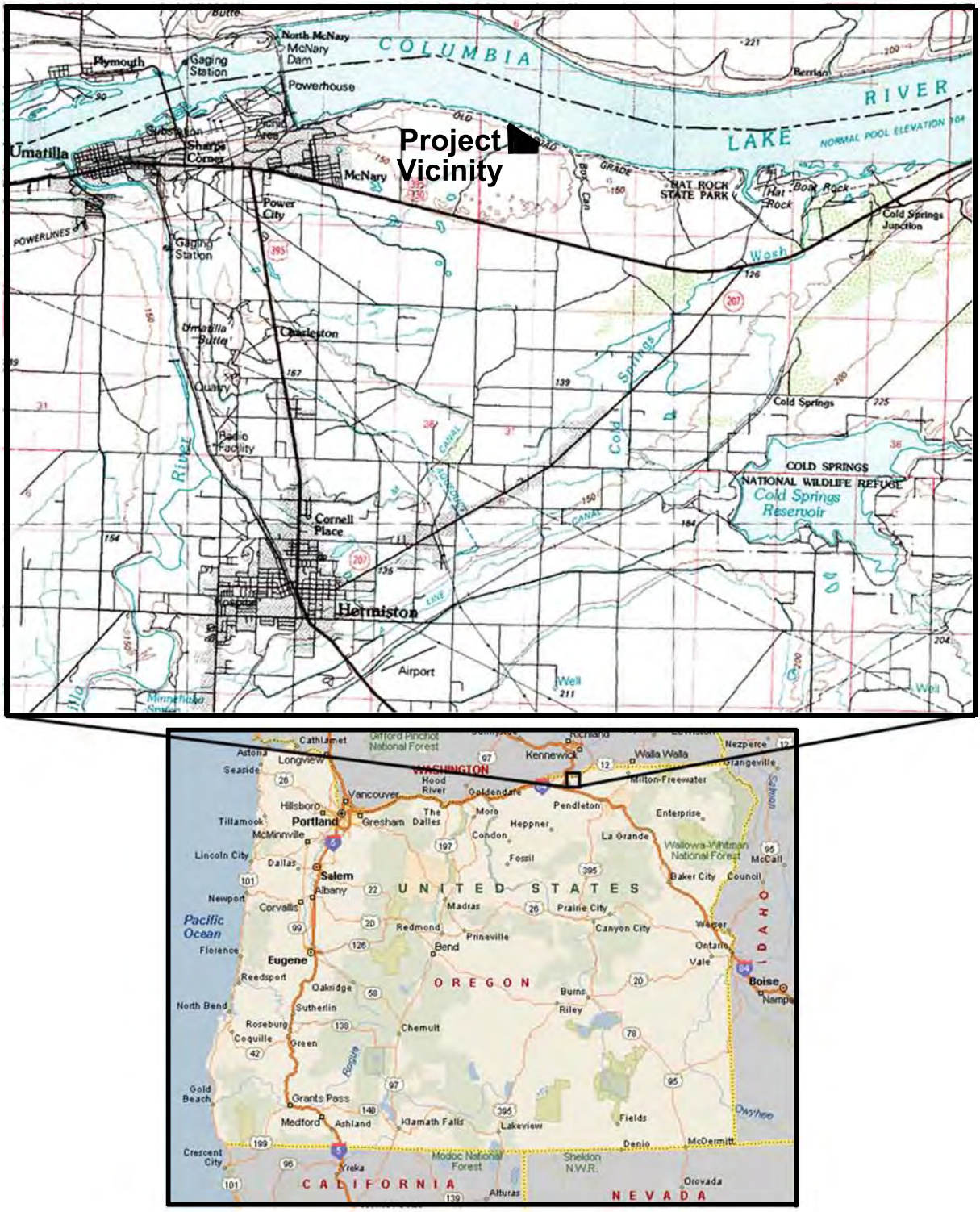
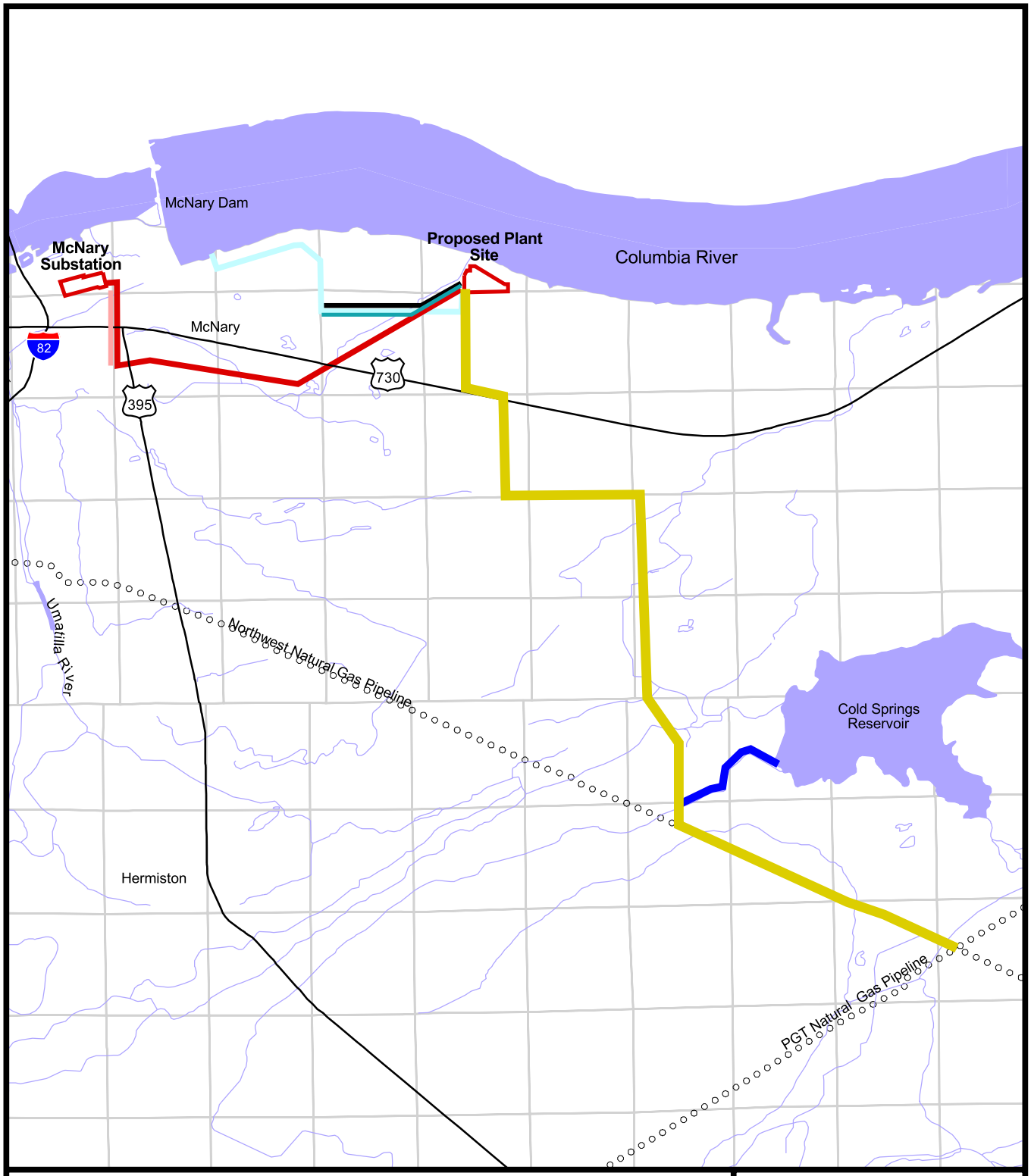


Wanapa Energy Center EIS

Figure 1.1-1

Project Location



Legend

- Potable Water / Sanitary Sewer Lines
- Natural Gas Supply and Plant Discharge Water Pipeline
- Plant Discharge Water Lateral Pipeline
- Lower Monumental-McNary Transmission Line Relocation
- Single Circuit Electrical Transmission Line
- Water Supply Pipeline
- Plant Access Road

N W E S

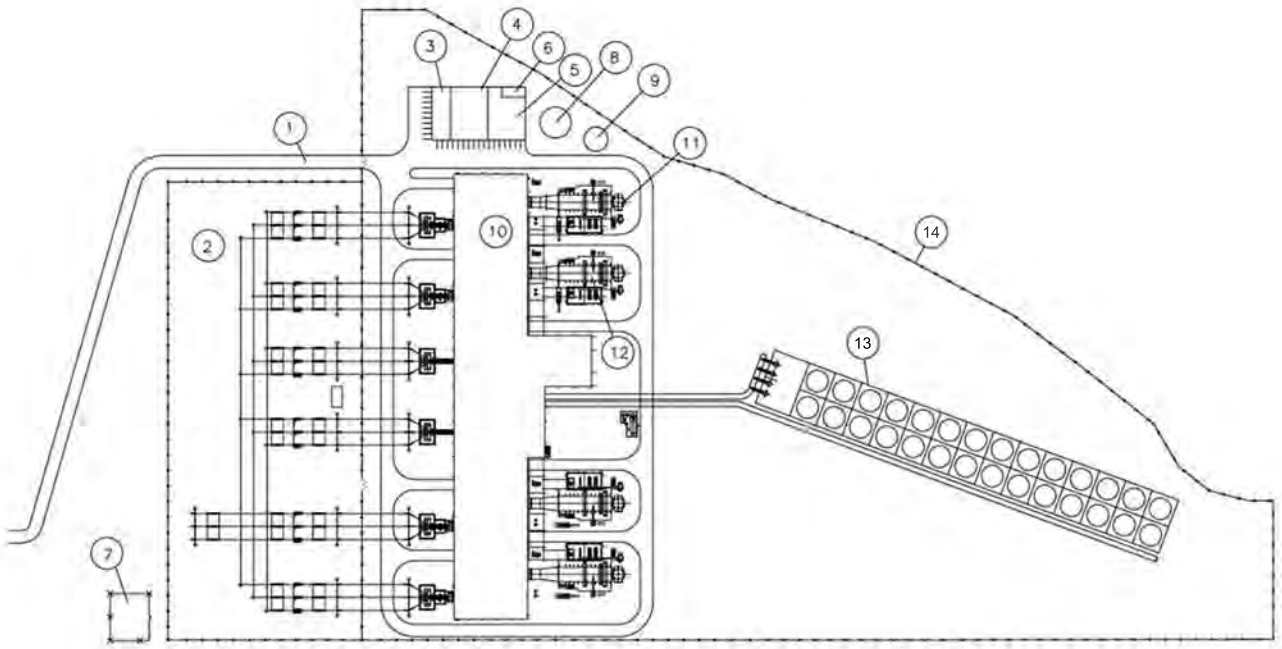
0 4000 8000 Feet

Wanapa Energy Center EIS

Figure 2.3-1

Proposed Action

FACILITIES LEGEND	
PT #	DESCRIPTION
1	ACCESS ROAD
2	SWITCHYARD
3	ADMINISTRATION BUILDING
4	WAREHOUSE/MAINTENANCE
5	WATER TREATMENT BUILDING
6	DIESEL FIRE PUMPS
7	SITE GAS METERING & CONDITIONING AREA
8	RAW WATER STORAGE TANK
9	DEMINERALIZED WATER STORAGE TANK
10	TURBINE BUILDING
11	EXHAUST STACK
12	HEAT RECOVERY STEAM GENERATOR
13	COOLING TOWER
14	SITE SECURITY FENCE



