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Before
THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

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C. 18616 - Pennsylvania Public Utility Commission v. Penn Central Company, The Baltimore and Ohio Railroad Company, City of Pittsburgh, County of Allegheny and Department of Highways of the Commonwealth of Pennsylvania

Complaint Docket C. 18616

- - - - -

At Pittsburgh, Penna., Tuesday, Sept. 1, 1970

DOCKETED
COMPLAINT DOCKET
SEP 9 1970
ENTRY No. 4

Pages 1 To 22

RECORD
FOLDER

MOHRBACH & MARSHAL, INC.
SHORTHAND & STENOTYPE REPORTERS
2000 STATE STREET
HARRISBURG, PA. 17103
236-9304

Before

THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

- - - - -

In re: C. 18616 - Pennsylvania Public Utility Commission v. Penn Central Company, The Baltimore and Ohio Railroad Company, City of Pittsburgh, County of Allegheny, and Department of Highways of the Commonwealth of Pennsylvania - Investigation upon Commission motion of the use and safety of the bridge carrying State Highway Route 02260 (31st Street) across the Allegheny River and above the grade of the tracks of Penn Central Company and the Baltimore and Ohio Railroad Company on both sides of the river.

Initial hearing.

- - - - -

Stenographic report of hearing held in Hearing Room 1211, State Office Building, 300 Liberty Avenue, Pittsburgh, Pennsylvania

Tuesday
September 1, 1970
at 10:00 o'clock a.m.

- - - - -

WILLIAM MOLDOVAN, ESQUIRE, EXAMINER

APPEARANCES:

THOMAS C. DICK, ESQUIRE
North Office Building
Harrisburg, Penna.
For: Public Utility Commission

WILLIAM E. BETHARDS, ESQUIRE
C.A.B. Building
7th and Forster Streets
Harrisburg, Penna.
For: Department of Transportation

JOHN R. VALAW, ESQUIRE
City-County Building
Pittsburgh, Penna.
For: City of Pittsburgh

JOHN CLEMENTS, ESQUIRE
925 Penn Central Station
Pittsburgh, Penna.
For: Penn Central Company

GARY F. SHARLOCK, ESQUIRE
1022 Frick Bldg.
Pgh., Penna. 15219
For: Baltimore and Ohio Railroad

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P R O C E E D I N G S

THE EXAMINER: We are ready to commence the hearing of Complaint Docket No. C. 18616 involving the 31st Street Bridge. You may proceed, Mr. Bethards.

MR. BETHARDS: Thank you, Mr. Examiner.

Mr. Examiner, I call Mr. Clements.

WILLIAM J. CLEMENTS, called as a witness on behalf of the Respondent being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BETHARDS:

Q Please state your full name for the record.

A Williams J. Clements.

Q By whom are you employed, Mr. Clements?

A Commonwealth of Pennsylvania, Department of Transportation.

Q In what capacity, sir?

A Civil Engineer in the Highway Design Bureau, Grade Crossing unit.

Q What is your office address?

A Room 1115 Transportation and Safety Building.

Q Are you duly authorized to testify here today, Mr. Clements?

A Yes.

Q Please state the name, general location termini,

traffic route number of the public highway involved in this proceeding?

A Well, the highway involved in this proceeding is L.R. 02260, specifically the 31st Street Bridge. The location is in the City of Pittsburgh. The bridge spans the Allegheny River at 31st Street and crosses above the tracks of the Penn Central Transportation Company, and I believe the Baltimore and Ohio Railroad Company.

L.R. 02260 begins at the intersection of Penn Avenue and 31st Street and ends at the intersection of 31st Street with East Ohio Street in the City of Pittsburgh.

Q Please describe in detail the type, width of pavement, alignment, grades and general physical condition of the highway approaches to the existing crossing?

A The Penn Avenue approach is a block stone roadway 36 feet wide and is situated at a 90 degree right angle to the south of the 31st Street Bridge. The approach is in good condition. The East Ohio Street approach is concrete roadway 40 feet width and situated at a 90 degree right angle to the north end of the bridge, and this approach is in generally good condition also.

Q Please state the present and estimated future traffic at this location?

A The present traffic is approximately 8,000 vehicles per day. The future estimated average daily traffic

in 1975 would be approximately 9,000, and in 1990 it is estimated to increase to approximately 20,000 vehicles per day.

Q Please describe the type, number of spans and the general physical condition of the substructure and superstructure of the existing bridge?

A There is three arch spans 229 feet, 380 and a half feet and 229 feet, respectively, which span the Allegheny River, and span plate girder construction is used on the north and south approaches except over the back channel where cantilever plat girder plate construction is used. The roadway width is 28 feet and there is a seven foot sidewalk on each side of the roadway.

The substructure is in fair condition and the superstructure is in poor condition.

Q State whether the Department of Transportation is obligated in any way to maintain any portion of the substructure and superstructure of the bridge?

A The Department of Transportation is in no way obligated to maintain any portion of the substructure or superstructure on the 31st Street Bridge.

Q State whether the Department has performed a detailed inspection of the bridge in the last five years?

A The Department of Transportation has had a consulting engineer, namely, Richardson, Gordon and Associates,

to prepare an in-depth inspection and theoretical analyses for this particular structure. This report was submitted to the Department in September of 1969.

MR. BETHARDS: Mr. Examiner, I ask that the report just referred to be identified to as Pennsylvania Department of Transportation Exhibit No. 1.

(PennDOT Exhibit No. 1, being an engineering report of in-depth inspection and theoretical analyses, for Allegheny River Bridge, L.R. 02260- station 17 plus 49.5 at 31st Street, Pittsburgh, September 1969, was produced and marked for identification.)

BY MR. BETHARDS:

Q The report you just referred to, Mr. Clements, is that Pennsylvania Department of Transportation Exhibit 1?

A Yes.

Q What recommendations does that make?

A The recommendations are contained on pages 15 and 16. No, it starts on page 12. Pages 12 to 16. These are the recommendations on what repairs or what rehabilitation should be done to the structure based on the in-depth inspection and theoretical analyses as presented in the exhibit which is very thorough.

Q What testimony do you have to offer with reference to a preparation of a plan?

A When the proceeding before the Public Utility

Commission was begun, the Department posted the structure for five tons in accordance with the order and this was based on the preliminary inspection, not on the in-depth inspection, and had determined that possibly some repairs to a few spans would be able to raise the low-carrying capacity to the 12 ton, but the in-depth inspection has revealed that the deterioration in this superstructure is more expensive than originally determined, so, therefore, the Department would recommend that a complete plan be prepared based on this in-depth inspection and theoretical analyses, and an estimate of cost, and that the Department would be willing to prepare such a plan.

Q And the estimateof cost?

A Yes.

Q Do you have any further testimony which you would like to offer at this time, Mr. Clements?

A In view of what I just said, that the Department of Transportation would also recommend that any testimony concerning allocation of cost and division of work and future maintenance, possibility of this structure being deferred until such time as the plan, the complete plan is done and submitted to the Commission and all parties and future hearing is held on this plan.

MR. BETHARDS: I offer the witness for cross-examination, Mr. Examiner.

CROSS-EXAMINATION

BY MR. DICK:

Q Mr. Clements, in view of your testimony as to the anticipated traffic load and the recommendations of the in-depth study that was made, can we conclude that the Department of Transportation does not recommend that this highway crossing be abolished?

A We do not, no, sir.

MR. DICK: That is all.

THE EXAMINER: Any further cross-examination of Mr. Clements?

That will be all, then, Mr. Clements.

(Witness excused.)

MR. BETHARDS: Mr. Examiner, I offer into evidence, Pennsylvania Department of Transportation Exhibit No. 1.

THE EXAMINER: Any objections?

Exhibit No. 1 will be received in evidence.

MR. BETHARDS: The Department of Transportation rests, Mr. Examiner, and under the circumstances it would seem to me that our testimony is all the testimony that's really necessary at today's hearing.

THE EXAMINER: Is there anyone present in the hearing room at this time who wishes to make any statement for the record or who wishes to offer any testimony?

MR. CLEMENTS: May we go off the record, Mr. Examiner?

THE EXAMINER: Yes.

(Discussion off the record.)

THE EXAMINER: Back on the record.

MR. BETHARDS: Before Mr. Clements does call his witness, Mr. Examiner, I would just like to note for the record that the Pennsylvania Department of Transportation Exhibit No. 1 has already been submitted to the County and to the City?

THE EXAMINER: The record will so show.

You may call your witness, Mr. Clements.

MR. CLEMENTS: I would like to call Mr. Streiff.

WARREN D. STREIFF, called as a witness on behalf of the Respondents , being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CLEMENTS:

Q Would you give us your full name.

A Warren D. Streiff.

Q By whom are you employed?

A Penn Central Transportation Company as Regional Engineer of Structures.

Q What is your office address?

A Room 623, Penn Central Station, Pittsburgh.

Q Are you a registered engineer?

A Yes, I am a registered engineer in the State of Pennsylvania.

Q Generally, what are your duties working with the railroad?

A Maintenance and review of construction of new projects in the territory comprising Harrisburg west and within the western part of Pennsylvania.

Q Are you qualified to testify for Penn Central in this action?

A I am.

Q Could you give us for the record the exact corporate name of the owner of the track underneath the 31st Street Bridge?

A This is a prior bit of information which is relevant to this case. The Penn Central Transportation Company was the owner of record prior to June 21, 1970. At that time bankruptcy proceedings were instigated and the proper ownership is now vested as follows: George P. Baker, Richard C. Bond, Jarvis Langdon, Jr., and Willard Wirtz.

THE EXAMINER: Off the record.

(Discussion off the record.)

THE EXAMINER: Back on the record.

THE WITNESS: These trustees were appointed by the U.S. District Court.

BY MR. CLEMENTS:

Q Will you state the name of the line of railroad passing through the crossing, the number of tracks, the terminal points and the number, class and authorized speed of rail traffic, volume or track configuration at the crossing?

A Taking these in reverse order, the track configuration at this crossing consists of approximately 13 tracks under this bridge. These are divided under four spans. Going from the south to the north, there is one main track and two sidings under the eighth span from the outside. This was referred to as our Allegheny Branch which runs from a terminus in Pittsburgh to a point in Oil City, Pennsylvania.

There are two through moves a day and approximately ten shifting moves and an authorized speed of 15 miles an hour.

The next crossing is on the 20th span and is located on Herrs Island, are two tracks which have occasional switching moves. The track itself is a loop track over Herrs Island with no definite termini. The speed of the rail movements at this point is ten miles per hour.

The next crossing is on span 24 which is also two side tracks and are the return loops of this stockyard branch. Same speed, same moves.

The last crossing is on the northernmost span or span 27 and is our main line Conemaugh track, comprising

two main tracks, two sidings and two industrial tracks.

The termini of this railroad is Pittsburgh on the west end and point opposite Johnstown on the northern end. There are approximately 30 freight trains per day on this track, on these tracks with an authorized speed of 45 miles an hour.

Q Mr. Streiff, you heard the testimony of Mr. Clements concerning the crossing, the bridge and its structure and so forth. Do you have any exceptions to take to that testimony or any additional information or knowledge that you have that would be pertinent?

A Not having reviewed the report prepared by the consultant I can offer no testimony regarding that report. However, the condition of the superstructure over the spans over the tracks of the Penn Central Railroad I do not feel are critical at this time.

Q From your expertise, would you describe in detail any defects in the crossing structure or its approaches which should be repaired in the interest of public safety and convenience and in addition could you state whether any other alterations to the bridge structure should be undertaken at this time?

A Again, I offer testimony only for the spans that are over the railroad tracks as those are the only spans that I have looked at, and at this time I repeat that I don't

feel that these are endangering the railroad in the present condition.

Q Is the Penn Central Transportation Company obligated in any way to maintain any portion of the sub-structure or superstructure of this bridge?

A We have an agreement, a city ordinance, I believe, dated March 15, 1927, which allocates the maintenance of this structure to parties other than the railroad.

MR. CLEMENTS: Mr. Examiner, at this point I was going to introduce as railroad's Exhibit A, a decision of the Public Service Commission allocating the maintenance to the County of Allegheny. However, if there is agreement that the decision as to who is going to bear the cost of this will be postponed to a later date, I will not submit it at this time on the understanding it would not prejudice our viewpoint on the matter.

THE EXAMINER: Let's go off the record a moment.

(Discussion off the record.)

THE EXAMINER: Back on the record.

MR. CLEMENTS: Would you mark this, please.

(Penn Central Exhibit A, being a decision of the Public Service Commission, was produced and marked for identification.)

BY MR. CLEMENTS:

Q I am going to ask you to identify Penn Central Exhibit A.

Mr. Streiff, in your testimony you referred to an ordinance. Is that not a decision of the same date by the Public Service Commission of Pennsylvania, and is that not now marked Railroad's Exhibit A?

A Yes, this is the county of Allegheny Complaint Docket 6902 dated March 15, 1927.

MR. CLEMENTS: At this point, Mr. Examiner, I would like to put into evidence a photostatic copy of this decision which is marked Penn Central Exhibit A.

THE EXAMINER: Any objections?

It will be received.

THE EXAMINER: Do you have any further questions?

MR. CLEMENTS: I think I have another question.

THE EXAMINER: All right.

BY MR. CLEMENTS:

Q Mr. Streiff, what protection does Penn Central feel will be needed in this case and who does Penn Central feel should bear the cost of such protection?

A Any work that is done over the tracks of the railroad would require protection by flagmen for the railroad. Spans not over the tracks, of course, would not need this protection and the Penn Central Company would not expect to

bear the costs of these flags or inspectors.

MR. CLEMENTS: I believe that's all the questions I have.

THE EXAMINER: Any cross-examination of this witness?

MR. BETHARDS: No questions.

MR. DICK: No questions.

THE EXAMINER: That will be all, Mr. Streiff.

(Witness excused.)

THE EXAMINER: Any further witness on your part?

MR.CLEMENTS: No, sir.

THE EXAMINER: Any other party present wish to present any other testimony?

MR. SHARLOCK: Yes, Mr. Examiner.

THE EXAMINER: All right.

