

Chapter 2 – Proposed Action and Alternatives

2.1 Introduction

The proposed action analyzed in this EA is Reclamation’s authorization for SWDC to construct a new water intake structure at East Canyon Reservoir and pipeline crossing Reclamation lands. The EA will be used to determine the potential effects to the human environment and will serve to guide Reclamation’s decision, along with other pertinent information, whether to implement the proposed action.

If Reclamation decides to implement the proposed action, SWDC, after obtaining the appropriate authorizations or permits (Section 1.4), would be authorized to proceed with its proposed project. A new water intake would be constructed in East Canyon Reservoir and the necessary pipeline, powerline, pumping station, and booster station would be constructed in order to convey this water to an existing 30-inch pipeline, built by SWDC at the Morgan/Summit County line on the East Canyon Road.

The proposed action would be designed with the capacity to withdraw up to 12,500 acre-feet per year of water from East Canyon Reservoir into facilities already built or under construction. The 12,500 acre-feet is expected to be a combination of Federal and private water with the private water being subject to valid water rights granted by the state engineer.

If authorized to proceed, initially SWDC would construct, operate, and maintain this new system with the potential for WBWCD or Reclamation operating the system in the future.

A number of action alternatives have been identified and considered in preparing this EA, along with a no action alternative to facilitate comparison of potential effects of the proposed action.

2.2 No Action Alternative

Under the no action alternative, Reclamation would not authorize SWDC to construct the proposed water intake structure, pumping station, and other project features at East Canyon Reservoir.

Development would continue and existing water rights would be fully utilized in an effort to satisfy the increasing demand for water, although, available water

supplies are already behind the projected demand curve. The no action alternative would have no change in project features.

2.3 Action Alternative

The action alternative proposed by SWDC is a Lake Tap intake structure and pipeline to withdraw water from the reservoir. Up to 12,500 acre-feet of water per year would be delivered via this pipeline to the existing Jeremy Ranch water treatment plant. Of this water to be developed, 5,000 acre-feet of private water would come from a long term lease agreement from DWCCC to SWDC, approximately 2,000 acre-feet of private water would come from existing shares held by SWDC, and 5,500 acre-feet of private or Federal water could come from additional water acquisitions from the Weber Basin Project or DWCCC. In addition to the 12,500 acre-feet of project water, SWDC would voluntarily dedicate 2 cfs of the pipe capacity for non-consumptive water deliveries to help improve the East Canyon Creek fishery (Section 3.2.2.1).

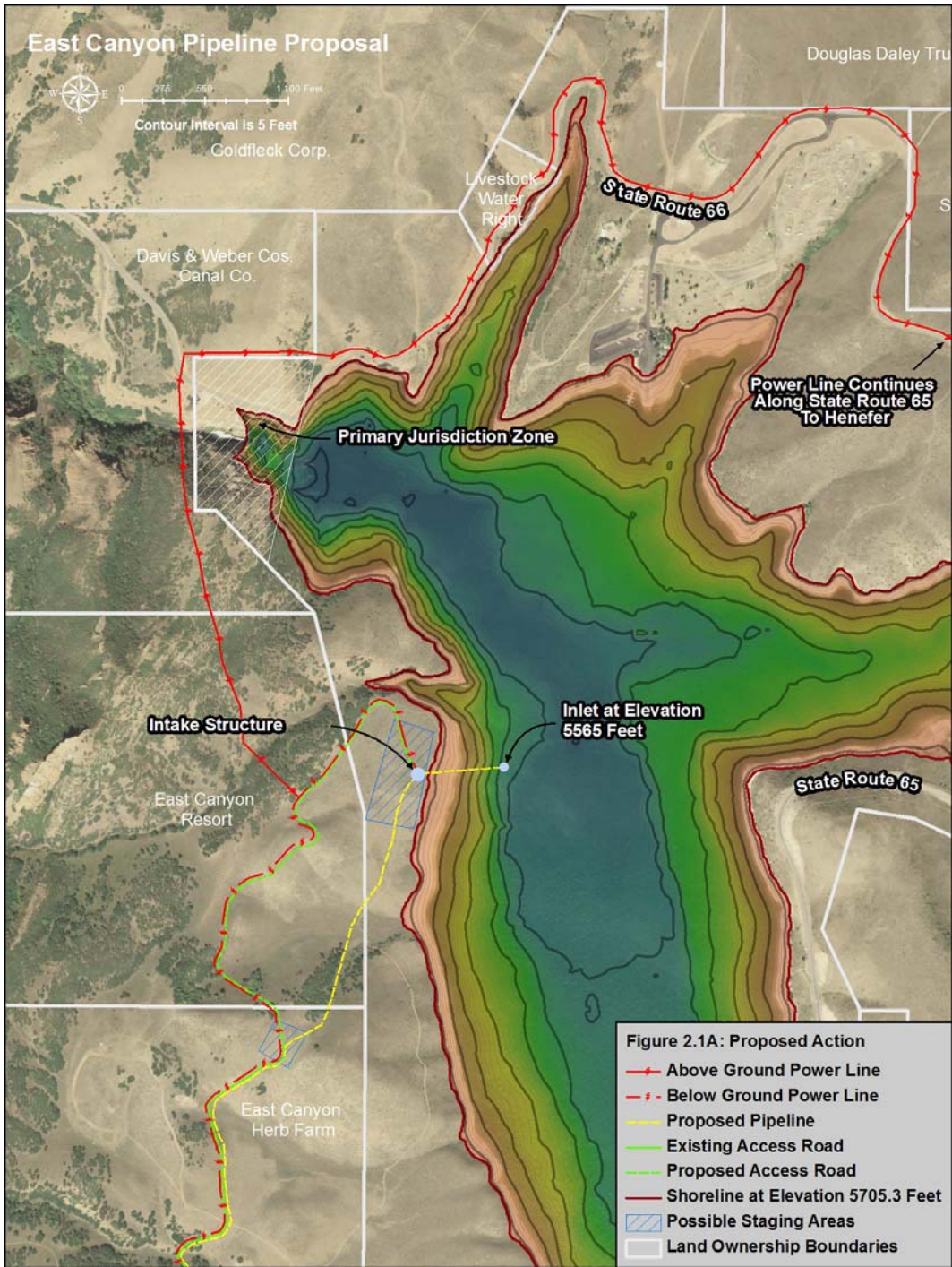
2.3.1 Lake Tap with Vertical Shaft Intake Structure