Wanapa Energy Center EIS

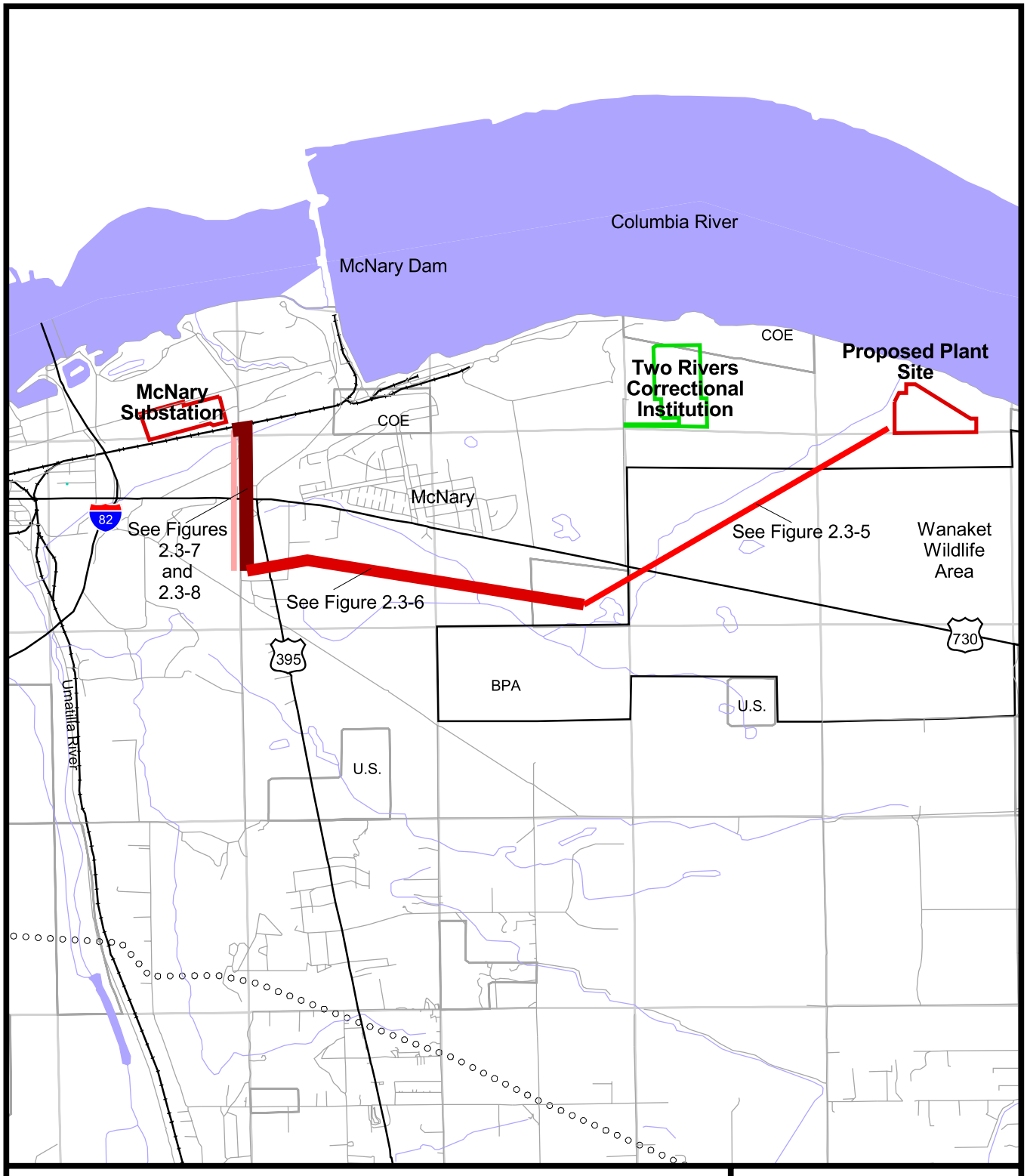
Figure 2.3-2

Plant Site

Wanapa Energy Center EIS

Figure 2.3-3

Three-dimensional Ground Level View of Plant Facilities



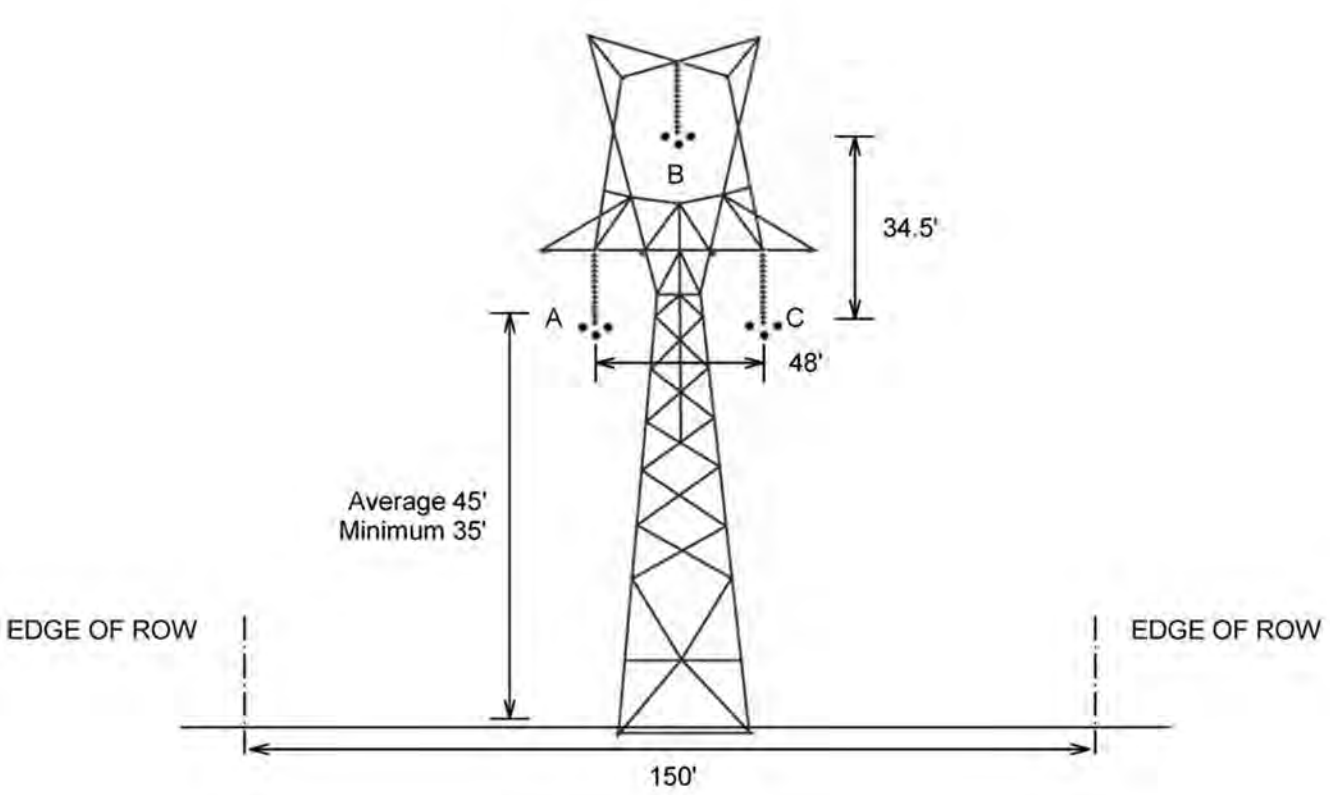
Wanapa Energy Center EIS

Figure 2.3-4

Proposed Action Electrical Transmission Line Route

11/24/04

Proposed Wanapa-McNary 500-kV Line
Voltage: 540 kV (average), 550 kV (maximum)
Peak current: 1445 (proposed)
Conductors: 3 x 1.300 in., 17.04 in. spacing



Wanapa Energy Center EIS

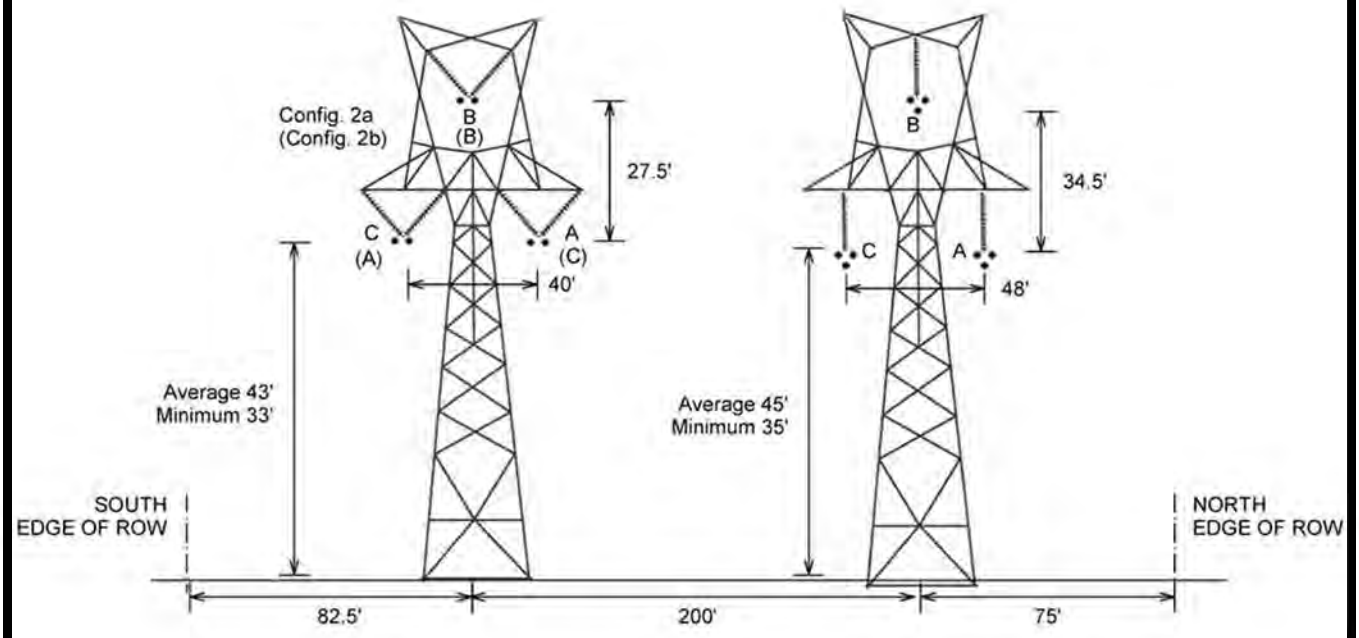
Figure 2.3-5

Configurations for the Proposed Wanapa-McNary 500-kV Line Proposed Line with No Parallel Lines

Source: BPA, 2003.

Existing Lower Monumental-McNary 500-kV Line
Voltage: 540-kV (average), 550-kV (maximum)
Peak current: 1868/1532 A (existing/proposed)
Conductors: 2 x 1.602 in., 18 in. spacing

Proposed Wanapa-McNary 500-kV Line
Voltage: 540 kV (average), 550 kV (maximum)
Peak current: 1445 (proposed)
Conductors: 3 x 1.300 in., 17.04 in. spacing



Source: BPA, 2003.

Wanapa Energy Center EIS

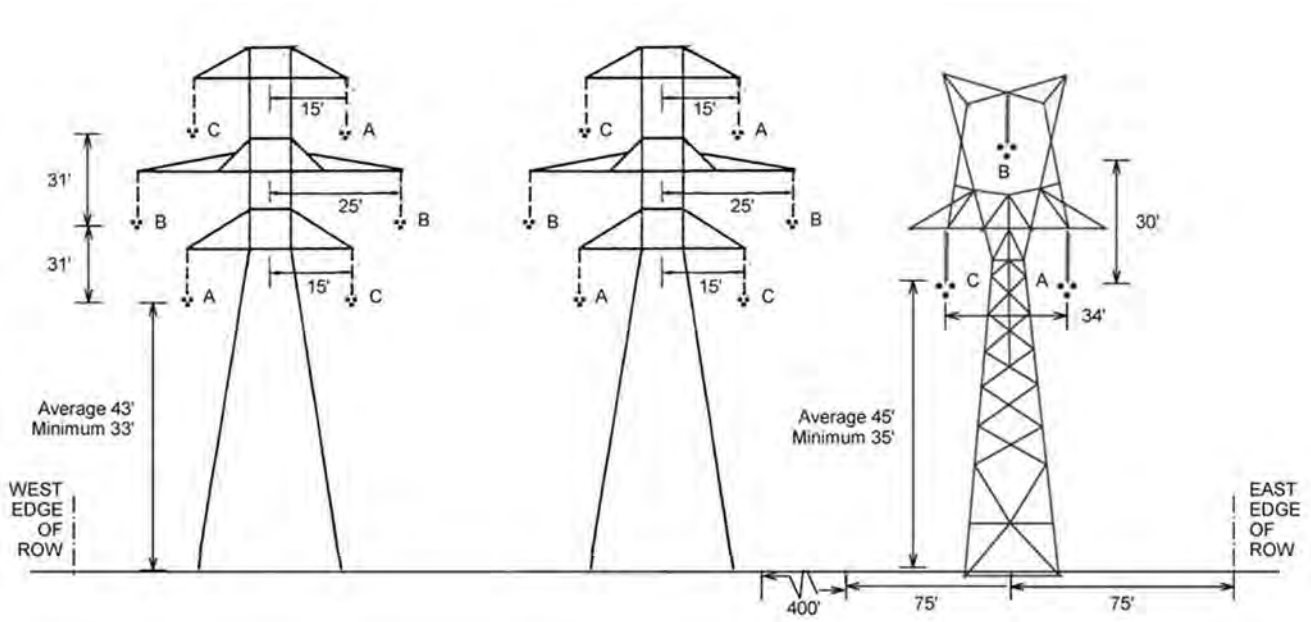
Figure 2.3-6

Configurations for the Proposed Wanapa-McNary 500-kV Line Proposed Line with One Parallel Line

Existing McNary-Coyote (Slatt)/
Calpine-McNary 500-kV Double-Circuit
Voltage: 540-kV (average), 550-kV (maximum)
Peak current: -1733/591 A (existing)
-1803/591 A (proposed)
Conductors: 3 x 1.302 in., 17.04 in. spacing

Alternative 1 BPA 500-kV line with
relocated Lower Monumental-McNary 500-kV Line
Voltage: 540-kV (average), 550-kV (maximum)
Peak current: 1532 A (proposed)
Conductors: 3 x 1.300 in., 17.04 in. spacing

Replacement of Lower Monumental-McNary 500-kV Line with
Proposed Wanapa-McNary 500-kV Line
Voltage: 540-kV (average), 550-kV (maximum)
Peak current: 1868/1445 A (existing/proposed)
Conductors: 3 x 1.302 in., 17.04 in. spacing

