

RADAR STATION B-71, OPERATIONS BUILDING  
Redwood National Park  
Coastal Drive  
Klamath vicinity  
Del Norte County  
California

HAER CA-332-B  
CA-332-B

PHOTOGRAPHS  
WRITTEN HISTORICAL AND DESCRIPTIVE DATA  
FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

## INTRODUCTION

The remote Radar Station B-71 is located on a terrace about 3/4 of a mile from the mouth of the Klamath River near the towns of Requa and Klamath. The Coastal Drive, also called the Klamath Beach Road, accesses the site and runs parallel to the Pacific Ocean along a ridge. The flat terrace, sited about 100' west of and below the Coastal Drive, drops off to the Pacific Ocean. It provided a sizable strip of land on which the radar operation could take place. A narrow, rather steep footpath that runs from a pull off on the side of the Coastal Drive to the terrace provides the only access to the buildings.<sup>1</sup> The location of the site as well as the vernacular construction of the buildings helped to disguise its use from local residents and enemy spies. Constructed of durable concrete blocks, the buildings were clad in board and batten siding and had architectural features reminiscent of local farm buildings. As First Lt. Dale Birdsall, Station Commander, remembered in 1988, the complex was "painted in earth tones, was not landscaped, and looked very much like the conventional coastal farmhouse in that area." In fact, he stated "the site was somewhat patterned after the Chapman Ranch which had a farm house to the north of the site and from whom the War Department (or Defense Department) leased the land."<sup>2</sup> Camouflaging the buildings was essential to maintaining the secrecy of the site since the radar station complex was part of a coastal defense system designed to protect the nation's coast and adjacent territories and bases against enemy attack by land, air or sea.

## DESCRIPTION OF CURRENT CONDITIONS<sup>3</sup>

The front (west) elevation of the Operations Building measures approximately 70' long and overlooks the Pacific Ocean. About 31' from the south corner of the front elevation is an entrance room extending out about 9'-3". The room itself is about 22' long. The shed roof covering this extension slopes downward from the main roof and has a slight overhang with eaves. As with the main roof, bargeboards delineate the north and south sides. The space between the concrete block walls of the extension and its shed roof has vertical wood siding. There is a doorway on the south wall of the extension with quoin-like detailing along the western edge, and a window on the west wall. Like the other openings on the building, the window has been filled with black-painted plywood with a narrow vent, and the doorway has been secured with a plywood door padlocked for security purposes. When Redwood National and State Parks acquired the Operations Building, it had a dilapidated lean-to attached to the south wall of the entrance room. The park subsequently removed the lean-to since it was determined to not be from the World

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<sup>1</sup> Suzanne Baker and James Roscoe, Archaeology Consultants, Oakland, CA, Archaeological Site Record, April 4, 1983, World War II Observation Post vertical file, located in Redwood National and State Parks, South Headquarters, Library, Orick, CA, hereafter cited as REDW; Gordon Chappell, "Radar Station B-71," National Register of Historic Places Inventory Nomination Form, June 7, 1977, listed 1978, Item Number 7, Page 1.

<sup>2</sup> Letter, Dale Birdsall to Richard (Dick) Rasp, October 17, 1988, World War II Observation Post vertical file, REDW.

<sup>3</sup> Description based on author's site visit, May 2005.

War II era of use; no trace of it remains.<sup>4</sup> The other notable feature of the front elevation is a square opening with a pipe through it at the base of the wall underneath the double windows at the north end. The front elevation has no existing siding; instead, the concrete block wall construction has been left exposed along the entire façade. The only exception is underneath the double windows located at the south end where vertical board and batten siding fills the space under the windows.

The greater length of the front elevation in comparison with that of the rear (70' as opposed to nearly 61') is due to the additional room situated at the southeast corner of the building. Measuring 9'-1/2" x 13'-1/2", the room does not extend the entire length of the south wall. It has a separate side gable roof from that covering the main building. While the pitch of the roofs is identical, creating a continuous slope on the front elevation, the additional room has a lower ridgeline. Both the additional room and the main building have concrete block walls that extend up to the ceiling beams, with a board and batten type siding consisting of wider boards alternating with thinner but thicker strips filling in the gable ends. Bargeboards delineate the gables of the roof, much as their use in the extension's shed roof, and there is a vent at the peak of the gable of the main building.

