

COLORADO HISTORICAL SOCIETY

COLORADO STATE REGISTER OF HISTORIC PROPERTIES NOMINATION FORM

SECTION I

Name of Property

Historic Name Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488

Other Names D&RGW No. 22488

Address of Property

address not for publication

Street Address 800 Seminole Rd., Burnham Yard, Union Pacific Railroad

City Denver County Denver Zip 80204-4200

Present Owner of Property

(for multiple ownership, list the names and addresses of each owner on one or more continuation sheets)

Name Marcus Rail c/o Daniel Quiat

Address PO Box 3498 Phone 303-579-1506

City Boulder State CO Zip 80307-3498

Owner Consent for Nomination

(attach signed consent from each owner of property - see attached form)

Preparer of Nomination

Name Property Owner Date 10/8/2006

Organization _____

Address _____ Phone _____

City _____ State _____ Zip _____

FOR OFFICIAL USE:

_____ Nomination Received

Site Number 5DV10295

Senate # 18 House # 13

2/16/2007 Review Board Recommendation
 Approval Denial

2/22/2007 CHS Board State Register Listing
 Approved Denied

Listing Criteria A B C D E

Certification of Listing: President, Colorado Historical Society

Date _____

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SECTION II

Local Historic Designation

Has the property received local historic designation?

no

yes --- individually designated designated as part of a historic district

Date designated _____

Designated by _____ (Name of municipality or county)

Use of Property

Historic Railroad freight service

Current Historical display

Original Owner Denver & Rio Grande Western Railroad

Source of Information Car lettering, folio sheet, car card

Year of Construction 1960

Source of Information Car lettering, folio sheet, car card

Architect, Builder, Engineer, Artist or Designer Bethlehem Steel Company

Source of Information Car lettering, folio sheet, car card

Locational Status

Original location of structure(s)

Structure(s) moved to current location

Date of move Moved throughout its operational life

SECTION III

Description and Alterations

(describe the current and original appearance of the property and any alterations on one or more continuation sheets)

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SECTION IV

Significance of Property

Nomination Criteria

- A - property is associated with events that have made a significant contribution to history
- B - property is connected with persons significant in history
- C - property has distinctive characteristics of a type, period, method of construction or artisan
- D - property is of geographic importance
- E - property contains the possibility of important discoveries related to prehistory or history

Areas of Significance

- | | | |
|---|--|---|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Economics | <input type="checkbox"/> Landscape |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Education | <input type="checkbox"/> Architecture |
| <input type="checkbox"/> Archaeology – prehistoric | <input checked="" type="checkbox"/> Engineering | <input type="checkbox"/> Law |
| <input type="checkbox"/> Archaeology – historic | <input type="checkbox"/> Entertainment/ Recreation | <input type="checkbox"/> Literature |
| <input type="checkbox"/> Art | <input type="checkbox"/> Ethnic Heritage | <input type="checkbox"/> Military |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Exploration/ Settlement | <input type="checkbox"/> Performing Arts |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Geography/ Community Identity | <input type="checkbox"/> Politics/ Government |
| <input type="checkbox"/> Community Planning and Development | <input type="checkbox"/> Health/Medicine | <input type="checkbox"/> Religion |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Industry | <input type="checkbox"/> Science |
| | <input type="checkbox"/> Invention | <input type="checkbox"/> Social History |
| | | <input type="checkbox"/> Transportation |

Significance Statement

(explain the significance of the property on one or more continuation sheets)

Bibliography

(cite the books, articles, and other sources used in preparing this form on one or more continuation sheets)

SECTION V

Locational Information

Lot(s) _____ Block _____ Addition _____

USGS Topographic Quad Map Fort Logan

Verbal Boundary Description of Nominated Property

(describe the boundaries of the nominated property on a continuation sheet)

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SECTION VI

Photograph Log for Black and White Photographs

(prepare a photograph log on one or more continuation sheets)

SECTION VII

ADDITIONAL MATERIALS TO ACCOMPANY NOMINATION

- Owner Consent Form**
- Black and White Photographs**
- Color Prints or Digital Images**
- Sketch Map(s)**
- Photocopy of USGS Map Section**
- Optional Materials**

Use of Nomination Materials

Upon submission to the Office of Archaeology and Historic Preservation, all nomination forms and supporting materials become public records pursuant to CRS Title 24, and may be accessed, copied, and used for personal or commercial purposes in accordance with state law unless otherwise specifically exempted. The Colorado Historical Society may reproduce, publish, display, perform, prepare derivative works or otherwise use the nomination materials for Society and/or State Register purposes.