J. CRAWFORD, called as a witness on behalf of the Respondents, being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SHARLOCK:

Q State your name, title and business address.

A I am J. A. Crawford, area engineer of the Chesapeake and Ohio Railway Company and the Baltimore and Ohio Railroad Company. My business address is 12 Grant Street,

Pittsburgh, Pennsylvania 15219.

Q Give the exact corporate names of the owner and operator of the line of railroad involved in this proceeding.

A The line of railroad involved is owned by The Pittsburgh and Western Railroad Company and is operated by The Baltimore and Ohio Railroad Company as part of the latter company's P&W Subdivision of its Pittsburgh Division.

Q Are you authorized to testify on behalf of The Baltimore and Ohio Railroad Company?

A Yes.

Q Give the number of tracks located at this crossing and their termini and give the volume, class and authorized speed of all rail traffic operated daily on these tracks.

A There are four tracks of the Pittsburg' and Western Railroad Company under the bridge at this crossing. These are the first two tracks south of the Allegheny River and the first two tracks north of the Back Channell of the Allegheny River.

The termini of the southernmost of the first two tracks south of the Allegheny River are approximately 1,000 feet east of and approximately 1,250 feet west of the bridge. The termini of the northernmost of the first two tracks south of the Allegheny River are approximately 5,000 feet east of and approximately 4,700 feet west of the bridge.

All rail traffic on these two tracks are freight switching movements. These movements average three movements in each direction daily. The maximum authorized speed is ten miles per hour.

The termini of the southernmost of the first two tracks north of the Back Channel of the Allegheny River are approximately 7,100 feet east of and approximately 10,500 feet west of the bridge. The termini of the northernmost of the first two tracks north of the Back Channel of the Allegheny River are approximately 5,000 feet east of and approximately 10,500 feet west of the bridge. All rail traffic on these two tracks are freight switching movements. These movements average four movements in each direction daily. The maximum authorized speed is ten miles per hour.

Q State whether the Baltimore and Ohio Railroad Company agrees with the County of Allegheny's testimony describing the crossing structure and give details of any specific exceptions taken and any additional description as seems pertinent or necessary.

A The Baltimore and Ohio Railroad Company takes no exceptions to the County of Allegheny's testimony describing the bridge and said company is not aware of any additional description that is necessary or pertinent.

Q Describe in detail any defects in the crossing structure or its approaches which The Baltimore and Ohio

Railroad Company believes should be repaired in the interest of public safety and convenience and state whether said company believes any other alterations to the bridge structure should be undertaken at the same time.

A The Baltimore and Ohio Railroad Company believes that the bridge should be repaired to a sound condition. Said company has made no investigation of the existing conditions of the bridge and submits that the Department of Transportation, which has made an extensive investigation of the bridge, is the proper party to determine the extent of repairs that should be undertaken.

Q State whether The Baltimore and Ohio Railroad Company is obligated in any way to maintain any portion of either the substructure or the superstructure of the bridge.

State the basis and reasons for the proceding answer.

A The bridge was constructed by the County of Allegheny pursuant to the Public Service Commission of the Commonwealth of Pennsylvania's order issued March 15, 1927, under Complaint Docket 6902, under which the County of Allegheny and the City of Pittsburgh were charged with the duty to maintain this structure.

Q State what portion, if any, of the necessary repair work will The Baltimore and Ohio Railroad Company agree to perform, and what portion, if any, of the cost thereof it will agree to assume, and what portion, if any,

of the reconstructed bridge it will agree to maintain in the future.

A The Baltimore and Ohio Railroad Company does not agree to perform any portion of the work of making the necessary repairs to the bridge and said company does not agree to bear any portion of the cost of making said repairs and it does not agree to maintain in the future any portion of the reconstructed bridge.

Q Does The Baltimore and Ohio Railroad Company desire to present any other pertinent information which in its opinion is relevant to this proceeding?

If so, what is this information?

A Yes. The proposed repairs will be undertaken solely to improve the bridge for pedestrian and vehicular traffic and thereby improve the highway traffic conditions. The highway users will be the beneficiaries of this highway improvement.

The Baltimore and Ohio Railroad Company does not believe that either it or the Pittsburgh and Western Railroad Company will derive any benefit from the proposed repairs.

Furthermore, the present condition of this bridge is not due to any act or omission by either the Pittsburgh and Western Railroad Company or the Baltimore and Ohio Railroad Company.

THE EXAMINER: Anything further?

MR. SHARLOCK: Nothing further.

THE EXAMINER: The record will show that there is no cross-examination of this witness.

MR. VALAW: Mr. Examiner, the City of Pittsburgh has been directed to answer two questions, but as I read the questions, they relate to responsibility and I ask that the City's testimony be deferred until the next hearing.

THE EXAMINER: Your request will be granted on the basis of the fact that the Department of Transportation indicated that there will be a further hearing after the complete plans are prepared, and at that future hearing the matter of the allocation of cost will be gone into in depth, so you will be granted that permission.

MR. VALAW: Thank you, Mr. Examiner.

THE EXAMINER: Any other testimony to be offered?

MR. DICK: Just a moment.

THE EXAMINER: Surely.

MR. DICK: I have conferred with the representatives of the County of Allegheny. Although they have not entered their appearance in this matter today, at the future hearing they will appear and it was probably in response to the testimony and exhibits that have been introduced.

THE EXAMINER: Is there any further testimony to be given at this hearing this morning?

If not, the hearing is closed.

(Whereupon, at 10:45 o'clock a.m., hearing in the above matter was continued to a further date to be set by the Commission.)

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C E R T I F I C A T E

I hereby certify that the proceedings and evidence are contained fully and accurately in the notes taken by me during the hearing on the above cause before the Public Utility Commission of the Commonwealth of Pennsylvania, and that this transcript is a correct copy of the same.

MOHRBACH & MARSHAL, INC.

By George R. Bernick
Official Reporter

Reported by:

George R. Bernick
MOHRBACH & MARSHAL, INC.
2000 State Street
Harrisburg, Penna.

Penn DOT EXHIBIT NO. 1
P. U. C. NO. C-18616
DATE OF HEARING 9/1/70
Wm. R. George K. Bernick Reporter

ENGINEERING REPORT

OF

IN-DEPTH INSPECTION
AND THEORETICAL ANALYSIS

RECEIVED
SEP 18 11 38 AM '70
SECRETARY'S OFFICE
PUBLIC UTILITY
COMMISSION

FOR

ALLEGHENY RIVER BRIDGE
L.R. 02260—STA. 17+49.5

AT

DOCKETED
COMPLAINT DOCKET
SEP 24 1970
ENTRY NO.

THIRTY-FIRST STREET
PITTSBURGH

September 1969

RECORD
FOLDER

Submitted to the

PENNSYLVANIA DEPARTMENT OF HIGHWAYS

by

RICHARDSON, GORDON AND ASSOCIATES
CONSULTING ENGINEERS
3 GATEWAY CENTER
PITTSBURGH, PA. 15222
3 PENN CENTER PLAZA
PHILADELPHIA, PA. 19102

ENGINEERING REPORT

OF

IN-DEPTH INSPECTION
AND THEORETICAL ANALYSIS

FOR

ALLEGHENY RIVER BRIDGE
L.R. 02260–STA. 17+49.5

AT

THIRTY-FIRST STREET
PITTSBURGH

September 1969

Submitted to the

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by

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CONSULTING ENGINEERS

3 GATEWAY CENTER
PITTSBURGH, PA. 15222

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PHILADELPHIA, PA. 19102

IN-DEPTH INSPECTION AND ANALYSIS

ALLEGHENY RIVER BRIDGE

AT THIRTY-FIRST STREET, PITTSBURGH, PENNSYLVANIA

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RICHARDSON, GORDON AND ASSOCIATES

CONSULTING ENGINEERS

3 GATEWAY CENTER
PITTSBURGH, PA. 15222

3 PENN CENTER PLAZA
PHILADELPHIA, PA. 19102

PITTSBURGH

September 9, 1969

In-depth Inspection and
Analysis
Allegheny River Bridge
LR 02260, Sta. 17+49.5
Allegheny County
Agreement No. 41191

Mr. Fred P. DePasquale
Deputy District Engineer
Pennsylvania Department of Highways
Four Parkway Center
875 Greentree Road
Pittsburgh, Pennsylvania 15220

Attention: Mr. N. H. Udani, District Bridge Engineer

Dear Mr. DePasquale:

We are transmitting herewith twenty (20) copies, as requested by Mr. Udani, of our engineering report of field inspection and analysis for the Allegheny River Bridge at Thirty-first Street, Pittsburgh, in accordance with our agreement with the Pennsylvania Department of Highways dated September 3, 1968. The analysis was authorized by your letter of November 21, 1968.

The inspection was performed by Robert E. Wiedwald, a licensed professional engineer on our staff, assisted during the later stages by Martin C. Patterson and Robert J. Gonzalez, also professional engineers on our staff. The analysis was performed by our office staff and Mr. Wiedwald and I jointly prepared this report.

Your attention is directed particularly to the recommendations on pages 12 to 16, inclusive, of the report and specifically to the paragraph under Item 2 of Recommendations on page 16 in regard to 5-ton posting presently in effect on this bridge and Recommendation E6 on page 15, in regard to removal of buildings which constitute a fire hazard.

GEORGE S. RICHARDSON NORMAN G. MARKS JAMES H. MOREHOUSE HAROLD L. BURMEISTER, JR. SYDNEY A. MARTIN E. RUSSELL PETERS SHERWOOD RICHARDSON JAMES C. FISHER 1946-1963 (RETIRED) CHARLES R. WAY

When the contractor removing the gunite from the underside of Span 28 has finished his work and this span has been inspected for condition, a supplement to this report will be submitted.

The originals and one Xerox copy of the analysis calculations are included with this submission, but bound separately from the report. The originals of the plates are also enclosed.

We have appreciated the assistance of Mr. Udani and his staff in obtaining information for us pertinent to the report.

Sincerely yours,

James H. Morehouse

JHM:jb
Enclosures

I. INTRODUCTION

The field inspection of the Thirty-first Street Bridge at Pittsburgh, Pennsylvania, covered by Engineering Agreement No. 41191 dated September 3, 1968, between the Pennsylvania Department of Highways and Richardson, Gordon and Associates, was conducted between October 10, 1968 and January 10, 1969, inclusive.

Richardson, Gordon and Associates assigned a professional engineer to the inspection and engaged Penn Erection and Rigging Company to do the necessary rigging to make a thorough inspection. When the condition of this bridge commenced to become apparent, Richardson Gordon and Associates put an additional inspector on a portion of the work, and early in December still another inspector, both men being professional engineers. The inspection was essentially finished in January, in spite of some rather inclement weather the last three weeks.

II. HISTORY AND DESCRIPTION OF BRIDGE

This bridge was designed by the Department of Public Works, Bureau of Bridges, County of Allegheny. The 28-foot roadway was designed for three lanes of vehicular traffic and a 7-foot sidewalk was provided on each side. Three arch spans of 229'-380.5'-229' span the main river and simple span plate girders are used in the approaches, except over the back channel where cantilever plate girder construction is used.

The substructure was constructed by the Dravo Construction Company (now Dravo Corporation) and the superstructure was fabricated and erected by the Fort Pitt Bridge Works (1928).

In 1939, fire destroyed the floor system in Spans 20 and 21. Steelwork was reinforced and replaced as required by its damaged condition. Buckle plate construction was replaced with a reinforced concrete slab deck and new sidewalks were placed.

In 1956, the entire deck, excluding Spans 20 and 21, was replaced above buckle plate. Construction joints were resealed and expansion dam cover plates were rebuilt. Bituminous surfacing was added to Spans 20 and 21.

The structure was transferred to the Commonwealth May 1, 1962.

In 1967 and 1968, concrete filled steel beam sidewalks and curbs were replaced and tubular steel curb guards added.

According to Department records, the structure was last painted in 1966.

III. REPORT OF 1968 FIELD INSPECTION

The following is a brief summary of the inspection findings. The field notes, photographs and drawings appended at the end of the report cover the inspection in great detail.

A. South Approach Spans

1. Floor System:

The floor system is in deplorable condition. The stringer connections to floor beams, in many cases, are in such poor condition that emergency repairs are necessary. Field notes describe the degree of corrosion to the stringer webs at these connections. Photographs show many of the most serious connections. The general location of web loss is at the cope of the top flange where deterioration usually begins.

Deck buckle plate is in fair condition with the exception of that at the exterior stringers. Photo 2R-1 shows a corroded-through point in the buckle plate, about 18 inches long along stringer 6 about 6 feet north of Bent 2. The average loss of buckle plate along the exterior stringer top flanges of all spans is about 3/16 inch out of an original 3/8 inch thickness.

2. Main Girders and Bearings:

Generally main girders are in good condition. Top cover plates are lightly pocked with some loss of material. It appears that paint was never applied to tops of deck girders after initial painting.

The west side of the west girder web of through Girder Span 5 is corroded at the sidewalk level the full length of span, and about 2 inch width of scar. The greatest corrosion is 5/16 inch maximum depth, 2 inches high and 8 inches long at a point about 24 feet from Bent 4. The east girder of this span is in fair condition although slightly corroded at sidewalk level. The outstanding legs of intermediate stiffeners on the west side of the west girder at sidewalk level are reduced severely by corrosion and in somecases are corroded away as recorded in the Field Notes.

All bearings are in good condition, except at the pilasters of Pier 17 at the north end of Span 15. At the west bearing the concrete encasement around the grillage has spalled off exposing the end plate diaphragm and also about 12 inches of the south west anchor bolt. Grout in two anchor bolt sleeves is leaching out due to the entrance of water under nuts, not screwed down by 1/4 inch. Two bolts can be moved by hand. At the east bearing, the four bolts connecting the shoe to the girders have sheared off and there is evidence of a shift between the shoe and the beveled sole plate.

3. Bents:

Generally the columns of the bents are sound structurally. Knee braces (Bents 2 and 3) have been hit occasionally by large trucks and are bent or twisted. (See photos.) Corrosion of bracing and lacing bars of the higher bents Bents 14 and 15) are described in the Field Notes.