The southeast corner of the Operations Building reveals that horizontal furring strips attached to the concrete block walls provided the anchor for the vertical wood siding. The furring strips cause the siding to protrude several inches from the actual 1'-9" thick concrete block wall, especially when compared with the siding on the gable ends, which was attached directly to the framing. In order to mask the resulting discrepancy between the two, a horizontal board was placed at a 45-degree angle at the point of transition. The remnants of siding remaining on the east edge of the extension, south gable end of the main building, and the southern end of the rear (east) wall are deteriorating from moisture.

The rear (east) elevation of the Operations Building is uninterrupted by extensions but does contain three "windows." Two false windows, located immediately adjacent to one another at the extreme southern end of the wall, were created simply from openings in the remaining siding. A short distance north of these false windows is an actual window cut into the concrete block wall that has since been closed in with black-painted plywood.

The north elevation of the Operations Building is perhaps the most interesting architecturally. Two columns of concrete block flank the central portion of this elevation, which has been slightly inset, revealing the concrete pad on which the building sits. This inset portion features two real windows and a doorway. Unlike the rest of the building, the siding used on the first story is set horizontally. The gable's vertical siding extends lower than that on the south elevation as well. A thin, horizontal board was

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<sup>4</sup> Xeroxed copies of photographs from the 1970s show the lean-to covering what is now the entrance doorway, see memo from Rebecca L. Stevens, Historical Architect, WRO, to Chief of Maintenance, Redwood National Park, on WWII Radar Station, Treatment for North Building, April 29, 1985, in World War II Observation Post vertical file, REDW. The Lean-to is also noted on the World War II Radar Station Operations Building floor plan, ca. 1983, REDW.

placed at the gable end, somewhat reminiscent of framing for a hayloft. To further disguise the building's original purpose, the gable peak protrudes slightly beyond the end of the roof to simulate where a pulley would have been located.

The Operations Building is entered via a doorway in the south wall of the entrance room, whose interior measures approximately 6'-11" x 7'-1". The original use of this room is unknown. The doorway was originally wider than its current configuration, having been filled in by the park with plywood and a padlocked door for security. The entrance room also features a pass through window at floor level on the east wall near the front doorway whose purpose is unknown. The east wall has the doorway by which to enter the main building from the entrance room. There is a step up since the floor of the entrance room is dirt, while the floor of the main building is an 8" thick concrete slab. The difference in floor materials may be due to the fact that the main room housed the equipment, which would have to be kept off the ground due to the damp nature of the site. The doorway from the entrance room to the main building has a wood frame and bears marks where hinges may once have been located, but there is no door currently in place.

The main room of the Operations Building is about 56' x 22' and was originally divided into smaller spaces. As indicated on a revised floorplan from 1983, the building from north to south consisted of a large room, then a central hallway with two small square rooms to the west with doors opening to the hallway and one rectangular room across on the west wall, followed by one large room.<sup>5</sup> The only evidence of the partitioning of the space in 2005 was a partial frame wall extending from the west elevation at the south end. The main building has several windows: a double window on the west wall at the northern end, two windows flanking a door to the outside on the north wall, and a window on the east wall towards the southern end. The north wall has wood siding, although whether or not this is an original finish is unknown. The western half of the north wall has vertical siding and a wood trim around the window, while the eastern half of the north wall has horizontal siding. The siding on the western half is deteriorating from the ground up, probably due to water damage. As noted, these openings have all been boarded shut. The only other evidence of interior finish is ceiling tile remnants on the ceiling beams. The main room also features troughs running both north-south and east-west in a grid-like pattern that have been dug into the concrete slab floor. The troughs have been covered with wood. Their purpose is unknown, but since they extend to the exterior walls and there is at least one opening in the concrete block wall to the exterior, as evidenced in the front elevation, they obviously relayed some material from the interior to the exterior. One idea is that the troughs provided water drainage, but this seems unlikely given their positioning. A more likely idea is that they were for routing wires and other cables, particularly since lines had to be run from the Operations Building out to the antenna located about 30' to the west of the building.

