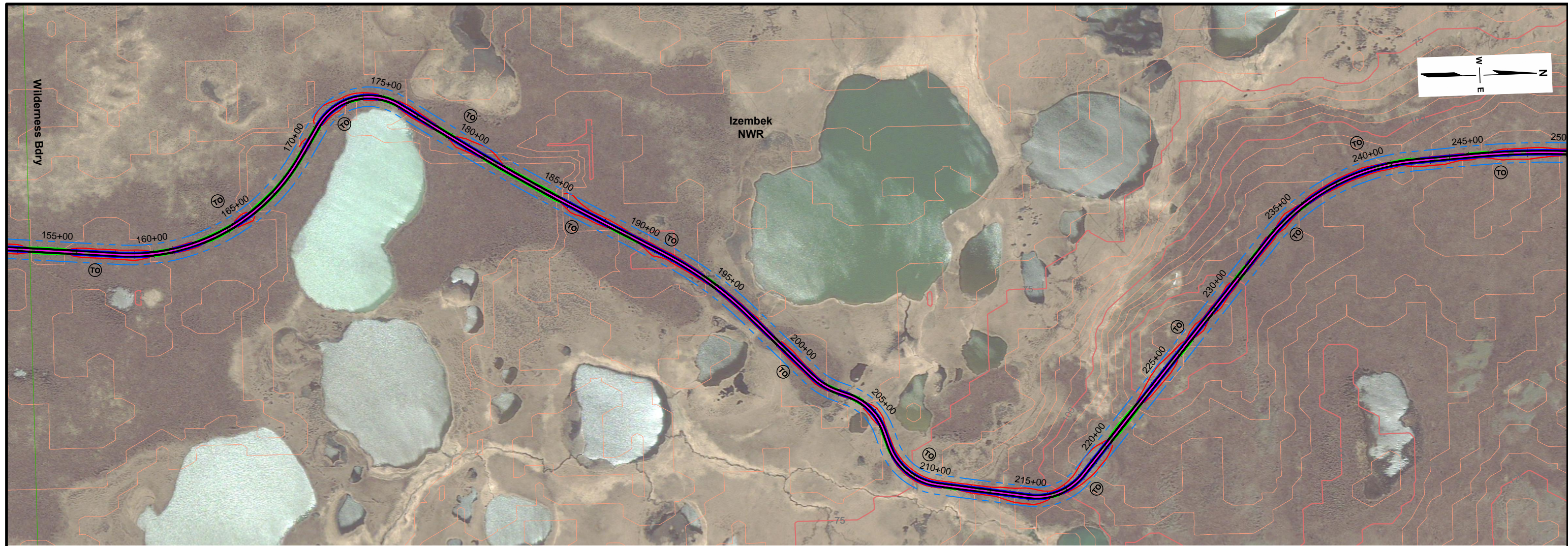


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION

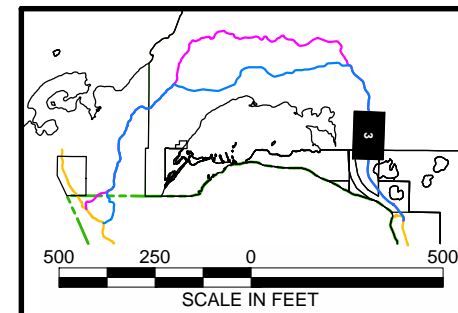


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 85+00 to 160+00 (CENTRAL) STA 85+00 to 160+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-02</b>	

G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/4/2011 9:09:43 PM

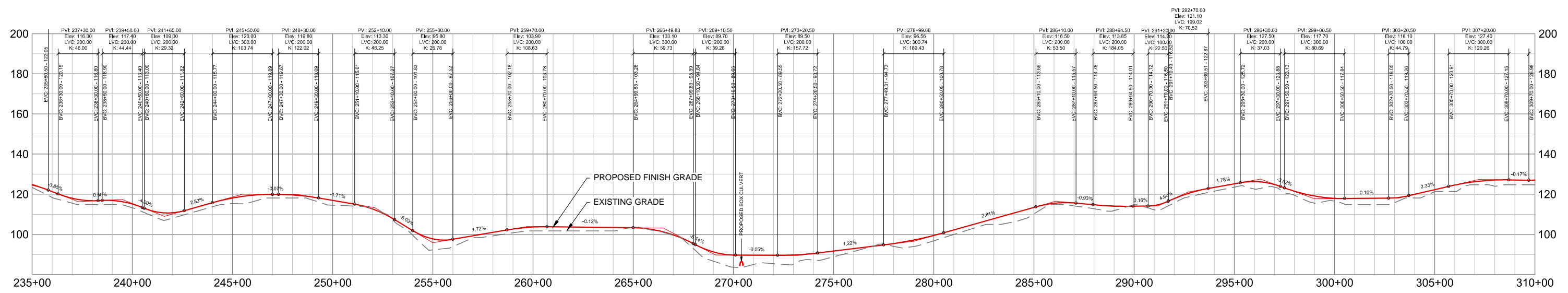
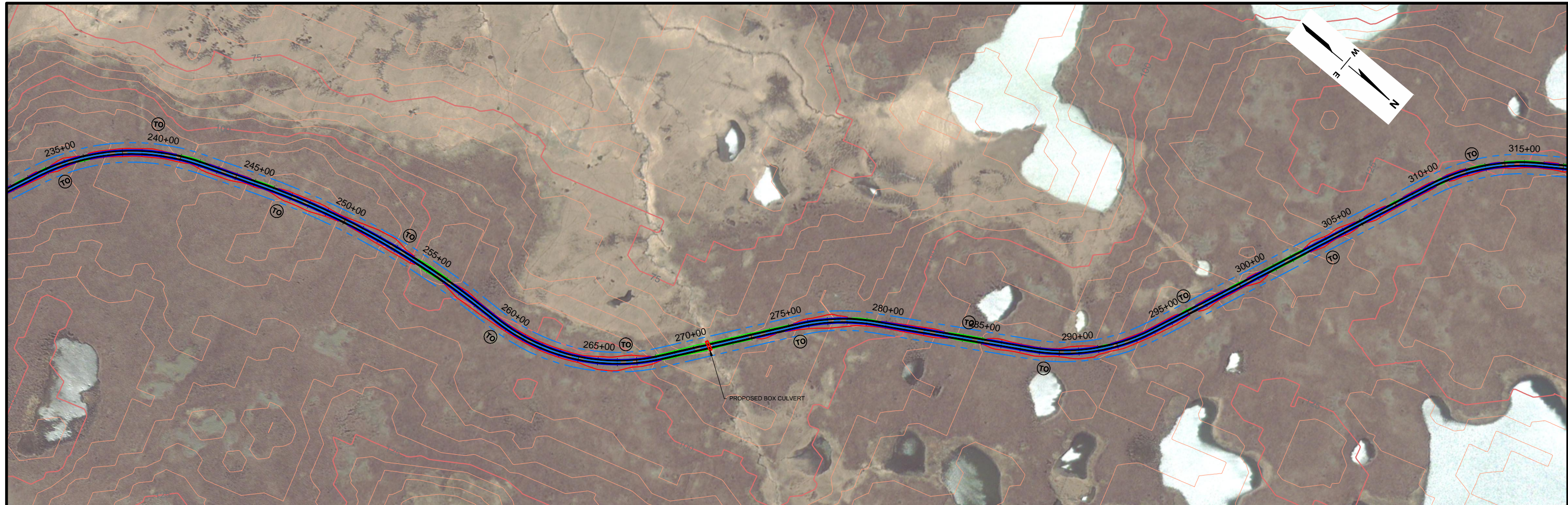


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - ⊙ APPROX TURNOUT STATION



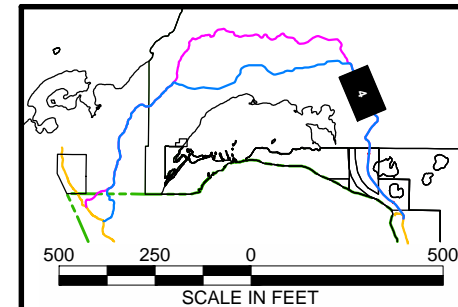
<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 160+00 to 235+00 (CENTRAL) STA 160+00 to 235+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-03</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 6:29:18 PM



**LEGEND**

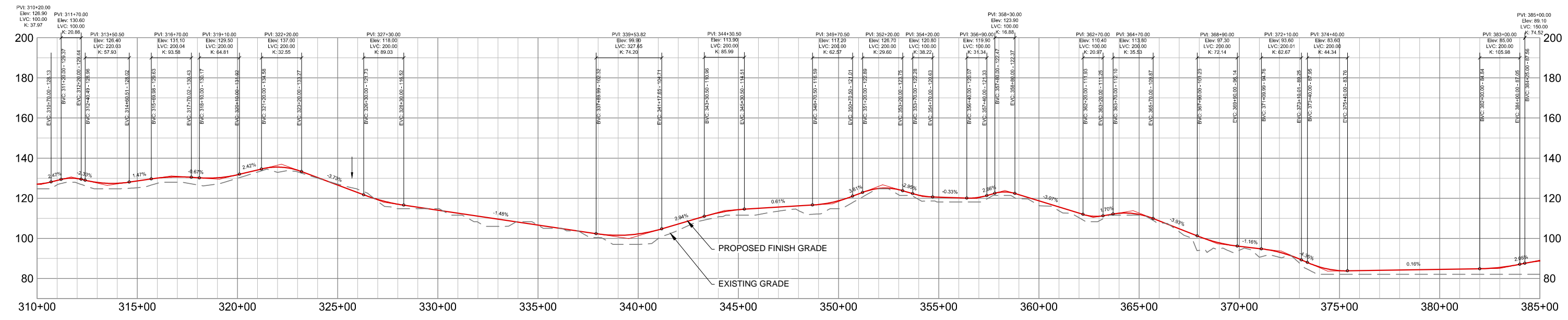
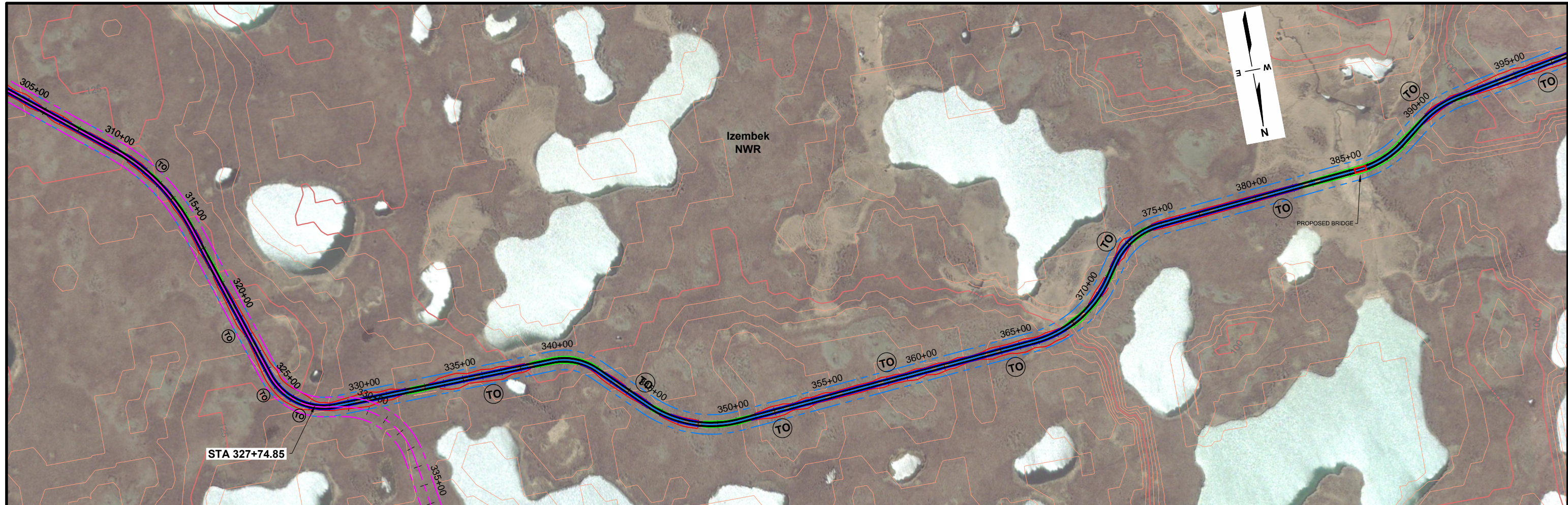
	CENTRAL ISTHMUS ALIGNMENT		DITCH LINE
	CENTRAL ISTHMUS 100' RIGHT-OF-WAY		DAYLIGHT LINE - CUT
	SOUTHERN ISTHMUS ALIGNMENT		DAYLIGHT LINE - FILL
	SOUTHERN ISTHMUS 100' RIGHT-OF-WAY		APPROX TURNOUT STATION
	NWR BOUNDARY		
	DESIGNATED WILDERNESS BOUNDARY		