For Office Use Only

Property Type: building(s) district site structure object area

Architectural Style/Engineering Type: Standard gauge railroad bulkhead flatcar

Period of Significance: 1960

Level of Significance: Local State National

Multiple Property Submission: N/A

Acreage None

P.M. 6th Township 4S Range 68W Section 4 Quarter Sections SE

UTM Reference: Zone 13 Easting 499434 Northing 4397492 NAD27

Property Name Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488

DESCRIPTION and ALTERATIONS

Denver & Rio Grande Western Railroad (D&RGW) Bulkhead Flatcar No. 22488 is a rare surviving member from a series of identical cars built beginning in November 1960. The series, completed in 1962, consisted of 77 cars numbered 22485-22561 (folio sheet). The D&RGW purchased a similar series of 100 cars in 1963, bringing the total to 177 cars of this type (Eager 1999, p. 59). As with the entire series, No. 22488 was built with two sets of four-wheel roller bearing trucks, weighs 66,800 lbs., and has a capacity of 100,000 lbs. (50 tons). The car is almost 54 feet in length, and it has a steel underframe and a slated wood deck (folio sheet).

The flatcar has steel endwalls (or bulkheads) covered on the inside by protective wood. The outside of each bulkhead contains a "locker" where shipping tools, such as tie downs and other materials, can be stored. For a brief period, the lockers on some cars employed to ship plasterboard were used for shipping the manufacturer's associated plasterboard joint tape. As the lockers were not weatherproof, the tape often arrived damaged. The railroad soon discontinued the practice (Tudek 2006).

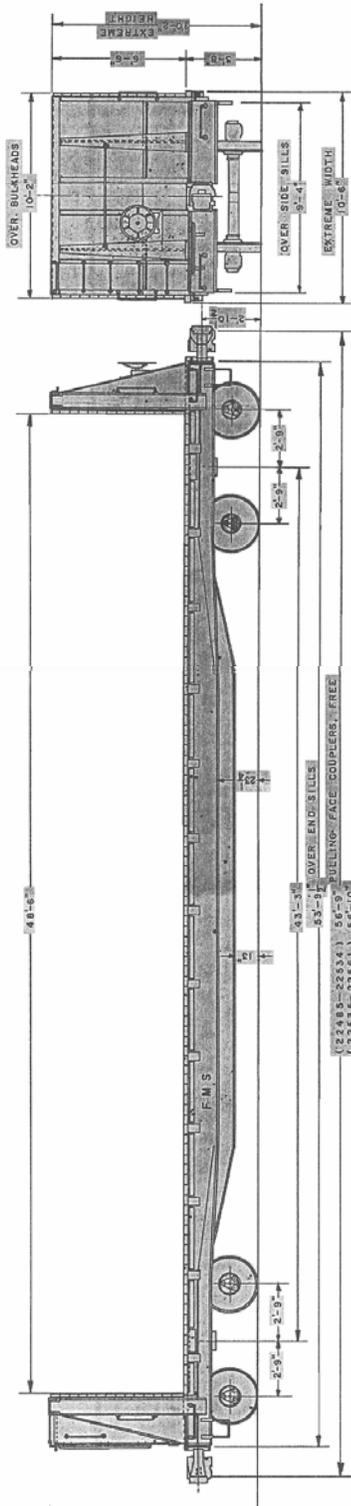
Bethlehem Steel built the cars at its plant in Johnstown, Pennsylvania (car, folio sheet). The First National Bank of Denver financed the cars through equipment series trust "V", making the bank the "Trustee, Owner and Leaser" (car makings, car card). Each car cost \$12,753.50 when new (car card).

