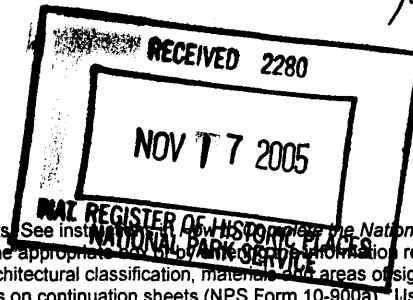


1483

United States Department of the Interior  
National Park Service

National Register of Historic Places  
Registration Form



This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions for the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "X" in the appropriate box. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials and areas of significance, enter only categories and subcategories listed in the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name "Backwards" Tunnel  
other names/site number Double Tunnels, Double Arch Tunnels, The Arch, Walkkill Arch Bridge

2. Location

street & number Cork Hill Road, 310 feet north of Passaic Avenue intersection  not for publication  
city or town Borough of Ogdensburg  vicinity  
state New Jersey code NJ county Sussex code 037 zip code 07439

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I certify that this  nomination  request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property  meets  does not meet the National Register criteria. I recommend that this property be considered significant  nationally  statewide  locally.  See continuation sheet for additional comments.

Signature of certifying official/Title [Signature] Date 1/12/05  
John S. Watson, Jr., Assistant Commissioner Natural & Historic Resources/DSHPO  
State or Federal agency and bureau \_\_\_\_\_

In my opinion, the property  meets  does not meet the National Register criteria.  See continuation sheet for additional comments.

Signature of certifying official/Title \_\_\_\_\_ Date \_\_\_\_\_  
State or Federal agency and bureau \_\_\_\_\_

4. National Park Service Certification

I hereby certify that this property is:

- entered in the National Register.  See continuation sheet.
- determined eligible for the National Register.  See continuation sheet.
- determined not eligible for the National Register.
- removed from the National Register.
- other, (explain:) \_\_\_\_\_

Signature of the Keeper [Signature] Date of Action 12/28/05  
Edson H. Beall

**“Backwards” Tunnel**

Name of Property

**Sussex County, New Jersey**

County and State

**5. Classification**

**Ownership of Property**

(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

**Category of Property**

(Check only one box)

- building(s)
- district
- site
- structure
- object

**Number of Resources within Property**

(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
1	_____	structures
_____	_____	objects
1	0	Total

**Name of related multiple property listing**

(Enter "N/A" if property is not part of a multiple property listing.)

N/A

**Number of contributing resources previously listed in the National Register**

0

**6. Function or Use**

**Historic Functions**

(Enter categories from instructions)

Category :	Sub-Category:
Transportation	Rail-related
	Road-related
	Pedestrian-related

**Current Functions**

(Enter categories from instructions)

Category:	Sub-Category
Transportation	Road-related
	Pedestrian-related

**7. Description**

**Architectural Classification**

(Enter categories from instructions)

No style

**Materials**

(Enter categories from instructions)

foundation Stone

walls Stone

roof

other

**Narrative Description**

(Describe the historic and current condition of the property on one or more continuation sheets.)

**8 Statement of Significance**

**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

**Criteria considerations**

(mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

**Areas of Significance**

(Enter categories from instructions)

Transportation

Engineering

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Period of Significance**

1871-1872

\_\_\_\_\_

\_\_\_\_\_

**Significant Dates**

December, 1871

March 28, 1872

\_\_\_\_\_

**Significant Person**

(Complete if Criterion B is marked above)

\_\_\_\_\_

**Cultural Affiliation**

N/A

\_\_\_\_\_

\_\_\_\_\_

**Architect/Builder**

Mr. Justin Arnold

Mr. Simpson

\_\_\_\_\_

**Narrative Statement of Significance**      **Continuation Sheets, Pages 2-4**

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

**9. Major Bibliographical References**      **Continuation Sheets, Pages 5-7**

**Bibliography**

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

**Previous documentation on file (NPS):**

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # \_\_\_\_\_
- recorded by Historic American Engineering Record # \_\_\_\_\_

**Primary location of additional data**

- State Historic Preservation Office
- Other State agency
- Federal agency - FEMA
- Local government
- University
- Other

Name of repository:

Old S and F Museum, Ogdensburg, NJ

**"Backwards" Tunnel**

Name of Property

**Sussex County, NJ**

County and State

**10. Geographical Data**

Acreage of property

0.60**UTM References**

(Place additional UTM references on a continuation sheet.)