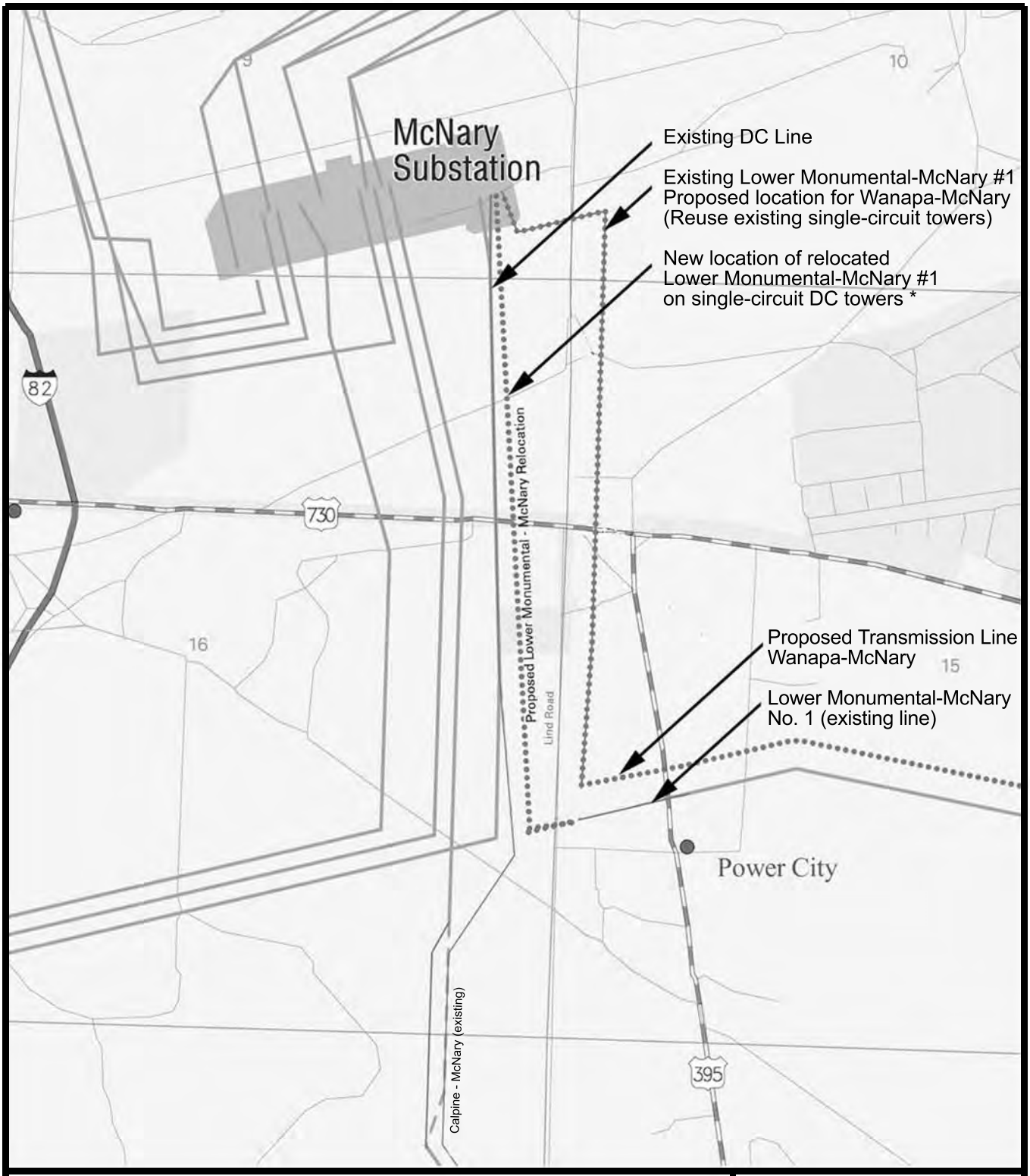


Wanapa Energy Center EIS

Figure 2.3-7(a)

Configurations for Alternative 1 Wanapa-McNary 500-kV Line Proposed Line with Two Parallel Lines

Source: BPA, 2003.



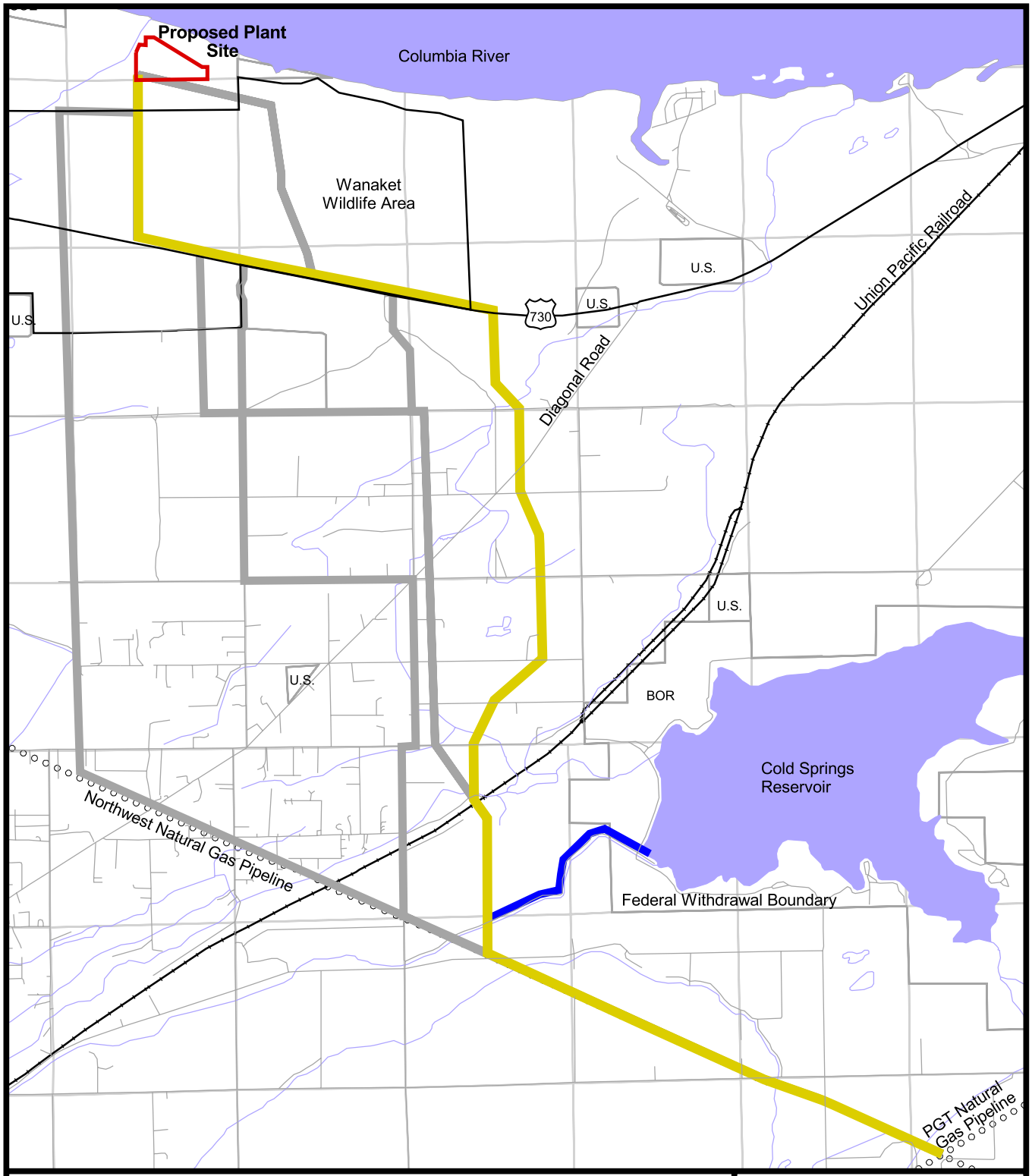
* See page 2.4.2 for description of optional transmission structure for Proposed Action and Line Alternative 1.

Source: BPA, 2003.

Wanapa Energy Center EIS

Figure 2.3-8

Electrical Transmission Line Modifications at McNary Substation to Accommodate the Wanapa Energy Center Project



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

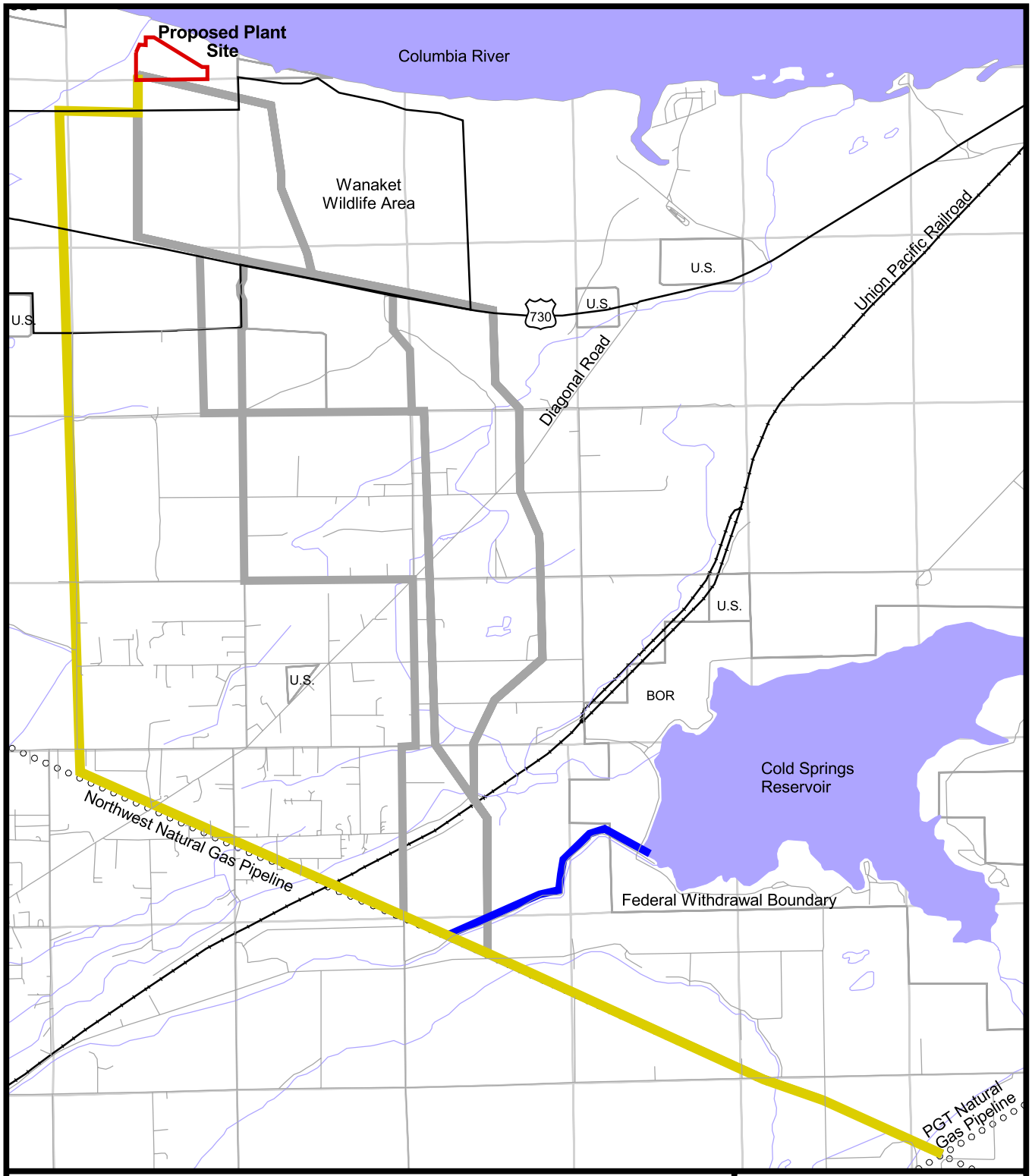
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-1

Alternative 1 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

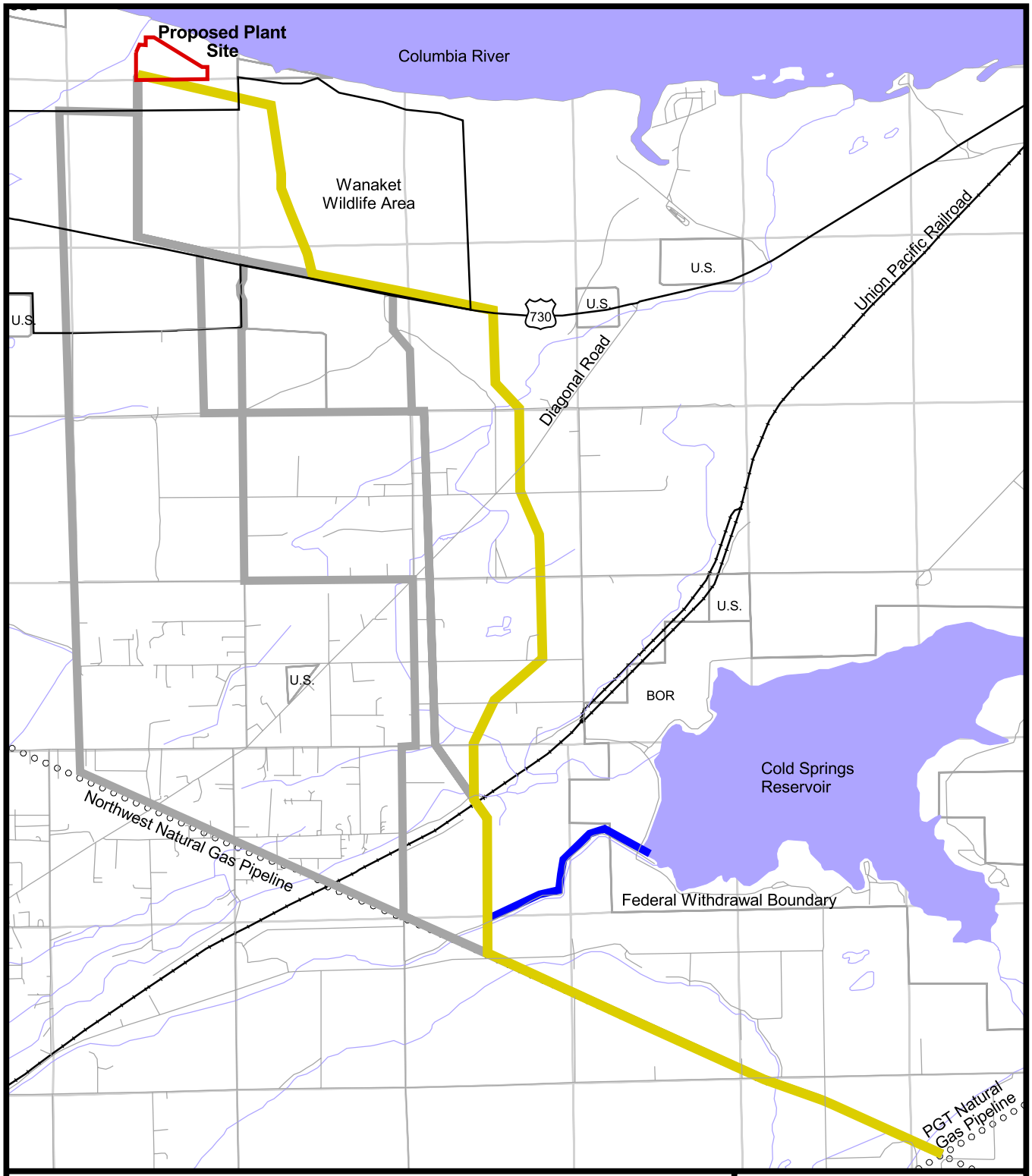
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-2