D&RGW No. 22488 experienced few modifications while in service, the only obvious change being the removal of the locker doors. John Tudek, retired D&RGW carman, explained that the doors often opened during transit if not properly locked. When the train shifted due to "slack action" (releasing or taking up the slack in each car's couplers) a load protruding from the next car sometimes slide forward or back, hitting and damaging the locker doors. "They were a big headache and a pain in the butt," Tudek concluded. The locker doors on No. 22488 could be missing due to damage or they were simply removed to avoid a future problem.

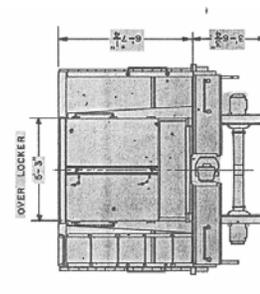
The car received routine maintenance throughout its life. The Union Pacific retired the car from service in May 2000, close to its fortieth birthday when the car would no longer be acceptable for interchange service. Though railroads will rarely accept a 40-year-old car from another railroad due to the high potential for a mechanical breakdown, No. 22488 remains structurally sound, only needing some truck (wheel assembly) repairs (Shuman 2000).

The car is currently at the Union Pacific's Burnham railyard where it is stored with a pile driver lashed to its wood deck. The pile driver is not part of this nomination.

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DESCRIPTION	
Gauge	4' 8 1/2"
Journals	5 1/2" x 10" Timken Roller Bearings
Wheels	33" Rolled Steel I-W
Truck Type	ASF A-3 Ride Control
Spring Travel	2 1/2"
Break Beams	Davis - No. 18
Underframe	Steel
Decking (2 1/2" x 5 1/2" face)	Oak
Draft Gear	Cardwell - Westinghouse NY-11-F
Coupler	AAR Type E
Brake	AB 1012
Hand Brake	Vertical Wheel Non-Spin-Universal
Marked Capacity, Lbs.	100,000
Light Weight, Lbs., Av.	66,800
Max Weight of Lading, Lbs., Av.	110,200
Cubical Capacity, Cu. Ft. (Cement Locker)	80
Length Over Decking	48'-8"
Width Over Decking	10'-8"
Year Built	1960
Builder	Bethlehem Steel Co.



Property Name Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488

SIGNIFICANCE STATEMENT

The 1960 Denver & Rio Grande Western Railroad (D&RGW) Bulkhead Flatcar No. 22488 is eligible for the State Register under Criterion C in the area of *engineering*. The car is a rare surviving example of a standard gauge, 50-ton bulkhead flatcar. Used to carry pipe, lumber, dry wall, and other long dimension loads, No. 22488 is of a freight car type important to the operation of the Rio Grande Railroad during the later part of the twentieth century. The car's nearly forty-year record of continuous service demonstrates the success of its design and manufacture.

Flatcars have been around as long as railroads themselves. The flatcar is one of the most basic car types and certainly one of the most prevalent. Cranes can be used to load and unload flatcars, and the lack of side walls also permits the use of forklifts or pallet jacks, giving the flatcar great versatility. While easy to load and unload, flatcars offer little protection to freight from weather, inadvertent damage or vandalism. While enclosed boxcars provide such protections, many large items will not fit through boxcar door openings. Heavy items requiring the use of cranes for loading also preclude the use of boxcars. Short-sided gondolas offer an alternative to the boxcar and flatcar. The lack of a roof allows items to be loaded from the top, usually with the use of a crane. However, unlike flatcars, the side walls on a gondola prohibit the use of forklifts or pallet jacks (Tudek 2006; wikipedia.com).

In the case of the Denver & Rio Grande, the first flatcars in 1871 were narrow gauge, had four wheels and were used for track construction. They were made of wood, measured 17-feet long by 6-feet wide, weighed 4,000 lbs., and were capable of holding 5 tons (Sloan 2000, p. 89). The first revenue flatcars were 23.5-feet long, 6-feet wide and weighed 6,250 lbs. These cars had a capacity of 10 tons (Fleming 1949, p. 54; Sloan 2000, p. 90). The Rio Grande began purchasing wood standard gauge flatcars as it converted portions of its line to standard gauge in 1880-1881.

One of the biggest changes in the railroad industry was the move from wood to steel rail cars. The first steel cars appeared in 1896 (Encyclopedia Britannica on-line 2006). The D&RGW inherited its first steel cars from its 1920 merger with the Rio Grande Western Railroad. The cars were built in 1901 and were capable of holding 40 tons (Rio Grande Modeling and Historical Society, on-line data 2006).