1 18 533456 4548371  
Zone Easting Northing

2

3 Zone Easting Northing

4

 See continuation sheet**Verbal Boundary Description, Continuation Sheet, Page 8**

(Describe the boundaries of the property on a continuation sheet.)

**Boundary Justification, Continuation Sheet, Page 8**

(Explain why the boundaries were selected on a continuation sheet.)

**11. Form Prepared By**name/title Wasco Hadowanetz, Historianorganization Borough of Ogdensburg date April 5, 2005street & number 15 Richards Street telephone 973-827-3319city or town Ogdensburg state NJ zip code 07439**Additional Documentation**

Submit the following items with the completed form:

**Continuation Sheets****Maps**A **USGS map** (7.5 or 15 minute series) indicating the property's location.A **Sketch map** for historic districts and properties having large acreage or numerous resources.**Photographs: Continuation Sheet, Page No. 9 and Photos, Nos. 1-7**Representative **black and white photographs** of the property.**Additional items**

(Check with the SHPO or FPO for any additional items)

**Property Owner**

(Complete this item at the request of the SHPO or FPO.)

name N.Y.S. and W. Railroad, Otsego Systemstreet & number 1 Railroad Avenue telephone 607-547-2555city or town Cooperstown state NY zip code 13326**Paperwork Reduction Act Statement:** This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.470 *et seq.*)**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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# National Register of Historic Places Continuation Sheet

Backwards Tunnel  
Sussex Co., NJ

Section number   7   Page   1  

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## Narrative Description:

The dual tunnel is a double-arched stone structure, 180 feet in length, which spans Cork Hill Road and provides passage for the northerly flowing Wallkill River. It is sixteen feet wide and fifteen feet high over the road, and twenty feet wide and sixteen feet high over the river. The central pier and the two outer walls are each seven feet thick. An embankment of sixty feet rises above the masonry of the two arches up to the rail bed. The locally cut stones are held together with a lime-rich cement which enhances the growth of a fern, the Purple Cliff Brake, found in the joints at the tunnel entrances. This fern is moderately common in limestone areas.

The term “backwards” as applied to the tunnel is a misnomer. Though a subject of conjecture for years, it appears to have first surfaced in print during the 1976 borough bi-centennial celebration of the Declaration of Independence. A booklet “*The Story of Ogdensburg*,” was published in which informal interviews of residents were related in story form without crediting statements as to their authorship. The pertinent statement in this instance was: “People chuckled about some of the faux pas, e.g., the tunnel leading to Franklin had been put in backwards. The wide opening had been put over the water and now only one wagon at a time could go through the tunnel on Cork Hill Road”.

In fact, the tunnel was built as intended, with the widest arch over the Wallkill, according to the dimensions reported in the September 28, 1871 issue of the New Jersey Herald and Sussex County Democrat. It is doubtful there was much consideration given to providing two-way wagon traffic through the tunnel in 1871. Even today, vehicular traffic is light, and encountering another vehicle approaching from the opposite direction is fairly uncommon. The same Herald issue offers a reasonable explanation supporting the correctness of the builder’s design – that the wider tunnel “... in time of a freshet [ flood ] would serve as a channel for the surplus water.”

“The Arch,” became a general designation for the tunnel. Youngsters growing up in town would go fishing in the brook (the Wallkill) by the arch (the tunnel). Early 20<sup>th</sup> century postcards titled it “The Arch. Nevertheless, the term “Backwards” came into common usage after the 1976 publication; so in 1991, when the Borough of Ogdensburg designated the tunnel as a town historic structure, it adopted the name “Backwards” Tunnel.

Before 2000, there had been no known alterations to the tunnel, other than road resurfacing. On August 12, 2000, however, there occurred such a deluge of rain, concentrated over the Sparta/Ogdensburg area, that the Wallkill River rose to record levels. When two dams in Sparta were breeched, the added water raised the level in the tunnels to within a foot of the top, according to eye-witness accounts. After the water level from the “Great Flood” receded, it was noted that a number of stones at the west end of the northern tunnel entrance were dislodged, along with a portion of the roadway. Based upon documentation assembled in 1991, the Deputy State HPO offered the opinion that “...the “Backwards” Tunnel is individually eligible to be listed in the National Register of Historic Places under Criteria A and C.” Accordingly, she provided guidelines for repairing the tunnel as close to its original appearance and structure as possible. Details of the guidelines and repair work are included in the nomination cover letter.