Column encasements at the bases are usually cracked or completely disintegrated. Corrosion into column material at the encasements is not critical, but complete removal of concrete, where necessary, and extensive cleaning of column material is required. Most serious corrosion exists at Bents 14 and 15. See sketches in Field Notes and photos 4-0A and 3-20A.

4. Drainage:

All scuppers and drain pipes are completely clogged. Opened clean-outs reveal the collection of sand, gravel and debris packed inside the pipes. The scupper-to-downspout connection pipe at Bent 14 (east end) is broken off. The bottom end is jammed inside the collecting funnel.

Practically all downspouts have improvised cleanouts near the bottom which were burned in the pipe.

B. Arch Spans

1. Floor System (including expansion seats):

The stringer webs at connections to floorbeams are in fair condition with the exception of several (usually exterior stringers) where emergency repairs are required. These locations are shown in the Field Notes. Photos of the most serious corrosion are included in Appendix B.

Stringers and stringer seats on the expansion sides of floorbeams at all end bents are seriously corroded. Bronze plates at these seats are frozen and bolts sheared or missing requiring renovation. The outstanding legs of the floorbeam bottom flanges on the expansion side are reduced approximately 50 per cent under stringer connections. The outstanding legs of the floorbeam top flanges have suffered similar corrosion all across the top under the curb details near exterior stringer connections. (See photo 1-10.) Expansion detail at panel point 11 near the centerline of Span 18 is similar. There is serious corrosion on some bottom flanges at these points.

Deck buckle plate along the top flanges of the exterior stringers of the arch spans is corroded up to about 3/16 inch out of an original 3/8 inch with the scar up to about 6 inches maximum width.

2. Ribs, Spans 17 and 19:

Gunite capping in panels 1-2 and 2-3 of Span 17 and in panels 12-13 and 13-14 of Span 19 is cracked and heaved upwards about 2 inches from the rib top flanges. Drainage is admitted into the concrete rib ballast and leaching out this concrete ballast up to a depth of about 8 inches maximum in these areas. Two rows of rivet heads adjacent to the gunite capping are reduced about 50 per cent. Average loss of top flange cover plates outside the gunite is about 1/8 inch and corroded with deeper random pits. Existing sealing mastic is deteriorated along the gunite capping of the other panels and adjacent rivet heads on the inside edges of the gunite are reduced up to 70 per cent near the centers of the arches. Although the sealer is tight in upper protected areas of the ribs, it appears dry and should be replaced when sand blasting and painting are done.

3. Span 18 Ribs:

Span 18 ribs are in good condition in the lower rib portions. Most corrosion of top flange cover plates exists near the center of the span where buckle plate weepage causes pitting. Blisters on rib webs and tops of bottom flange angles require sandblasting. Loss of rivet heads in top flange is up to 90 per cent between panel points 10 and 10' and top cover plate loss is about 3/16 inch. The dummy cover plates between 11 and 11' are badly corroded. Four inspection manholes were opened to inspect the inside of the east ribs. Inside material is in excellent condition. A small hole in the top cover plate at panel point 2' admitted water, but no appreciable corrosion existed in the bottom flange ahead of the casting at LO', where the water had collected (see photo 9-0) to a depth of 2 or 3 inches. This was bailed out and the hole caulked.

4. End Pins and Rib Shoe Pits:

Rib Shoe pits in Piers 17 and 20 are in similar filthy condition. Pins and shoes are half buried in dirt, rubble and pigeon debris. Nuts on the rib-to-casting connection are nearly corroded away. Rivet heads in rib webs are corroded away about 30 per cent near the top flange and are corroded away about 70 per cent near the rib bottom flange. Main pier shoes are corroded away about 1/8 inch and scale and

moisture surround the half-buried pins. The bolt heads in rib top flange cover splice plates connecting the upper shoes and the ribs have corroded almost entirely away. Main shoes at Piers 18 and 19 are also in poor state of maintenance. Pins are half buried in debris. Corrosion is similar to that at Piers 17 and 20.

The covers over the rib shoe openings at Piers 17, 18, 19 and 20 are seriously corroded and also prevent ready access to the drainage pits and the lower ends of the ribs as well as the rib shoes.

5. Rib Bracing:

Deterioration of rib bracing is prevalent in the area of the lower four panel points of the arch spans. The bottom flange uphill angles of struts and diagonals are almost corroded away, usually at the bottom gussets at the ends of members (and middle of struts). Lacing bars are seriously reduced by corrosion, as described in Field Notes and shown in photos. Main material of struts and diagonals requires some repair to maintain full section at certain locations. Bracing in the area of the upper panel points of the arches is generally in fair condition.

Bracing shear locks at piers are in poor condition and should be renovated to their original condition.

6. Columns and End Bents:

The horizontal struts and column base connections of all six end bents are in very poor condition. Strut lacing has lost as much as 100 per cent and the horizontal legs of the main angles have corroded up to 50 per cent. Main material of the diagonals is in fair condition, but some lacing requires replacement.

There is some pack-out (1/4 inch maximum) between the column web plates and the main channel webs at the flanges of the columns toward the piers. Column base connection angles and base plates on top of arch rib flanges are blistered with 1/8 inch + corrosion loss. Inside column bases of the bents dirt is collected and water is trapped up to the top of bottom batten plates. Column base pins, pin plates and pin gusset plates are deteriorating and in time this could result in a serious condition. Photos show the corroded conditions of the end bents, columns and shoes. Some of the column bases at other panel points have pin plates which are packing and some of these bases are becoming filled with pigeon debris and dirt.

C. North Approach Spans

1. Floor System:

The stringers in Spans 20 and 21 (which do not have a buckle plate floor) are in good condition except for a few exterior stringers with slight corrosion loss. The stringers in the other spans have more corrosion, largely in the stringer webs at the end connections and at the expansion seats on floor beams at Bents C21 and C22, Piers 23 and 26, and, particularly, at the north and south hinges of the suspended span, Span 25, where the corrosion is very serious and, in fact, dangerous. See Field Notes.

The floor beam seats referred to above, and usually the side of the floor beam to which they are attached, have severe corrosion, affecting stiffeners, webs and even bottom flanges of the floor beams. This is described in the Field Notes.

The construction at the north and south hinges of Span 25 differs from that at the other expansion joints in that at each hinge there is a transverse lattice strut of fairly shallow depth connected to another lattice strut of almost twice the depth of the first. The connection between the two lattice struts consists of two planes of lacing. The struts are intended to stabilize the cantilever ends and suspended span ends of the girders and do not furnish vertical support for the stringers at the floor expansion. These lattice trusses, both vertical and horizontal, and the stringers carried on the floor beam expansion seats overhead are in such deplorable condition that Richardson, Gordon and Associates recommended to the Department that the bridge be posted for 5 tons maximum load. The Department, after an examination by Mr. Udani, did post the bridge with a 5-ton limit December 23, 1969, pending necessary repairs.

Throughout the portion of structure protected by the fire screen fence, the outstanding leg of the top flange angle of the fascia is reduced up to 50 per cent by corrosion.

Over Pier 23, the east fascia expansion detail is badly corroded. Rust pack-out at the slotted holes is shearing some bolts and enlarging the slots, but the joint is not frozen. See photo 11-0A.

Corrosion has been occurring at the curb butt joint detail which would be arrested by a thorough cleaning and painting.

The outstanding legs of the east sidewalk bracket top flanges have suffered up to 50 per cent loss due to corrosion opposite floor beam 2 in Span 22, opposite all floor beams in Spans 26 and 27, opposite floor beam 4 and north end floor beam in Span 25 and opposite south floor beam at Bent C21.

2. Bents C21 and C22:

The main material of both bents has suffered minor corrosion. The lacing on all members of these bents is in bad condition and in some cases is 100 per cent corroded away due to leakage of salt water from the expansion dams overhead.

Dirt has accumulated between the battens on the end diagonals and the column channels and probably stays damp most of the time.

The anchor bolts are reduced slightly due to corrosion between the boot stiffener outstanding legs. Some of the outstanding legs have in fact bowed due to rust packout around the bolts.

3. Girders and Shoes:

The main girders are in fair condition. There is evidence that the tops of the girder flanges were missed when the last paint job was done.

The shoes are in fair condition, including anchor bolts. There is an accumulation of dirt and other debris on the pier tops.

4. Span 28:

Due to the lean of the North Abutment to the south the rockers on Pier 26 supporting the south end of this span also lean to the south 2-5/8 inches and are up against the ends of the Span 27 girders.

This span was gunite covered as protection against steam locomotive blast. This is no longer required and a lot of gunite on girders and beams is badly cracked and fairly large pieces have been falling onto the tracks below. Allied Asphalt Company, under contract to Richardson, Gordon and Associates, has been engaged since May 12, 1969 in removing the gunite from the underside of the span, so that the condition of the steelwork can be determined. A supplemental report will be made on Span 28.

D. Substructure

The South Abutment is in fair condition. The tops of the east pilasters supporting the east fixed shoe at the south end of Span 1 were rebuilt recently. The walls behind the South Abutment toward Penn Avenue are in good condition.

The pedestals of the South Approach Spans are concealed and only the column encasement, much of which is badly cracked and disintegrated, is now visible.

Piers 17 and 20 are similar in that the shore side of each has pilasters which support an approach girder span on embedded grillages. The concrete around these, particularly in front, has spalled off exposing the grillage and, in some cases, the anchor bolts. On the river side, the pits in which the arch rib shoes are located are in extremely bad condition, mainly because water pours in from above and the drainage is poor. The coping just below is badly spalled at both piers.

Pier 18 has a few (what are believed to be) superficial cracks between the stone encasement at Elevation 720 and the coping just below the arch rib shoes. Pier 19 has similar cracks. The coping below the shoes of Pier 19 is severely disintegrated nearly all the way around the pier. The architectural parapets at sidewalk level need repointing. The stairs in both piers are in extremely bad shape and replacement is included in a contract now in preparation for a new navigation lighting system.

The underwater inspection of Pier 18 and 19 showed these piers to be in excellent condition. Scour at Pier 18 is about 11 feet and at Pier 19 about 8 feet. However, these piers are on rock with steel sheet piling left in place below Elevation 693. See Plate V.

Piers 21 and 22 have had encasement added to protect against trucks. This encasement is spalling around the upper edges and exposing some reinforcement.

Piers 23, 24 and 25 are in good condition. Pier 26 is also in fair condition, except for some superficial cracks and some disintegration of the west half of the pier top and the coping on the north and south sides.

The North Abutment is in poor condition. The tops of all pilasters carrying the north end of Span 28 are badly disintegrated. The face of the abutment itself also has numerous spalls. The most serious condition observed is probably the lean of the top of the abutment to the south about 4 inches. It is not known whether this condition is progressing or even how long it has existed.

E. Approach Paving, Deck and Railing

The bituminous paving (or wearing surface) of the South Approach between Penn Avenue and the South Abutment is in bad condition, particularly at the abutment construction joint.

The bituminous wearing surface between Bent L1' just south of Pier 20 to Bent C22 is also in very bad shape. The remainder of the deck is concrete over buckle plate and has a great many transverse cracks and some longitudinal cracks, many of which reflect the buckle plate configuration. The slabs were placed in fairly short sections. There is no doubt that this deck is anything but watertight and the leakage is causing a great deal of corrosion to the floor system.

The handrailing is in good condition, except the paint coat is thin. The fire protection screen, or fence, in combination with a trough formed over the fascia when the new concrete sidewalks were poured a couple of years ago, collects debris at the bottom which is corroding the bottom of the screen. Also, a few of the connection bolts holding the screen at the top rail level have corroded through.

F. Expansion Dams and Deflection Joints

The expansion dams at Bents 2, 19, 14, C21 and C22, Piers 23 and 26, hinges at ends of suspended span (Span 25) and over the end bents of all three arch spans leak profusely during rain or periods of melting snow (usually salty water) thoroughly drenching the steelwork and piers below.

The two sides of most expansion dams are 1/4 inch to 7/8 inch in misalignment vertical and some are noisy under traffic. The tops of dams at Bents 14 and C22 are cracked through.

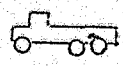
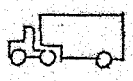
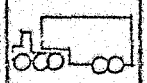
Most of the joints providing for deflection are not sealed properly and also leak.

G. Water Testing

Water samples taken at two locations showed a fairly low acid content. Near the south bank of river the sample tested pH = 5.7 and in the main channel the sample tested pH = 6.2.

IV. TRAFFIC

District 11 of the Pennsylvania Department of Highways furnished the following traffic information for this bridge:

Estimated Annual Average Daily Traffic (AADT)			Truck %	Truck Distribution in % of Trucks				
				2 Axle 6 Tire	3 Axle Single Unit	Semi-trailer		
1969	1975	1990	*			3 Axle	4 Axle	5 Axle
8,160	8,640	20,800	8.5	58.7	0.9	7.3	14.7	18.4
*Excluding Panel and 2-Axle, 4-Tire trucks								

V. STRESS ANALYSIS

The analysis and rating of the structure was made in terms of AASHO HS20-44 loading. A rating of 23 would indicate that the particular member has a capacity for live load plus impact of 23/20 x HS20-44. Ratings shown in one column in the tables are based on normal allowable stress.

The 3-hinged arches of Span 18 were analyzed assuming no loss of section due to corrosion and were rated for HS loading panel by panel, as shown on Index No. 20. In the critical panel 10-11 the HS rating with sidewalk loading is 20. Without sidewalk loading the rating is 27. Negligible additional stresses are produced by arch flexibility.

The rib K-bracing system for Span 18 was analyzed, also assuming no loss of section due to corrosion, for the following loadings:

1. Wind - 50 psf on deck and 75 psf on rib and columns, as seen in elevation, at 100 per cent normal allowable stress.

2. Buckling is assumed as a shear of 2-1/2 per cent of the total arch dead load thrusts in a given panel; this buckling load is also considered acting in combination with wind, at 125 per cent normal allowable stress.