While the lack of sides on the flatcar make it easy to load and unload, shifting loads can pose a danger to adjacent cars and freight. In loads consisting of bundled items, such as pipe, lumber, poles and steel slabs, individual pieces are subject to forward and backward shifting during transit. To prevent damage to adjoining cars, railroads developed flatcars with bulkheads (end walls). The Rio Grande modified older standard gauge flatcars by adding homemade end walls to make its first bulkhead flatcars (Tudek 2006; Eager 1999, p. 58). Orville Benson, Rio Grande mechanical engineer, designed the car modifications. Clarence Olsen, the division car foreman at the D&RGW Burnham shops, supervised the conversions. The railroad also added bulkheads to a pair of its narrow gauge cars (Sloan 2000, pp. 93, 94).

The narrow gauge line always used wood cars, with one exception. The necessity of moving oil pipes required a car that could carry heavy materials. The Rio Grande built narrow gauge flatcars in 1940 using standard gauge, metal underframe flatcars. These cars could carry 40 tons over their 42-foot length (Sloan 2000, pp. 93, 94).

The D&RGW needed some of the standard gauge bulkhead cars for the movement of wallboard from the U.S. Gypsum plant in Sigurd, Utah, and the Pabco plant in Florence, Colorado, to other parts of the country. One of the other uses of bulkhead flatcars was in the shipment of lumber. Saw mills were

Property Name Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488

located at Kremmling, Granby, Delta, and South Fork. During the 1950s, the Rio Grande experienced a boom in lumber and lumber products originating along its lines. According to Moody's 1959 *Transportation Manual*, the Rio Grande loaded 29,327 tons of lumber and lumber products in 1949. The high points in the 1950s for such loads occurred in 1955 and 1956 when the railroad loaded 113,672 and 133,780 tons respectively.

The railroad also used the bulkhead flatcars to haul oil and gas pipe from Geneva Steel, in Utah, and the Colorado Fuel & Iron plant in Pueblo. In Colorado, much of the Geneva Steel pipe went to the Rulison Field near Rifle on the Western Slope as well as to such areas as Craig (McCall 2006; Rhodes 2006). The CF&I pipe went to Alamosa where it was transferred to the modified narrow gauge bulkhead flatcars for shipment to Farmington, New Mexico.

When the D&RGW managers were ready to purchase new bulkhead flatcars in 1960, they turned to the Bethlehem Steel Corporation. The Rio Grande had experienced a great deal of trouble with bulkhead flatcars fabricated by casting instead of welding (McCall 2006). To avoid the problem, the railroad purchased the series of welded 50-ton bulkhead flatcars from Bethlehem Steel that included No. 22488. The design engineer at Bethlehem was Gus Holabeck. He was known at the time as one of the finest rail car designers. Bethlehem Steel made the best cars in the industry thanks to his help. "He was a top man," pronounced Marv McCall, retired foreman of the D&RGW Car Department. "We bought other cars from them as well. They had an excellent reputation. The Rio Grande wanted to spend its money on the best equipment. They were always careful with their money" (McCall 2006).

The new bulkhead flatcars were built for general service (Tudek 2006; Builder's photo). Some of the cars were needed specifically for the movement of wallboard from the U.S. Gypsum plant in Sigurd and the Pabco plant in Florence. Hence, some cars, like D&RGW No. 22488, received stenciled markings indicating their permanent assignment for dedicated service to Sigurd. "It never helped. They would always steal them (for other uses)," maintained McCall.

The use of D&RGW No. 22488 in the transportation of pipe is borne out by the circular indentations made by shifting pipe on the inner wood panels of the bulkheads. The condition of the wood deck often indicated the predominate use of a bulkhead flatcar. A damaged deck indicated the loading and unloading of lumber or plasterboard by means of forklifts. The same process with pipe did not damage the deck. Marv McCall mentioned that the D&RGW preferred to move pipe because it was easier on the car decks (McCall 2006). Since the deck of No. 22488 remains in good shape, it appears the car was little used in the hauling of lumber or plasterboard.