Alternative 2 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

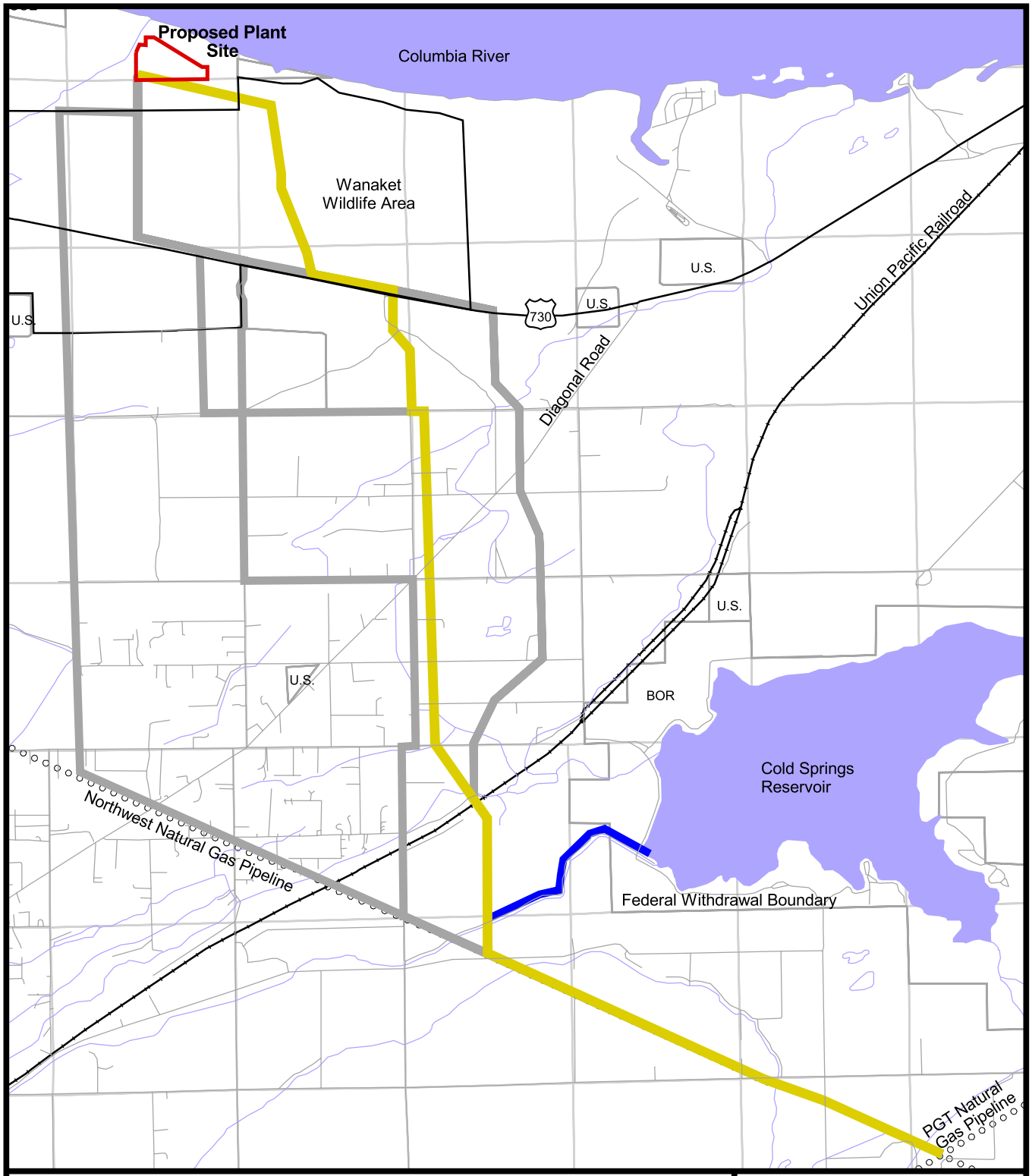
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-3

Alternative 3 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

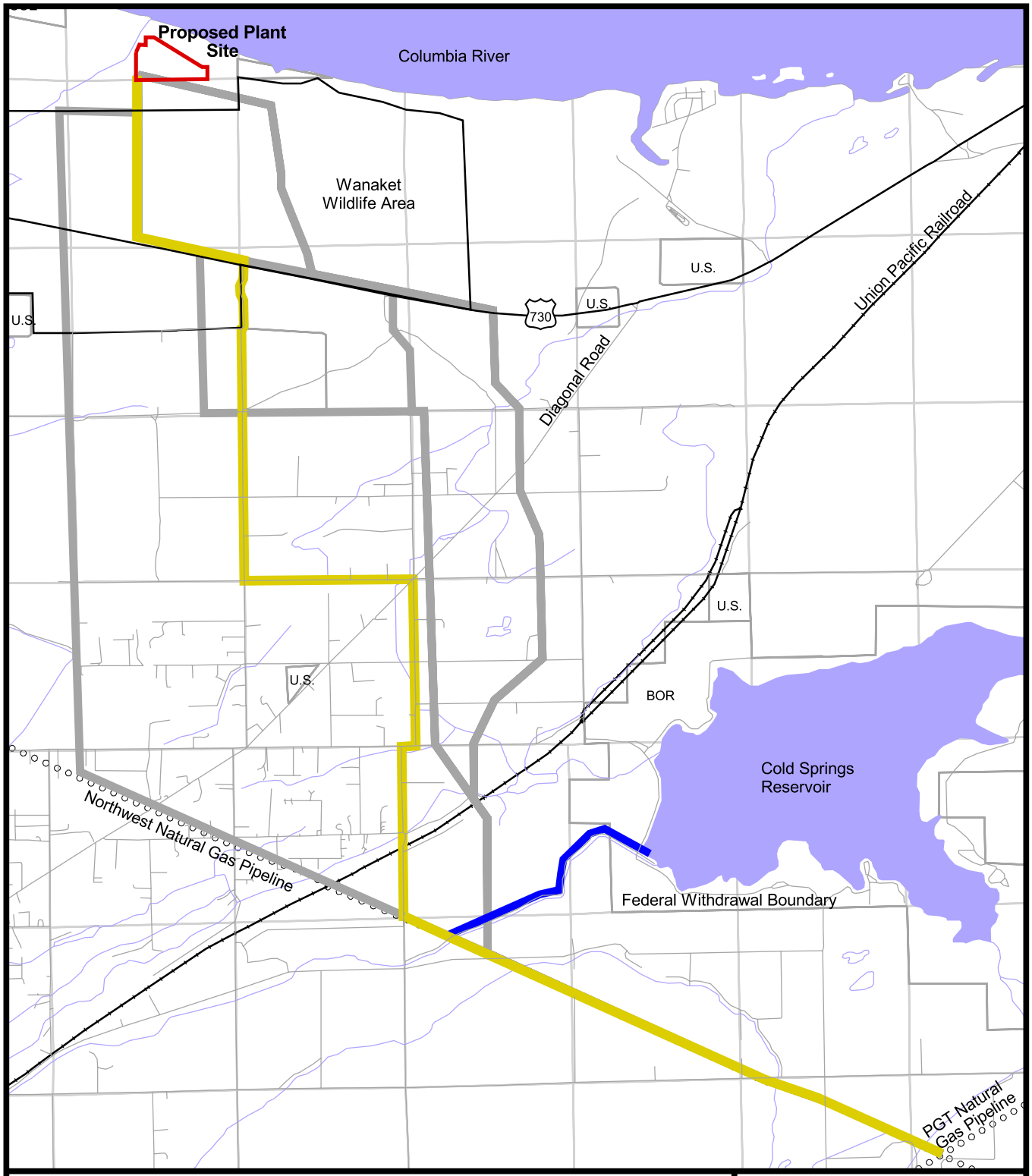
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-4

Alternative 4 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

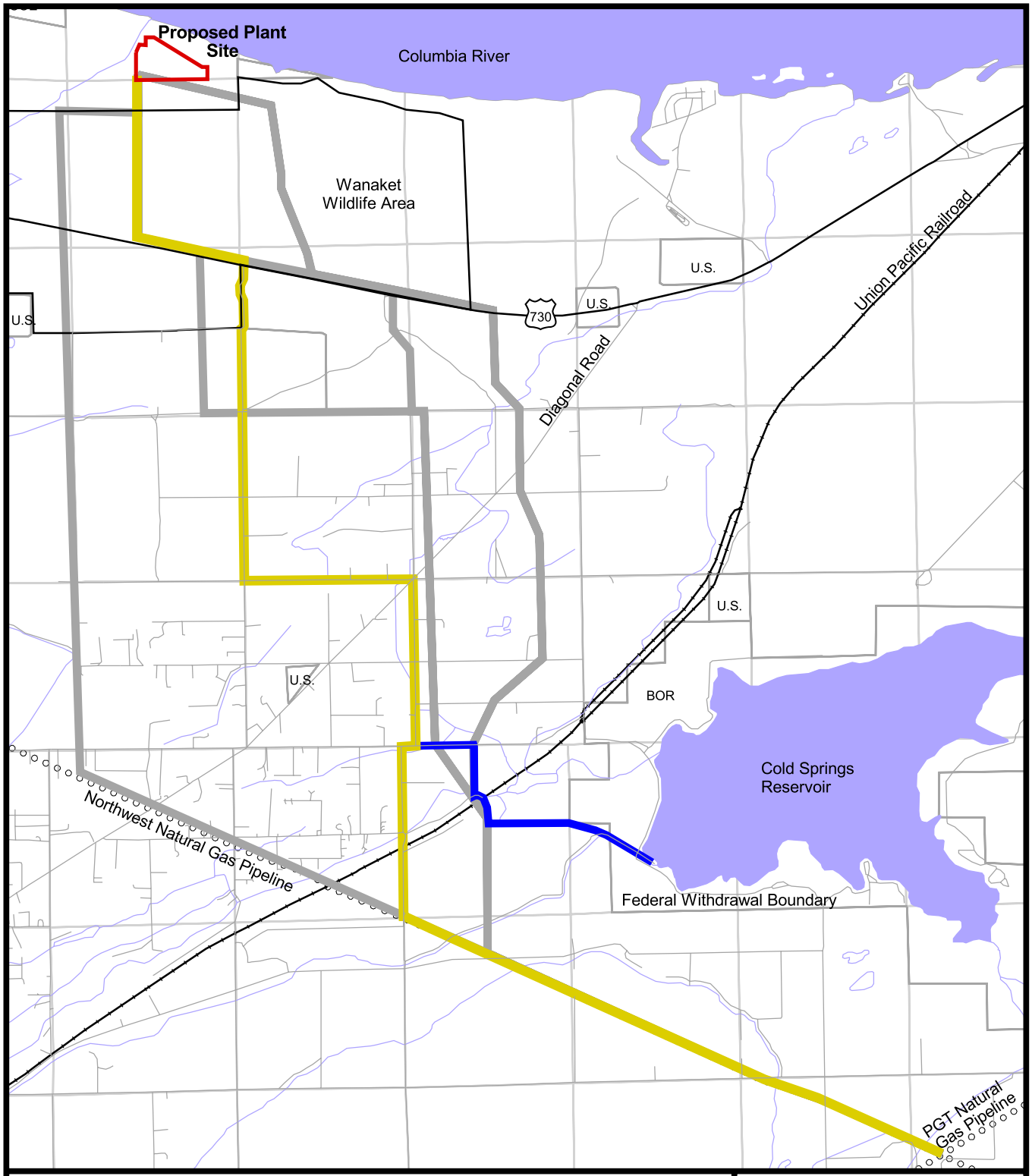
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-5

Alternative 5 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Alternative 1 Natural Gas Supply and Plant Discharge Water Pipelines