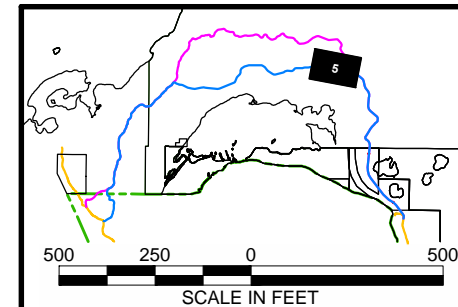
<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 235+00 to 310+00 (CENTRAL) STA 235+00 to 310+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-04</b>	



G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 6:29:18 PM

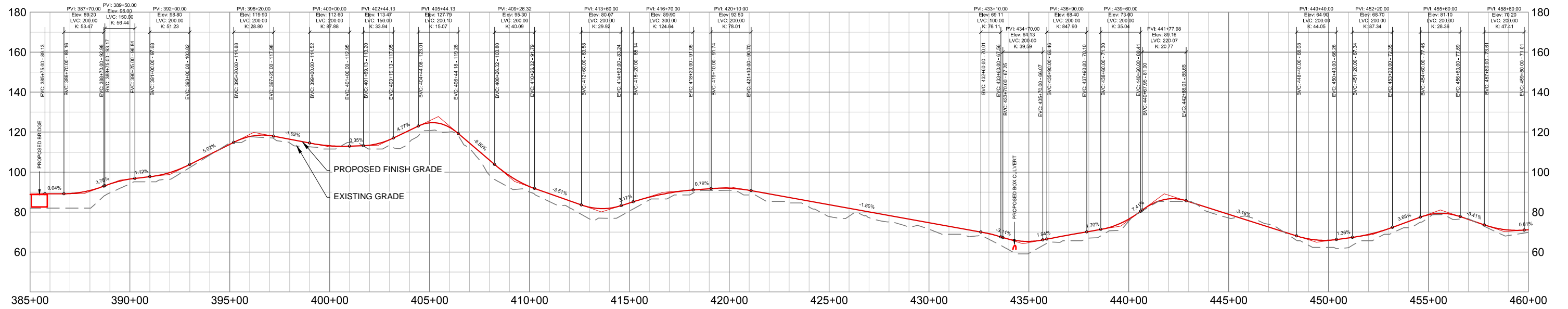
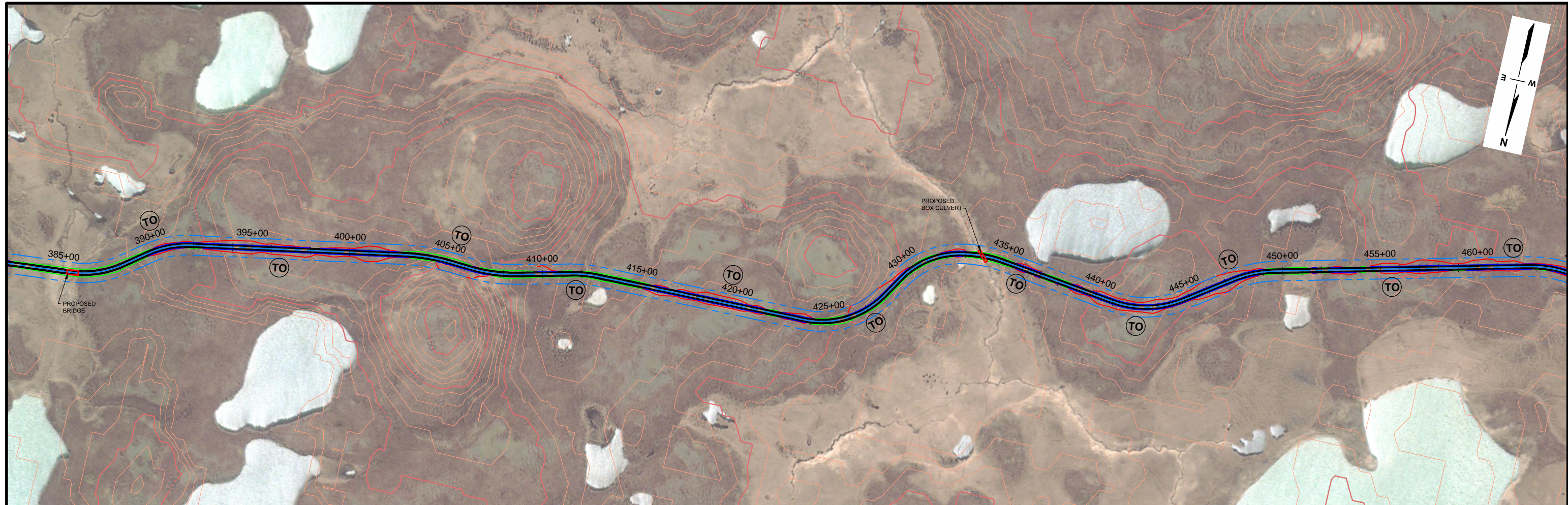


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION



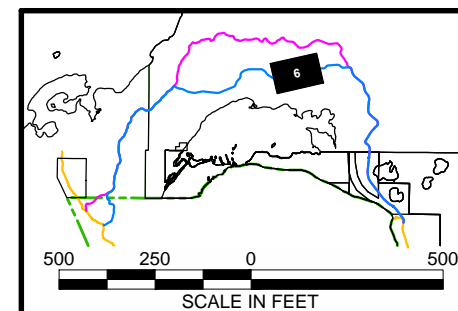
<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 310+00 to 385+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-05</b>	

G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 6:29:18 PM



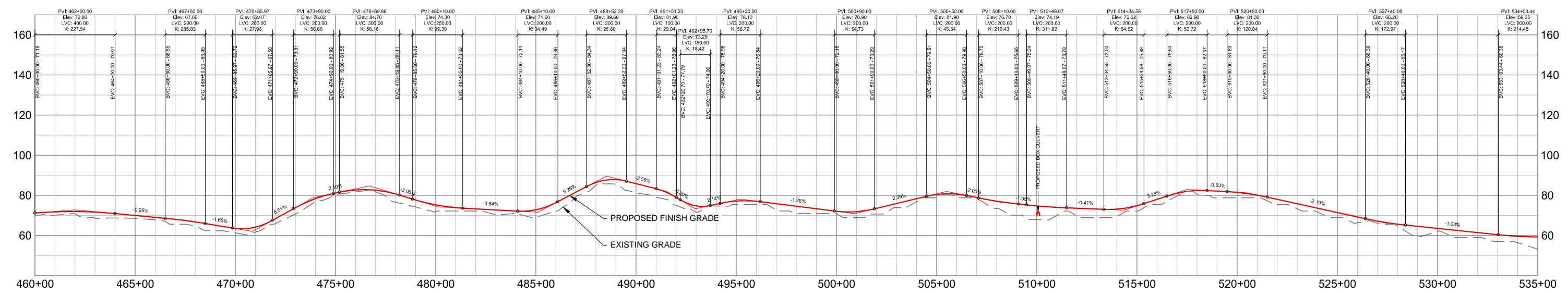
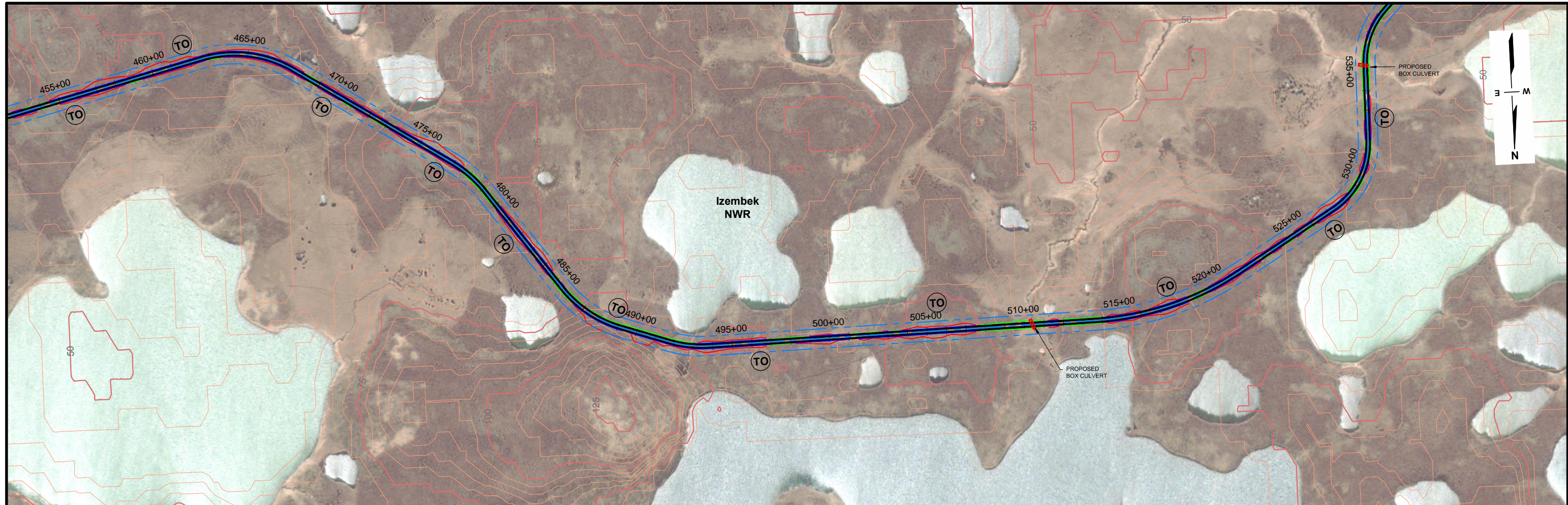
**LEGEND**

- CENTRAL ISTHMUS ALIGNMENT
- CENTRAL ISTHMUS 100' RIGHT-OF-WAY
- SOUTHERN ISTHMUS ALIGNMENT
- SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
- NWR BOUNDARY
- DESIGNATED WILDERNESS BOUNDARY
- DITCH LINE
- DAYLIGHT LINE - CUT
- DAYLIGHT LINE - FILL
- TO APPROX TURNOUT STATION

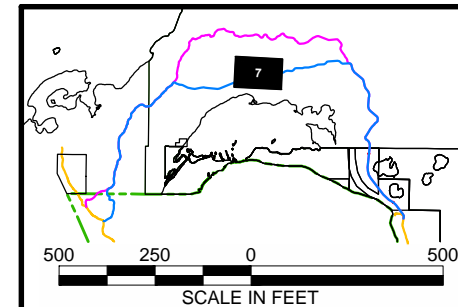


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 385+00 to 460+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-06</b>	

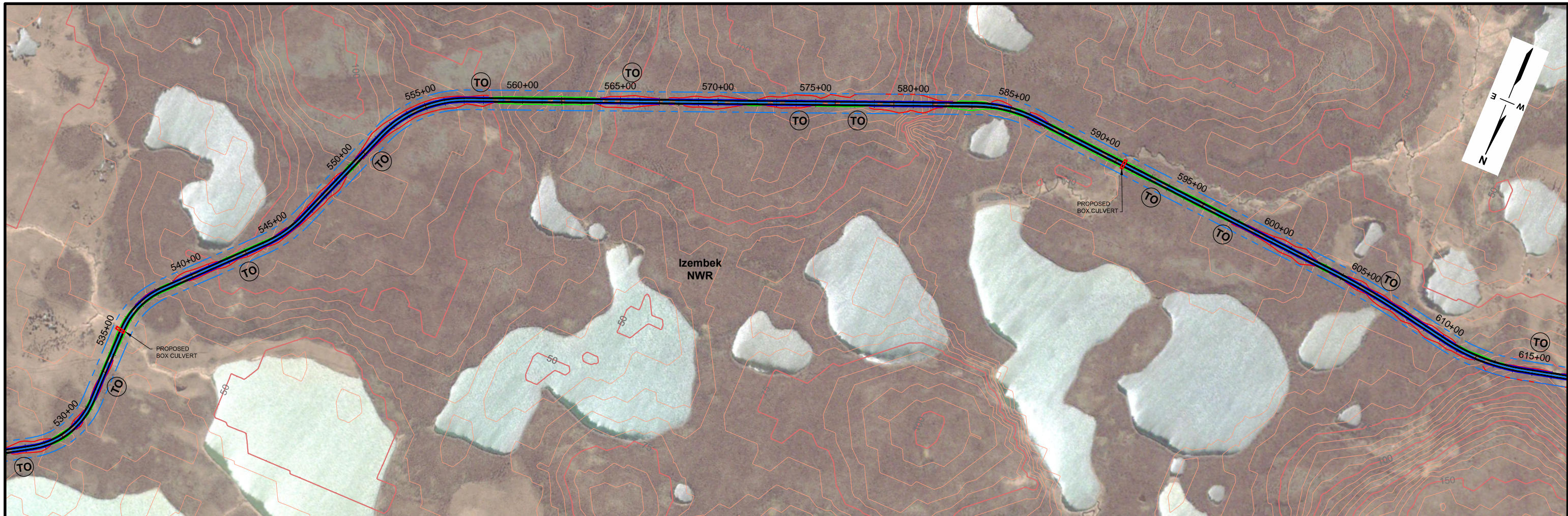
G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 7:34:00 PM