As the 50-ton cars aged, new cars replaced them in revenue service. The older cars were used for moving railroad ties from Koppers in Denver to various parts of the Rio Grande system. When being moved by railcar, the ties were strapped together (Eager 1999, p. 59). Marv McCall recalled that often individual ties slid sideways. To prevent the movement, crews added chain link to stabilize the loads. A 1985 photograph shows a 22000-series car in tie service (Eager 1999, p. 59). During its later years, the Grand Junction Car Department used D&RGW No. 22488 in materials & maintenance service (Umler results, UPRR, dated May 4, 2000). Most of the 50-ton bulkhead flatcars were retired before the Union Pacific-Southern Pacific (D&RGW) merger. By October 1997, the Union Pacific had only 11 cars left, and all were out of service before the end of 2000 (Equipment Register, p. RR-611). Retirement for No. 22488 came in May 2000. While some 50-ton cars may remain in maintenance of way (non-revenue) service, the Union Pacific has many newer and better cars, such as the 70-ton flatcars, to handle its company materials. Hence, it is unlikely that any other 50-ton flatcars remain. John Tudek noted that

Property Name Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488

the cars are so obsolete that parts for them will be hard to find outside of a scrapyard. The 50-ton cars are part of long gone railroading era.

In the twenty-first century, bulkhead flatcars still exist, but they tend to be more commodity-oriented. The most common type of bulkhead flatcar is the "centerbeam" flatcar. This is a bulkhead flatcar with a center spline separating the two sides and providing some structural support. The new car is designed specifically to handle lumber. Centerbeam flatcars can be 73-feet long and carry a capacity of 225,000 lbs., substantially more than twice the capacity of D&RGW No. 22488 (Greenbrier Companies 2006). One car manufacturer makes 89-foot centerbeam flatcars that can handle 215,500 lbs. (Freightcar America 2006). Newer bulkhead cars are 60 feet or greater in length and can handle up to 100 tons (Equipment Register, October 1997, p. RR-677 for the Union Pacific and RR-657 for the SSW). They are still used to haul oil and gas pipe to various parts of Colorado (Rhodes 2006).

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BIBLIOGRAPHY

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Shuman, Sam. Interviewed in May 2000 by Daniel Quiat.

Tudek, John Retired Carman interviewed 10/7/06 by Daniel Quiat.

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GEOGRAPHICAL DATA

VERBAL BOUNDARY DESCRIPTION

The State Register nomination includes only the structure of the hopper car as it sits within the boundaries of the Union Pacific Railroad's Burnham Yard at 800 Seminole Rd. in Denver. No land is included with this nomination.

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PHOTOGRAPH LOG

The following information pertains to photograph numbers 1-11:

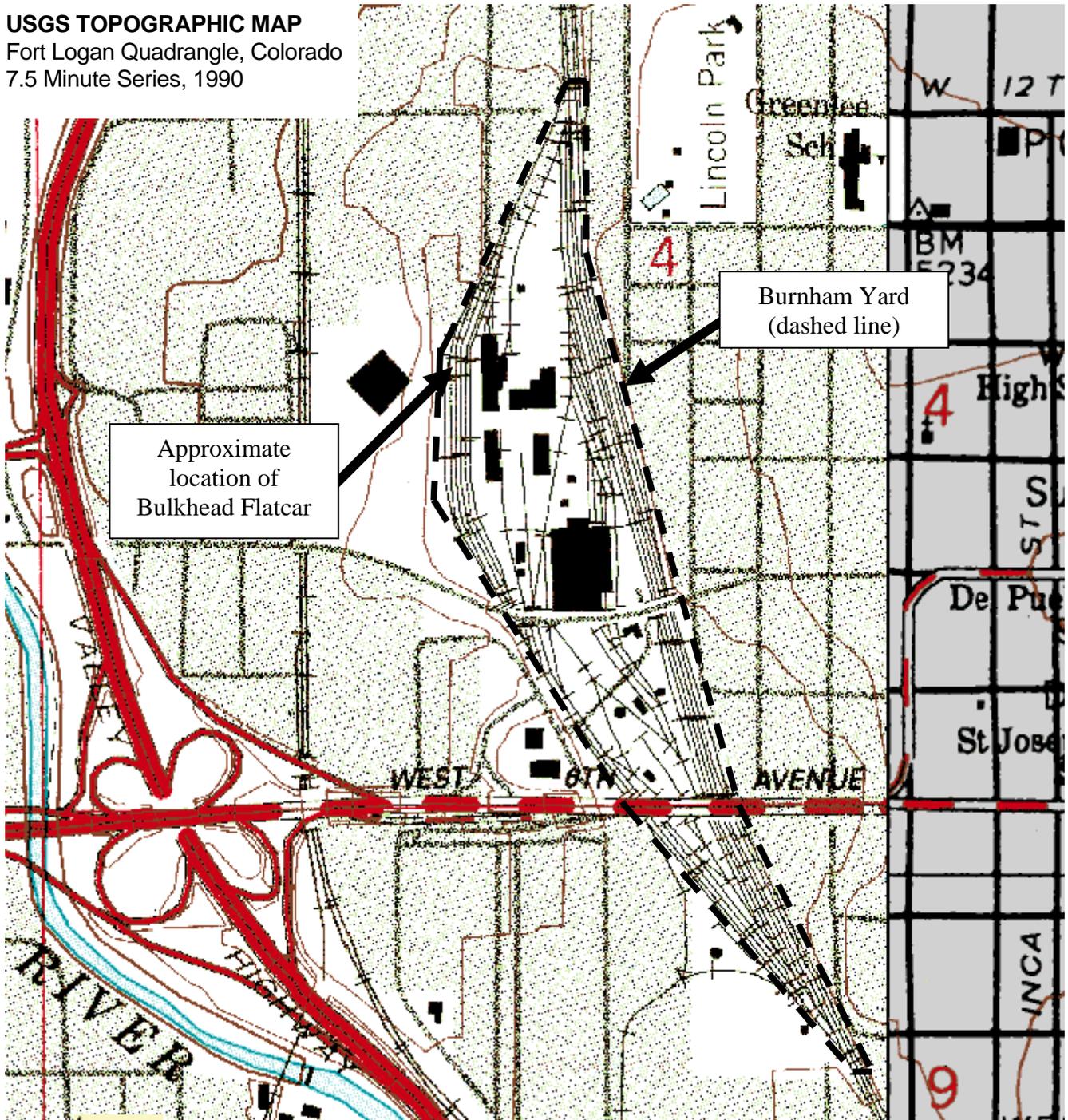
Name of Property: Denver & Rio Grande Western Railroad Bulkhead Flatcar No. 22488
Location: 800 Seminole Rd., Burnham Yard, Union Pacific Railroad, Denver
Photographer: Daniel Quiat
Negatives: Possession of the photographer

Photo No. Photographic Information

- 1 Side of car looking northeast (10/8/2006).
- 2 Side of car looking southeast 10/8/2006).
- 3 Car profile looking west (10/4/2006).
- 4 Car deck looking north (10/8/2006).
- 5 Interior view of bulkhead and deck looking west (10/8/2006).
- 6 Interior view of bulkhead showing indentations from pipe impacts (10/8/2006).
- 7 Car deck and pile driver looking south (10/8/2006).
- 8 View of locker on exterior of bulkhead (10/8/2006).
- 9 End of car with break wheel (10/8/2006).
- 10 View of truck (wheel assembly) with D&RGW markings (10/8/2006).
- 11 Bethlehem Steel logo on car side (11/17/2005).

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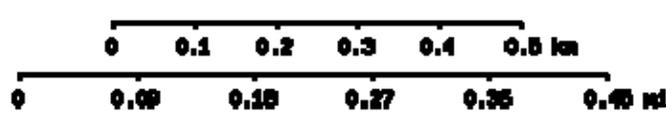
USGS TOPOGRAPHIC MAP
Fort Logan Quadrangle, Colorado
7.5 Minute Series, 1990



Approximate location of Bulkhead Flatcar

Burnham Yard (dashed line)

topozone
Copyright 1999-2003 Maps a la carte, Inc.



Denver Water Department Heliport, USGS Fort Logan (CO) Quadrangle
Projection is UTM Zone 13 NAD83 Datum

M=10.01
G=-0.004