Plant Discharge Water Lateral Pipeline

N
W
E
S

0 4000 8000 Feet

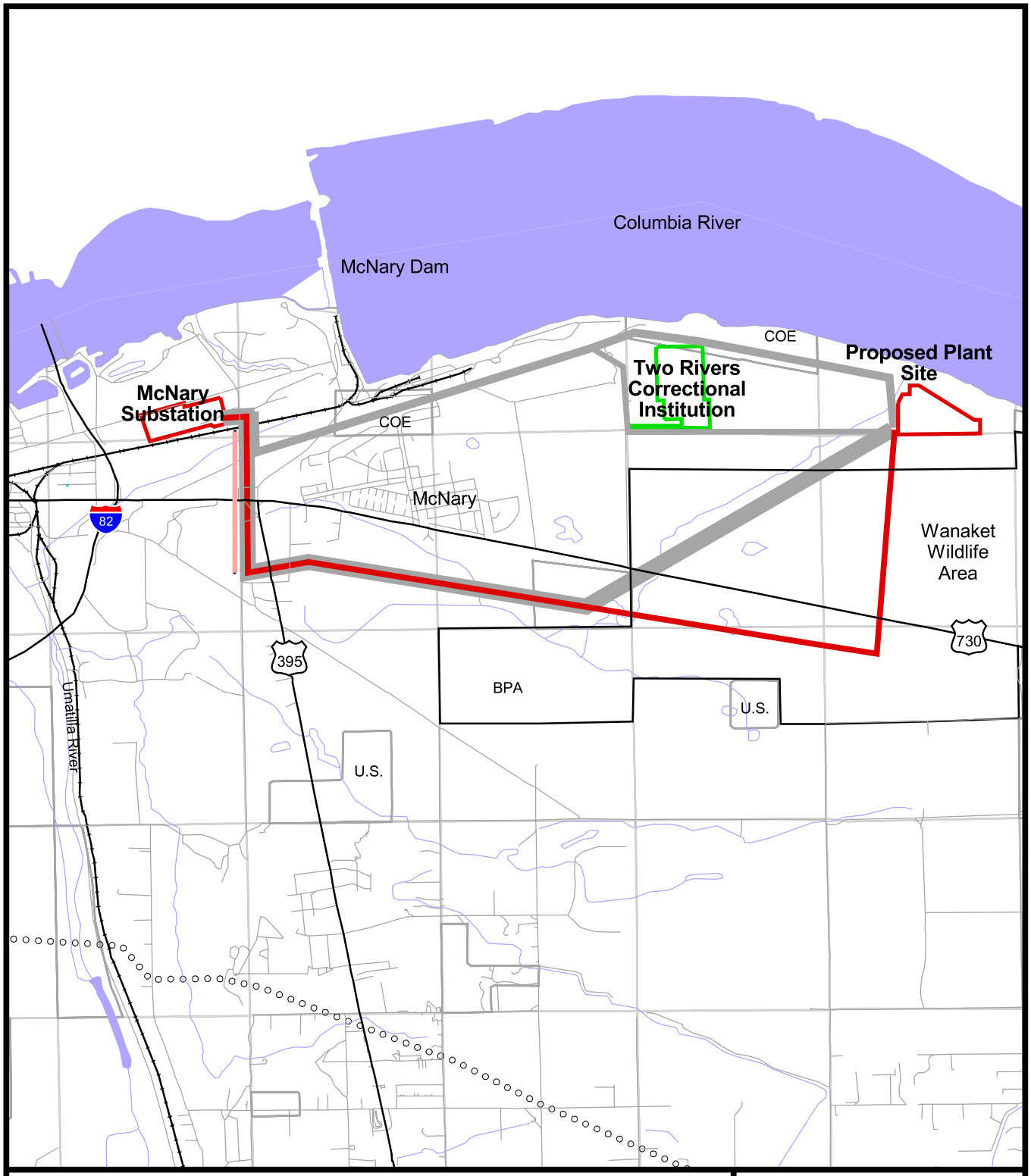
Source: ENSR, 2003.

Wanapa Energy Center EIS

Figure 2.4-6

Alternative 6 Natural Gas Supply/Plant Discharge Water Pipeline Routes

11/11/04



Legend

Single Circuit Electric Transmission Line

Lower Monumental-McNary Transmission Line Relocation

N W E S

0 4000 8000 Feet

Wanapa Energy Center EIS

Figure 2.4-7

Alternative 1 Electrical Transmission Line Route

12/1/04

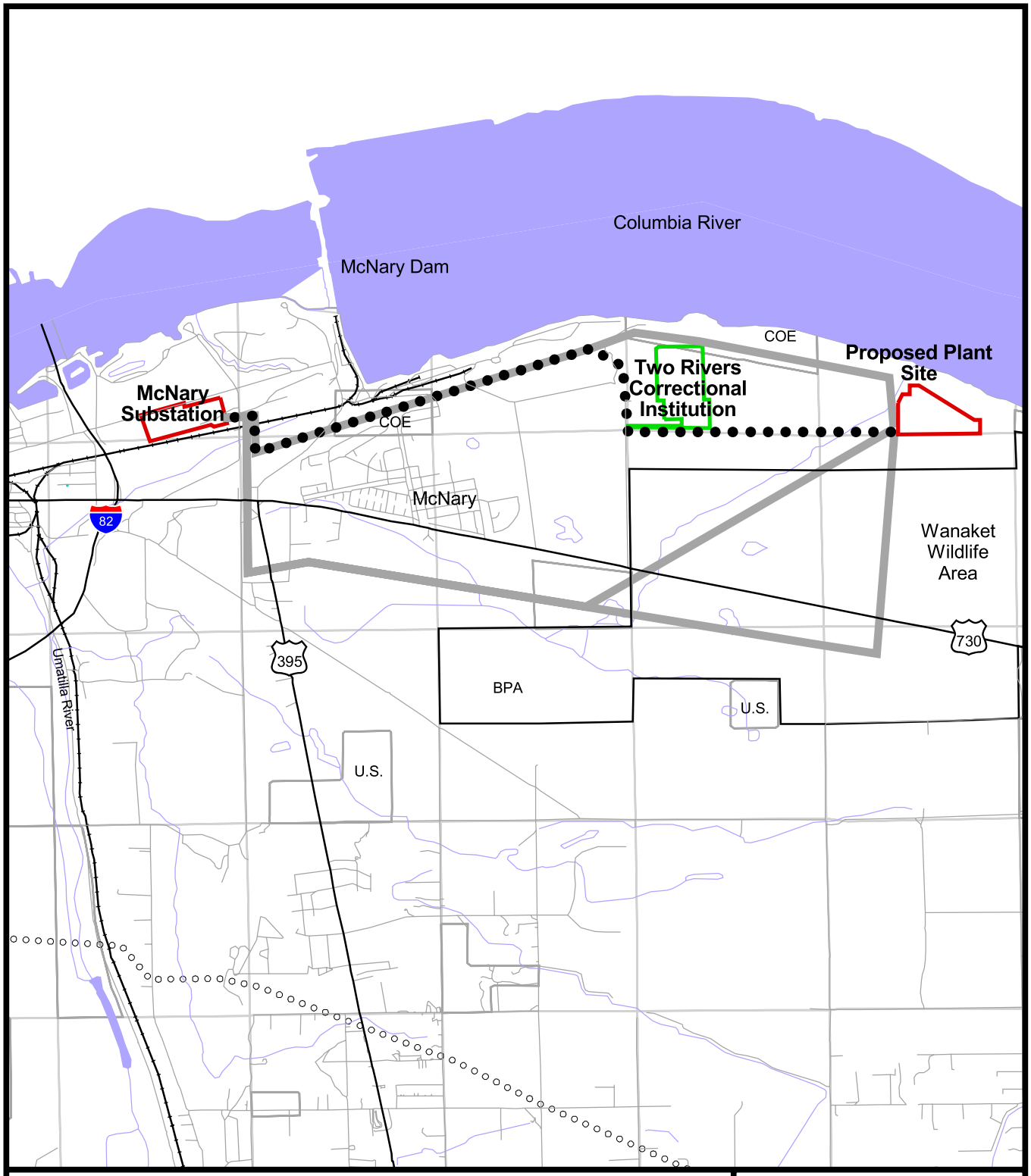


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Figure 2.4-8

Alternative 2 Electrical Transmission Line Route

11/11/04

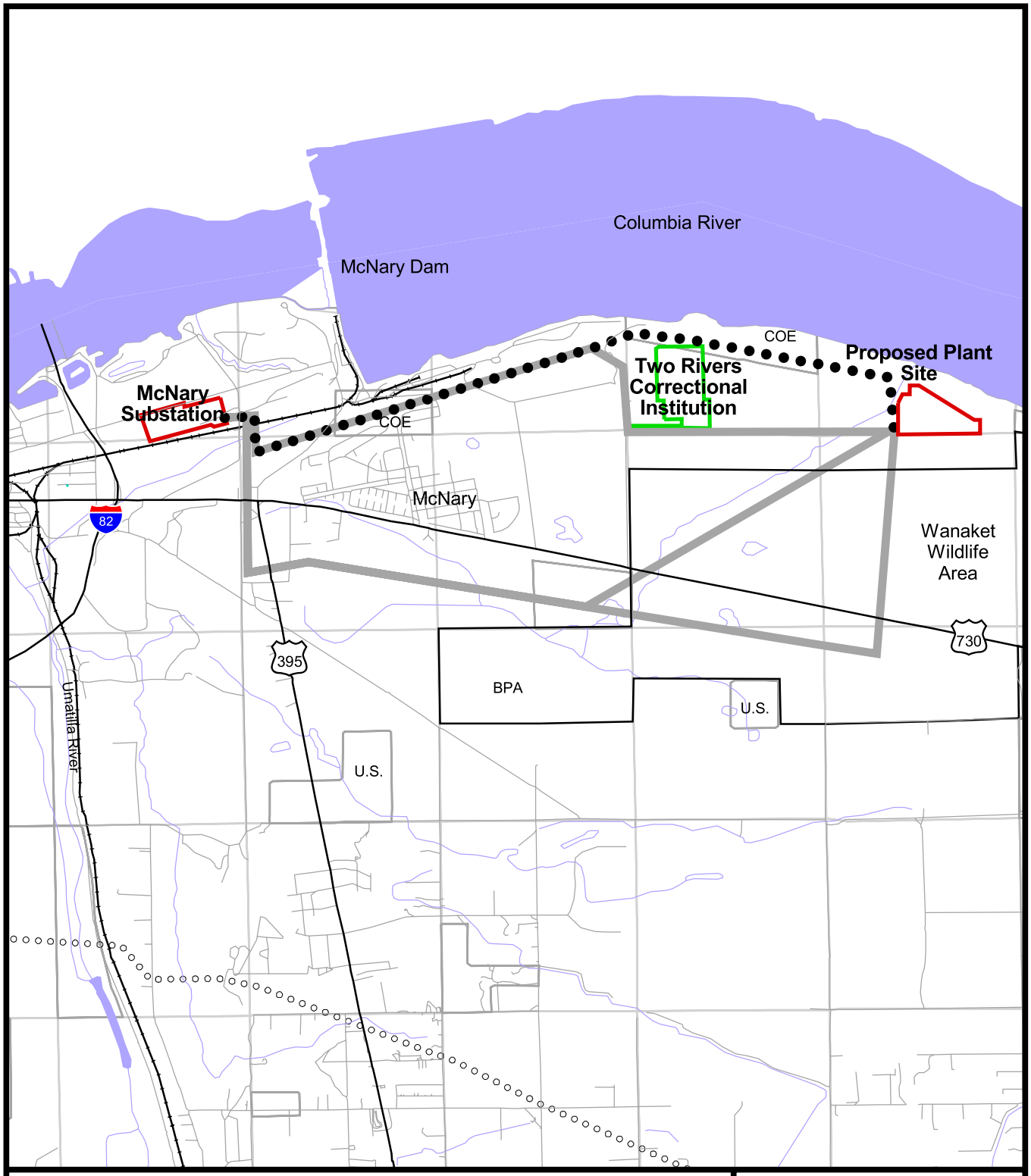
STRUCTURE TYPE	Single circuit 500 kV tubular
RIGHT-OF-WAY WIDTH	150 feet
AREA OF BASE	100 square feet
TYPICAL HEIGHT	135 feet
NUMBER OF STRUCTURES PER MILE (APPROX.)	4.8

Wanapa Energy Center EIS

Figure 2.4-9

Single Shaft Steel Pole Electrical Transmission Structure

Source: BPA, 2003.



Legend

Single circuit line (3.7 mi.)