The analysis indicates that all lateral struts can carry all loads within allowable stress levels. The lateral diagonals can carry the wind load within the allowable stress, but are overstressed when wind plus buckling is applied at 125 per cent normal allowable stress. When reduction of sections due to corrosion is taken into account, the maximum wind velocity that can be carried is just over 80 miles per hour. The maximum recorded wind velocity in the Pittsburgh area is 60 miles per hour (July 4, 1969).

The end wind frames (bents) were examined for D + L + I + W and found to be lightly stressed, when calculated as double lacing. Even with some loss due to corrosion, members of the wind frames should not be overstressed.

The 2-hinged arches of Spans 17 and 19 were analyzed and rated, again assuming no loss of section. Only the critical panel 3-4 was examined in detail. Without sidewalk live load the arch ribs rate 20, while with sidewalk live load the rating is 15. It seems reasonable here to omit sidewalk live load in the rating, treating it as an emergency load at considerably higher stresses. Negligible additional stresses were found to be induced by arch flexibility.

Analysis of the rib K-bracing system for Spans 17 and 19 revealed approximately the same stress conditions and wind-carrying capacity as in the bracing for Span 18.

End wind frames are lightly stressed and are satisfactory even when corrosion is accounted for. It is emphasized, however, that although the main material of certain wind frame members, columns, and bracing members is not badly enough corroded to be overstressed, the structural integrity of these members is often endangered by badly damaged secondary components such as lacing bars and rivets.

In the floor system for Spans 17, 18, and 19, the stringers rate at well above 20, not considering any reduction in section due to corrosion. Ratings are tabulated on Plate XI. These stringers can tolerate a web loss of 1/8 inch at the end connection without falling below a 20 rating in shear strength. All of the floorbeams rate at 20, except those at the end bents (18.5), which can be reinforced on the bottom flange.

Ratings for the South Approach Spans are given on Plates VI to VIII, inclusive.

All floor system members and main girders have a rating of 20 or above at normal allowable stress. The original design live load consisted of three lanes of three 18 ton trucks in accordance with Allegheny County Specifications. With three lanes of live load, plus a higher impact factor than that from current AASHO Specifications, live load moments from the original design are on the average higher than those produced by HS 20 loading.

Supporting bents under the South Approach Spans were analyzed for vertical loads, wind loads, and longitudinal forces. These members were not overstressed at 125 per cent of normal stress, as allowed by AASHO Specifications for this load combination. For columns with biaxial bending the current AISC formulae were used to calculate allowable stress.

Effects of corrosion on the approach spans will be discussed in later paragraphs.

Ratings for the North Approach Spans appear in Tables IX and X. All members have a rating of 20 or above.

Bents supporting the North Approach Spans are stressed to about the same level as bents under the South Approach Spans.

The ratings previously discussed generally do not take into account the effects of corrosion. In actuality, the steelwork is badly deteriorated, especially around the end connections of the floor stringers. When corrosion is considered as it affects shear of these members the ratings are in many cases exceedingly low.

It is evident that extensive repairs are required to bring this structure up to a satisfactory service level. To summarize, if repairs are made, the structure has a rating of 20. The structure should perform satisfactorily under wind loads which would be expected to occur in this region. Repairs should be made, however, to assure the continuing structural integrity of wind bracing and bents.

H20 ratings were not calculated since HS 20 ratings on floor members which would be affected by H20 were over 20.

VI. RECOMMENDATIONS

A. South Approach Spans

1. Repair all stringers and stringer connections where web loss is more than 1/8 inch.

2. Repair stringer seats, stiffeners and floor beam on pseudo expansion side of Bent 7, and floor beam stiffeners on expansion joint sides of floor beams at Bents 2, 9 and 14.

3. Repair or replace bent knee braces at Bents 2 and 3. Painting with reflective paint might prevent future damage.

4. Replace members, lacing and batten plates of sway bracing at other bents, as required. See Field Notes.

5. Repair 18 inch crack in buckle plate along north curb stringer (Strg. 6) about 6 feet north of Bent 2.

6. Clean scuppers, clean and repair or replace downspouts at Bents 2, 5, 9 and 14 and clean connections to sewer.

7. Remove and replace column encasement, as required, including thorough cleaning of newly exposed steel. Repair columns as necessary.

8. Regrout anchor bolts at north end of west girder, Span 15. (See also recommended repairs for Pier 17.)

9. Replace sheared bolts at north end of east girder, Span 15, connecting shoe casting to girder.

10. Reinforce sidewalk bracket top chords at Bents 1 and 5, west sidewalk, and 7 and 11, east sidewalk.

B. Arch Spans

1. Repair all stringers and stringer connections where web loss is more than 1/8 inch.

2. Repair all stringer seats, stiffeners and floor beams, as required, at expansion joints at end bents of all three spans.

3. Repair end bents of all arches, including strut and diagonal lacing and batten plates. (Some members could be replaced cheaper.) The bases of the columns should be opened up on the downhill side by flame-cutting a generous hole in the batten plate below the pin to permit a thorough cleaning and painting.

4. Open up other columns for cleaning and painting, as recommended under (3) above.

5. Repair, or if more economical, replace all rib bracing, including struts, diagonals and shear locks at piers.

6. Remove deteriorated gunite covering of ribs, Spans 17 and 19, (over top flange lacing) and deteriorated concrete rib ballast underlying the gunite. Replace and reseal along edges of new gunite with approved caulking compound.

7. Replace portions of false top and bottom cover plates at the centerline hinge of Span 18 with removable pieces large enough to permit access for cleaning and painting.

8. Remove all enclosure plates at the main shoe "pits" at Piers 17, 18, 19 and 20 to open up these holes and prevent further corrosion. Correct poor drainage and provide better slopes.

9. Repair portions of floor beams under curbs at end bents and near centerline of Span 18. Reinforce floor beams at end bents to increase rating to 20 or better.

C. North Approach Spans

1. Repair all stringers and stringer connections where web loss is more than 1/8 inch.

2. Repair all stringer seats, stiffeners and floor beams, as required, at expansion joints at Bents C21 and C22, north and south hinges of Span 25 and at Piers 23 and 26.

3. Replace vertical and horizontal stiffening trusses at the north and south hinges of Span 25.

4. Clean, repair and reinforce, as required, the steelwork of Bents C21 and C22, including provision of clearances to care for drainage and prevent dirt collection.

5. Remove gunite from the underside of Span 28. (A contract is presently being performed for this purpose.) Recommendations for any needed repairs will be included in a supplement to this report.

D. Substructure

1. Repair tops of approach girder pilasters of Piers 17 and 20.

2. Repair Piers 17, 18, 19 and 20 around and below main arch shoe "pits". (See recommendation B8.) Also, repair all disintegrated copings on these piers.

3. Replace stairs in Piers 18 and 19. (It is understood this is included in a contract for a new navigation lighting system now in preparation.)

4. Repair pedestals for Bents C21 and C22.

5. Repair top, and north and south copings, of Pier 26.

6. Repair bearing pilasters of North Abutment. Remove disintegrated concrete elsewhere on face of abutment and gunite.

7. Check lean of North Abutment at future inspections. No harm is visible from the 4 inch lean to the south presently existing.

E. Expansion Dams, Paving, Deck and Miscellaneous

1. All expansion dams (and active deflection joints) should be reconstructed using neoprene compression seal type dams to prevent the corrosion-causing leakage presently occurring.

2. Replace bituminous wearing surface on the south approach between Penn Avenue and the south abutment and, also, between north end bent, Span 19, and joint over Bent C22.

3. Seal all joints and cracks in the concrete deck paving. These also leak badly and a new concrete deck (with reinforcing) would probably be warranted. At the very least, the expense of a tight bituminous wearing surface would be justified.

4. Repair the fire protection screen for Spans 19, 20 and 21, as required. In the event the old buildings adjacent are someday removed, this screen should be dispensed with, as its condition is deteriorating.

5. Remove considerable unused conduit, wires, piping and brackets from the South Approach Spans.

6. Give serious consideration to removal of buildings and livestock ramp under and adjacent to spans over the former stockyards on Herr's Island which constitute a fire hazard.

7. The entire superstructure of this bridge, in coordination with structural repairs, should be thoroughly cleaned by Method A, Method B or a combination thereof, as appropriate, in accordance with Section 1073.01 and then painted with one prime coat and two finish coats in accordance with Section 1070, Form 409 (1967).

   Although State records indicate this bridge was painted in 1966, it is evident that a thorough cleaning job was not done at that time even where access was possible. A number of points are only accessible with some effort and, for this bridge, it is felt that very tight special provisions in regard to cleaning and painting along with excellent inspection will be required to secure a good job and arrest the corrosion presently active.

In our opinion these recommendations have the following order of importance:

1. B5, B3, A1, A2, C1, C2, C3, B1, B2, A8, A9, D1

   Until the above enumerated repairs are made the 5-ton posting on this bridge should remain.

2. A10, C4, D6, B6, B4, B7, B8, B9, D2, E1, A3, A4, A5, E2, E3, A6, A7, D5, D4, E4, E5

   The repairs listed under this item have little to do with removing the 5-ton posting, but are essential to prevention of future costly repairs.

3. E6 should receive serious consideration because of the fire hazard involved.

4. E7, the thorough cleaning and painting of the entire superstructure, must be coordinated with all superstructure repairs, including all A, B, C and E1 to E3, inclusive, recommendations.

5. Recommendation D7, lean of North Abutment, is not listed above but should be observed at every inspection.

6. C5, the removal of gunite from Span 28 and subsequent inspection, is presently under way and is expected to be completed before the end of September 1969.

7. D3, reconstruction of stairs in Piers 18 and 19, is expected to be placed under contract before long.

We believe the repairs to the bridge should be undertaken in 1970. After the recommended repairs have been made, together with a thorough cleaning and painting, another in-depth inspection should be made in five to six years with cursory inspections every two years.

VII. ANTICIPATED USEFUL LIFE

We would anticipate that with in-depth inspections at not over six-year intervals and cursory inspections between at two-year intervals, with the repairs recommended above and with good preventive maintenance when and as needed, this structure should be adequate for another twenty years of useful life without restriction of HS20-44 traffic. Wearing surface replacement and additional deck repairs will undoubtedly be required during that time.

APPENDIX A

FIELD NOTES

THIRTY-FIRST ST. BRIDGE

BRIDGE INSPECTION FIELD NOTES

INDEX - cont'd.

Sht. No.	ITEM.
233-244	Span 19, Rib & Bents.
245-246	Pins @ Piers 18 & 19.
247	Plan Pier 19, El. 744.5.
248-252	Pier 18 & 19, Stair landings.
253	Piers 17 & 20.
254-258	Pier 20, Pin Anchorages.
259-261	Spans 20 & 21.
262-263	Steel Bent C21
264-268	Steel Bent C22
269-273	Spans 22 & 23, General.
274-277	Span 22, Floor System.
278-283	Span 23, Floor System.
284-285	Span 24, Floor System.
286-287	Span 25, Floor System
288-295	Span 25, Exp. at Hinges
296-298	Span 27, Floor System.
299	Pier 26.
300	Span 28, Gunite span.
301	N. Approach Spans., S.W. brackets.
302 ↓ 323	MISC.: Deck & deck Joints, Exp. Dams, Conduit, Piers, Str. Repairs, Soundings.

THIRTY-FIRST ST. BRIDGE

PENN AVE. TO EAST OHIO ST.

PITTSBURGH, PENNA.

PENNA. DEPT. OF HIGHWAYS

BRIDGE INSPECTION FIELD NOTES

INDEX

Sht. No.	ITEM
1-81	South Approach Floor System
82, 83	" " S.W. Brackets
84-85	" " Sidewalk, Railing
86	" " Roadwy. Observ.
87-92	" " Summary of stringer web Holes.
93-115	South Approach - Bents, col. bases
116-144	Span 17, Ribs & Cols.
145-159	Span 17, Floor System.
160-170	Span 17, Rib Bracing.
171-179	Span 18, Rib & Cols.
180-203	Span 18, Floor System.
204-214	Span 18, Rib Bracing.
215-226	Span 19, Floor System
227-232	Span 19, Rib Bracing

INSPECTOR: R. WIEDWALD

AM 36° overcast 11-17-68 Gonzalez 1.

31st St Bridge

South Approach - Floor System

Span 1

End F.B. in good condition with some corrosion on S. side/web @ top flg. requiring cleaning & painting.

Stringer #2 @ end F.B. Considerable corr. in web adjacent to end conn. with hole 2" near top. Web thickness about ¼" full depth.

Stringer #3 Considerable corr. in web adjacent to end conn. full depth. Remaining web thick. about ⅛". Caused by water thru buckle plates

Stringer #4 - Same as strg. #3

Stringer #6 Slight corr. in strg. web near end conn. but no appreciable loss of material.

Stringer #5 - Considerable amount of corrosion in strg. web adjacent to end connection with portion of web missing near top (cope). (5" depth × 4"). See Photo 1R1 looking west.

1

PM 27° overcast 11-17-68 Gonzalez 2.

21st St Bridge

South Approach - Floor System

Span #1

Stringer #2 conn @ S. side/FB 1, good cond.

Strg. 2 @ S. side/FB 1 - web has some corr. in upper half with small hole near cope (about 1" sq.). No appreciable loss to remaing area of web.

Strg. 3 @ S. side/FB 1 - Web pitted near end connection but no appreciable loss of material.

Stringers #4, 5 & 6 - Very slight pitting of web near top @ end conn. but no appreciable loss of mat'l.

Strgs 1 & 2 @ S. side/FB Bent 1 - Web slightly pitted but no appreciable loss/matl.

Stringers 3 & 4 good cond.

Strg. 5 - slightly pitted, no appreciable loss/matl.

Strg. 6 - @ F.B. South side/Bent 1. Considerable corr. to web of strg. near end connection with portion of web missing (5" depth × 4") near top. Area around hole feathered. Remainder of web O.K. See Photo 1R2

2

AM 36° Overcast 11-14-68 Gonzalez. 1.

31st St Bridge

South Approach - Floor System

Span 1

End F.B. in good condition with some corrosion on S. side/web @ top flg. requiring cleaning & painting.