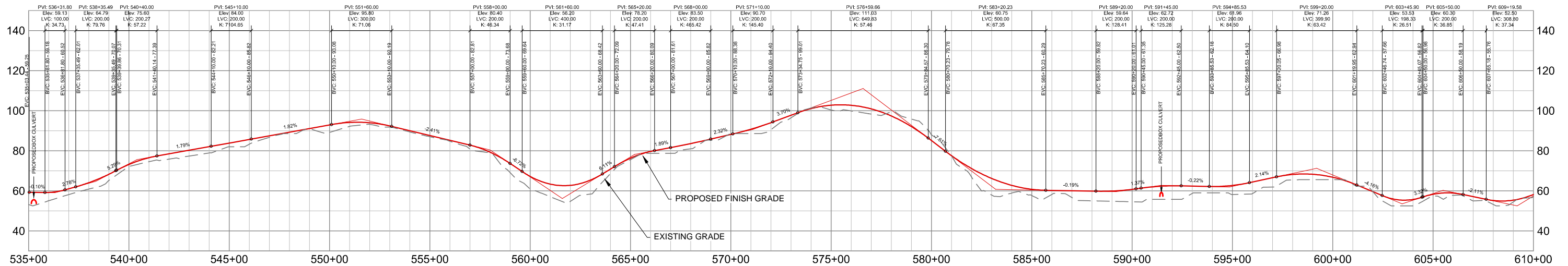
- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - ⊙ APPROX TURNOUT STATION



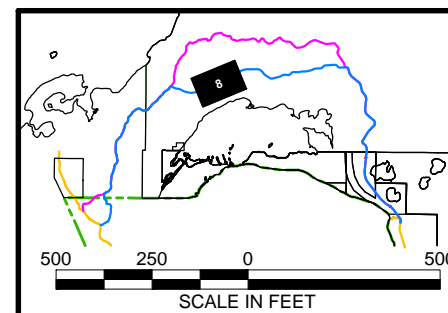
<b>U.S. Fish and Wildlife Service Izempek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 460+00 to 535+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-07</b>	



G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 7:34:00 PM

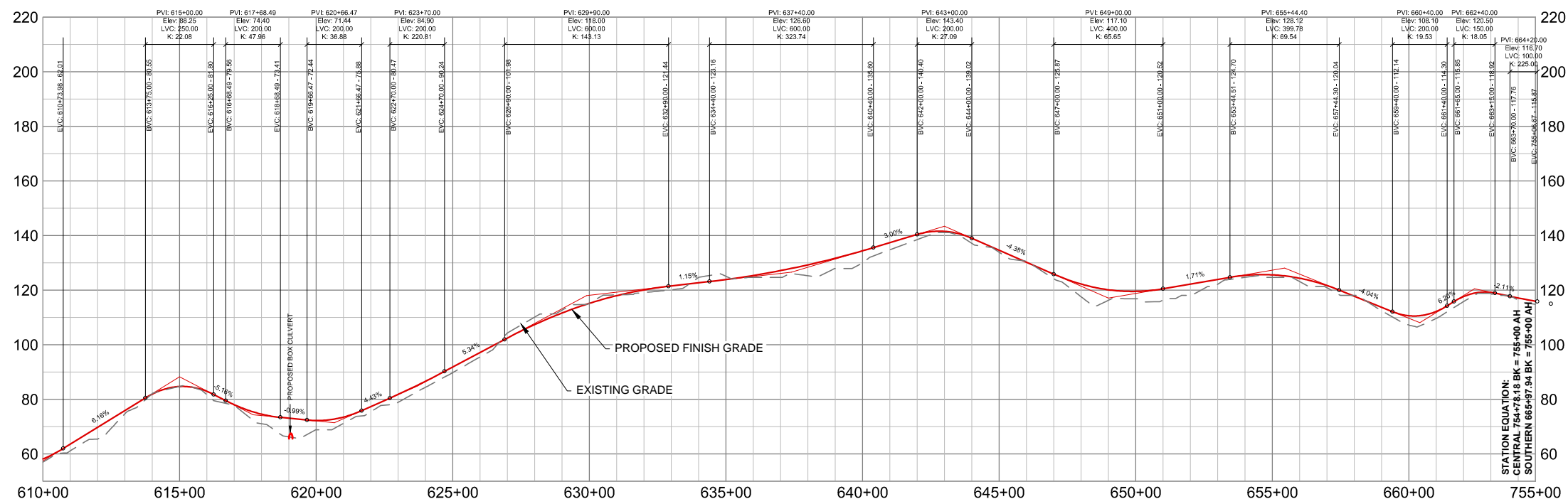
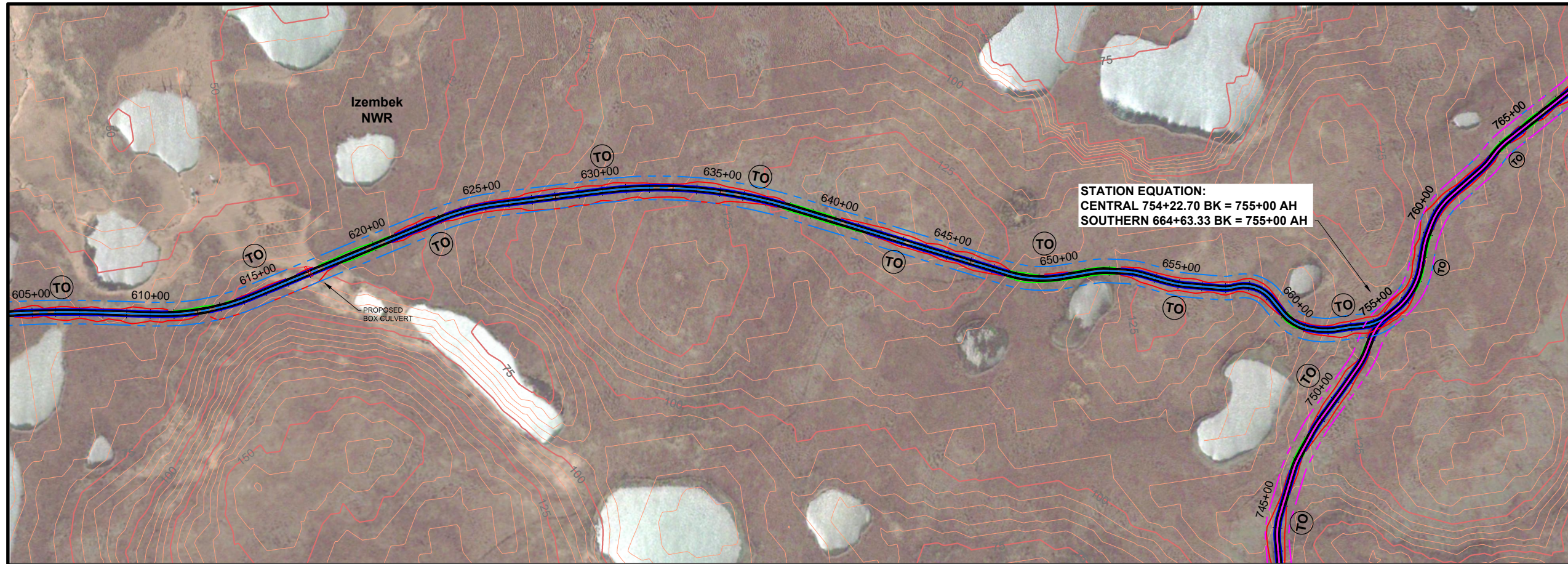


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - ⊙ APPROX TURNOUT STATION

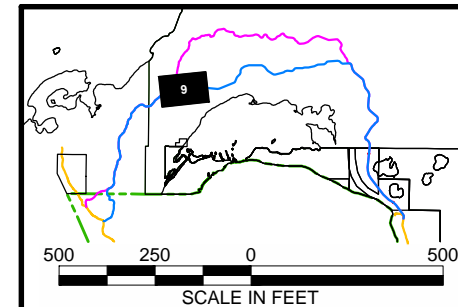


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 535+00 to 610+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-08</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 7:34:00 PM

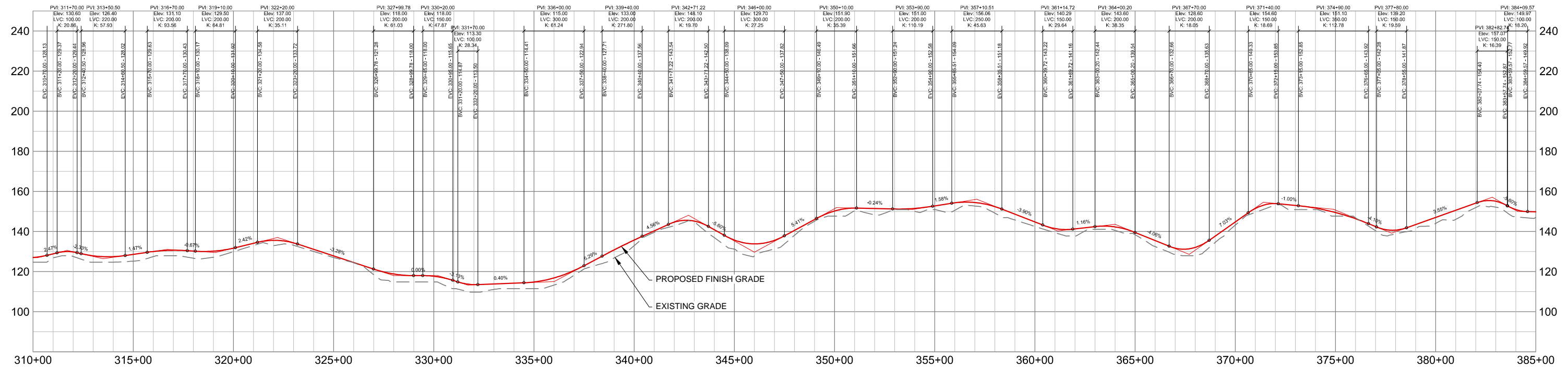


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION

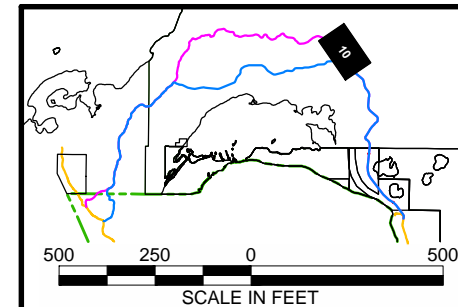


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 610+00 to 755+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-09</b>	

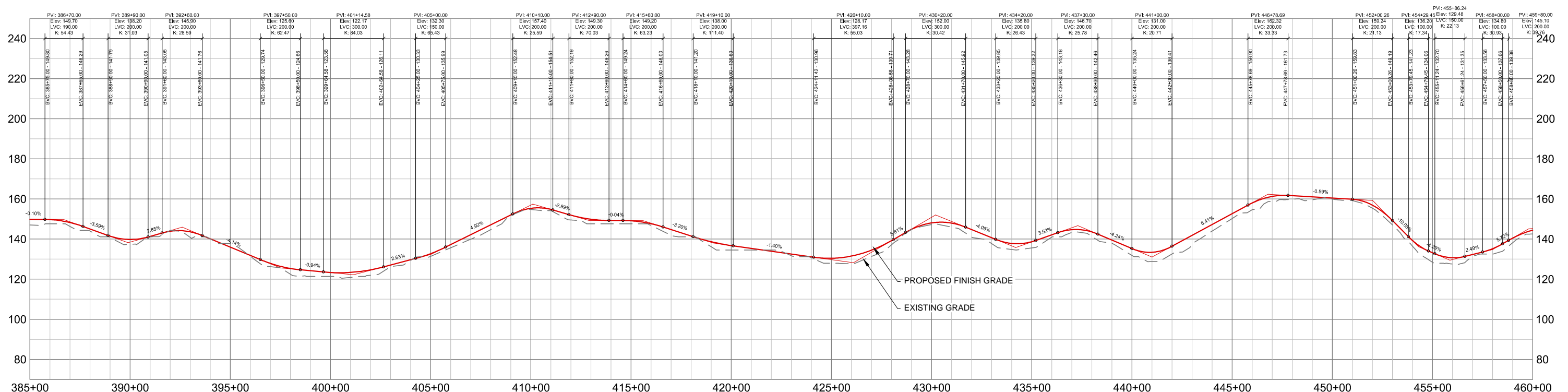
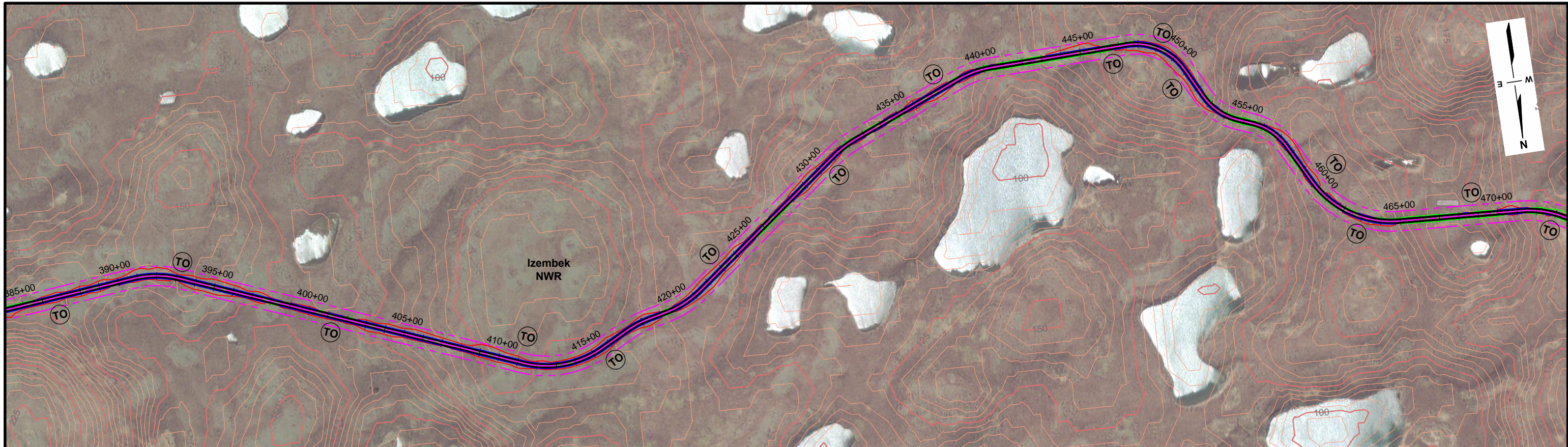
G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 7:34:00 PM