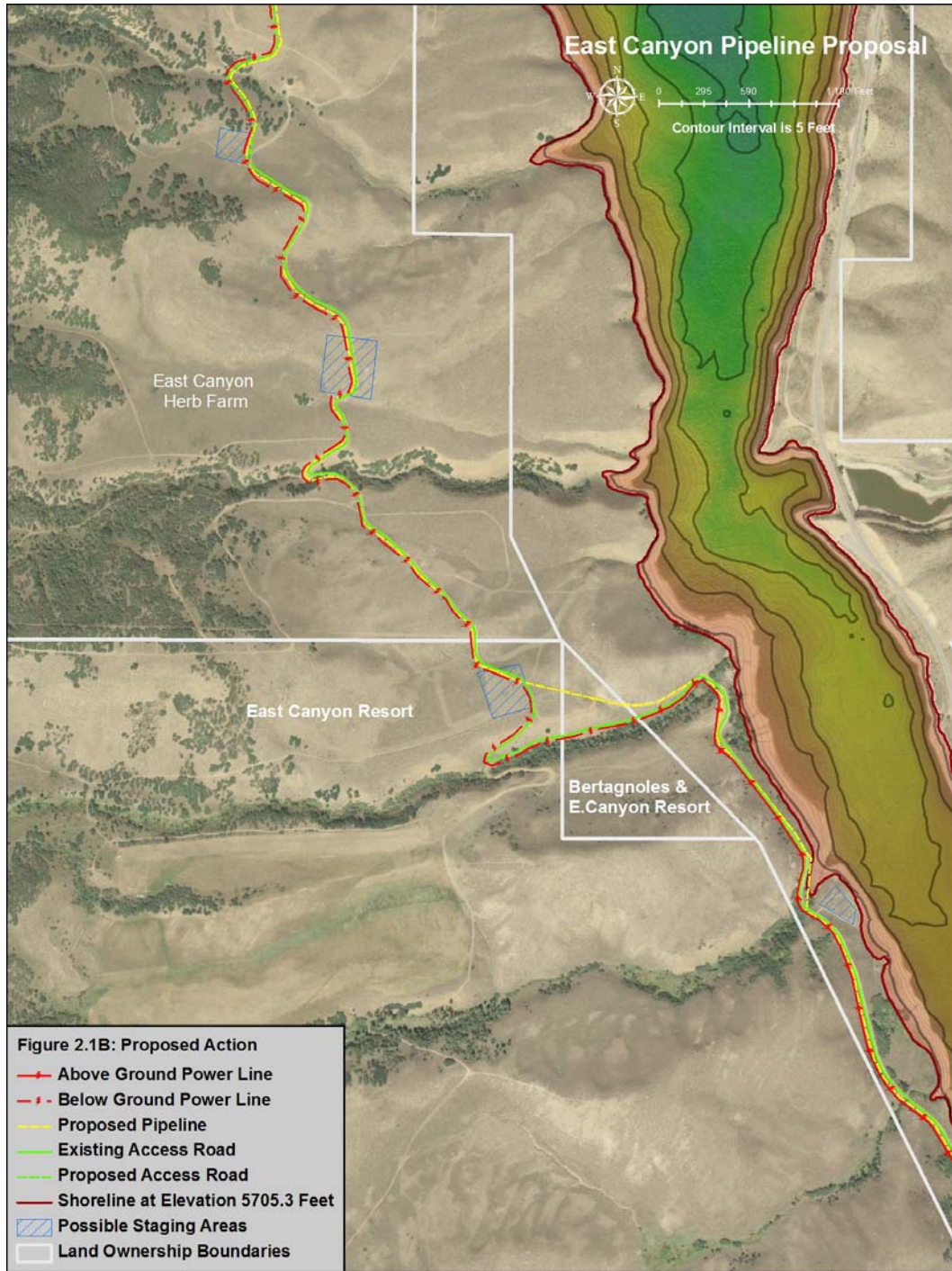
Reclamation is considering granting the necessary easements and approvals for the construction of facilities to pump water from East Canyon Reservoir and convey it upstream approximately 5 miles south of the East Canyon Resort (Figures 2.1A-2.1F).