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# National Register of Historic Places Continuation Sheet

Backwards Tunnel  
Sussex Co., NJ

Section number 8 Page 1

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## Narrative Statement of Significance

The "Backwards Tunnel" was an important engineering structure of the New Jersey Midland Railroad, which later became the New York, Susquehanna, and Western Railroad, a line which provided through service from Jersey City, New Jersey to Buffalo, New York and which became a major hauler of anthracite coal from the Pennsylvania coalfields to the New York metropolitan region. It also was the principal carrier of zinc ore from the New Jersey Zinc Company mines at Ogdensburg and nearby Franklin, New Jersey. The keystone of the Backwards Tunnel was placed in December 1871, marking the structure's completion, the most massive masonry on the Midland Railroad line, and it heralded the fulfillment of plans to tap markets along the corridor from Middletown, New York and northern Sussex County to New York City. As a village along this route, Ogdensburg was to benefit substantially in business and resident service activities. The tunnel possesses local significance under National Register Criterion A for transportation history and under Criterion C for engineering, for its unusual tunnel design.

The Midland engineers were attracted to the Ogdensburg location by the fortuitous presence of a unique moraine, an embankment, deposited during the last ice age when the Wisconsin Glacier covered a third of North America. This glacial deposit stretched east and west across the Wallkill Valley, with a gap at the western end through which the Wallkill River flowed and in which an adjacent wagon road existed. At the gap, the embankment rose eighty feet above the river and road. Geologists differ as to whether it was formed during glacial stagnation, recession or a combination of both. However, regardless of the manner in which it was deposited, it proved to be a boon to the Midland engineers seeking a route across the Wallkill Valley.

By mid-1869 the Midland had completed its line to Middletown, New York. In July of that year its officers held a series of meetings in villages (including Ogdensburg) along proposed routes to solicit subscriptions and to determine the best route to reach New York City markets. Two routes in contention were one by way of Greenwood Lake and another through Sussex County by way of the Munson Gap in Sparta Mountain. It was decided that the Munson Gap route would be the most advantageous, mainly "...to obtain better local business..." according to James P. Snell in his compilation of the *History of Sussex and Warren Counties*. Using that route through Ogdensburg produced an additional bonus for Midland. As it was later explained in their Guide, "... This curious formation saves the railroad a further circuit of ten miles which it would otherwise be obliged to make around the valley.

Using this embankment, they would need only to bridge a gap on the western end where the Wallkill River and an adjacent wagon road passed through. Their plan was to build a double-arched tunnel and fill in up to track level. Though the glacial moraine facilitated rail construction, building the tunnel was to be a formidable task.

Work on the tunnel proceeded rapidly in 1871. By the middle of June the arches of the bridge over the Wallkill were nearing completion, and the heavy fill across the valley was partly completed. In July, contractor Simpson received a large boiler and a steam drill to facilitate cutting the massive rock formation near the Wallkill. At that time, crews were engaged in construction of "the heaviest piece of masonry on the entire line,

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# National Register of Historic Places Continuation Sheet

Backwards Tunnel  
Sussex Co., NJ

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a bridge over the Wallkill near Sterling Hill", as reported in the New Jersey Herald. Also, Mr. Simpson, on behalf of Midland, negotiated purchase of land from the Lantermans for construction of machine shops, a depot and a locomotive house. By the end of July, fifty stone cutters were employed under the supervision of John Bond.

On November 9<sup>th</sup> the New Jersey Herald stated that, "Work commenced upon the last section of the immense arched bridge for the Midland over the Wallkill near Ogdensburg. The whole is expected to be completed in December." On December 21<sup>th</sup>, the same editor reported that the last key in the massive arched bridge had been placed, and adding sufficient fill over the bridge would probably be completed in another month. Also in December the Passaic Zinc Mining and Manufacturing Company began building a spur from the Midland Railroad to its adjacent property.

On March 28, 1872 the last rail was spiked into place, closing the gap in the New Jersey Midland below Franklin and joining the two completed sections. A milk train was then placed on the road in a trial run. With the spur to the zinc mine installed and the depot built, the Midland was ready to introduce rail service to Ogdensburg. This new service resulted in immediate and long-term advantages to the Sterling Hill mining companies and to the community.