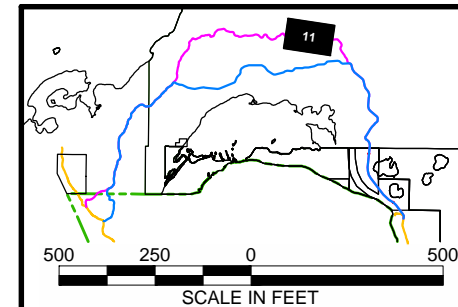
- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - (TO) APPROX TURNOUT STATION



<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 310+00 to 385+00 (CENTRAL)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-10</b>	

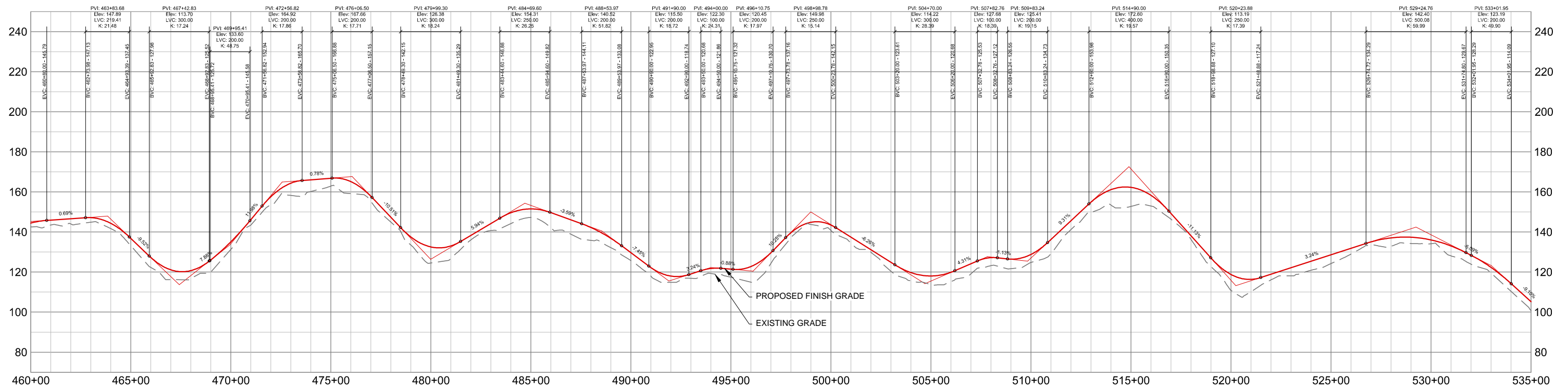
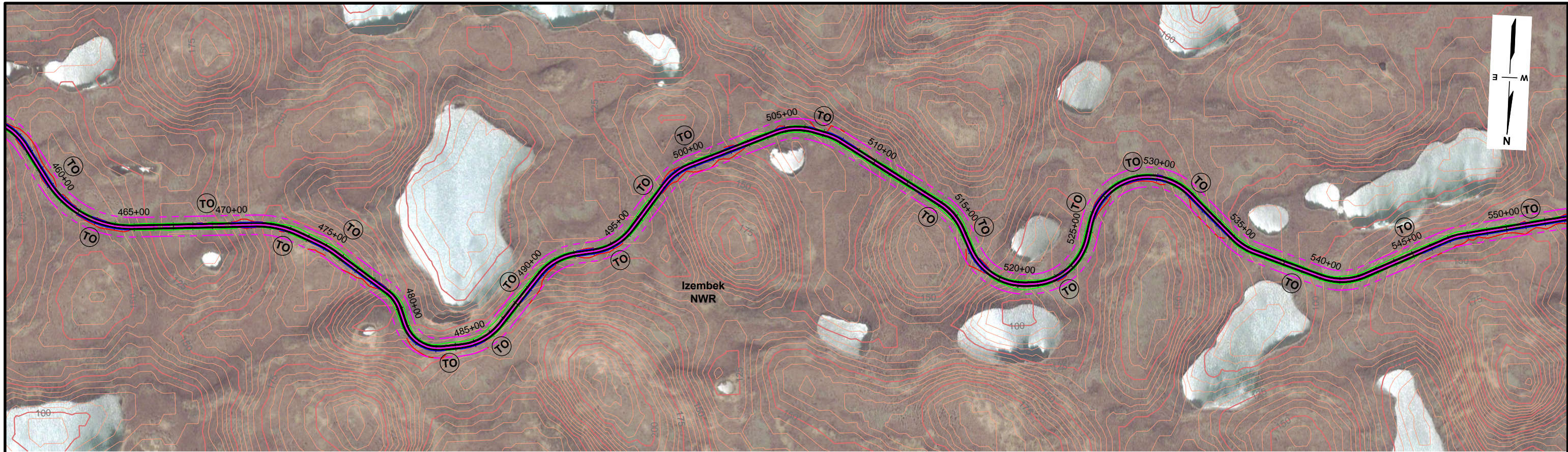


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION



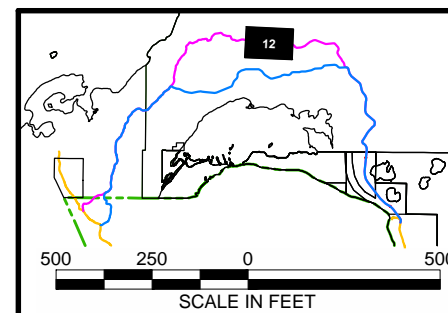
<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 385+00 to 460+00 (CENTRAL)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-11</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 10:22:35 AM



**LEGEND**

- CENTRAL ISTHMUS ALIGNMENT
- - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
- SOUTHERN ISTHMUS ALIGNMENT
- - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
- NWR BOUNDARY
- - - DESIGNATED WILDERNESS BOUNDARY
- · - · - DITCH LINE
- · - · - DAYLIGHT LINE - CUT
- · - · - DAYLIGHT LINE - FILL
- TO APPROX TURNOUT STATION



**U.S. Fish and Wildlife Service  
Izembek Land Exchange EIS**

**PLAN AND PROFILE  
STA 460+00 to 535+00 (CENTRAL)**

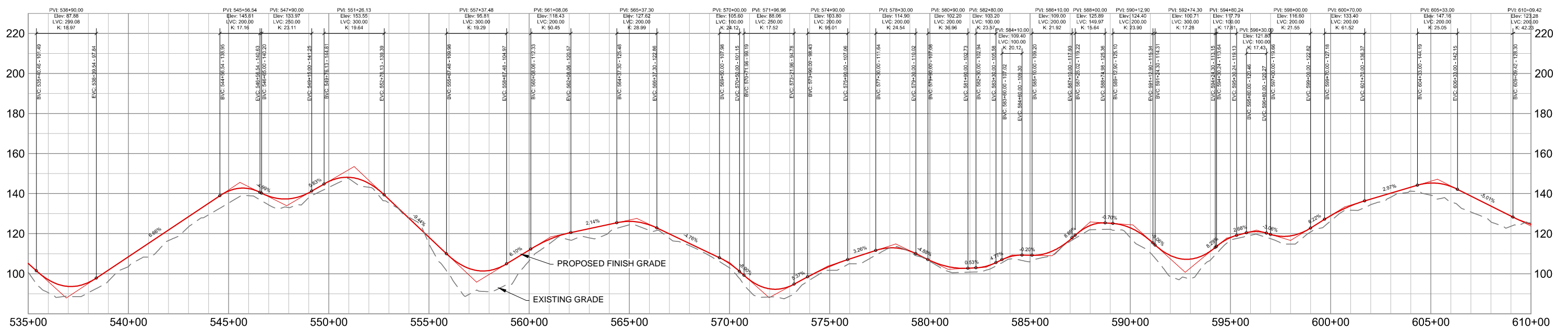
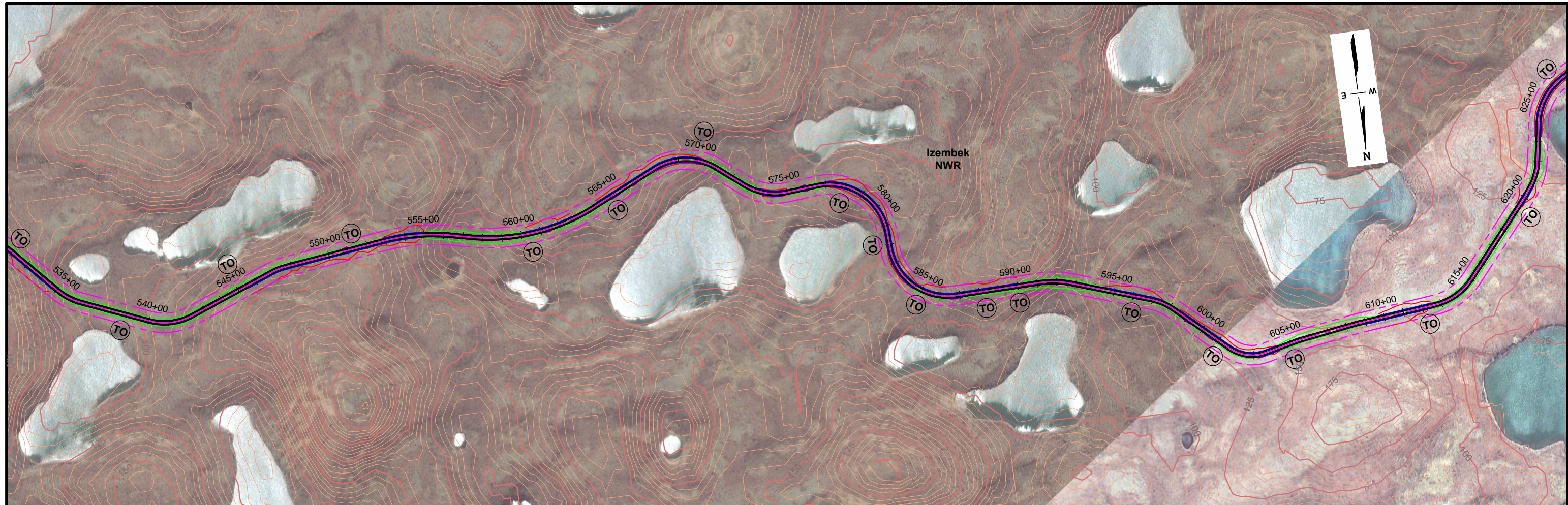
**Cold Bay, Alaska**

JOB NO: 26220860      DRAWN: ELK  
DATE: October 2011      FILE: PNP SHEETS.DWG

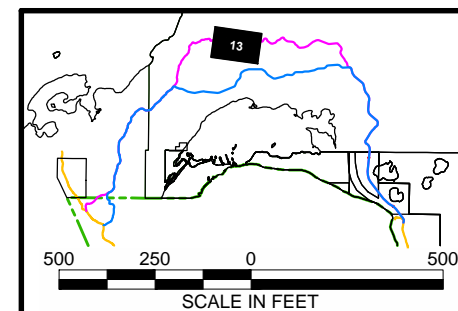
**FIGURE X-12**



G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 10:22:35 AM

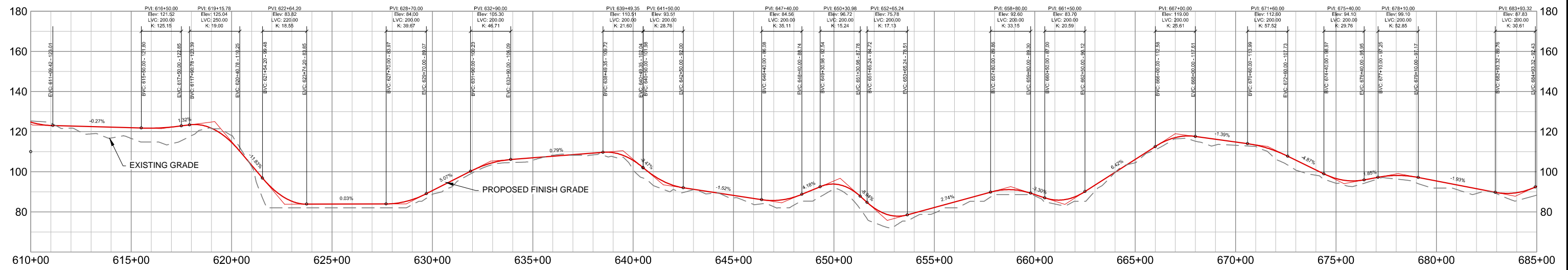


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - ⊙ APPROX TURNOUT STATION

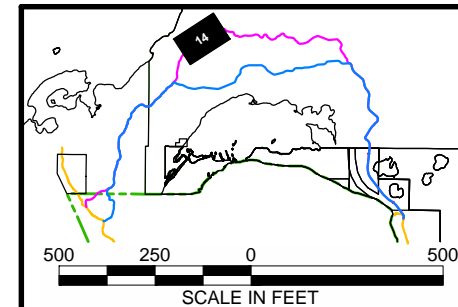


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 535+00 to 610+00 (CENTRAL)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-13</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 10:22:35 AM