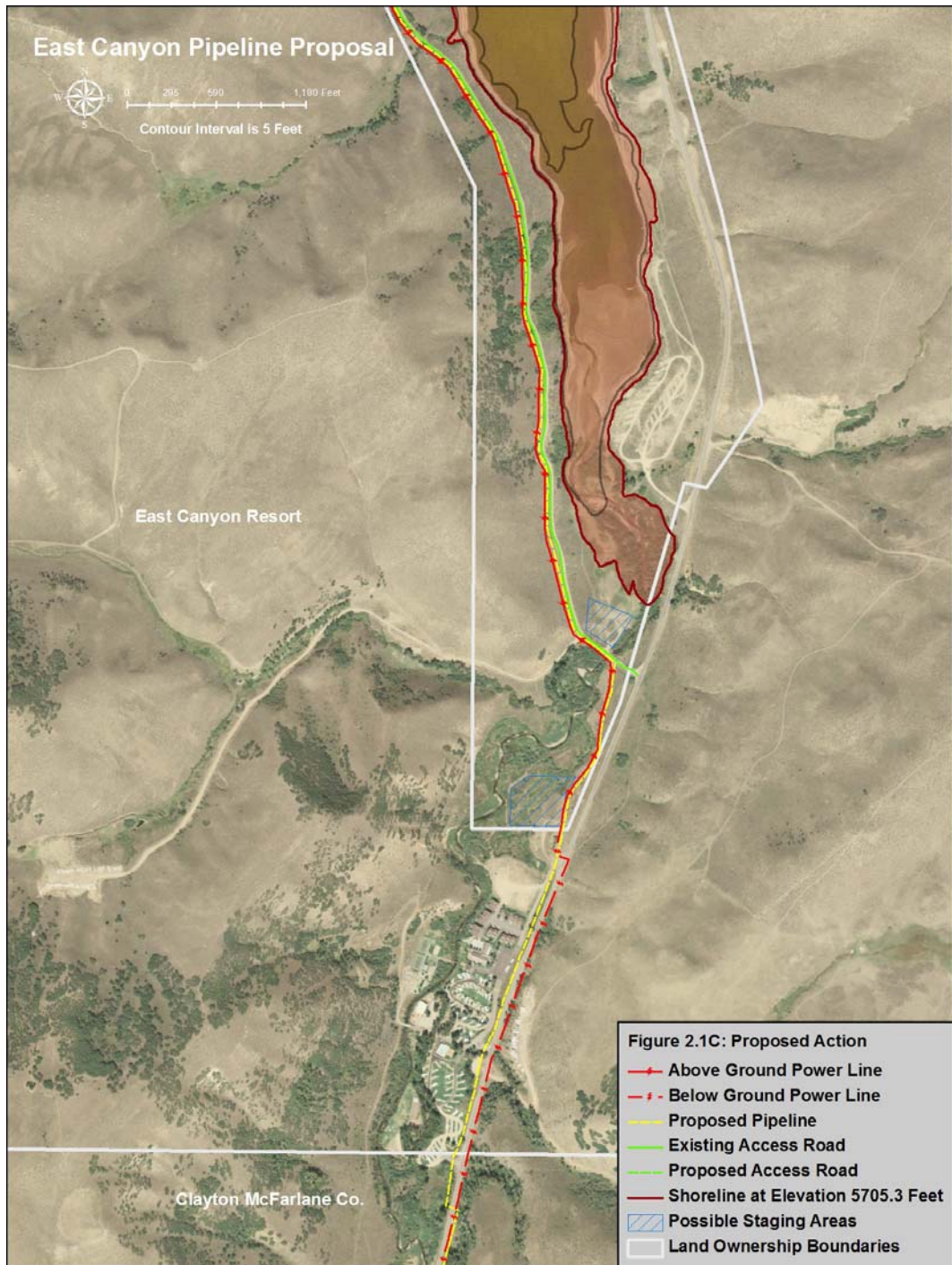
This action alternative would involve the construction of a large diameter vertical shaft that is connected to East Canyon Reservoir with a lateral (horizontal) tunnel. A vertical shaft with a lateral inlet tunnel, commonly referred to as a “lake tap,” is an established construction method that has been successfully implemented for several water supply projects, including those in Lake Havasu City, Arizona, and Las Vegas, Nevada.