The south wall of the main room has a doorway at the western edge that leads to the smaller extension that can be seen in the south exterior elevation. The room measures

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<sup>5</sup> Operations Building floorplan, REDW.

nearly 9' deep. It has a dirt floor, so while its purpose is not known, it probably did not house equipment. As in the rest of the building (including the entrance room), the concrete block walls only extend up one story with the ceiling beams and rafters left exposed. The actual doorframe to this secondary room still exists, although it does not fill the entire doorway opening. The rest of the opening is filled with what appears to be a plywood-type material. There are no hinge marks in the actual doorframe, so it is difficult to tell if a door was ever used to separate the two spaces or if it was left open. On the west side of the doorway are remnants of what appear to be an acoustic tile-like material that may have originally clad the walls just as it clad the ceiling.

### ALTERATIONS

In order to stabilize the building and protect it from vandalism, the National Park Service has made some alterations to the Operations Building. There is a lack of information about the radar station complex's history between the end of World War II and the National Park Service's acquisition. Since the property reverted back to E.H. and A. Chapman, the original owners from whom the federal government leased the site, it can be reasonably assumed that some salvage activity took place.<sup>6</sup> The National Register of Historic Places nomination form written in 1977 indicated "old station B-71 reverted to local ranch ownership, was stripped of part of its wooden camouflage siding by local residents who had other uses for the wood, and sheltered sheep which occasionally wandered into the buildings."<sup>7</sup> A Classified Structure Field Inventory Report prepared in November 1975 provides a glimpse of the condition of the building when acquired by the National Park Service. The report noted that there was a "wood shed" on the west wall, which was subsequently removed. On the interior, the report noted extant acoustic tile and furring strips on the walls. Mud flows destroyed the north wall and piled up mud against the exterior east wall as well as the interior.<sup>8</sup>

By 1978, the park had begun considering stabilization measures for the radar station complex. Robert Cox, Historical Architect for the National Park Service's Western Region, made a site visit and created a list of tasks necessary to stabilize the Operations Building. His specific recommendations included covering the troughs in the concrete floor pad; keeping the existing partitions and any original materials; patching the roof and staining the repairs to match; repairing the lean-to porch and concrete post supports (a recommendation not followed); removing soil from the east side of the building; regrading the site to properly drain the area; replacing the siding on the south and east walls; replacing "missing barge board at the north eave, 1/2 is required"; replacing the metal chimney stack on the roof and using guy wires to stabilize; and adding new ridge boards. Cox specified "no vertical board and batten siding should be added to the west

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<sup>6</sup> Edie Butler, Special Collections Library, Humboldt State University, Arcata, CA located the lot on Metsker's Atlas of Del Norte County, California (Tacoma, WA: Metsker Maps, ca. 1949).

<sup>7</sup> Chappell, Item Number 8, Page 3.

<sup>8</sup> K. Keane, Classified Structure Field Inventory Report, South Building, Observation Post, November 19, 1975, World War II Observation Post vertical file, REDW.

facade until we know about the building's historic appearance," a directive followed as evidenced by current conditions.<sup>9</sup>

In November 1984, the National Park Service determined that the radar station complex should have priority in the Cyclic Maintenance Cultural Needs in order to stabilize the structures, suspend further deterioration and decrease safety issues. The work to be done on the site was put in prioritized order. The most important identified task was improving site drainage, followed by removing asbestos insulation, reroofing the Operations Building, reattaching any remaining siding to both the Operations and Power buildings, clearing overgrowth while maintaining historic vegetation, restoring the deteriorated north wall of the Operations Building, and finally, "overlaying the conduit raceways in both buildings to reduce safety hazards."<sup>10</sup>

Rebecca Stevens, Historical Architect for the National Park Service's Western Regional Office, in a 1985 memorandum to the Chief of Maintenance at Redwood National Park, outlined the rehabilitation of the Operations Building and the site as a whole, echoing some of the ideas from 1984. Stevens emphasized that the building was to be preserved in its condition when acquired by the National Park Service rather than its World War II appearance. She also noted that according to the National Register nomination, the exterior of the building was significant, not the interior. As a result, she emphatically stated "the site should be preserved in its late 1960's--early 1970's condition. The building was not in 'mint condition' at that time. Second, it should be protected from weather, deterioration, and vandalism. In addition to preserving and protecting it, a relatively hazard-free site should be provided for the public."<sup>11</sup> The Chief of Maintenance at Redwood echoed these statements to the park, noting "the intent of the rehabilitation is to basically make the facilities more accessible to the public, to make the public more aware of what they were, and to preserve the units for future generations at the level of approximately 1968-1970."<sup>12</sup> Accordingly, rehabilitation of the buildings has followed the precept of preservation of the exteriors as they were at the time of the National Park Service's acquisition, although there have been deviations. For example, despite using the 1960s-1970s condition of the building as the restoration point, the park did follow Stevens' recommendation of removing the "west side structure" attached to the entrance room, since it was post-World War II.