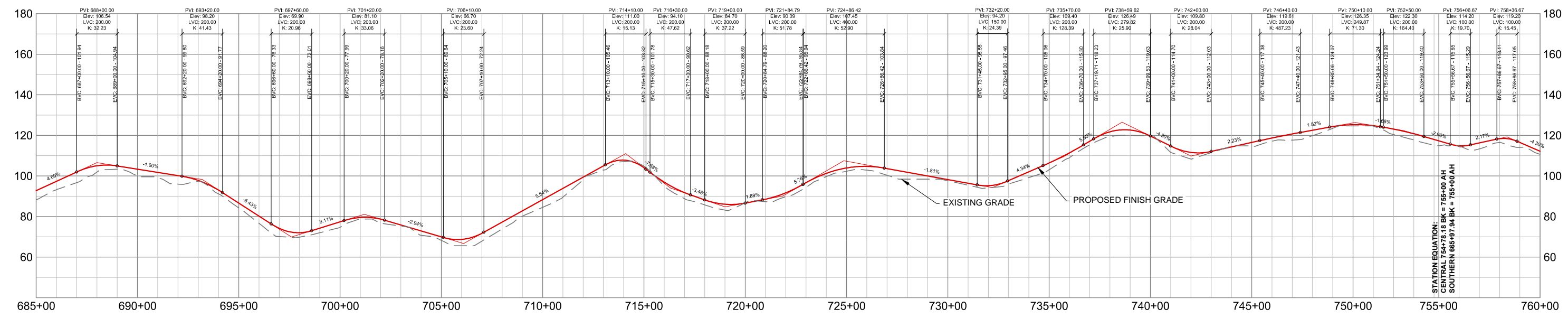


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION

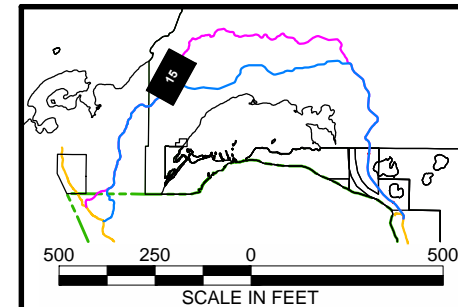


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 610+00 to 685+00 (CENTRAL)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-14</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/5/2011 9:46:46 PM



- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION



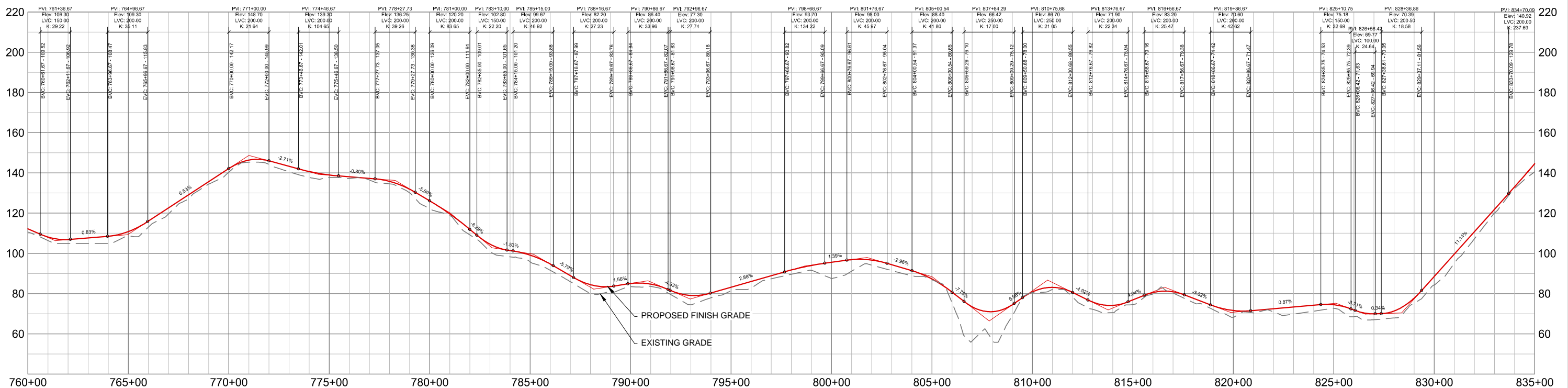
**U.S. Fish and Wildlife Service  
Izembek Land Exchange EIS**

**PLAN AND PROFILE  
STA 685+00 to 760+00 (CENTRAL)  
STA 755+00 to 760+00 (SOUTHERN)**

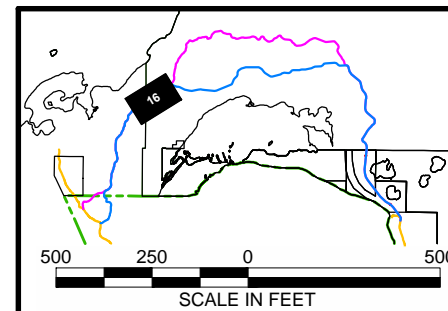
**Cold Bay, Alaska**

JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG

**FIGURE X-15**



- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - - - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - - - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - ⊙ APPROX TURNOUT STATION



**U.S. Fish and Wildlife Service  
Izembek Land Exchange EIS**

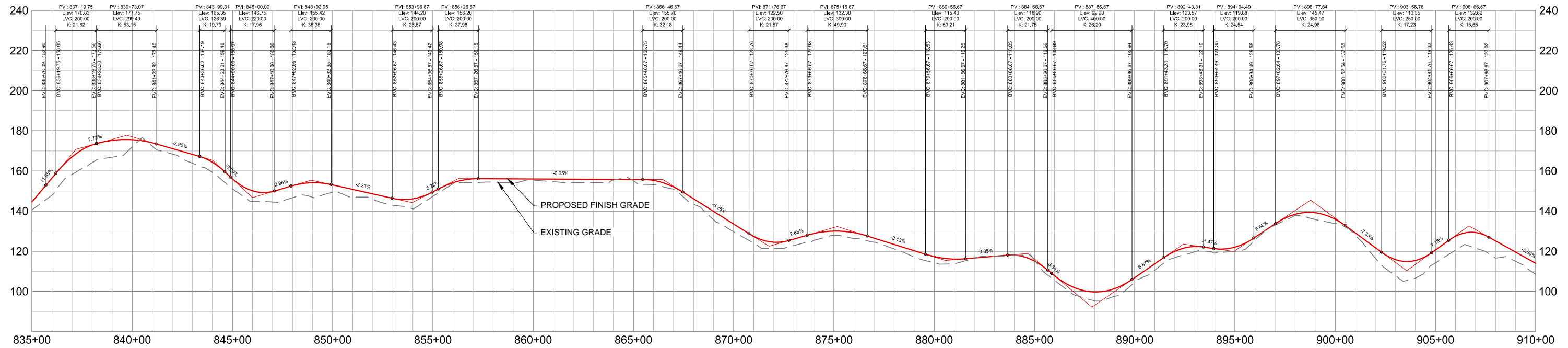
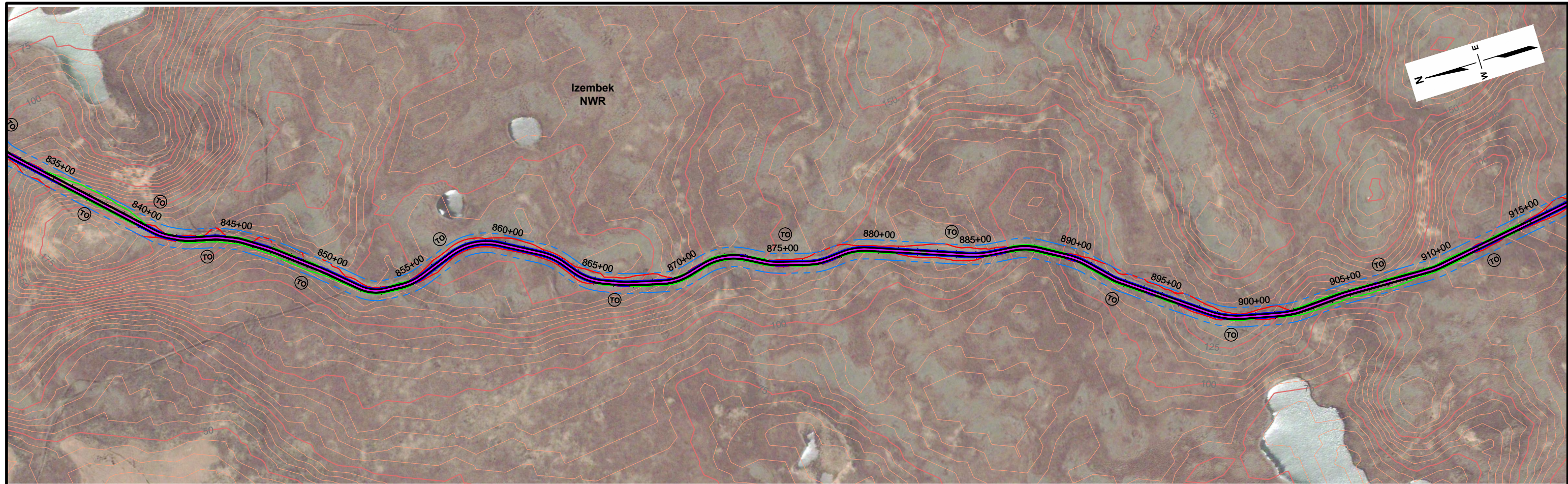
**PLAN AND PROFILE  
STA 760+00 to 835+00 (CENTRAL)  
STA 760+00 to 835+00 (SOUTHERN)**

**Cold Bay, Alaska**

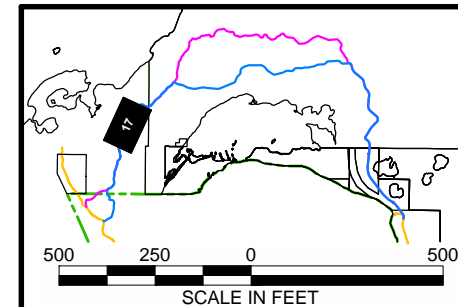
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG

**FIGURE X-16**

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 8:20:05 AM

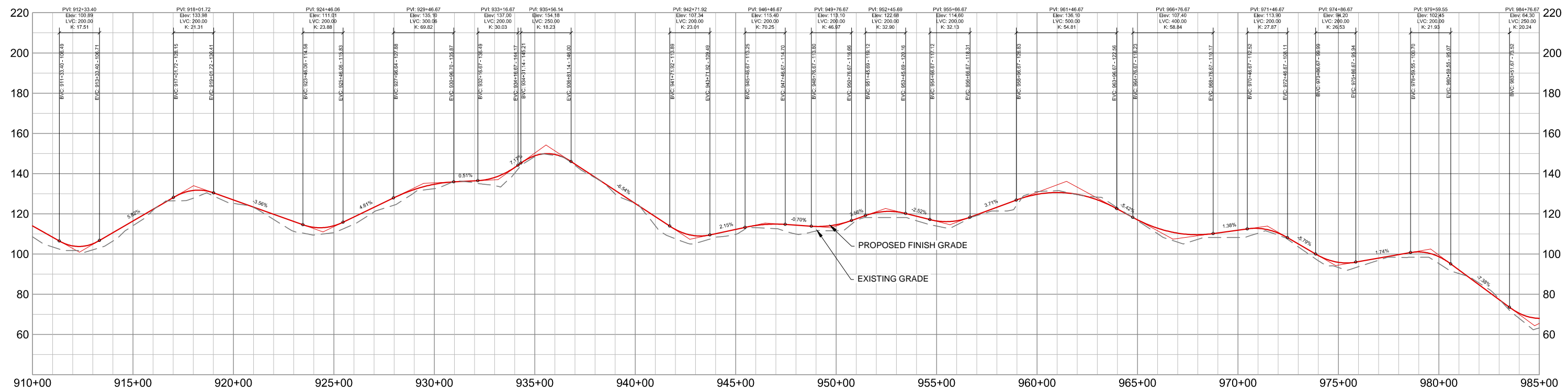


- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - (TO) APPROX TURNOUT STATION