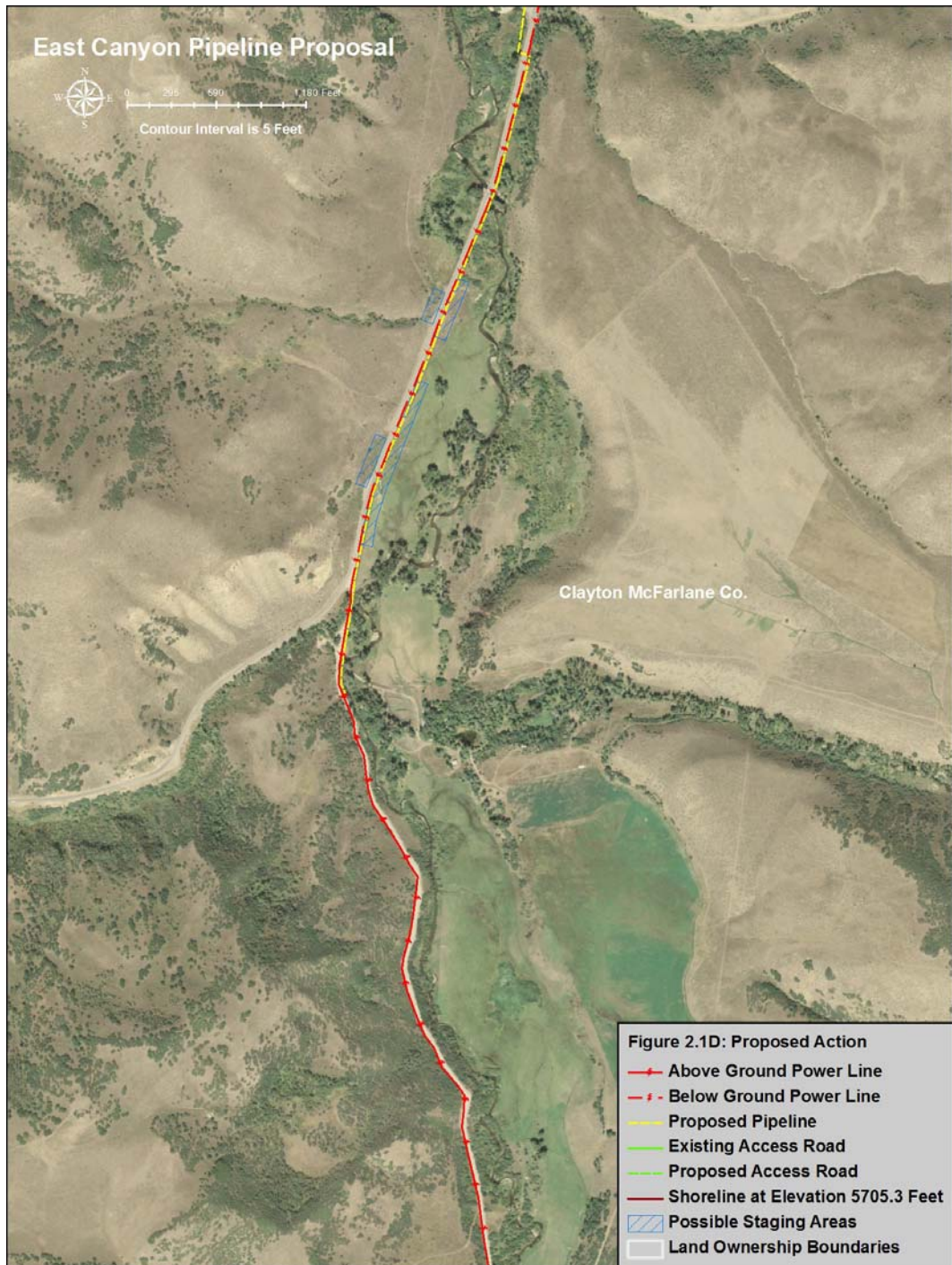
The preferred location for the lake tap structure is approximately 1/3 mile south of East Canyon Dam on the West Side bank of the reservoir (Figure 2.2). The lake tap structure would consist of a 15 to 20 foot diameter vertical shaft drilled at the edge of the reservoir roughly 160 feet deep. The lateral tunnel would be drilled at the bottom of the vertical shaft due east into the bottom of the reservoir. A 48-inch pipe would be extended through the lateral tunnel into the reservoir (Figure 2.3).