Before the coming of the Midland Railroad, separated zinc ores were transported to smelters through a laborious route. Mules pulled cartloads of ore three miles up the Sparta Mountain to the Ogden Mine Railroad where it was reloaded into ore cars. From there the ore was transported to Nolan's Point on Lake Hopatcong, transferred to boats and shipped to a processing plant in Jersey City via the Morris Canal.

In 1869 when this mode of transportation was being used, the Passaic Company employed 30 men and shipped 10,000 tons of zinc ore annually. By 1919 the New Jersey Zinc Company (formed by merging all local mining companies) was shipping an average of 4500 tons of ore a month. By 1973, the 125<sup>th</sup> anniversary of zinc mining in Ogdensburg, New Jersey Zinc reported shipping 19,000 tons of crushed ore daily, employing a work force of 200 miners at full strength.

Paralleling the prosperity of the zinc mining companies the village of Ogdensburg prospered also, experiencing a renewal of activity. As the 1873 Midland Guide described it, "The advent of the Midland has given a new impetus to the formerly slow growth of the place, and new dwellings, stores and other improvements are springing up as if by magic." Though the description was overly exuberant, there was a burst of new building at this time as reported in the New Jersey Herald. By June 1871, John Lanterman erected three tenement houses next to the Passaic Zinc Company. He also had his farm surveyed into building lots around the new depot. John George, mine superintendent, sold a valuable building lot and builder Samuel Boston received a contract to erect a house on it. In January 1873, the New Jersey Herald announced that a new hotel known as the Adam House opened for business in Ogdensburg. Later, it was to be known as the Lyon House, Sweney's, and then again as Lyons House reflecting its earlier designation.

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Continuation Sheet**

Backwards Tunnel  
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The increase in revenue from the expanding zinc mine production and other business activity enhanced by rail service, emboldened the village of Ogdensburg to seek separation from Sparta Township. It became an incorporated borough on March 31, 1914. The NYS&W (beginning with the former Midland) was eventually to serve the borough well for 87 years up to 1958, transporting zinc ores and goods for local merchants, delivering its mails, shuttling its residents on shopping trips and excursions, and carrying its students to neighboring high schools until Franklin High School became operational in 1928.

After 132 years since it was built, the double-arched tunnel remains structurally sound and is still in use for vehicular and pedestrian traffic. The "Backwards" Tunnel now stands as a reminder of the important influence that rail service had on the development of the Borough of Ogdensburg.



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Backwards Tunnel  
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Continuation Sheet**

Backwards Tunnel  
Sussex Co., NJ

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**GEOGRAPHICAL DATA**

Verbal Boundary Description

The property is a rectangular parcel measuring 107x250 feet. The width comprises the dual-arch tunnel width of 57 feet plus an additional 25 feet of buffer adjacent to the west and east outer walls. The length comprises the length of the tunnels, 180 feet, plus an additional length of 35 feet at the north and south entrances which include the embankment and the four wing walls.

Boundary Justification

Adjacent to the east and west outer walls, an additional 25 feet of embankment have been included as buffer zones to insure structural integrity. This will also preserve a portion of the embankment up to the New York, Susquehanna and Western Railroad bed, which reflects the primary purpose for constructing the tunnels. The length of the tunnel area to be preserved has been increased by 35 feet at each entrance to include the four wing walls which are integral appendages. These have served as barriers, inhibiting embankment materials from washing onto the road surfaces and into the Wallkill River.

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Continuation Sheet**

Backwards Tunnel  
Sussex Co., NJ

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**Photographs**

Labeling, Items 3,4, and 5 – All Photos

- Name of Photographer: Wasco Hadowanetz
- Date of Photographs: October 10, 2005
- Location of Negatives: OSH and FH Museum, Ogdensburg, NJ