Stringer #2 @ end F.B. Considerable corr. in web adjacent to end conn. with hole 2" near top. Web thickness about ¼" full depth.

Stringer #3 Considerable corr. in web adjacent to end conn. full depth. Remaining web thick. about ¼". Caused by water thru buckle plates

Stringer #4 - Same as strg. #3

Stringer #6 Slight corr. in strg. web near end conn. but no appreciable loss of material.

Stringer #5 - Considerable amount of corrosion in strg. web adjacent to end connection with portion of web missing near top (cope). (5" depth × 4"). See Photo 1R1 looking west.

1

PM 27° Overcast 11-14-68 Gonzalez. 2.

31st St. Bridge

South Approach - Floor System

Span #1

Stringer #1 conn. @ S. side/FB 1, good cond.

Strg. 2 @ S. side/FB. 1 - web has some corr. in upper half with small hole near cope (about 1" sq.). No appreciable loss to remaing area of web.

Strg. 3 @ S. side/FB. 1 - Web pitted near end connection but no appreciable loss of material.

Stringers #4, 5 & 6 - Very slight pitting of web near top @ end conn. but no appreciable loss of mat'l.

Strgs 1 & 2 @ S. side/FB. Bent 1 - Web slightly pitted but no appreciable loss/matl.

Stringers 3 & 4 good cond.

Strg. 5 - slightly pitted, no appreciable loss/matl.

Strg. 6 - @ F.B. South side/Bent 1. Considerable corr. to web of strg. near end connection with portion of web missing (5" depth × 4") near top. Area around hole feathered. Remainder of web O.K. See Photo 1R2

2

I-19-I

PM 37° Overcast 11-14-68 Gonzalez

3.

31st. St. Bridge

South Approach - Floor System

Span 1

Both E & W. girders in good cond. Floor beam on South side of Bent 1 in good condition

Span #2

Stringer #1 @ F.B. north side / Bent 1 some corr. to web near end connection. Remaining web thk. about 4" full depth.

Strg. 2 @ F.B. N. side / Bent #1 - Web pitted but no appreciable loss of mat'l.

Strg. #3 - Some corrosion to web near end connection to F.B. Some loss of matl. full depth / web. About 4" web remaining.

Strg. 4 - Slightly pitted but no loss / matl.

Strg. #5 @ F.B. N. side / Bent 1 - Corr. to web of strg. with 4" web thk. remaining full depth.

Strg. #6 @ F.B. N. side / Bent 1 - Part of web gone. Hole 10" depth x 1" width. Area around hole feathered, See Photo 1R3 looking East. Also 1/2" sq. hole @ bottom flg. fillet.

3

AM 41° Clear 11-15-68 Gonzalez

4.

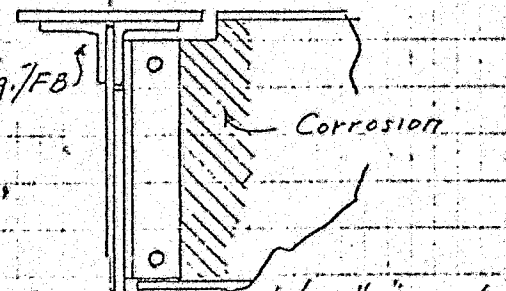
31st St. Bridge

South Approach Floor System

Span 2

Strg. 1 @ S. side / F.B. 1 - Corr. to web near end conn. About 8" loss full depth. Also about 1/8" loss to both flg.

CONDITION "A" Stringer web near end connection corroded from water draining down under buckle plate usually with loss of material beginning @ top / web. Some cases a pumping action under live load. See sketch.



Strg. #2 @ S. side / F.B. #1 - Condition "A", web thickness 8" for depth of 6".

Strg. #5 @ S. side / FB #1 - Cond. "A", web slightly pitted but no appreciable loss / matl.

Strg. 6 @ S. side / FB 1 - Cond. "A", web thk. 3/16" for depth of 6".

4

AM 45° clear 11-15-68 Gonzalez

5.

31st St. Bridge

South Approach Floor System

Span 2

Strg 1, north side FB 1 Cond "A" Web thickness 8" half depth. Bott. flg. corroded but no appreciable less/matl.

Strg. 2, north side FB 1 Cond "A" web thick. 1/8" for half depth

Strg. 3 north side FB 1 Cond "A" 6" loss in 3" depth

Strg. 4 north side FB 1 Cond "A" web thick 3/16 in. 5" depth

Strg. 6 north side FB 1 Cond "A" Web gone 5" depth & about 6" missing over remainder of depth.

Strg. 1 south side FB 2 Condition "A" web thick. 3/16 in 2" depth @ top/web

Strg 2 south side FB 2 Condition A web thick. 8" in 3" depth @ top/web

Strg 5 south side FB 2 Condition "A" web thick 8" in 3" depth @ top/web (3" width)

Strg. 6 south side FB 2 Condition "A" web thick 8" in 1" depth @ top/web (3" width)

PM 50° Rain 11-15-68 Gonzalez

6.

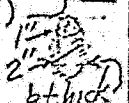
31st St. Bridge

South Approach Floor System

Span 2

Strg. 1 North side FB 2 Condition "A" web thick 8 in 1" depth (width 3")

Strg. 5 North side/FB 2 Condition "A" 1" of web gone & 2" of web 8" thick at top. (Cope)



Stringer 6 North side/FB 2 Condition "A" loss in web about 1/16" in half depth.

PM 34° Cloudy 11-18-68 Gonzalez 7.

31st St. Bridge

South Approach - Floor System

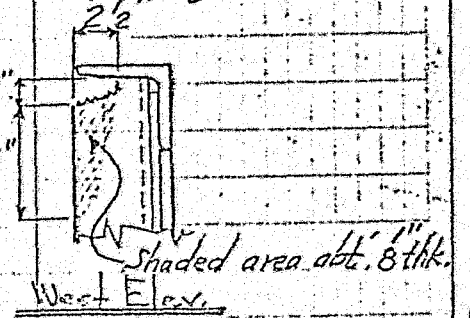
Span 2

Strg. 1 south side F.B. @ Bent 2 - Condition "A" Web thick. 8" in 13" depth. (width 8")

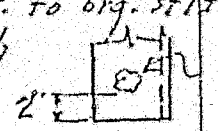
Strg. 6 south side F.B. @ Bent 2 - Condition "A" web thick. 8. in 2" depth (width 2")

Floor beam South side Bent #2 - Corrosion @ top/web stiff. (north side of web) behind strg. #6 See sketch. Photo 2R2

See shts. 112 & 313 for additional on Bent 2 & F.B. stiffs.



Some corr. to brg. stiff. @ bott. behind strg #2 See sketch



Top flg. of F.B. on North side has considerable corrosion from water draining down thru expan. dam. Also some corr. to web near bott. flg. L (8" loss) between strgs #1 & #2

11-12-68 Wiedwald 8.

31st St. Bridge

South Approach - Floor System

Span #3

Stgrs, N. Side of N. F.B. @ Bent #2 All stgrs. at connections are Condition "A", with corrosion loss of 1/16" ± into the stgr. webs near the top flgs.

Stgr #6: About 6' from Bent 2, the buckle plate is corroded through along the top flg. of the stgr on the inside. The crack is about 1'-6 long. The remainder of the buckle plate along this flg. in this area is corroded about 3/16" ± and 2" ± wide. The web along the bot. flg. of stgr. 6 is corroded 1/4" ± deep & 4" ± high. for 3' ± in length. Bot flg. thickness is ½" at this inside edge. See photo 2R1.

7-A

11-12-68
Nippowind 9.

31st. Bridge

South Approach - Floor System.

Span #3

Stgrs. S. side of FB @ Bent #3
All stgrs are condition "A".
Stgr #1, loss at top of web -1/16
Stgr. #2, pumping & leaking through buckle plate, very wet condition. Web loss of -1/16" for full depth.
Stgrs. #3, #4, #5, scale
Stgr. #6. Total loss of -3/16" at top of web for upper 8".

On south side of End FB. at Bent 2, FB. Web stiffeners, backing Stgrs. #5 & #6, are corroded away at the tops adjacent to o.s.l. of the FB. Top flg.
See photos 2R2 & 2R3.

PM 24° cloudy 11-18-68 Gonzalez 10.

31st St. Bridge

South Approach Floor System.

Span A'

Strnger 1 @ North side of Bent #3 - Condition "A"
Web thickness 3/16" in 3" depth @ top.

AM 32° clear 11-19-68 Gonzalez

Span A

Strg. 3 @ N. side Bent #3 - Condition "A", 8" loss over 5" depth @ top.

Strg. 4 @ N. side Bent #3 - Condition "A" web thk 8 over 2" depth @ top.

Strg. 5 @ N. side Bent #3 - Condition "A" web thk 8" over 14" depth @ top.

Strg. 6 @ N. side Bent #3 - Cond. "A", web loss @ top = 3/16" over 8" depth.

Strg. 1 @ S. side F.B. #1 - Cond. "A", web pitted over most of depth but no appreciable loss of material.

PM 32° light snow 11-19-68 Gonzalez

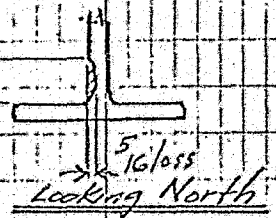
11.

31st St. Bridge

South Approach - Floor System

Span 4

Stringer 2 @ S. side FB 1 - Condition "A" About 8" loss to web over full depth. Water drains with pumping action from L.L. Bott. flg. & web gear fillet has considerable corrosion over half span from water lying on flg. About 8" lost to flg. See sketch for max. loss to web about 5' south of FB 1

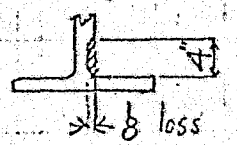


Looking North

Strg 3 @ S. side/FB 1 - Cond. "A". Abt 8 loss over full depth.

Strg 5 @ S. side/FB 1 - Cond. "A" Abt. 3/16" loss over 4" depth @ top.

Strg. 1 @ N. side/FB 1 Cond. "A" near bott. flg. web loss 8 in 4" height. See Sketch



PM 32° Clear 11-19-68 Gonzalez

12.

31st St. Bridge

South Approach - Floor System

Span 4' - (Continued)

Strg 2 @ N side/FB 1. - Cond. "A" Web thk. 8 "for top 4", 8" loss for next 6" & 1/16" loss over remainder.

Strg. 3 @ N. side FB 1 - Cond. A Web thk. abt. 3/16 for top 5" & abt. 1/16" loss over remainder.

Strg. 6 @ N side FB 1 - Cond. "A", 1" depth of web gone & 4" depth with 8" loss.

AM 35° Clear 11-20-68 Gonzalez

Stringer 2 @ S. side/FB 2 - Cond. "A", web thk. 8 over 4" depth @ top.

Strg. #3 @ S. side FB 2 - Cond. "A" web thk. 8 over 8" depth abt 1/16" loss over remaining depth.

Strg. 5 @ S side FB 2 - Cond. "A" web thk 1/16" for top 1 1/2" depth & 3/16" thk. for next 1 1/2" depth.

Strg #6 @ S. side FB 2 Condition "A", web thk. 8" for depth of 9".

AM 55° clear 11-20-68 Gonzalez 13.

31st St. Bridge
South Approach - Floor System
Span 4 (Continued)

Stringer 1 @ N. side FB 2 - Condition "A" About 8" loss full depth of web

Strg. 2 @ N. side FB 2 - Cond. "A" web gone @ top 1½", ⅜" thk. for next 2" depth & 3/16" thk. for next 2" depth. Remainder of web pitted with about 1/16" loss.

Strg 4 @ N. side FB 2 - Cond. "A", web pitted full depth with about 1/16" loss.

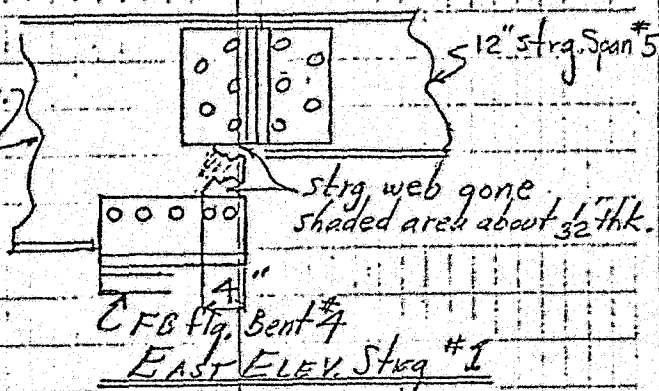
Strg. 5 @ N. side FB 2 - Cond "A", web gone @ top 1½", 3/16" thk. for next 6" depth & abt. 1/16" loss for remainder of depth.

Strg. #6 @ N. side FB 2 - Cond. "A", Hole in web @ top (1"ϕ), web thk. ⅜" for next 5", 3/16 loss @ bottom "A" & about 1/16" loss in remainder of depth.

PM 28° clear 11-20-68 Gonzalez 14.

31st St. Bridge
South Approach - Floor System
Span 4

Stringer 1 @ FB of Bent 4 - Some corr. to strg. web under end conn. Ls for span #5 12" strg. See sketch & Photo 1R5.



EAST ELEV. Strg #1

Strg. #6 - Same as strg. #1

PM 20° Clear 1-9-69 Gonzalez

15.

31st. St. Bridge

South Approach - Floor System

Span #5 (From above)

West Girder - West side of girder web pitted ($\frac{5}{16}$" max, 2"d, 8" long, 24' from S. brg.) full length @ top / sidewalk concrete (2'-11½ below top flg. cov. pl.).

Web stiffs. o.s.l. pitted @ top of sidewalk concrete as described below:

Web stiff. #1 (4' N. of South brg. stiffs.) - 4" of o.s.l. gone.

Web stiff. #2 - Partly pitted with $\frac{3}{16}$" loss in o.s.l.

Web stiff. #3 - o.s.l. gone for 4".

" " #4 - Partly pitted with 8 loss in 2"

" " #5 - Badly pitted, 4" of osl gone.

#6 - Partly pitted with 8" loss in o.s.l.

#7 - Badly pitted with osl gone for 4".