N
W E
S

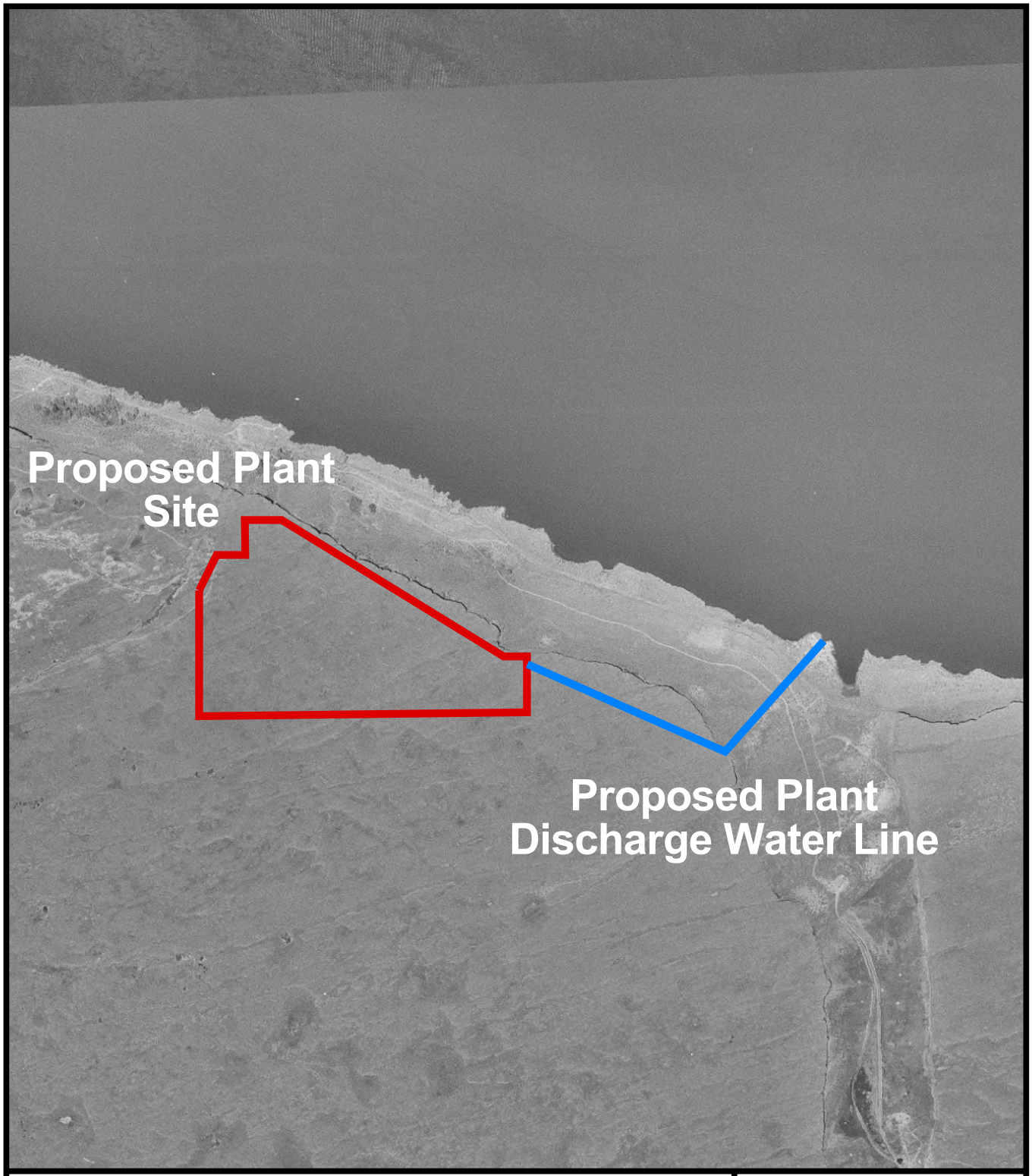
0 4000 8000 Feet

Wanapa Energy Center EIS

Figure 2.4-10

Alternative 3 Electrical Transmission Line Route

11/11/04



Legend

Plant Water Discharge Line

Proposed Plant Site

N
W
E
S

0 1000 2000 Feet

Wanapa Energy Center EIS

Figure 2.4-11

Plant Discharge Water Line

11/11/04

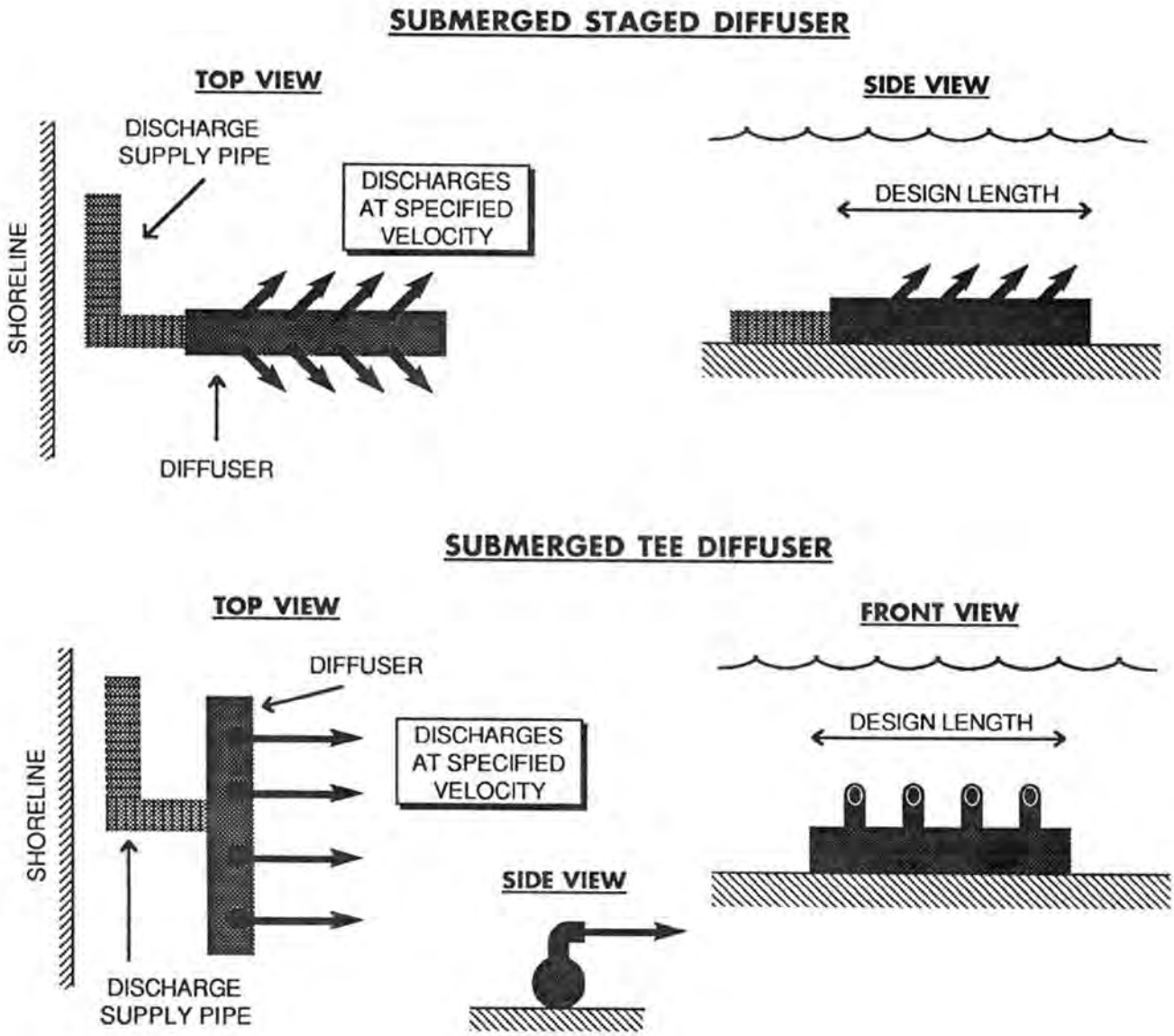


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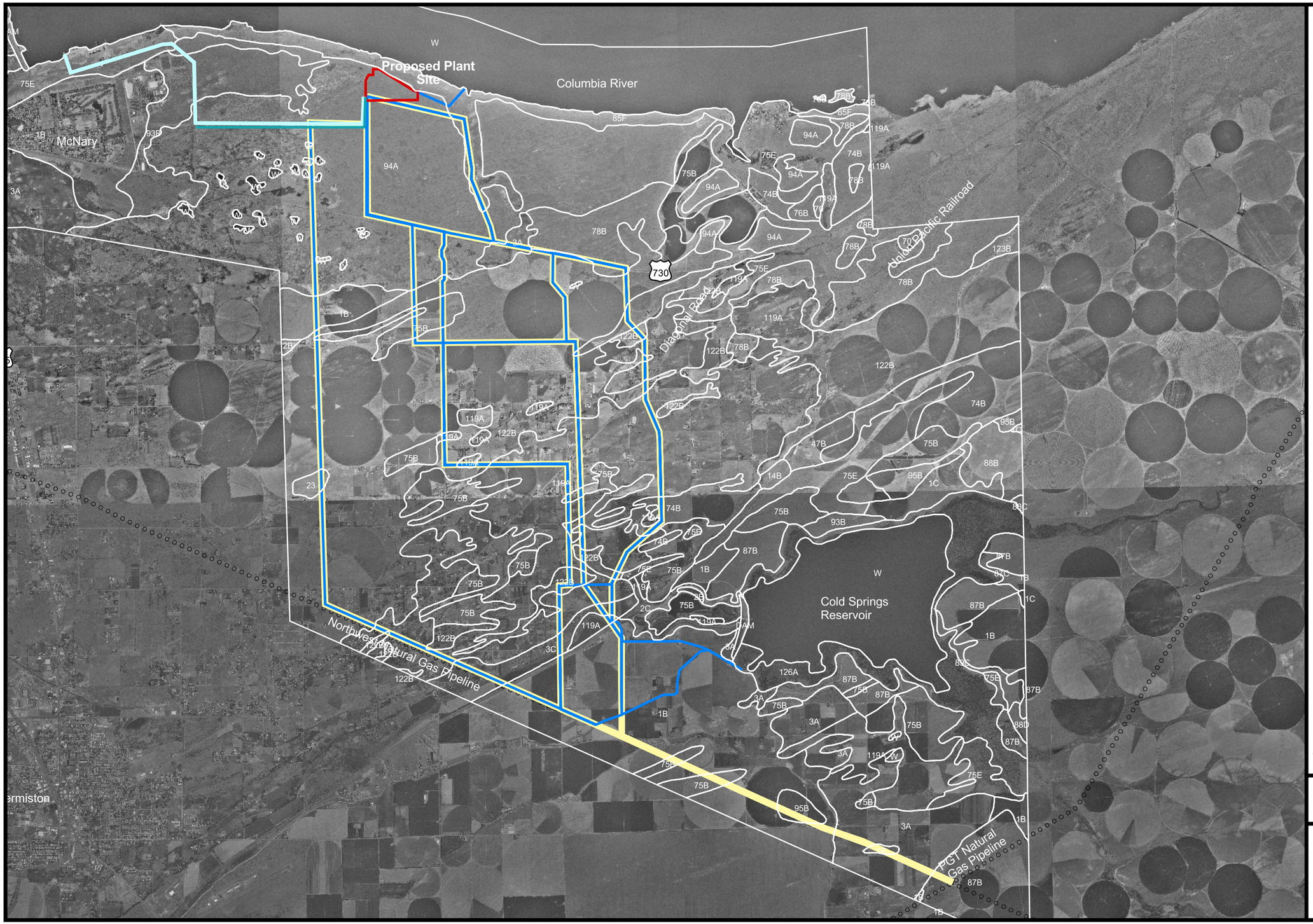
Figure 2.4-12

Typical Diffuser Designs



Legend

Number-Name

1B-Adkins Fine Sandy Loam, 0-5% slopes
1C-Adkins Fine Sandy Loam, 5-25% slopes
2B-Adkins Fine Sandy Loam, gravelly substratum, 0-5% slopes
2C-Adkins Fine Sandy Loam, gravelly substratum, 5-25% slopes
3A-Adkins Fine Sandy Loam, loamy wet, 0-3% slopes
3C-Adkins Fine Sandy Loam, loamy wet, 3-15% slopes
14B-Burbank Loamy Fine Sand, 0-5% slopes
DAM-Concrete Dam
23-Dune Land
47B-Koehler Loamy Fine Sand, 0-5% slopes
70-Pits, Gravel
74B-Quincy Find Sand, 0-5% slopes
75B-Quincy Loamy Fine Sand, 5-25% slopes
75E-Quincy Loamy Fine Sand, 5-25% slopes
76B-Quincy Loamy Fine Sand, gravelly substratum, 0-5% slopes
78B-Quincy-Rock Outcrop Com;lex, 1-20% slopes
85F-Rock Outcrop-Xeric Torriorthents Complex, 10-70% slopes
87B-Sagehill Fine Sandy Loam, 2-5% slopes
87C-Sagehill Fine Sandy Loam, 5-12% slopes
89C-Shano Silt Loam, 7-12% slopes
88D-Shano Very Fine Sandy Loam, 2-7% slopes
88B-Shano Very Fine Sandy Loam, 7-12% slopes
88C-Shano Very Fine Sandy Loam, 12-25% slopes
93B-Starbuck Very Fine Sandy Loam, 2-20% slopes
94A-Starbuck-Rock Outcrop Complex, 0-5% slopes
95B-Taunton Fine Sandy Loam, 1-7% slopes
119A-Wanser Loamy Fine Sand, 0-3% slopes
W-Water
122B-Winchester Sand, 0-5% slopes
123B-Winchester-Quinton Complex, 0-5% slopes
126A-Xerofluvents, 0-3% slopes

Gas Pipeline Route Alternatives
Plant Discharge Water Pipeline Route Alternatives
Potable Water / Sanitary Sewer Lines
Water Supply Pipeline