Labeling, Item 6 – Description of Views

Photo No. 1- North entrances taken from center of Cork Hill Road

Photo No. 2- North entrances taken from east shoulder of Cork Hill Road

Photo No. 3- Close-up of north entrances from east shoulder of Cork Hill Road

Photo No. 4- South entrances taken from west bank of Wallkill River

Photo No. 5- South entrances taken from center of Cork Hill Road

Photo No. 6- N.Y.S. and W. Railroad bed over tunnel, looking west

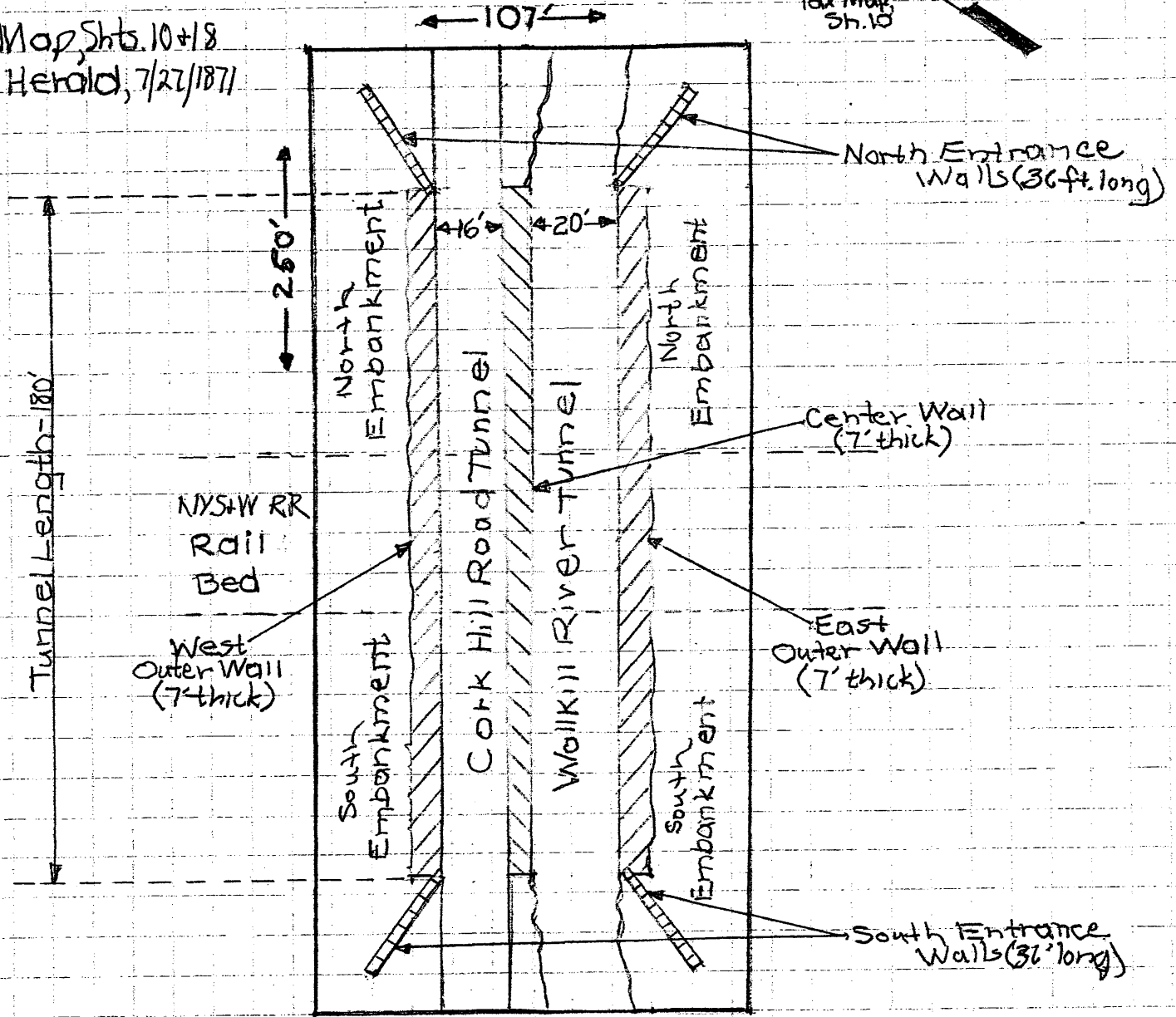
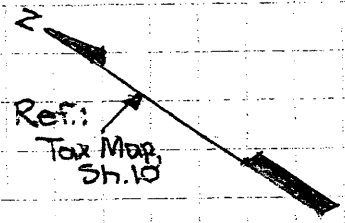
Photo No. 7- Sloping embankment near east wall of tunnel indicating erosion since 1991 excavation

# Dual-Arched "Backwards" Tunnel

Area to be Preserved  
(107' x 250', 0.60A.)

## Dim. Refs.

1. Tax Map, Shts. 10+18
2. N.J. Herald, 7/27/1871



## Buffer Distances:

1. Length - 35' added North & South to include Entrance Walls

2. Width - 25' added from East & West Outer Walls to insure tunnel structural and original use integrity

W. HADOWANETZ  
7/12/04