#8 - Badly pitted, 4" loss in 2½"

#9 - " " 4" of osl gone.

#10 - Partly pitted, $\frac{1}{8}$" loss in 5" of osl.

#11 - " " $\frac{3}{16}$" loss in 3" of osl.

#12 - " " 8" loss in 5" of osl

13

PM 20° Clear 1-9-69 Gonzalez

16.

31st St. Bridge

South Approach - Floor System

Span 5 (From above)

West Girder Continued

Web stiff. #13 - Badly pitted, 4" of o.s.l. gone.

" " 14 - Partly pitted, 8" loss in 4" of osl

" " 15 - Badly pitted, 4" of osl gone.

14

AM 29° Clear 11-21-68 Gonzalez

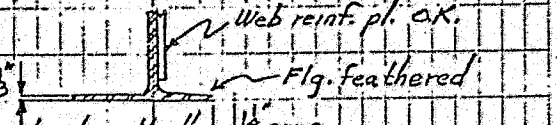
17.

31st St. Bridge

South Approach - Floor System

Span 5

Stringer #1 @ S. side of F.B. 1 - Considerable corrosion to bott. flg. of strg. Min. sect. @ 11" south of F.B. #1. See sketch.



Stringer 2 @ S. side / FB 1 - Condition "A", 1" of web depth gone @ top & about 3/16" loss in remainder of web depth.

Strg. 5 @ S. side / FB 1 - Condition "A", 1" depth of web gone @ top & 6" thk. for next 1" depth.

Stringer #1 @ N. side / FB 1 Condition "A", top 4" of web gone & 1/16" thk. for remain. depth of web. See Photo 1RG

Strg. 2 @ N. side / FB 1 - Condition "A", about 3/16 loss in web for half depth & 6" loss for bott. half of depth.

15

PM 33° Overcast 11-21-68 Gonzalez

18.

31st. St. Bridge

South Approach - Floor System

Span 5

Stringer 6 @ N. side / F.B. 1 - Condition "A", Considerable corr. as shown on sketch & Photo 1R7



Stringer #1 @ S. side / FB 2 - Cond. "A" hole in web about 1/2" ϕ & remaining web thk about 1/8".

AM 42° Clear 11-22-68 Gonzalez

Strg. 2 @ S. side / FB 2 - Condition "A", about 3/16" loss in half depth & 1/16" loss in lower half depth of web.

Strg. 4 @ S. side / FB 2 - Cond. "A", 6" loss in 2" depth of web.

Strg 5 @ S. side / FB 2 - Cond. "A", about 3/16 loss in 4" depth of web.

16

AM 42° Clear 11-22-68 Gonzalez

19.

31st. St. Bridge

South Approach - Floor System

Span 5

Strg. 6 @ S. side / FB 2 - Condition "A" hole near top 1" depth, 1/16" thk web for 2" ℄ remaining depth about 8" thk.

Strg. 1 @ N. side / FB 2 - Cond. "A", about 3/16" loss full depth of web.

Strg. 2 @ N. side / FB 2 - Cond. "A", about 8" loss full depth of web.

Strg. 3 @ N. side / FB 2 - Cond. "A", about 1" loss in web full depth.

Strg 4 @ N. side / FB 2 - Cond. "A", about 3/16" loss @ top 3" depth & 8" loss for remaining depth.

Strg. 5 @ N. side / FB 2 Cond. "A" 1/2" ℄ hole near top / web & 3" depth about 8" thk.

Strg. 6 @ N. side / FB 2 Cond "A" as shown in sketch & Photo 1R8



17

PM 45° Clear 11-22-68 Gonzalez

20.

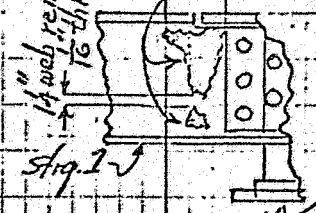
31st. St. Bridge

South Approach - Floor System

Span 5

Stringer 1 @ S. side / FB 3 - Condition "A" as shown.

See Photo 1R9

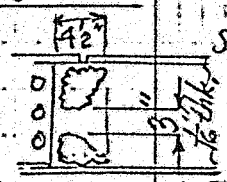


Stringer 5 @ S. side F.B. 3 - Condition "A", top 12" depth about 1/16" thk. with 4" ℄ hole.

AM 33° Overcast 11-25-68 Gonzalez

Stringer 6 @ S. side / FB 3 - Cond. "A" web loss 3/16" over top 3" depth.

Strg. 1 @ N. side FB 3 - Cond. "A" as shown



18

Am 34° Overcast 11-25-68 Gonzalez

31st. St. Bridge
South Approach - Floor System

Span 5

Stringer 2 @ N. side/F.B. 3 - Cond. "A", about 1/16" loss full depth of web.

Strg. #6 @ N. side/FB3 - Condition "A", 3/16" loss in web full depth with small (1/4"ϕ) hole 2" down from top/web.

Stringer 1 @ S. side/FB4 - Cond. "A", small hole 1/2" near top/web, Web loss about 3/16" top half & 1/8" loss in bottom half.

Strg. #1 @ N. side/FB4 - Cond. "A", 3/16 loss full depth of web.

Strg. 2 @ N. side/FB4 Cond. "A", about 1/8" loss full depth of web.

Strg. 3 @ N. side/FB4 Cond. "A", about 1/8" loss full depth of web.

Strg 6 @ N. side/FB4 Cond "A", about 3/16" loss full depth of web.

PM 37° Partly cloudy 11-25-68 Gonzalez

31st St. Bridge
South Approach - Floor System

Span 5

Stringer 1 @ S. side/FB5 - Cond. "A", 2" hole @ top of web @ cope & 8" thk. web next 2" of depth.

Strg. 6 @ S. side FB5 - Condition "A", 1/2" hole near top/web, 3/16" loss in next 3" of depth, & 1/16" loss in next 3" of depth.

Strg. #1 @ N. side/FB5 - Condition "A", 2" hole @ top of web, 1/16" thk. next 2" & 1/16" loss for remaining depth.

Strg. #2 @ N. side/FB5 - Condition "A", 3/16" loss in web @ top 2", & 1/8" loss next 3" & 1/16" loss for remaining depth.

Strg # 6 @ N. side/FB5 - Cond. "A", 3/16" loss full depth of web

AM 35° Clear 11-26-68 Gonzalez

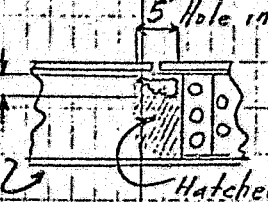
23.

31st. St. Bridge

South Approach - Floor System

Span 5

Stringer #1 @ S. side FB 6 - Condition "A" as shown:



Looking West

Strg. #2 @ S. side/F.B. 6 - Condition "A", 1" hole near top of web & 3/16" loss in next 5" of web depth.

Strg. 4 @ S. side/F.B. 6 - Cond. "A", 3/16" loss in top 3" depth of web & 8" loss in remaining depth.

Strg. 6 @ S. side/FB 6 - Cond. "A", 1" hole in web @ top & 8" web thk. next 2" of depth.

21

AM 40° Clear 11-26-68 Gonzalez

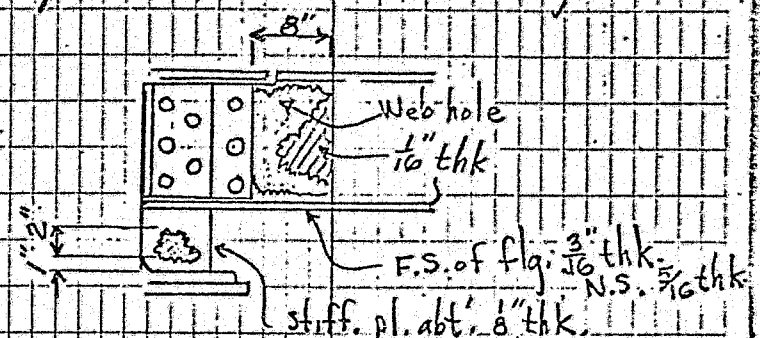
24.

31st. St. Bridge

South Approach - Floor System

Span 5

Stringer #1 @ N. side/FB 6 - Condition "A" as shown in Sketch & Photo. IR 10. Both flg. of strg. & stiff. pl. corroded considerably.



Strg. 2 @ N. side/FB 6 - Cond. "A", 1/16" loss in web full depth.

Strg. 3 @ N. side/FB 6 - Cond. "A", 8" loss full depth of web.

Strg. 4 @ N. side/FB 6 - Cond. "A", 8" loss full depth of web.

Strg. #5 @ N. side FB 6, - Cond. "A", 3/16" loss in 2" depth of web.

22

PM 45° Clear 11-26-68 Gonzalez

25.

31st. St. Bridge

South Approach - Floor System

Span 5

Strg @ N. side FB 6 - Cond. "A", 1/4" loss in web for 4" depth, 1/16" loss in remaining depth. Also considerable corrosion to both flg. (west side). About 4" mat'l. remaining.

Stringer 1 @ S. side FB 7 - Cond "A", 3/16" loss in 4" depth of web, 1/8" loss next 3" & 1/16" loss in remaining depth of web.

Stringer 5 @ S. side FB 7 - Cond. "A", 1/16" loss full depth of web.

Stringer 6 @ S. side FB 7 - Condition "A", 3" hole (4" wide) @ top of web, 6" thk. next 2" & 8" loss in remaining depth of web.

23

AM 45° Light rain 11-27-68 Gonzalez

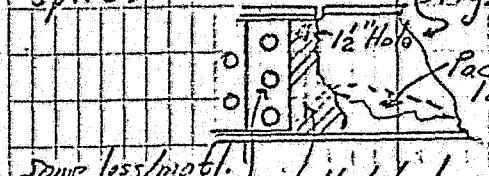
26.

31st. St. Bridge

South Approach - Floor System

Span 5

Stringer #1 @ N. side FB 7, Condition "A", 1/2" hole @ top/web & 1/16" thk. web for remaining depth of web. Also web laminated in vertical plane about 8" length & packing out behind split.



Stringer #2 @ N. side FB 7, Condition "A", as shown in sketch.



Stringer #3 @ N. side FB 7, Condition "A", 3/16" loss full depth of web

24

AM 45° overcast 11-27-68 Gonzalez

27.

31st. St. Bridge

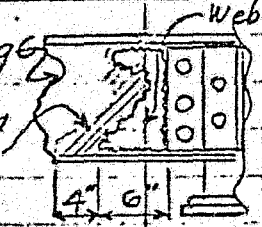
South Approach – Floor System

Span 5

Stringer 4 @ N. side / FB 7 – Cond. "A", 1" hole @ top / web & remaining depth about 8" thk.

Strg. 5 @ N. side / FB 7 – Cond. "A", 2" hole near top / web & remaining depth about 8" thk.

Strg. #6 @ N. side / FB 7 – Cond. "A" as shown in sketch & Photo 1R11



Looking East

Stringer #1 @ Bent 5 F.B. Considerable corrosion to bott. flg. of strg., about 9" length from end. Flg. feathered with about 3/16" max. thk. @ toe & width measures 6". Also considerable corr. to end conn. Ls but no appreciable loss / matl.

AM 49° Rain 11-29-68 Gonzalez

28.

31st. St. Bridge

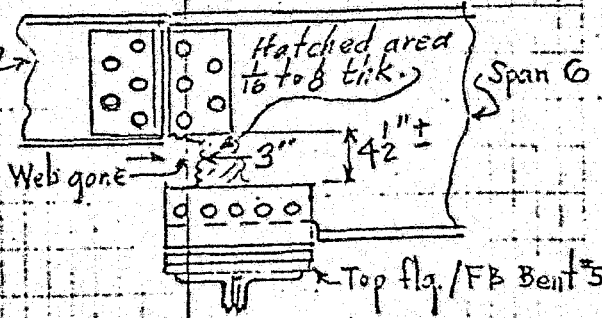
South Approach – Floor System

Span 5

Stringer #6 @ Bent 5 F.B. Considerable corrosion to web & flg. near end conn. Hole in web 1½" depth (5" wide) @ bottom. Flg. width down to 5" & feathered under end conn. Ls. See Photo 1R12. Also some loss of matl. to end conn. Ls & rivet heads. (⅛" loss to both legs of west conn. L & 40% of 2 riv. hds. in o/l of west conn. L.

Span 6

Stringer #1 @ Bent #5 F.B. End of strg. web corroded with loss of matl. under end conn. Ls for span #5. 12" strg.



Looking West

AM 43° Overcast 11-29-68 Gonzalez

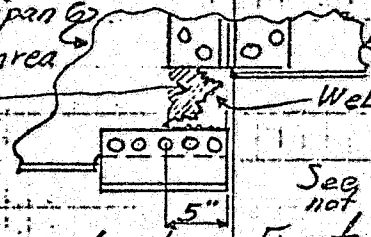
29.

31st. St. Bridge

South Approach - Floor System

Span 6

Strg 1 @ Bent 5 FB - Similar to strg. 6. See partial sketch & Photo 1R12



Looking East

Stringer 2 @ S. side Bent 6 - Condition "A" About 3/16" loss in top 5" of web depth & 8" loss in remaining depth of web.

Span 7

Stringer 5 @ Bent 6 - Condition "A" top 2" of web 8" thk. & 8" loss in next 3" depth of web.

Stringer 1 @ Bent 7 - Condition "A" as shown in sketch & Photo 2R4



PM 99° overcast & windy 11-29-68 Gonzalez

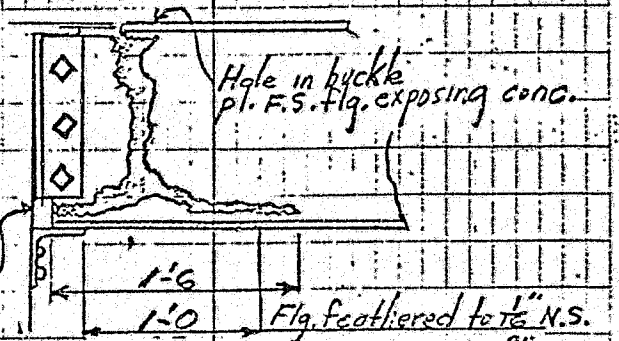
30.