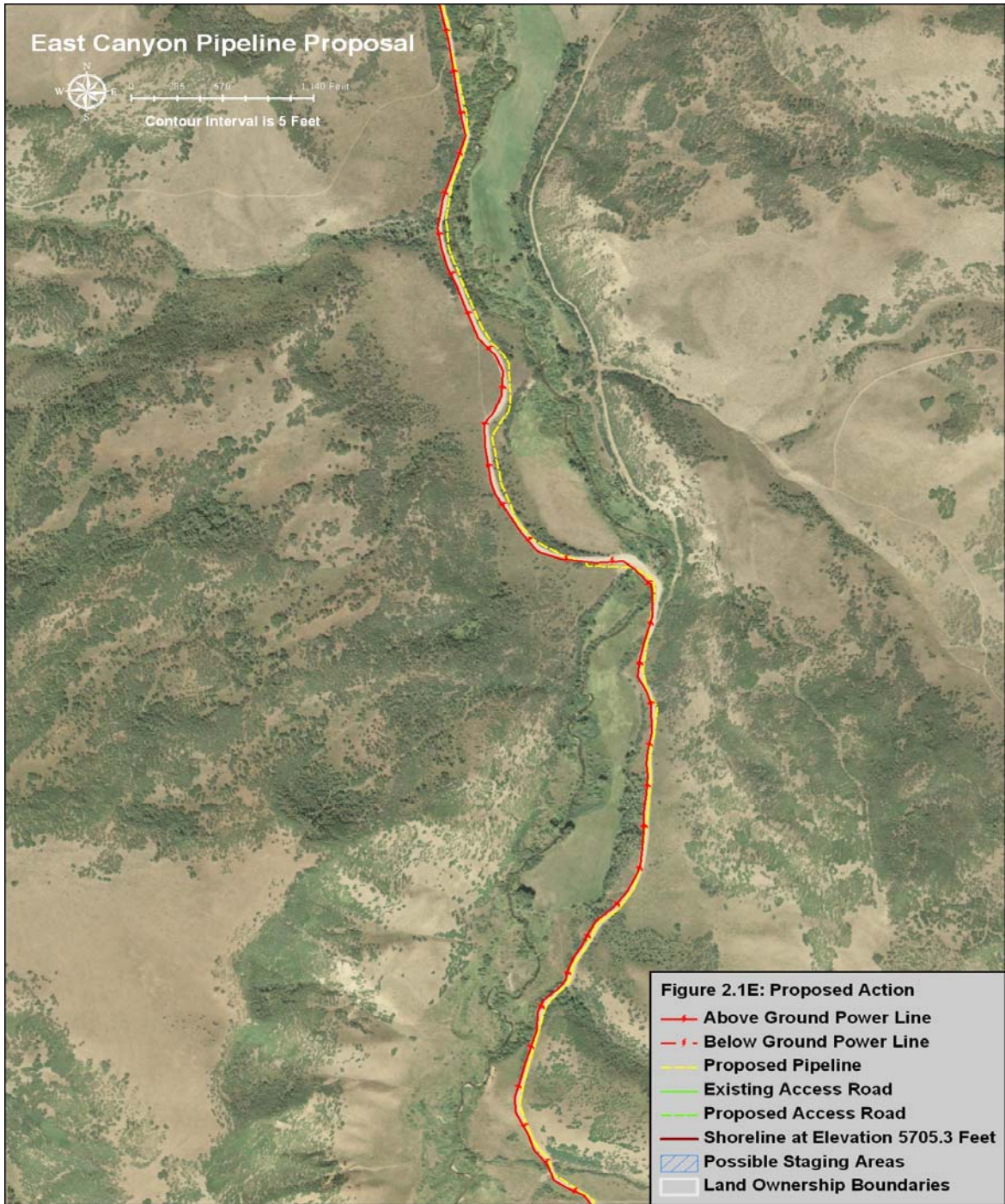
In order to obtain a consistent supply of water, the intake would be placed at elevation 5,565 feet which corresponds to half a foot above the top of dead pool and 12 feet below the top of inactive storage. The intake would be screened and a minimum of 15 feet off the reservoir bottom.