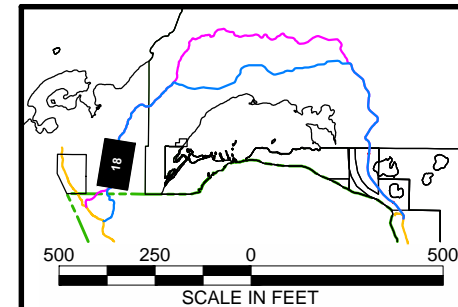


<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 835+00 to 910+00 (CENTRAL) STA 835+00 to 910+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG

**FIGURE X-17**



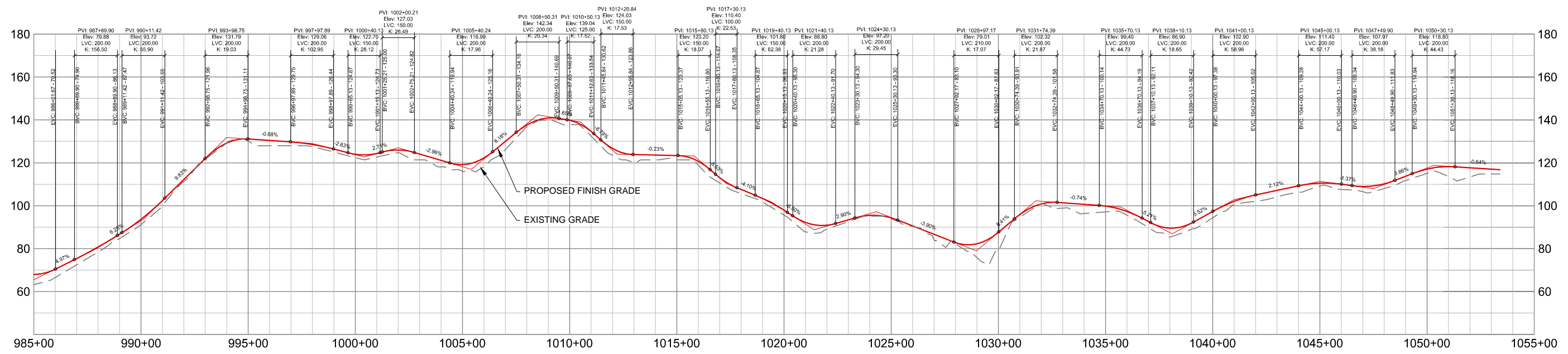
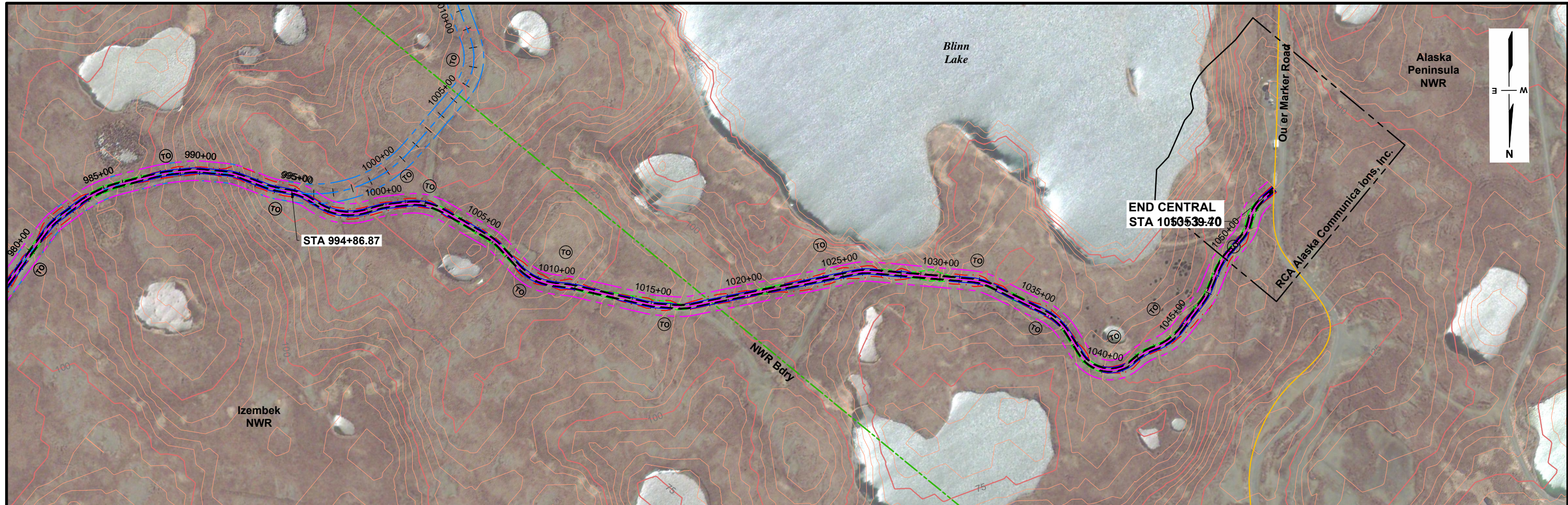
- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - - - DITCH LINE
  - - - DAYLIGHT LINE - CUT
  - - - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION



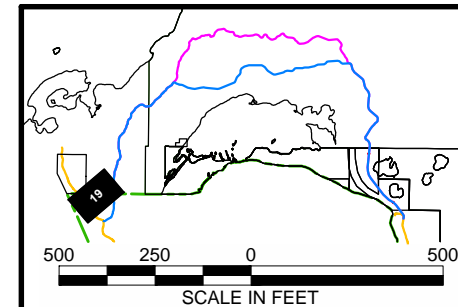
<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 910+00 to 985+00 (CENTRAL) STA 910+00 to 985+00 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-18</b>	

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 8:46:36 AM

G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 9/27/2012 1:40:27 PM



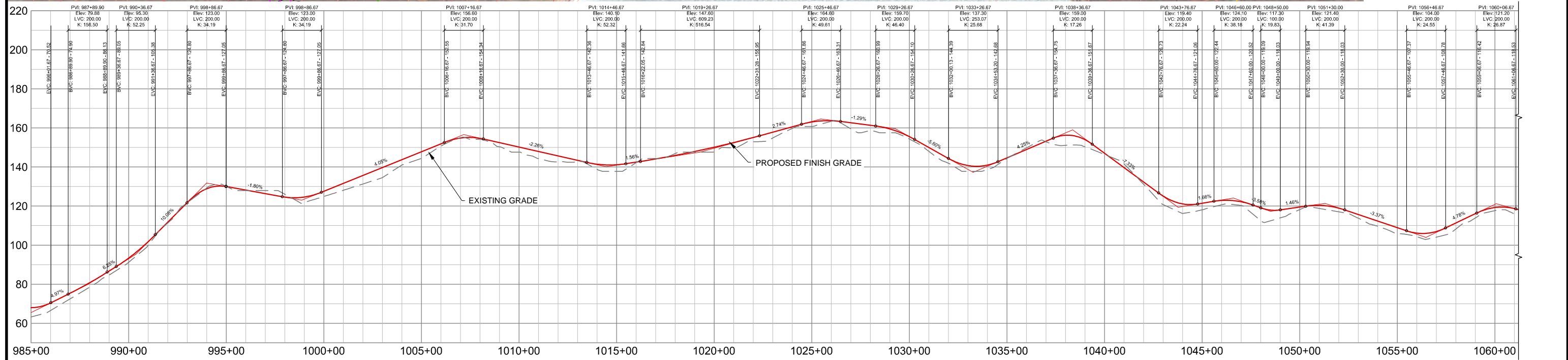
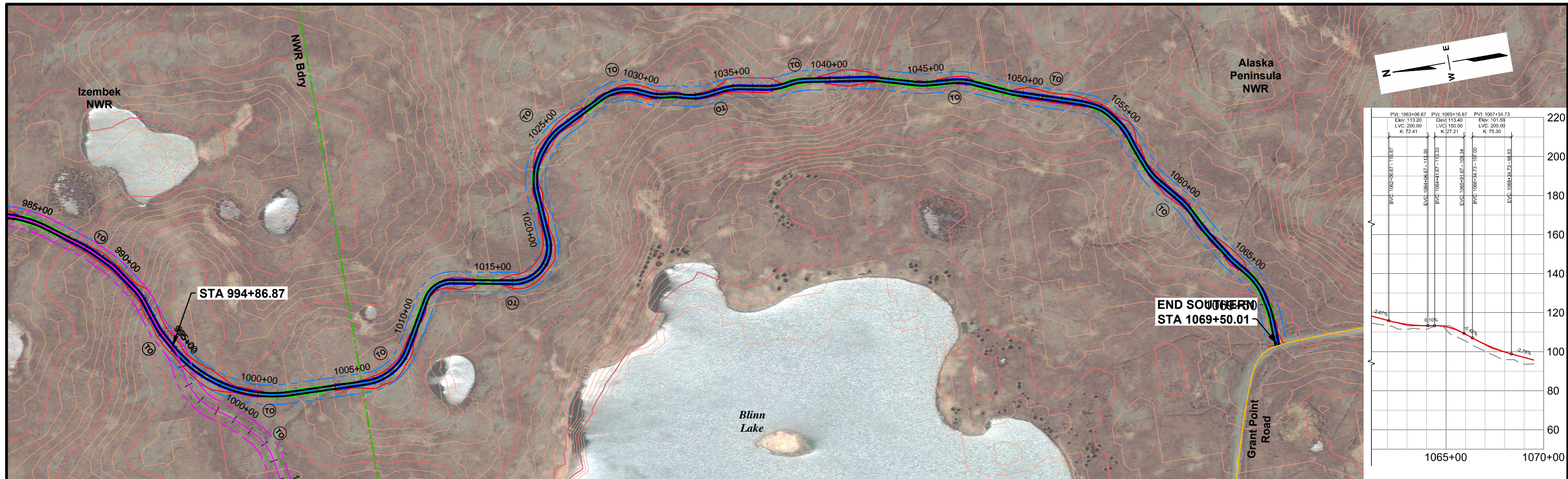
- LEGEND**
- CENTRAL ISTHMUS ALIGNMENT
  - CENTRAL ISTHMUS 100' RIGHT-OF-WAY
  - SOUTHERN ISTHMUS ALIGNMENT
  - SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
  - NWR BOUNDARY
  - DESIGNATED WILDERNESS BOUNDARY
  - DITCH LINE
  - DAYLIGHT LINE - CUT
  - DAYLIGHT LINE - FILL
  - TO APPROX TURNOUT STATION



<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 985+00 to 1053+39.70 (CENTRAL)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG

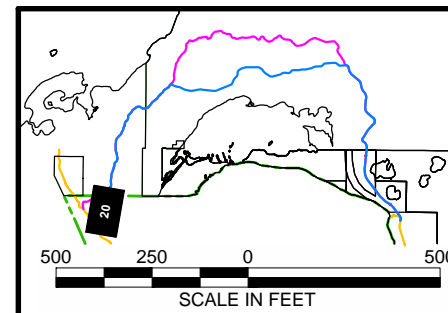
**FIGURE X-19**

G:\PROJECTS\26220860 IZEMBЕК EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 10:22:35 AM



**LEGEND**

- CENTRAL ISTHMUS ALIGNMENT
- CENTRAL ISTHMUS 100' RIGHT-OF-WAY
- SOUTHERN ISTHMUS ALIGNMENT
- SOUTHERN ISTHMUS 100' RIGHT-OF-WAY
- NWR BOUNDARY
- DESIGNATED WILDERNESS BOUNDARY
- DITCH LINE
- DAYLIGHT LINE - CUT
- DAYLIGHT LINE - FILL
- TO APPROX TURNOUT STATION



<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>PLAN AND PROFILE STA 985+00 to 1069+50.01 (SOUTHERN)</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-20</b>	



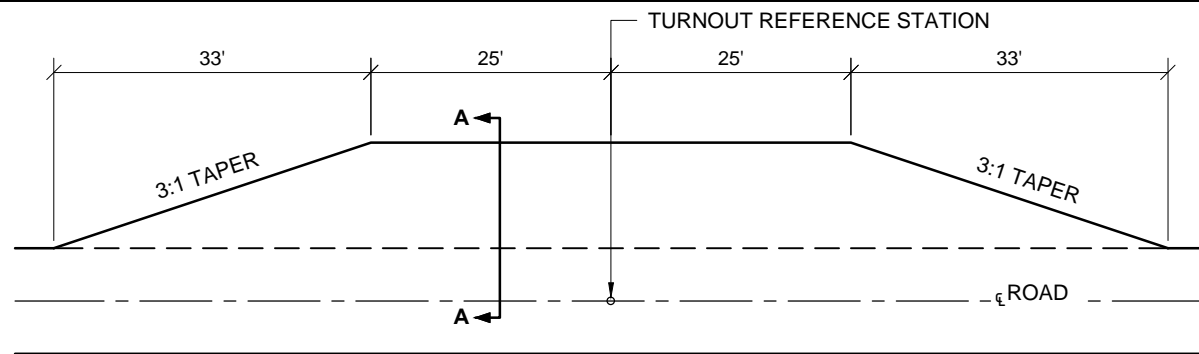
G:\PROJECTS\26220860 IZEMBEEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\PNP SHEETS.DWG ; Revised 10/6/2011 10:22:35 AM