31st St Bridge

South Approach - Floor System

Span 7

Stringer 2 @ Bent 7 - Condition "A" Extremely bad & subject to failure at any time. Considerable amount of water drains down from roadway. Strg. web completely gone & extensive loss of matl. to both flg adjacent to seat ∠, See Photo 2R5



West Elev.

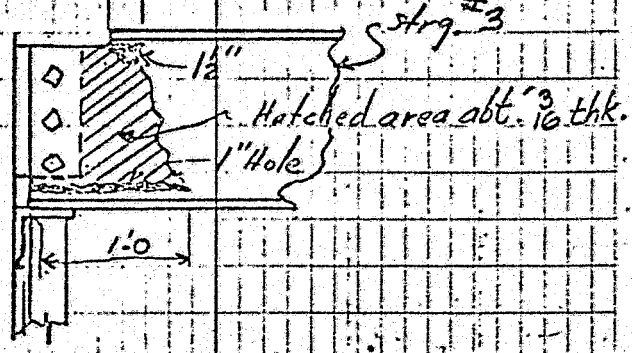
PM-38° 11-29-68
Overcast & Windy Gonzalez

31st. St. Bridge. 31.

South Approach - Floor System

Span 7

Stringer 3 @ Bent 7 - Condition "A", see sketch.

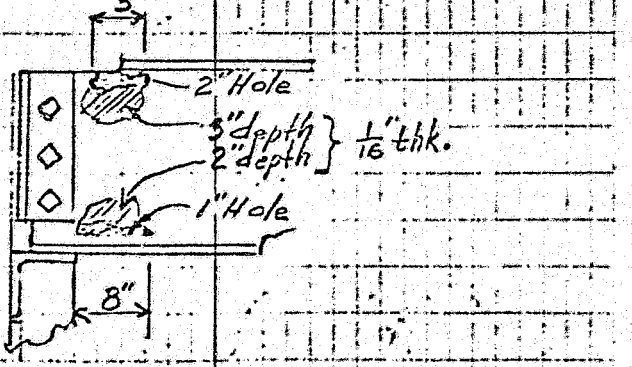


West Elev.

AM-A9° 12-2-68
cloudy Gonzalez

Span 7

Stringer 4 @ Bent 7 - Condition "A"



West Elev.

AM A9° 12-2-68
Cloudy Gonzalez

31st. St. Bridge 32.

South Approach - Floor System

Span 7

Strg. 5 @ Bent 7 - Condition "A", 3/16" loss in lower 6" depth & 8" loss in remaining depth of web. About 8" loss in F.B. web above strg. seat L.

Stringer 6 @ Bent 7 - Condition "A", Extremely bad. Web completely gone. Similar to strg. 2, Bott. flg. thickness reduced to about ¼ near strg. seat L See Photo 2R7

Also considerable amount of scale @ end of F.B. top flg.

Span 8

Strg 1 @ N. side / Bent 7 - Cond. "A", about ¼" loss in top 4" of web depth & 3/16 loss in remaining depth.

Strg. 2 @ N. side / Bent 7 - Cond. "A", 1" loss in top 5" of web depth.

AM 49° Cloudy 12-2-68 Gonzalez

33.

31st St. Bridge

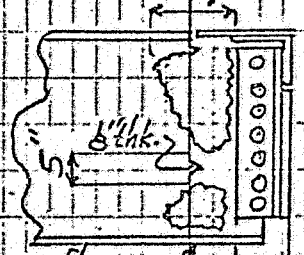
South Approach - Floor System

Span 8

Stringer 3 @ N. side / Bent 7 - Cond. "A"

3/16" loss in top 2" of depth, 8" loss next 4" & 16" loss in remaining depth

Stringer 6 @ N. side / Bent 7 Cond "A", web gone as shown.



West Elev.

Strg. 1 @ S. side / FB 1 - Condition "A", about 3/16 loss in top 4" of web & 16" in remaining depth.

Strg. 3 @ S. side / FB 1 - Cond. "A", 8" loss in top 6" of web depth

Strg. 5 @ S. side / FB 1 - Cond. "A", 8" loss full depth of web.

31

PM 49° overcast 12-2-68 Gonzalez

34.

31st. St. Bridge

South Approach - Floor System

Span 8

Stringer 1 @ N. side / FB 1 - Condition "A" Web gone for 4" depth under cope & 2" hole @ toe of bott. flg. Remainder of web about 8" thk. Some material loss to east side of bott. flg. (end 2" of strg.) Flg. feathered to knife edge & 12" of width gone.

Floorbeam 1 - Considerable corrosion to floor system in this area from railroad traffic below. (Most arrested since last painting.) O.s.l. of web stiff. feathered to 16" from under bott. flg. of strg. 1 to bott. flg. of F.B.

Web stiff. between strgs. 1 & 2 - O.s.l. feathered to knife edge & most of o.s.l. gone over top 3" of stiffener.

O.s.l. of web stiff. under strg. #2 gone for depth of 4" & gone for depth of 3" @ bott. of stiff. L. Remainder of o.s.l. under strg. #2 feathered to knife edge. See Photo 228

O.s.l. of web stiff. between strgs. 2 & 3 feathered to knife edge & top 8" of o.s.l. gone.

32

AM 37° overcast 12-3-68 Gonzalez

35.

31st St. Bridge

South Approach - Floor System

Span 8

Floorbeam 1 N. side/web (Continued)

Osl. of stiff. under strg. 3 feathered to knife edge & osl measures 3¼" (abt. 5" orig.) over 8" length directly under strg. bott. flg.

Osl. of stiff. between strgs. 3&4 feathered to knife edge & top 18" of osl gone.

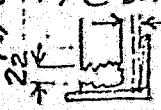
Osl. of stiff. ∠ under strg. 4 feathered to knife edge & osl measures 3¼" over 6" length directly under strg. bott. flg.

Osl. of stiff. ∠ between strgs 4&5 feathered to knife edge & most of osl gone @ top 8"

Osl of stiff. ∠ under strg. #5 feathered to knife edge. 5 inch length of osl gone directly under strg. bott. flg.

Osl. of stiff. ∠ between strgs #5&#6 feathered to knife edge & 5" length near top measures 2½".

Osl. of stiff. ∠ under strg. #6 feathered to knife edge & measures 1¼" @ bottom over 2½" length. See sketch.



33

AM 37° overcast 12-3-68 Gonzalez

36

31st St. Bridge

South Approach - Floor System

Span 8

Stringer #2 @ N. side/FB 1 - Condition "A"

5' long web reinf. pls. in good condition but bott. flg. of strg. has loss of matl. over 2' length from end. Flg. thk. about 6" min & ¼" max.

Stringer 3 @ N. side/FB 1 - Condition "A"

1'-8 long web reinf. pl (east side) in good cond. Area between reinf. pl. & web of strg. packing out. Some loss of matl. to west side of bott. flg. over end 12" (min. thk. 3/16")

Stringer 4 @ N. side/FB 1 - Condition "A"

3'-9 long web reinf. pl (east side) in good condition bot area between reinf. pl. & web packing out.

34

AM 40° overcast 12-3-68 Gonzalez

37.

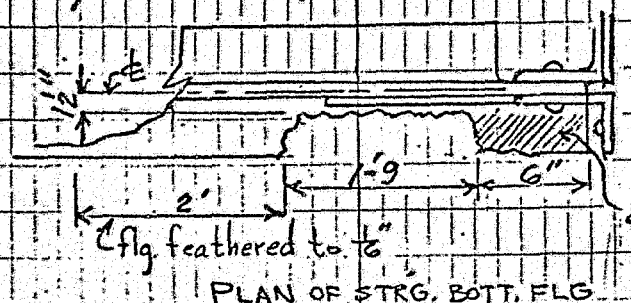
31st St. Bridge

South Approach - Floor System

Span 8

Stringer #5 @ N. side / FB 1 Cond: "A" 5' long web reinf. pls in good condition & no appreciable loss of matl. End 12" of bott. flg. considerably corroded with some loss / matl. West side flg. 16" thk with small hole @ edge 12" sq. East side flg. 3/16" min. thk.

Stringer #6 @ N. side / F.B. 1 - 1'-8" long web reinf. pl on east side in good cond. Part of bott. flg (west side) gone as shown in sketch.



PLAN OF STRG. BOTT. FLG.

35

PM, 45° Light showers 12-3-68 Gonzalez

38

31st St. Bridge

South Approach - Floor System

Span 8

Stringer #1 @ S. side / FB 2 - Cond. "A". Top 4" of web gone, 8" thk. next 9" & remainder of web about 3/16" thk.

Stringer #2 @ S. side / FB 2 - Cond "A", ¼" loss in web @ top 3" depth, 1" of web gone @ cope & 8" loss in web thk. for remaining depth.

Stg. 3 @ S. side / FB 2 - Cond. "A", abt. ⅛" loss full depth of web.

Stg. 4 @ S. side / FB 2 - Cond "A", abt. 4" loss in top 4" of depth & 8" loss in remaining depth.

Stringer 5 @ S side / FB 2 - Cond. "A", hole @ top 4" of web & abt. 8" loss in web over remaining depth.

Stringer 6 @ S. side / F.B. 2 - Cond. "A", top 2" of web gone, next 2" of web 8" thk. & remainder of depth 8" loss.

36

Clear, High winds PM 28° 12-5-68 Gonzalez

39.

31st. St. Bridge

South Approach - Floor System

Span 8

Stringer #1 @ N. side / F.B. 2 - Cond. "A" top 2" of web 8" thick. & remainder of web 5/8" loss.

Strg. #6 @ N. side / F.B. 2 - Cond. "A" hole (7" wide) @ top 4" of web, 1/16" thk. next 2" & 3/16" loss next 3" of web depth.

Stringer #1 @ S. side / FB 3 - Cond. "A", hole @ top 2" of web, 1/16" thk. next 2", 1/4" loss for next 9" & 5/8" loss in remaining depth. About 1/16" loss in both flg.

Strg. #2 @ S. side / FB 3 - Cond. A, hole at top 1/2" of web, 1/4" loss in next 2" & 1/16" loss in next 4" of web depth.

Stringer #6 @ S. side / FB 3 - Cond. "A" hole 3" (5" wide) @ top of web, 1/16" thk web next 3" & 1/4" loss in remaining depth of web.

Strg. 1 @ N. side / FB 3 - Cond. "A", 1/4" loss in top 4" of web, 5/8" loss in next 10" & 1/16" loss in remaining depth.

37

Clear PM 27° 12-5-68 Gonzalez

40.

31st St. Bridge

South Approach - Floor System

Span 8

Stringer #2 @ N. side / FB 3 - Cond. "A" 3/16" loss in web @ top 10" & 5/8" loss in remaining depth.

Stringer 4 @ N side / FB 3 - Cond. "A", 1/16" loss full depth of web.

Strg. 6 @ N. side / FB 3 - Cond. "A", 5" hole @ top / web, 1/16" thk. next 3", 5/8" loss next 4" & 3/16" loss for 4" near bottom.

PM 22° 12-6-68 clear

Span 8

Stringer #6 @ S. side / FB @ Bent 8 - Cond. "A", 5" hole @ top of web, 5/8" thk for next 8" & 5/8" loss in remaining depth.

Span 9

Stringer 1 @ N. side / FB @ Bent 8 - Cond. "A" 8" hole @ top / web, 5/8" thk. next 4" & 1/16" loss in remaining depth of web.

38

AM 23° Clear 12-6-68 Gonzalez

41.

31st St. Bridge

South Approach - Floor system

Span 9

Stringer 2 @ N. side / FB @ Bent 8 - Cond. "A" 2" hole @ top / web, 1/4" loss in next 5", 1/8" loss next 3" & 1/16" loss in remaining depth of web.

Strg. 3 @ N. side FB @ Bent 8 - Cond. "A", about 1/8" loss full depth of web.

Strg. 5 @ N. side / FB @ Bent 8 - Cond. "A", about 1/8" loss for half depth of web.

Strg. 6 @ N. side / FB @ Bent 8 - Cond. "A", 5" hole @ top / web (6" width) & 1/16" loss in remaining depth of web.

Strg. 1 @ S. side / FB 1 - Cond. "A", 1/8" loss full depth of web.

Strg. 6 @ S. side / FB 1 - Cond. "A", 1/8" loss in top 6" of web depth.

AM. 22° Light snow 12-9-68 Gonzalez

42.

31st St. Bridge

South Approach - Floor System

Span #9

Stringer #1 @ N. side / F.B. 1 - Cond. "A", 3/16" loss in top 12" depth & 1/8" loss in remaining depth.

Strg. 2 @ N. side / F.B. 1 - Cond. "A", 3/16" loss in top 4" of web & 1/8" loss in next 6" of depth.

Strg. #5 @ N. side / F.B. 1 - Cond. "A", 1/4" loss in top 4", 1/8 loss next 2" & 1/16" loss next 3" of depth.

Strg. 6 @ N. side / F.B. 1 - Cond. "A", 1/4" loss to 3" of depth & 3/16" loss in next 3" of depth

Strg. 4 @ S. side / F.B. 2 - Cond. "A", 1/16" loss in web for half depth.

Strg 6 @ S. side / F B 2 - Cond. "A", 1/8" loss in top 4" of web.

PM 26° clear 12-9-68 Gonzalez

43.

31st. St. Bridge

South Approach - Floor System

Span 9

Stringer 1 @ N. side / FB2 - Cond. "A", 3/16" loss in top 6" of web & 1/16" loss in remaining depth. Also about 8" loss to bott. flg @ 12" from end of stringer.

Strg. #2 @ N. side / FB2 - Cond. "A", about 1/4" loss in top 3" of web & 8" loss next 3."

Strg. #5 @ N. side / FB2 - Cond. "A", 3" hole @ top / web, 8" thk. next 2" of depth

Strg. #6 @ N. side / FB2 - Cond. "A", 4" hole (5" width) @ top of web, 8" loss next 4" & 1/16" loss in remaining depth.