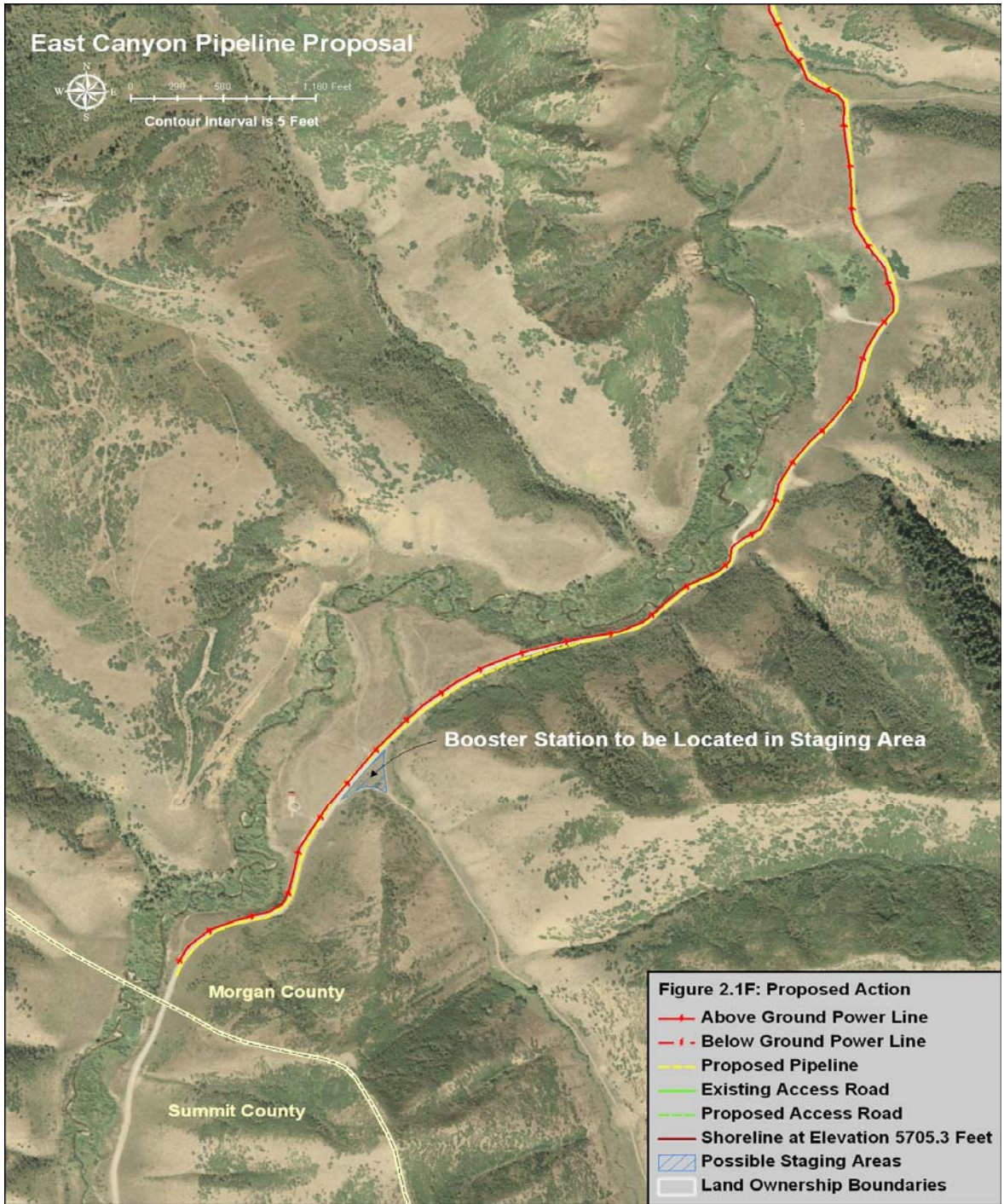




Figure 2.2: Intake Location

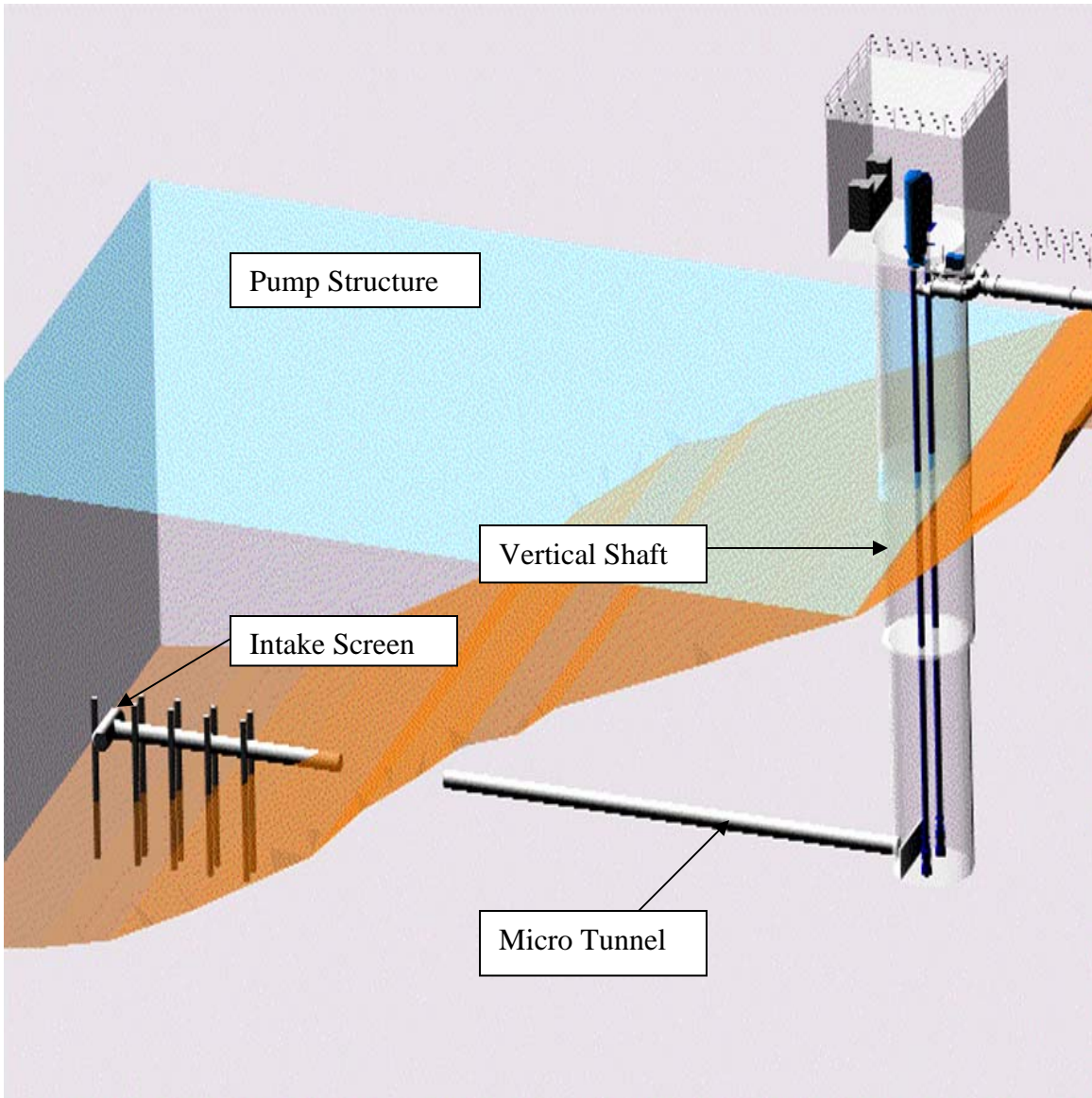


Figure 2.3: Lake Tap Structure

A pump station would be installed on top of the vertical shaft and the reservoir water would be pumped into a buried 30-inch pipe that would mainly follow the access road on the West Side of the reservoir. The buried pipe would follow the access road to where it tees with State Road 65, at which point the pipe would travel along the west shoulder of State Road for 1.5 miles to the intersection of the state road with East Canyon Road. From the intersection it would be buried in the East Canyon Road approximately 4 miles upstream to the Morgan/Summit County line and tie into an existing 30-inch pipe built and owned by SWDC.