TURNOUT LOCATIONS- CENTRAL ALTERNATIVE					
STATION	OFFSET	STATION	OFFSET	STATION	OFFSET
16+30	L	401+40	R	701+20	L
21+90	L	410+40	L	707+60	R
30+90	R	415+70	R	714+00	L
37+50	L	423+10	L	720+20	L
46+00	R	430+50	R	726+30	L
54+00	L	437+60	L	732+50	R
60+20	R	446+60	R	738+70	L
67+60	L	449+00	L	744+40	R
74+00	R	451+20	R	750+10	L
83+00	L	459+80	L	757+90	L
88+20	R	463+10	R	764+00	R
93+00	L	469+00	L	771+00	L
102+00	L	473+00	R	778+25	R
111+00	R	475+80	L	786+00	L
118+70	L	483+75	R	793+70	R
127+70	R	486+00	R	801+60	L
136+70	L	489+00	R	805+20	R
139+70	R	494+10	R	811+20	R
148+00	L	498+50	L	816+60	R
157+00	R	500+10	L	824+80	R
164+50	L	506+50	??	831+00	L
172+20	R	513+90	R	837+20	R
179+70	L	515+80	L	840+40	L
186+70	L	522+00	R	843+60	R
191+10	R	526+00	L	849+00	R
200+10	L	529+00	L	857+10	L
209+10	R	532+00	L	866+10	R
218+10	L	538+80	R	875+10	L
227+10	R	545+30	L	884+10	L
234+70	L	551+40	L	892+70	R
239+70	R	560+40	R	898+80	R
246+60	L	565+00	R	906+80	L
252+00	R	569+90	L	912+50	R
259+60	L	578+00	R	918+15	L
266+40	L	582+00	R	927+00	R
275+40	R	585+00	R	935+70	L
284+30	L	588+30	R	944+10	R
287+20	R	590+10	R	952+50	L
296+20	L	596+10	R	960+00	R
303+90	R	601+20	R	962+50	R
312+50	L	605+00	R	971+30	L
321+50	R	612+10	R	979+50	R
325+00	R	619+50	R	988+50	L
327+00	L	626+40	L	994+15	R
335+50	R	633+40	R	1002+00	L
342+80	L	639+30	R	1008+50	R
350+20	R	644+60	R	1010+50	L
356+90	L	650+00	L	1015+70	R
364+00	R	658+60	R	1024+20	L
371+60	L	667+20	R	1031+80	??
375+90	R	671+80	R	1035+70	R
382+60	L	679+50	L	1041+00	L
386+70	R	688+50	R	1044+70	L
393+10	L	693+00	R	1050+30	L

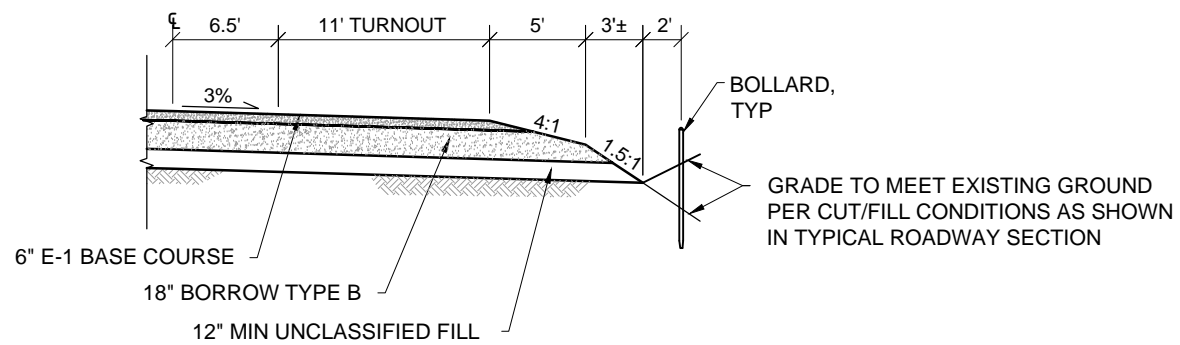
TURNOUT LOCATIONS- SOUTHERN ALTERNATIVE					
STATION	OFFSET	STATION	OFFSET	STATION	OFFSET
16+30	R	411+80	R	866+10	R
21+90	L	419+60	L	875+10	L
30+90	R	427+00	R	884+10	L
37+50	L	436+00	R	892+70	R
46+00	R	442+25	R	898+80	R
54+00	L	447+50	L	906+80	L
60+20	R	455+60	R	912+50	R
67+60	L	461+80	L	918+15	L
74+00	R	469+70	R	927+00	R
83+00	L	476+40	R	935+70	L
88+20	R	481+80	R	944+10	R
93+00	L	488+80	L	952+50	L
102+00	L	496+40	R	960+00	R
111+00	R	505+40	L	962+50	R
118+70	L	511+50	R	971+30	L
127+70	R	517+85	L	979+50	R
136+70	L	526+85	R	988+50	L
139+70	R	532+70	L	994+15	R
148+00	L	541+70	R	1000+70	R
157+00	R	551+40	R	1007+00	L
164+50	L	557+80	L	1016+00	R
172+20	R	565+50	L	1025+00	L
179+70	L	574+00	R	1029+25	L
186+70	L	577+10	R	1034+00	R
191+10	R	584+50	L	1038+30	L
200+10	L	593+50	R	1046+20	R
209+10	R	597+60	R	1051+50	L
218+10	L	606+10	L		
227+10	R	615+10	L		
234+70	L	622+60	R		
239+70	R	630+15	L		
246+60	L	636+50	L		
252+00	R	642+90	R		
259+60	L	649+40	L		
266+40	L	655+00	R		
275+40	R	662+80	L		
284+30	L	STA EQ	R		
287+20	R	757+90	L		
296+20	L	764+00	R		
303+90	R	771+00	L		
312+50	L	778+25	R		
321+50	R	786+00	L		
325+00	R	793+70	R		
327+00	L	801+60	L		
335+50	R	805+20	R		
344+50	L	811+20	R		
352+20	R	816+60	R		
358+20	L	824+80	R		
364+70	R	831+00	L		
372+50	L	837+20	R		
381+20	R	840+40	L		
390+20	L	843+60	R		
396+40	R	849+00	R		
405+40	L	857+10	L		

<b>U.S. Fish and Wildlife Service Izembek Land Exchange EIS</b>	
<b>TURNOUT LOCATION TABLES</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: October 2011	FILE: PNP SHEETS.DWG
<b>FIGURE X-21</b>	

G:\PROJECTS\26220860 IZEMBEK EIS\401 WORKING DRAWINGS\ROAD DESIGN\TYPICAL DETAILS.DWG ; Revised 9/27/2011 11:09:46 AM



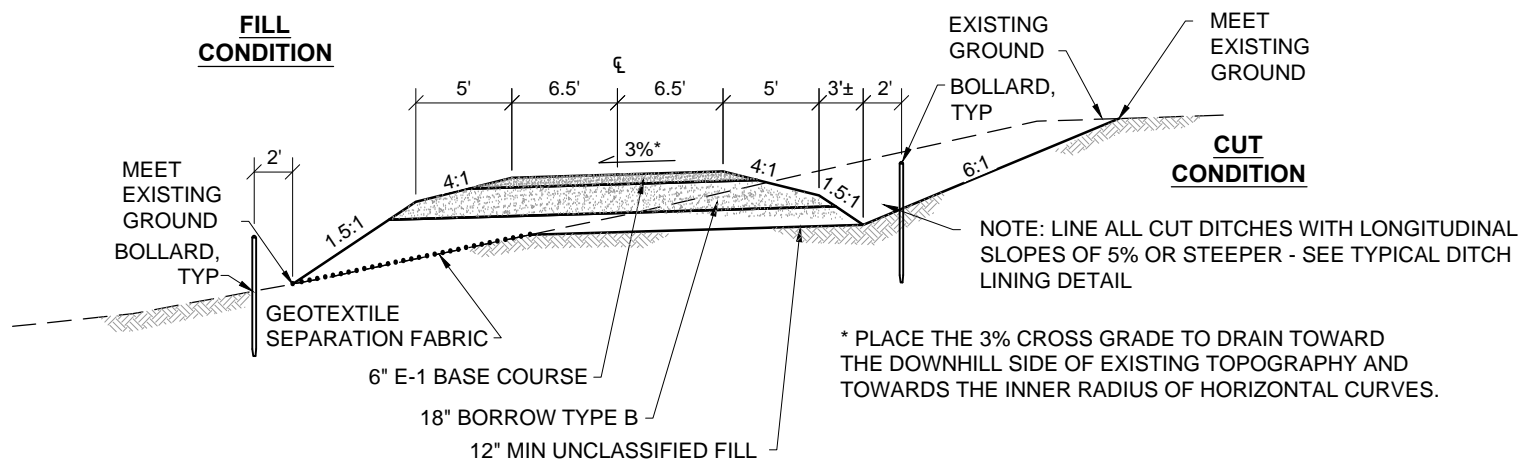
**PLAN VIEW**



**SECTION VIEW A-A**

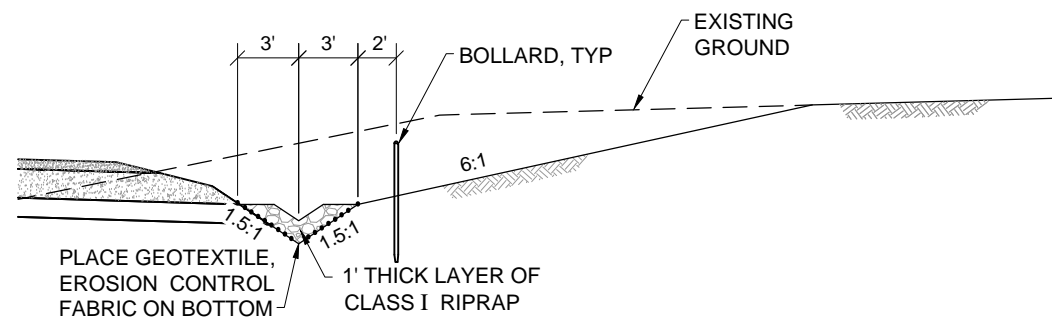
**TYPICAL ROADWAY TURNOUT DETAIL**

NOT TO SCALE  
(MIRROR ABOUT CENTERLINE FOR LEFT OR RIGHT TURNOUT)