By 1985, the park had developed a rehabilitation plan for the site. The rehabilitation would help protect the materials used in the building since the wood would be treated with Thompson's water seal. Furthermore, park personnel were to use "pressure treated

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<sup>9</sup> Memo from Robert Cox, Historical Architect, Western Region to Tom Mulhern, Chief, Cultural Resources Management, Western Region, re: Stabilization of Radar Station, Visit to Site, July 26, 27, 1978, dated July 31, 1978, World War II Observation Post vertical file, REDW.

<sup>10</sup> Memo from Associate Regional Director, Resources Management and Planning to Superintendent, Redwood, dated November 13, 1984, World War II Observation Post vertical file, REDW.

<sup>11</sup> Memo, Stevens to Chief of Maintenance, underlining in original.

<sup>12</sup> Joe Lusa, Chief of Maintenance, Priorities of WWII Buildings, May 6, 1985, World War II Observation Post vertical file, REDW.

lumber for all wood in contact with masonry or damp conditions.” Removal of asbestos would provide a safer environment and limiting access to the building to park personnel would protect the interior from vandalism.<sup>13</sup> The overall site required a drainage plan. Suggestions for improvements included: adding culverts and cleaning existing culverts alongside the Coastal Drive; adding gutters to the structures; excavating sediment deposits from around the buildings; building surface drains; regrading the site; and installing drainage channels at the bottom of the road, between buildings, and north of the Operations Building.<sup>14</sup> A site visit in 2005 showed that gutters were not added to the buildings, presumably because they were not original features. Sediment excavation has taken place, and a drainage channel was dug between the two buildings, but the site remains damp. Despite the development of strategies to ameliorate the drainage problem, the site has consistently suffered from seeping moisture.

The park also studied the recommendation by the Western Regional Office to remove overgrowth. Redwood’s plant ecologist noted in 1985, “the vegetation surrounding the observation post is primarily a mosaic of coastal prairie and coastal scrub,” the predominant species of which included “non-native perennial grasses (especially orchard grass and velvet grass)” and “coyote brush and salmonberry (both natives).” The two methods of dealing with the non-native species and “restoring the historic setting of the World War II era (other than bringing back the livestock) are burning or mowing,” of which the park’s ecologist recommended burning.<sup>15</sup> Despite concerns about overgrowth, the naturalist state of the site had to be maintained as part of its historic setting. As Dale Birdsall remembered, “trees and shrubs were left as much in the natural state as the installation demands would permit” during its use in World War II as part of the camouflage.<sup>16</sup>

Park personnel developed specific tasks based upon their recommendations, and work proceeded during 1987 and 1988. The park’s Building and Maintenance Foreman, Cletis Rodgers, directed the work with the assistance of Chuck McKinney, Carpenter from the California Conservation Crew. Cyclic maintenance funds and fee monies paid for the rehabilitation. The most reconstruction took place at the north end since that was most visible to visitors viewing the site from the interpretive sign on the Coastal Drive.<sup>17</sup> In her memo regarding the reconstruction, Stevens had recommended only replacing the

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<sup>13</sup> Memo, Stevens to Chief of Maintenance.

<sup>14</sup> Memo from Supervisory Geologist Ken Utley to Archaeologist, re: Observations & Recommendations, dated May 14, 1985, World War II Observation Post vertical file, REDW.

<sup>15</sup> Memo from Mary Hektner, Plant Ecologist, to Archaeologist, re: Vegetation in Area, dated May 23, 1985, World War II Observation Post vertical file, REDW.

<sup>16</sup> Letter, Birdsall to Rasp.