The pipeline would require both a temporary and permanent 50 foot wide easement for construction, operation, and maintenance. Actual pipeline construction within the berm of the highway would result in 10 foot width of surface disturbance and 20 foot width of surface disturbance when constructed within the dirt road. Temporary staging areas along the pipeline would be required, including a large staging area (about 120 by 400 feet) at the intake site, and about 9 additional smaller staging areas along the pipeline. A permanent 120 by 200 foot easement would be required at the intake site which would include a power substation. The west access road would be a 28 foot wide paved road (for county road standards) and additional 15 feet width adjacent to the road required for powerline clearance, resulting in a temporary and permanent easement of 100 feet wide. Construction of the west access road and pipeline along the steep mountain terrain would require some large cuts and fills which would temporarily disturb a large area. The buried powerline (when not along the existing road) would need a 20 foot wide temporary easement and a 10 foot wide permanent easement. Most of the overhead powerline would be built in the existing road rights-of-way. The booster station would require 1.0 acre of temporary disturbance and 0.5 acres of permanent disturbance. Figure 2.4 summarizes surface disturbance from the proposed action.

Figure 2.4: Proposed Action Surface Disturbance

Project Feature	Length (miles)	Construction Disturbance (acres)	Preexisting Disturbance (acres)	New Disturbance (acres)	Temporary Disturbance (acres)	Permanent New Disturbance (acres)
pipeline (within road)	7.1	8.6	8.6	0	NA	NA
Pipeline	0.6	1.5	0	1.5	1.5	0
staging areas		35.1	15.1	20.0	35.1	0
lake tap, pump station, power substation		3.0	0	3.0	2.0	1.0
west access road	1.2	14.5	2.3	12.2	9.3	2.9
powerline (underground)	3.7	9.0	0	9.0	9.0	0
powerline (underground next to road)	3.0	7.3	7.3	0	NA	NA
powerline (overhead)	16.9	1.0	0	1.0	0.5	0.5
booster pump station		1.0	0	1.0	0.5	0.5
TOTAL		81.0	33.3	47.7	57.9	4.9

2.4 Alternatives Considered but Eliminated from Further Study

SWDC evaluated a number of alternatives in 1999 to develop a water supply of 5,000 acre-feet per year for the Snyderville Basin area. These alternatives are described in their report titled “East Canyon Pipeline Project, Environmental Assessment (Morgan and Summit Counties, Utah), September 1999.” Their proposed action was called the West Side Alignment, and included a diversion facility consisting of five diversion intake pipes extending into the reservoir between the 1896 rock-fill dam and the 1916 concrete dam. This alternative is referred to as the 1999 Intake Structure and Upper Alignment.

SWDC also looked at the following options:

- East Side Alignment – Alternative A
- Development of Existing Water Rights
- Direct Diversion from East Canyon Creek near Jeremy Ranch
- East Side Alignment – Alternative B
- East Side Alignment – Alternative C
- West Side Alternatives – several pipeline alignments

Reclamation did not re-evaluate the alternatives already studied in detail by SWDC. However, during the Value Engineering study effort, the following additional ideas/alternatives were considered, but eliminated from further study. These alternatives could also function to locate a reliable source of water and to lift water.

2.4.1 1999 Intake Structure and Upper Alignment

The intake structure was proposed to be located in Reclamation's primary jurisdiction zone and may not be allowable because of security concerns. The pipeline alignment was contested by the affected landowners and other publics.

2.4.2 Use Old Dam as an Anchor for Intake Structure

This alternative would require costly investigation and access would be difficult. It is also within Reclamation's primary jurisdiction zone and may not be allowed because of security concerns.

2.4.3 Floating Intake Structure

This alternative would not provide enough capacity for the head required and ice could pose a significant problem as well as public safety concerns.

2.4.4 Tap into Dam Outlet Works

This alternative was physically and economically difficult. A longer pipeline would be required, and it would be difficult to place the pipeline out of the steep canyon and around the dam. It would result in greater expense rather than savings.

2.4.5 River Intake Structure

This alternative was determined to be unreliable because of insufficient flows upstream of the reservoir. Ice build up during winter operation could pose a problem for a river diversion.

2.4.6 Place an Intake Structure on the East Side of the Reservoir

This alternative was initially considered and eliminated from consideration because placing a pipeline along the east side of the reservoir would have required that a significant portion of Highway 65 be replaced. The reconstruction costs associated with rebuilding Highway 65 made an East Side pipeline alignment unfeasible.

2.5 Preferred Action Alternative

As a result of the analysis presented in this EA and other studies, Reclamation considers the Lake Tap with Vertical Shaft to be the preferred action alternative.