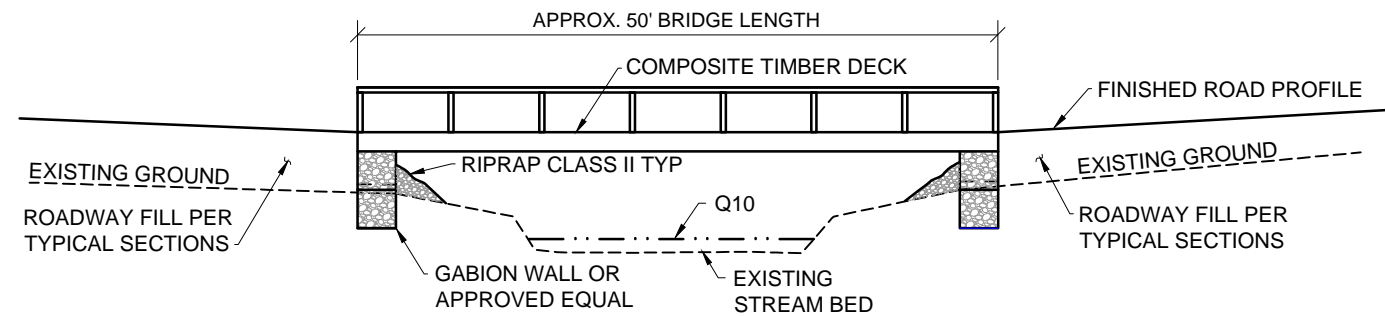
**TYPICAL ROADWAY SECTION**

NOT TO SCALE



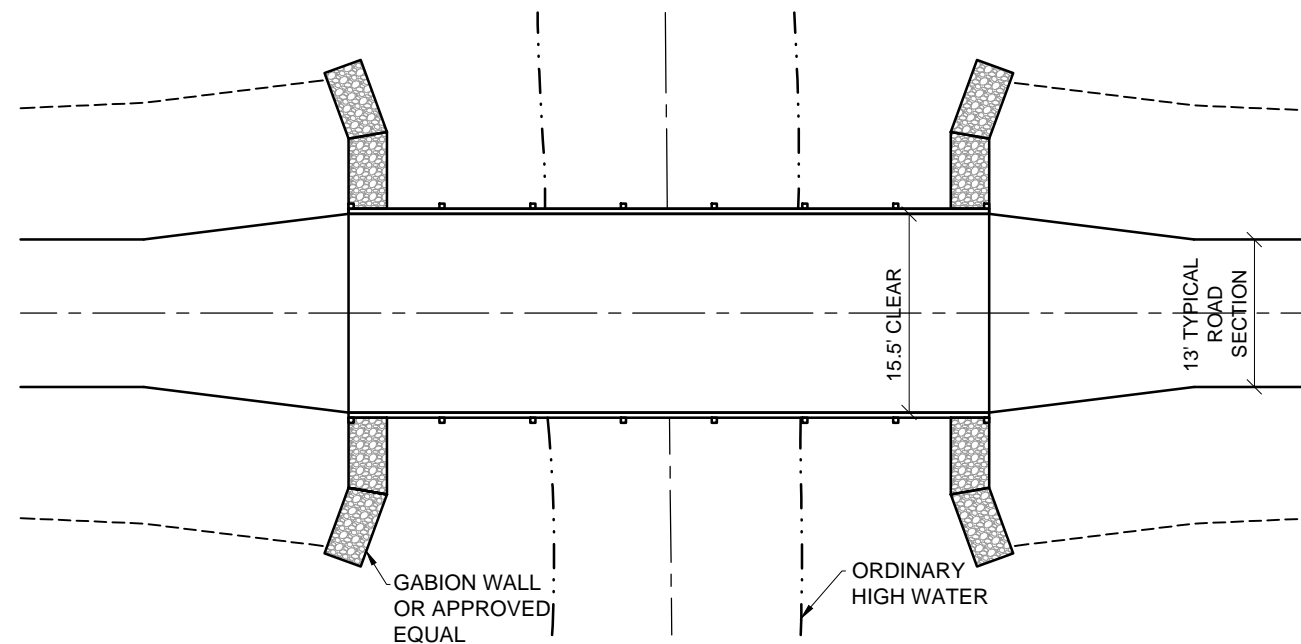
**TYPICAL DITCH LINING DETAIL**

NOT TO SCALE



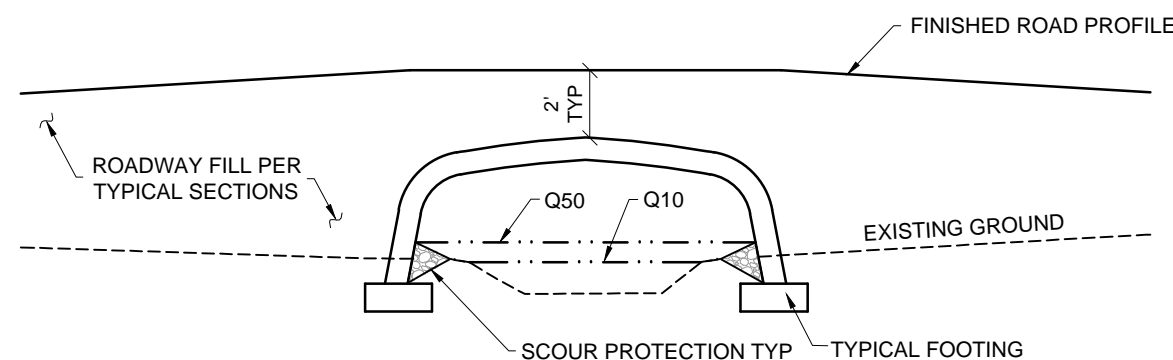
**TYPICAL BRIDGE PROFILE**

NOT TO SCALE



**TYPICAL BRIDGE PLAN**

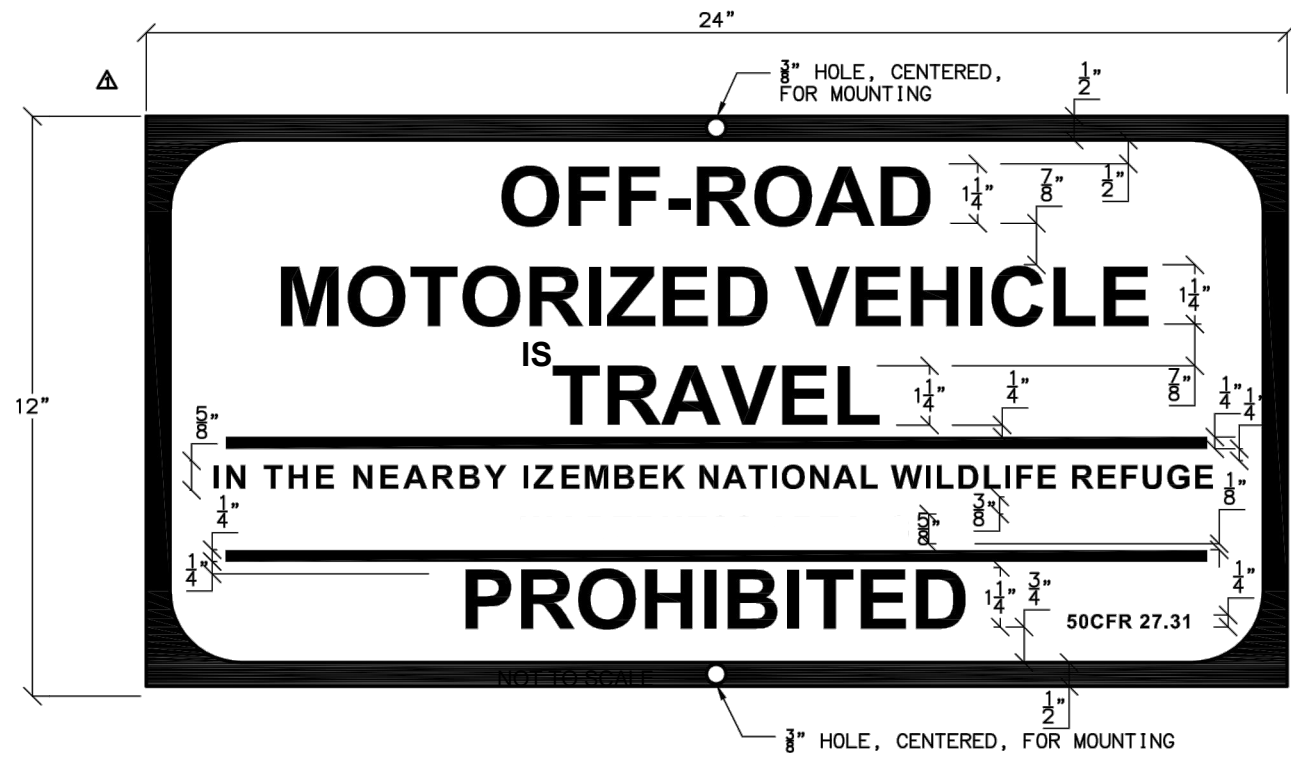
NOT TO SCALE



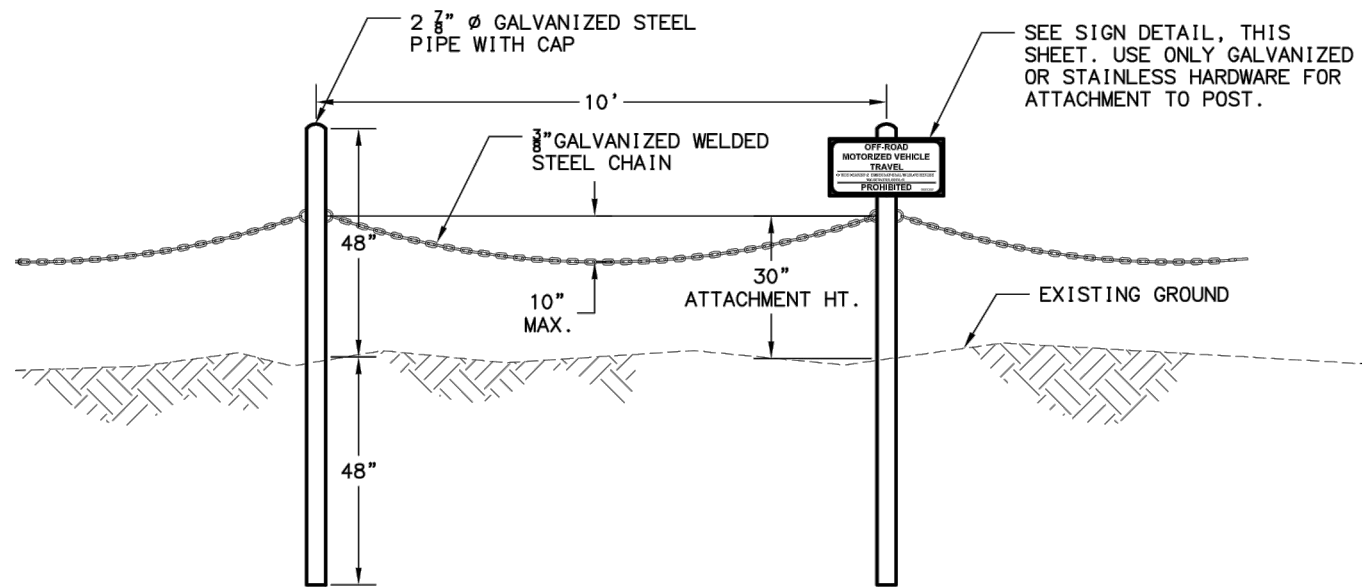
**TYPICAL BOX CULVERT**

NOT TO SCALE

<b>U.S. Fish and Wildlife Service</b> <b>Izembek Land Exchange EIS</b>	
<b>TYPICAL DETAILS</b>	
<b>Cold Bay, Alaska</b>	
JOB NO: 26220860	DRAWN: ELK
DATE: September 2011	FILE: TYPICAL DETAILS.DWG
<b>FIGURE X-22</b>	

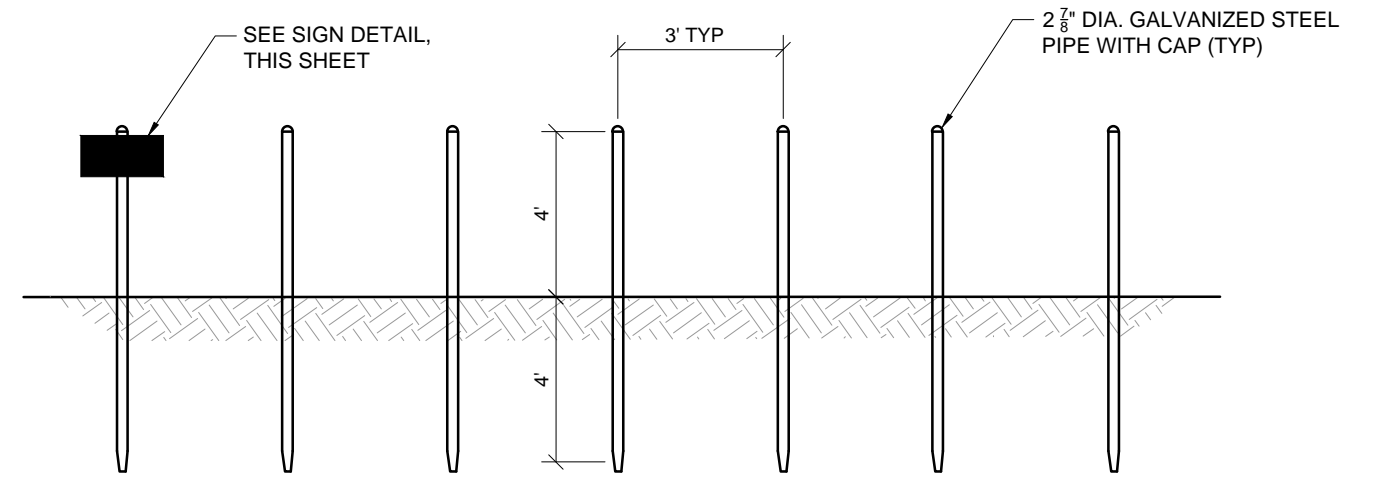


**NOTE:**  
1. INSTALL SIGN AT 500 FT INTERVALS. **SIGN DETAIL**



- NOTES**
1. GALVANIZED CHAIN MUST BE ATTACHED TO EACH POST.
  2. ADDITIONAL CHAINS BETWEEN POSTS MAY BE REQUIRED TO PREVENT VEHICLE PASSAGE THROUGH LOW POINTS ALONG THE RUN.
  3. USE ONLY GALVANIZED OR STAINLESS STEEL HARDWARE OR WELD CHAIN TO POSTS.
  4. TACK WELD EACH POST CAP.

**TYPICAL BOLLARD WITH CHAIN DETAIL**  
NOT TO SCALE



**TYPICAL DETAIL - BOLLARD-ONLY OPTION**  
NOT TO SCALE

U.S. Fish and Wildlife Service Izembek Land Exchange EIS	
<b>TYPICAL DETAILS</b>	
Cold Bay, Alaska	
JOB NO: 26220860	DRAWN: ELK
DATE: September 2011	FILE: TYPICAL DETAILS.DWG
<b>FIGURE X-23</b>	

**U.S. Department of Interior  
U.S. Fish & Wildlife Service**

**<http://www.fws.gov>  
<http://izembek.fws.gov/eis.htm>**

**Federal Relay  
1 800/877 8339 Voice and TTY**

**February 2013**