<sup>17</sup> Memo from Ann Smith, Archaeologist, to Buildings and Utilities Foreman, Roads and Trails Foreman through Chief, Technical Services and Chief, Maintenance, July 8, 1987, in World War II Observation Post vertical file, REDW. Her memo reflected earlier National Park Service statements about the extent of the restoration to take place, stating that their efforts would not entail “a full restoration of the buildings...Rather, we will repair/restore portions of the exteriors of both structures since the exterior appearance was one of the important and unique features of the site and so that the visitor may have a sense of what the buildings looked like when in use and when the park assumed ownership.”

horizontal siding on the northwest corner while leaving the gable unclad. Workers, however, replaced all the siding on the north wall, reconstructed the door and window openings, and secured them with black-painted plywood. These efforts did not match documentary evidence due to miscommunication, but the result was left as completed.<sup>18</sup> On the east wall, the false window openings were recreated and the extant siding was reattached to the building, although personnel noted that in order to reattach the remnants, “structural details had to differ from the original.” Those differences, however, were not noted.<sup>19</sup> The south wall underwent a similar treatment with the reattachment of remnant siding. The barge boards delineating the gable ends were replaced as was the flashing at the point where the extension roof ran along the main wall. On the south end of the west wall, the opening was filled in with a window opening and siding below.<sup>20</sup> The area around the entrance on the west wall underwent a substantial rehabilitation. Workers removed the wood addition attached to the entrance door since it had been determined to date to after World War II. Asbestos shingles attached around the entrance door were removed, under which personnel found “vertical siding boards, which were left intact.” The vertical boards referred to cannot be presently seen, although the “vertical appearance door with hasp and lock” installed is still in use to secure the building from vandalism.<sup>21</sup>

In interior work, wood planks covered the troughs in the concrete floor, graffiti was painted over, and all openings were secured with plywood. For the most part, McKinney noted, “the construction detail was followed whenever possible except for the addition of supports nailed into the side of the concrete blocks to hold up walls (original construction inadequate), and framing around the windows (rough sills and headers did not extend to adjacent studs). Both additions do not change the exterior appearance.”<sup>22</sup> Although the historic appearance of the Operations Building may never be fully determined, its current condition reflects its appearance in the late 1960s/early 1970s and is probably a fairly close approximation of its original appearance.

## FUNCTION

Little information has been found on the use and function of the Operations Building, aside from its obvious use housing the radar equipment. Dale Birdsall provided a sketch of the equipment used in the Operations Building to Gordon Chappell, author of the National Register nomination, based on his recollections from his time as Station

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<sup>18</sup> “Report on 1987-1988 Rehabilitation, Radar Station B-71,” REDW.

<sup>19</sup> “Report on 1987-1988 Rehabilitation.”

<sup>20</sup> Memo, Stevens to Chief of Maintenance.

<sup>21</sup> Memo from Carpenter Chuck McKinney to Chief of Maintenance through Buildings and Utilities Foreman, re: Rehab of Site, August 1, 1988, World War II Observation Post vertical file, REDW.

<sup>22</sup> Quote from memo from McKinney to Chief of Maintenance. All work done in the 1987-1987 season is documented in memo from Cox to Mulhern; memo from Associate Regional Director, Resources Management and Planning to Superintendent, Redwood, November 13, 1984; memo from Smith to Foremen; memo from Buildings and Utilities Foreman to Chief of Maintenance, October 1, 1987; memo from McKinney to Chief of Maintenance, all in World War II Observation Post vertical file, REDW. Also see “Report on 1987-1988 Rehabilitation, Radar Station B-71,” and memo from Stevens to Chief of Maintenance.



Commander, First Lieutenant of Radar Station B-71. He indicated that to the north of the building was the transmitter with a transmission line running out to the antenna. The antenna probably switched between transmitting and receiving signals. A signal would be transmitted to the target, then an echo would be received, and the delay between the two measured. To the east of the transmitter was the rectifier, which was a semiconductor crystal that translated signals into a current. The oscilloscope, manned by an observer, was located adjacent to the receiver and displayed the received echo on a cathode ray tube, creating a visual record of the pulse. Finally, at the south end of the building was the plotting board at which, Birdsall noted, “this man plotted observer’s reports and was in direct communication with San Francisco,” the location of the region’s information center.<sup>23</sup>

### CONCLUSION

The Operations Building is one of two extant buildings on the site of the former Radar Station B-71. Disguised as a vernacular barn and nestled onto a terrace overlooking the Pacific Ocean, this rather unremarkable building contributed to the defense of the coastal United States. Despite standing empty since the end of World War II, the building retains its integrity and is a contributing element to one of the few remaining radar stations in this country.

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<sup>23</sup> World War II Radar Station floor plan with Dale Birdsall’s annotations, WW II Radar Station vertical file, REDW. Birdsall noted on the floor plan: “I am a bit confused by the operations building layout as shown,” probably referring to the partition walls drawn on the plan.

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