0 2000 4000 Feet

Wanapa Energy Center EIS

Figure 3.2-1

Soils - Pipeline Route Alternatives

12/1/04

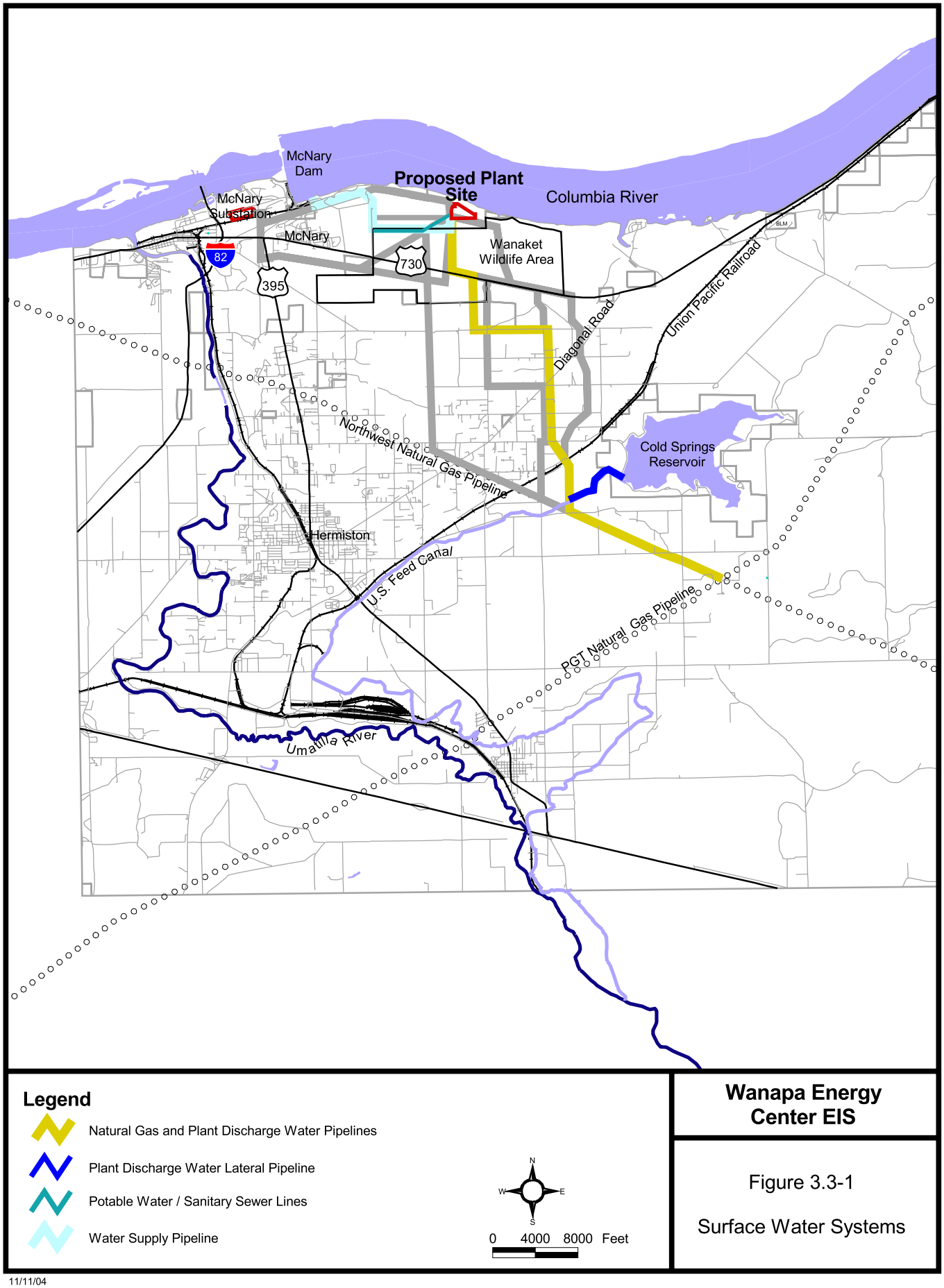


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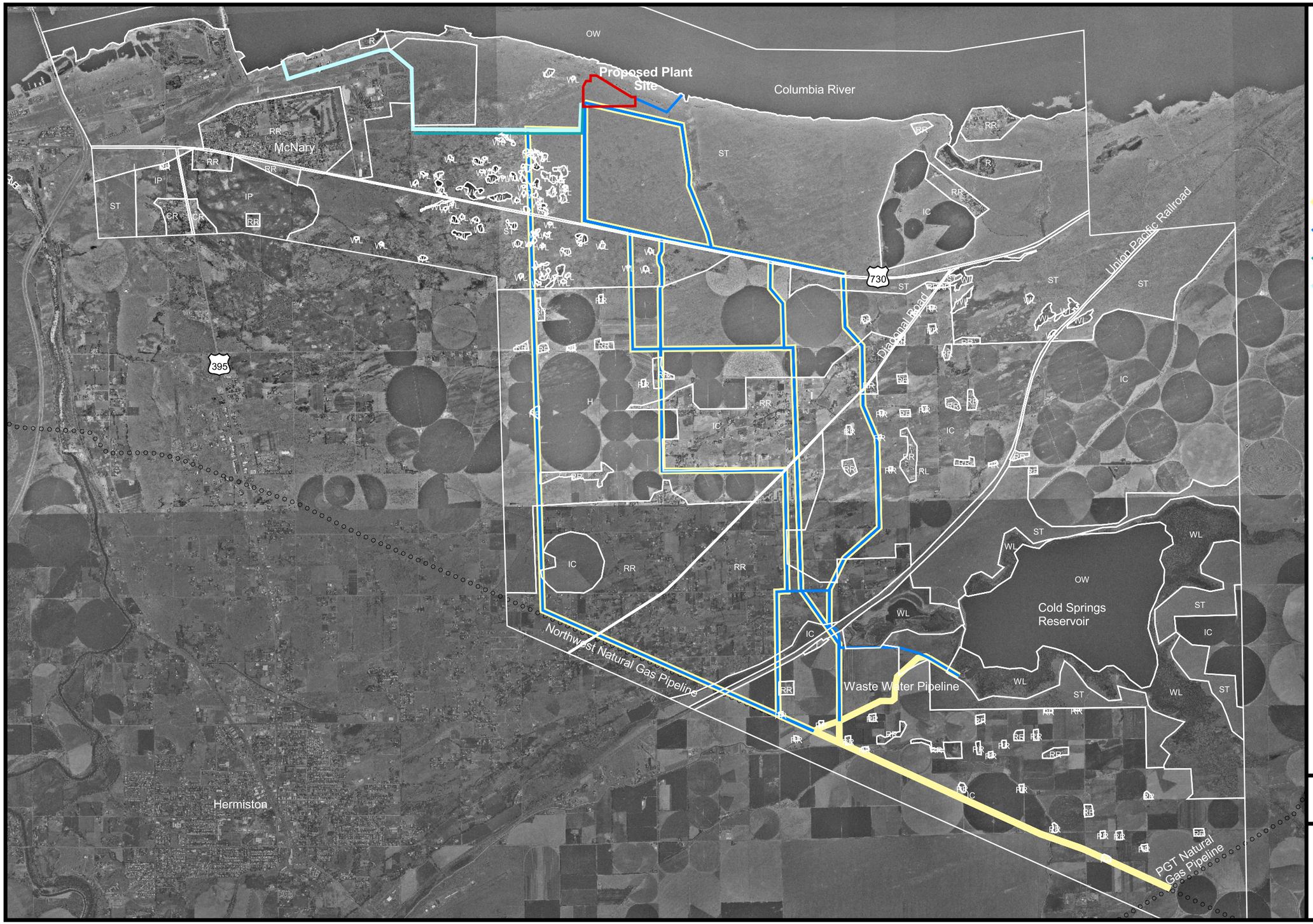
Figure 3.3-1

Surface Water Systems

11/11/04



Legend

Abbreviation-Name

CR - Commercial & Residential
H - Highway
I - Industrial
IC - Irrigated Cropland
IP - Irrigated Pasture
OW - Water
R - Recreation
RL - Railroad
RR - Rural Residential
ST - Shrub Steppe
WL - Wetland

Gas Pipeline Route Alternatives

Plant Discharge Water Pipeline Route Alternatives

Potable Water / Sanitary Sewer Lines

Water Supply Pipeline

N
W E
S

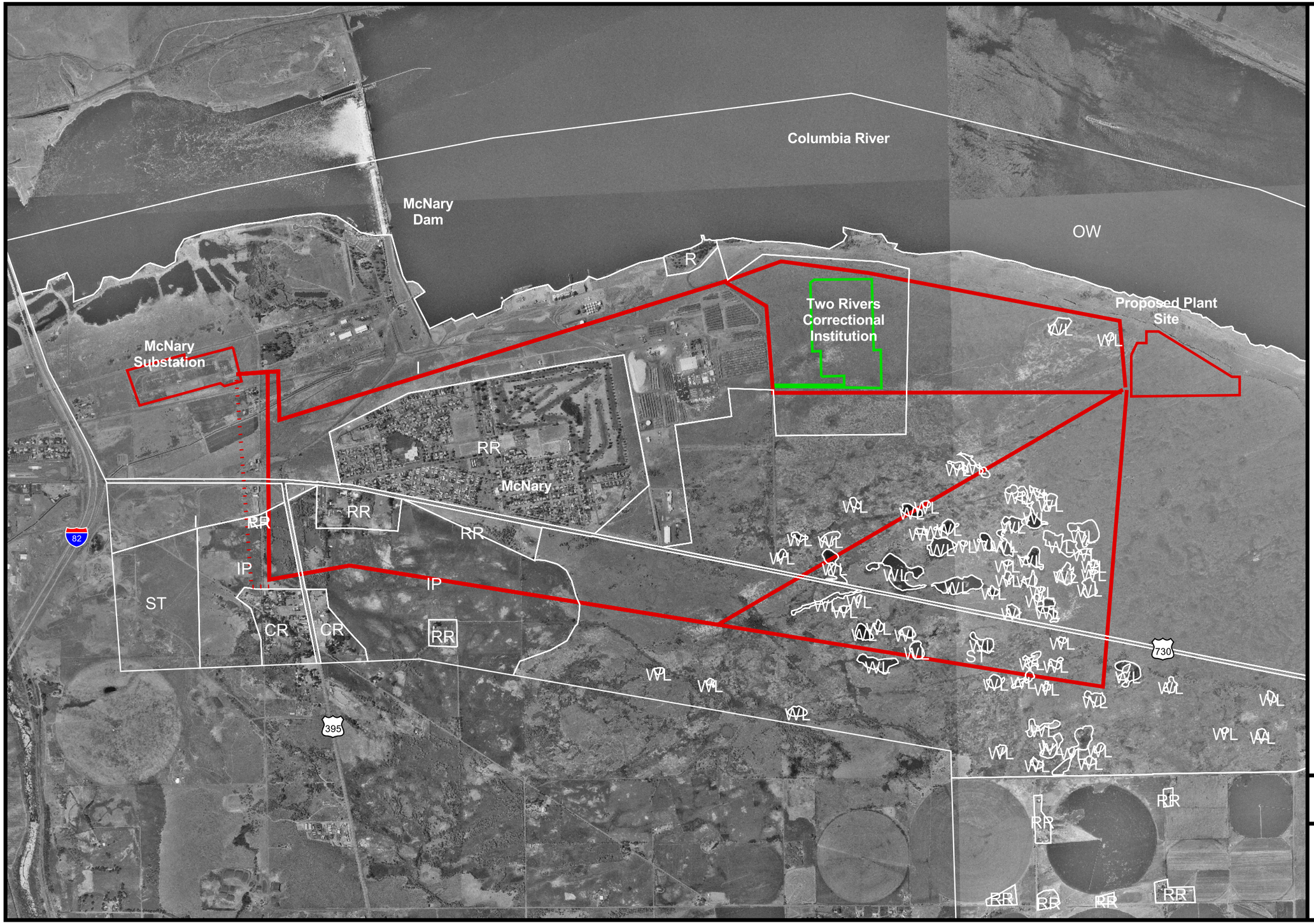
0 2000 4000 Feet

Wanapa Energy Center EIS

Figure 3.4-1

Land Cover - Pipeline Route Alternatives

12/1/04



Legend

Abbreviation-Name

CR - Commercial & Residential
H - Highway
I - Industrial
IC - Irrigated Cropland
IP - Irrigated Pasture
OW - Water
R - Recreation
RL - Railroad
RR - Rural Residential
ST - Shrub Steppe
WL - Wetland

Transmission Line Route Alternatives

Lower Monumental-McNary Transmission Line Relocation

N
W E
S

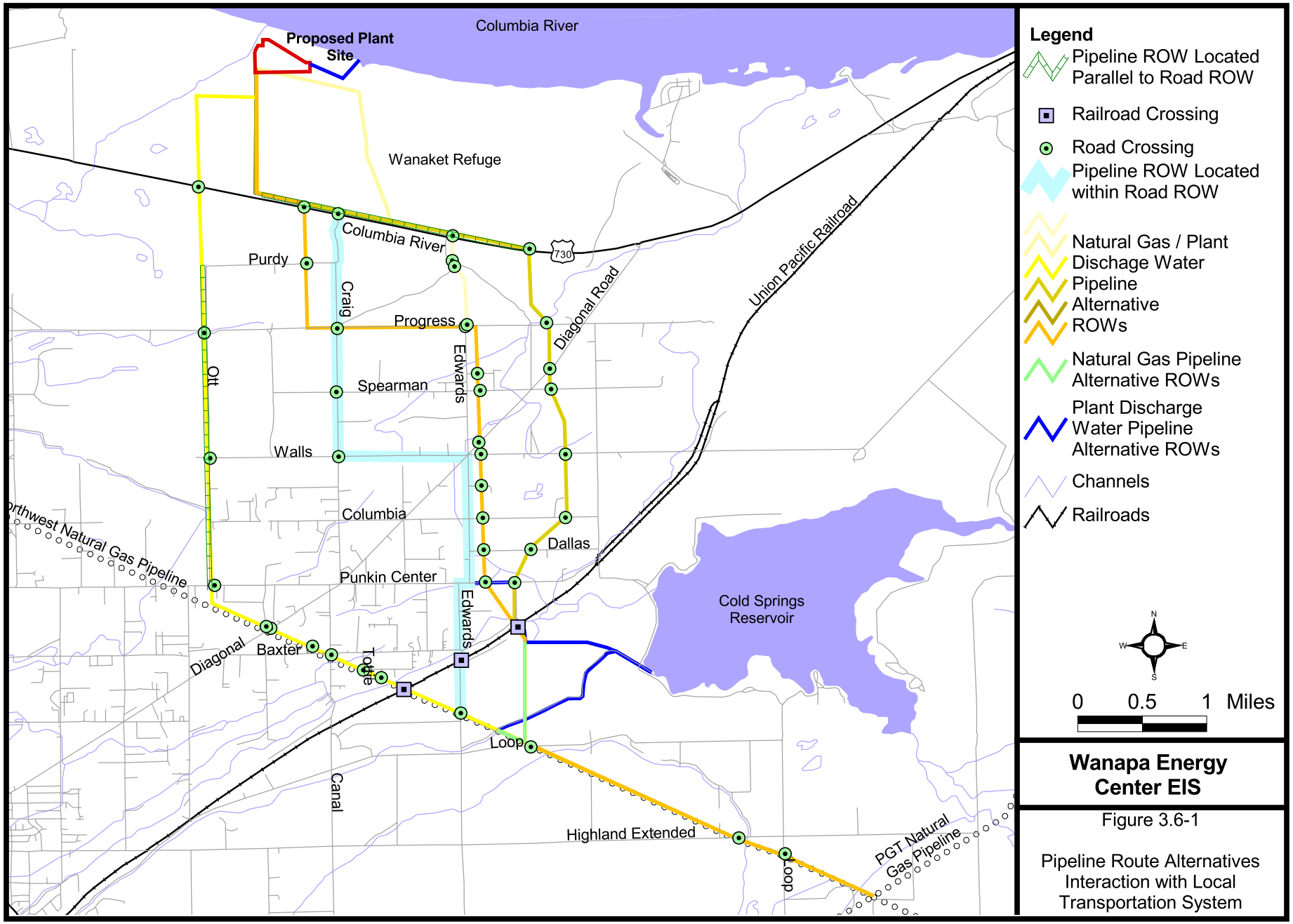
0 800 1600 Feet

Wanapa Energy Center EIS

Figure 3.4-2

Land Cover-Transmission Line Route Alternatives

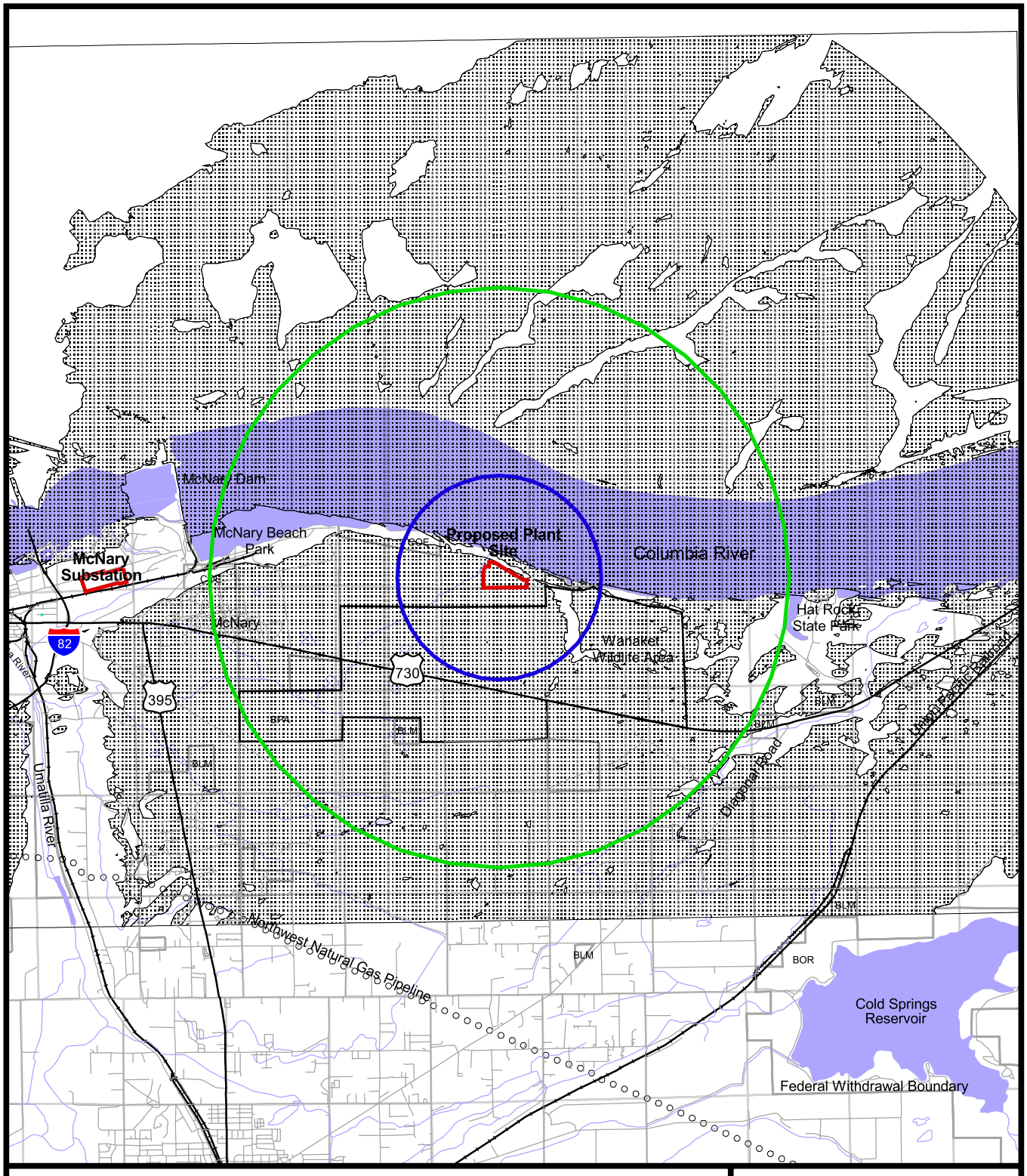
11/11/04



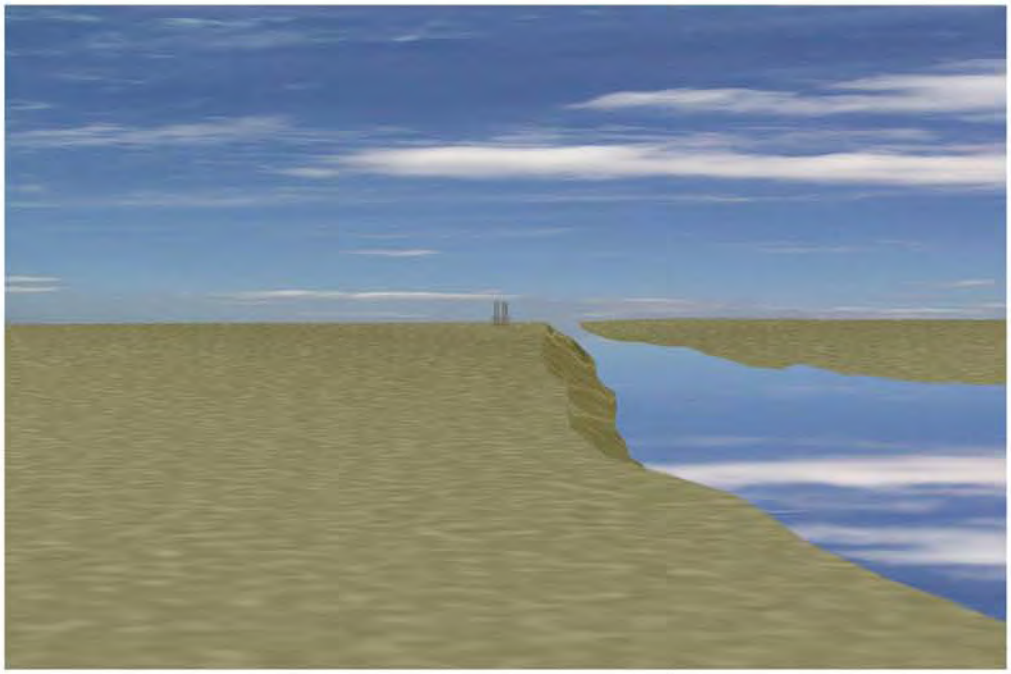
Wanapa Energy Center EIS

Figure 3.6-1

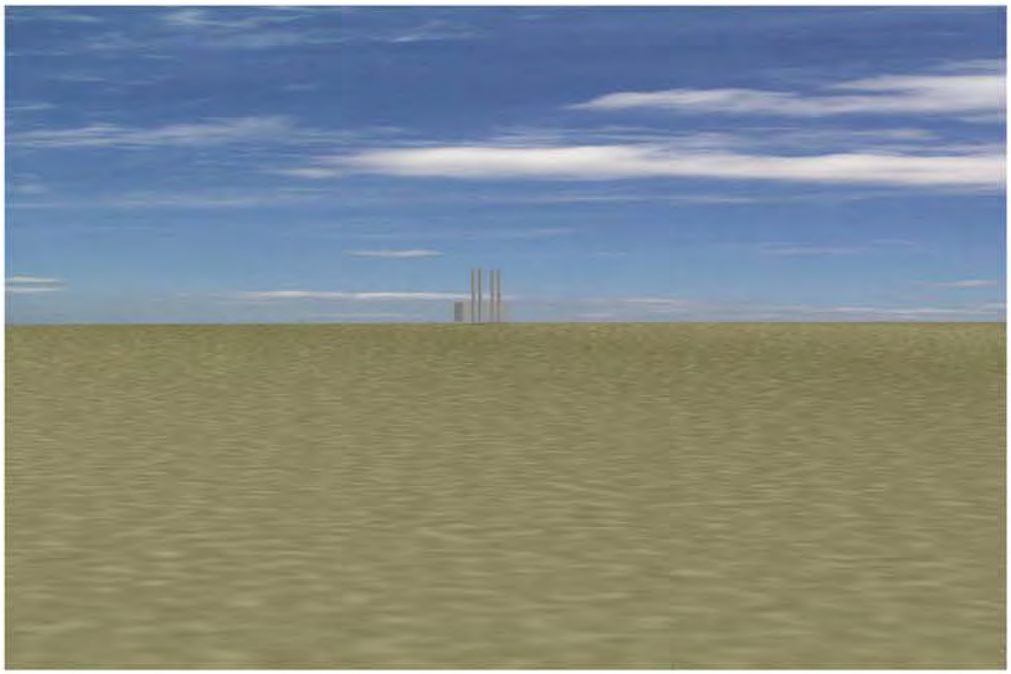
Pipeline Route Alternatives Interaction with Local Transportation System


McNary Dam
McNary Beach Park
Proposed Plant Site
McNary Substation
Columbia River
McNary
Hat Rock State Park
Wanaket Wildlife Area
82
730
395
BPA
BLM
Umatilla River
Oregon Road
Northwest Natural Gas Pipeline
BOR
Cold Springs Reservoir
Federal Withdrawal Boundary
Legend
The stacks are visible
The stacks are not visible
5,280 foot radius circle
15,000 foot radius circle
Source: ENSR, 2003.
N
W
E
S
0
4000
8000 Feet
Wanapa Energy Center EIS
Figure 3.7-1
Visibility to Generating Facility Stacks

11/11/04



View of Generating Structures from 15,000 feet



View of Generating Structures from 5,280 feet

Wanapa Energy Center EIS

Figure 3.7-2

Simulated Views of Generating Facilities

Legend

- Location of structure within 1/4 mile of pipeline route alternatives
- Gas Pipeline Route Alternatives
- Plant Discharge Water Pipeline Route Alternatives
- Potable Water / Sanitary Sewer Lines
- Water Supply Pipeline

N
W E
S

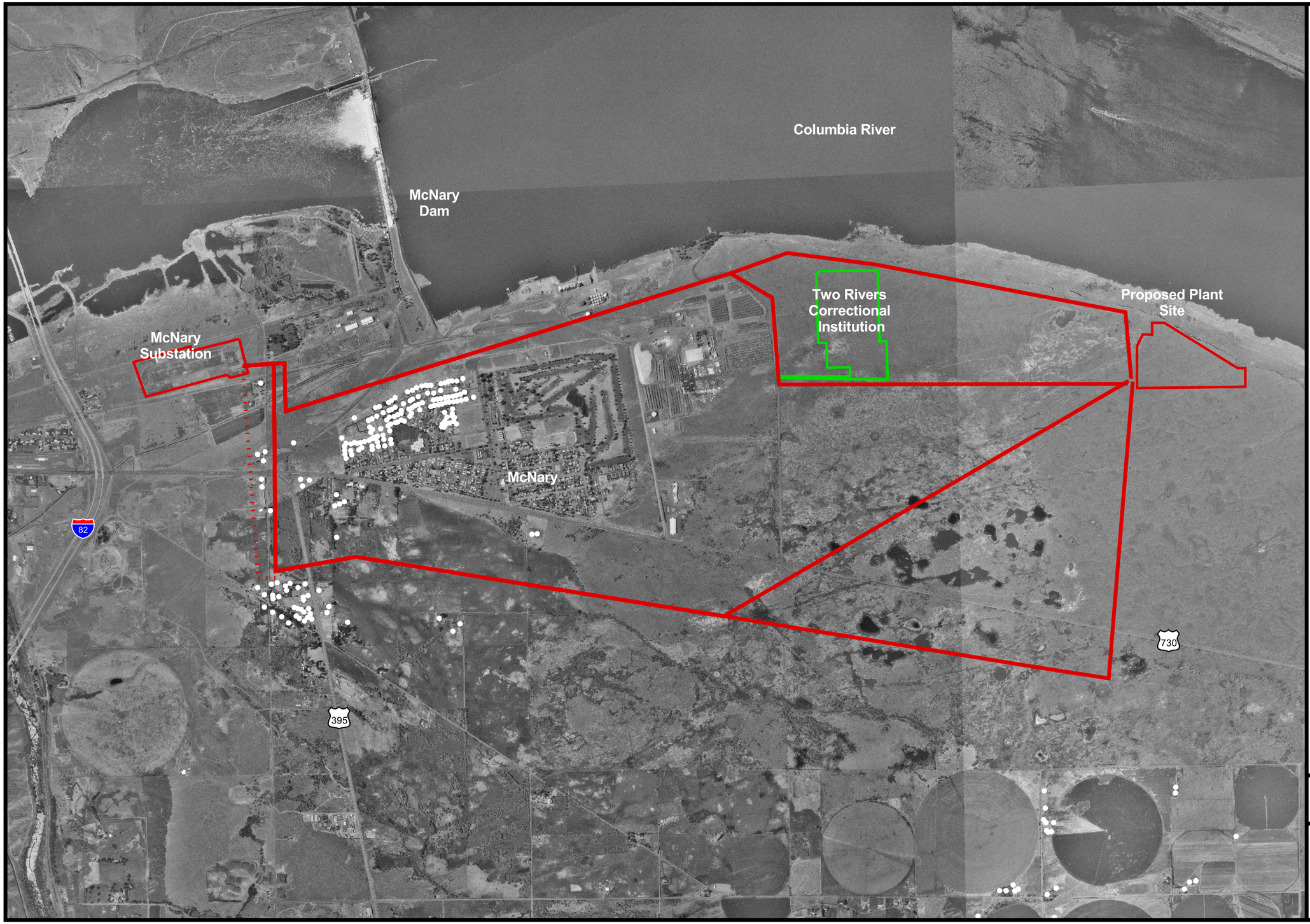
0 2000 4000 Feet

Wanapa Energy Center EIS

Figure 3.9-1

Structures
Pipeline Route Alternatives

12/1/04



Legend

- Location of structure within 1/4 mile of route alternatives
- Electrical Transmission Line Route Alternatives
- Lower Monumental-McNary Transmission Line Relocation

N
W E
S

0 800 1600 Feet

Wanapa Energy Center EIS

Figure 3.9-2

Structures
Plant Site to McNary Substation

11/11/04