Strg. 1 @ S. side / FB3 - Cond. "A", 3/16" loss in top 6" of web.

Strg. 5 @ S. side / FB3 - Condition "A", 1" hole @ top & 4" loss next 5" of web depth.

Strg. 6 @ S. side / FB3 - Condition "A", 2" hole @ top / web, 4" loss next 6" & 8" loss next 6."

41

PM 26° clear 12-9-68 Gonzalez

44.

31st. St. Bridge

South Approach - Floor System

Span 9

Strg. 1 @ N. side / FB3 - Cond. "A", 2" hole @ top & 8" loss in next 2" of web depth

Strg. 5 @ N. side / FB3 - Cond. "A", 1/4" loss over top 4" of web.

Strg. #6 @ N. side / FB3 - Cond. "A", 1" hole @ top / web, 8" loss next 8" & 1/16" loss in remaining depth of web.

42

- 40 -

AM 0° Clear 12-10-68 Gonzalez

45

31st St. Bridge

South Approach - Floor system

Span #9

Stringer #1 @ S. side / Bent #9 F.B. Condition "A", 2" hole @ top of web, 3/16 loss next 4" & 8" loss in remaining depth of web.

Strg. #6 @ S. side / Bent #9 F.B. Cond. "A", 2" hole @ top/web, 5/16 loss next 4", & 8" loss in remaining depth of web.

Floorbeams @ Bent #9 - Considerable amount of corrosion to inside top flgs. of both floorbeams from roadway drainage. Still sufficient mat'l. remaining to be effective. Also some mat'l. loss to F.B. web stiffs. near west end of F.B's. (about 1/2 of osl @ top 12" of stiffs.) (Photo 14-7)

Main girders / Span 9 expan. bearings working effectively. Both girders in good condition. (Photo 14-8)

13

AM 0° Clear 12-10-68 Gonzalez

46

31st St. Bridge

South Approach Floor System

Span 10

Stringer #1 @ N. side / F.B. Bent 9 - Cond. "A" 2" hole @ top/web & 4" loss in remaining depth of web.

Strg. 2 @ N. side / F.B Bent 9 - Cond. "A", 1" hole @ top/web, 4" loss next 3", 8 loss next 3" & 16" loss next 3".

Strg. 3 @ N. side / F.B Bent #9 - Cond. "A", 4" hole @ top/web, 5/16 loss next 3" & 3/16" loss in remaining depth of web.

Strg. 6 @ N. side / F.B. Bent 9 - Cond. "A", 6" hole (5" width) @ top of web & remaining web thk. 8".

Strg. #1 @ S. side / F.B 1 - Cond. "A", about 3/16" loss full depth of web.

Strg. #2 @ S. side / F.B 1 - Cond. "A", 1" hole @ top/web then 8" thk. web next 2".

44

PM 6° clear 12-10-68 Gonzalez

47

31st St. Bridge

South Approach - Floor System

Span #10

Stringer #6 @ S. side / F.B. 1 - Cond. "A", 3/16" loss full depth of web.

Strg. #1 @ N. side / FB 1 - Cond. "A", 4" loss in top 4" of web, & 3/16" loss in remaining depth.

Strg #2 @ N. side / FB 1 - Cond. "A", 4" hole (4" wide) @ top / web & 3/16" loss next 3".

Strg. #3 @ N. side / FB 1 - Cond. "A", 1" hole @ top / web & 4" loss next 3".

Strg. #6 @ N. side / FB 1 - Cond. "A", 1" hole @ top / web, 8" loss in next 4" & 1/2" loss in remaining depth of web.

45

AM 2° clear 12-11-68 Gonzalez

48.

31st St. Bridge

South Approach - Floor System

Span #10

Stringer 1 @ S. side / FB 2 - Cond. "A", 8" loss upper half of web depth & 1/16" loss in lower half.

Strg. #2 @ S. side / FB 2 - Cond. "A", 3" hole (4" wide) @ top of web, 5/16" loss next 3" & 3/16" loss in remaining depth. Also 1/2" loss in both. flg. near end.

Strg. 3 @ S. side / F.B. 2 - Cond. "A", 8" loss in top 3" of web.

Strg. #6 @ S. side / FB 2 - Cond. "A", 8" loss full depth of web.

Strg #1 @ N. side / FB 2 - Cond. "A", 3" hole (3" wide) @ top / web & 3/16" loss in next 3" of web depth.

Strg. #3 @ N. side / FB 2 - Cond. "A", 3/16" loss in top 3" of web.

42

PM 20° Clear 12-11-68 Gonzalez

49.

31st. St. Bridge

South Approach - Floor System

Span #10

Stringer #4 @ N. side / F.B. 2 - Cond. "A", 8" loss full depth of web.

Strg. 5 @ N. side / FB 2 - Cond. "A", 8" loss full depth of web.

Strg. 6 @ N. side / FB 2 - Cond. "A", 8" loss full depth.

AM 27° Partly cloudy 12-12-68 Gonzalez

Stringer 1 @ S. side / FB 3 - Cond. "A", 3/16" loss full depth of web.

Strg. #2 @ S. side / FB 3 - Cond. "A", 8" loss full depth of web.

Strg. 3 @ S. side / FB 3 - Cond. "A", 1/16" loss full depth.

Strg. 6 @ S. side / FB 3 - Cond. "A", 4" loss in top 5" of web & 8" loss in next 5" of web depth.

47

AM 29° Partly cloudy 12-12-68 Gonzalez

50.

31st. St. Bridge

South Approach - Floor System

Span #10

Stringer 1 @ N. side / FB 3 - Cond. "A", 5/16" loss in top 6" of web & 8" loss in remaining depth.

Strg. #2 @ N. side / FB 3 - Cond. "A", 8" loss full depth of web. Considerable amount of water draining down from roadway.

Strg. #5 @ N. side / FB 3 - Steady stream of water draining from roadway. Cond. "A", 3/16" loss in bottom 6" of web & 8" loss in top 4" of web. Also 1/16" loss to flg. near end of strg.

Strg. #6 @ N. side / FB 3 - Cond. "A", 3/16" loss in top 6" of web depth.

Strg. #1 @ S. side / F.B. Bent 10 - Cond. "A", 3" hole (3" wide) @ top / web; 4" loss next 2" & 3/16" loss next 3".

Strg. #6 @ S. side / F.B. Bent #10 - Cond. "A", 4" hole @ top / web, 4" loss next 2" & 8" loss next 3".

48

43

PM 32° Clear 12-30-68 Gonzalez

51.

31st. St. Bridge

South Approach - Floor System

Span 11

Stringer #1 @ N. side / Bent #10 - Cond. "A", 6" hole (6" wide) @ top / web, 5/16" loss in next 3" of depth & 6" loss in remaining depth. 3/4" hole (5" wide) @ bott. of web. Bott. flg. badly pitted & reduced to 5/16" @ end 12".

Strg. #2 @ N. side / Bent #10 - Cond. "A", 9" hole (5" wide) @ top / web & 8" loss in remaining depth.

Strg. #3 @ N. side / Bent 10 - Cond. "A", 4" hole (1 1/2" wide) @ top / web, 4" loss next 9", 3/16" loss next 3" & 4" loss in remaining depth.

Strg. #4 @ N. side / Bent #10 - Cond. "A", 5/16" loss in top 2" of web, 3/16" loss next 10" & 8" loss in remaining depth.

Strg. #5 @ N. side / Bent #10 - Cond. "A", 3/16" loss in top 2" of web & 1/16" loss in remaining depth.

Strg. #6 @ N. side / Bent #10 - Cond. "A", 5" hole (6" w) @ top / web & 4" loss next 2" of web depth.

49

PM 32° Clear 12-30-68 Gonzalez

52.

31st. St. Bridge

South Approach - Floor System

Span 11

Stringer #1 @ S. side / FB 1 - Cond. "A", 3/4" hole @ top / web, 5/16" loss in next 3", 3/16" loss next 2" & 1/16" loss in remaining depth.

Strg. #2 @ S. side / FB 1 - Cond. "A", 1 1/2" hole @ top / web, 5/16" loss in next 6" & 8" loss in remaining depth.

AM 38° overcast 12-31-68 Gonzalez

Strg. #4 @ S. side / FB #1 - Cond. "A", 3/16" loss in top 8" of web, 8" next 2" & 1/16" loss in remaining depth.

Strg. #5 @ S. side / FB 1 - Cond. "A", 1" sq. hole @ top / web.

Strg. #6 @ S. side / FB 1 - Cond. "A", 1/2" hole @ top / web, 1/4" loss next 3", 3/16 loss next 4", 8" next 3", 1/16" loss in remaining depth & 3/16 loss in bottom 2".

Strg. #1 @ N. side / F.B. 1 - Cond. "A", 5/16" loss in top 2" of web & 3/16" loss next 3".

Strg. #2 @ N. side / FB 1 - Cond. "A", 2" hole (4" wide) @ top / web, 4" loss in next 2", 8" loss next 4" & 1/16" loss in remaining depth.

50

AM 38° Overcast 12-31-68 Gonzalez

53.

31st. St. Bridge

South Approach - Floor System

Span #11

Strg. #3 @ N. side/FB 1 - Cond. "A", 1/4" loss in top 6" of web, 3/16" loss next 4" & 8" loss in remaining depth.

Strg. #4 @ N. side/FB 1 - Cond. "A", 8" loss in half depth of web.

Strg. #5 @ N. side/FB 1 - Cond. "A", 1 1/2" hole (4" wide) @ top/web, 3/16" loss next 2" & 7/16" loss in remaining depth.

Strg. #6 @ N. side/FB 1 - Cond. "A", 2" hole (2" wide) @ top/web, 4" loss next 2" & 7/16" loss in next 7".

Strg. #1 @ S. side/FB 2 - Cond. "A", 4" loss in top 3" of web, 3/16" loss next 7" & 7/16" loss in remaining depth.

Strg. #2 @ S. side/FB 2 - Cond. "A", 4" loss in top 3" of web.

Strg. #3 @ S. side/FB 2 - Cond. "A", 3/16" loss in top 5" of web & 7/16" loss in remaining depth.

Strg. #4 @ S. side/FB 2 - Cond. "A", 3/16" loss in top 2" & 7/16" loss in remaining depth.

51

AM 38° Overcast 12-31-68 Gonzalez

54.

31st. St. Bridge

South Approach - Floor System

Span 11

Stringer #5 @ S. side/FB 2 - Cond. "A", 5/16" loss in top 4" of web, 4" loss next 2" & 7/16" loss in next 7" of web.

Strg. #6 @ S. side/FB 2 - Cond. "A", 3/16" loss in top 3" of web.

AM 11° Partly cloudy 1-2-69 Gonzalez

Strg. #1 @ N. side/F.B. 2 - Cond. "A", 5/16" loss in top 4" of web, 4" loss next 2", 3/16 loss in next 8" & 4" loss in remaining depth.

Strg #2 @ N. side/FB 2 - Cond. "A", 1" hole @ top/web, 3/16" loss next 2" & 7/16" loss in next 4".

Strg. #3 @ N. side/FB 2 - Cond. "A", 8" loss in top 2" of web.

Strg. #4 @ N. side/FB 2 - Cond. "A", 1/16" loss in half depth.

Strg. #5 @ N. side/FB 2 - Cond. "A", 2" hole (2 1/2" wide) @ top/web, 4" loss in next 2" & 7/16" loss in remaining depth.

Strg. #6 @ N. side/FB 2 - Cond. "A", top 2" of web & 4" thk., hole (1" wide) next 2", 5/16" loss next 2" & 3/16" loss in remaining depth.

52

AM 11° Partly cloudy 1-2-69 Gonzalez

55.

31st. St. Bridge

South Approach - Floor System

Span #11

Stringer #1 @ S. side/FB3 - Cond. "A", 5/16" loss in top 3" of web, 1/4" loss next 3" & 3/8" loss in remaining depth.

Strg. #2 @ S. side/FB3 - Cond. "A", 1/4" loss in top 4" of web & 3/8" loss in remaining depth.

Strg. #4 @ S. side/FB3 - Cond. "A", 1/4" loss in top 6" of web, 3/16" loss next 2", 3/8" loss next 7" & 1/2" loss in remaining depth.

Strg. #5 @ S. side/FB3 - Cond. "A", 1/4" loss in top 4" of web, 3/8" loss next 8" & 1/16" loss in remaining depth.

Strg. #6 @ S. side/FB3 - Cond. "A", 2" hole (3" wide) @ top/web, 1/4" loss next 4" & 1/16" loss in remaining depth.

PM 13° clear

Floorbeam #3 - A considerable amount of corrosion (scale) found on top side of North bottom flg. ∠ under strg. #1. About 3/8" loss to o.s.l. of flg. ∠ over end 3'. F.B. web stiff. o.s.l. under strg. #1 about 3/8" thk. @ bottom 2". Area requires good cleaning. Area under strg. #6 similar but to lesser degree.

53

PM 13° Clear 1-2-69 Gonzalez

56.

31st. St. Bridge

South Approach - Floor System

Span 11

Strg. #1 @ N. side/FB3 - Cond. "A", 1/2" hole @ top/web, 5/16" loss in next 6" & 1/4" loss in remaining depth.

Strg. #2 @ N. side/FB3 - Cond. "A", 1" sq. hole @ top/web, 1/4" loss next 2", & 1/16" loss in remaining depth.

Strg. #4 @ N. side/FB3 - Cond. "A", 1/16" loss full depth of web.

Strg. #5 @ N. side/FB3 - Cond. "A", 1/2" hole (3" wide) @ top/web, 1/4" loss next 2" & 3/8" loss in remaining depth.

Strg. #6 @ N. side/FB3 - Cond. "A", 2 1/2" hole (4" wide) @ top/web, 1/4" loss next 2", 3/8" loss next 4" & 1/16" loss in remaining depth.

Strg. #2 @ S. side/Bent 11 - Cond. "A", 3/8" loss in half depth of web.

Strg. #3 @ S. side/Bent 11 - Cond "A", 3/8" loss in top 4" of web, 1/16" loss next 3" & 1/16" loss @ bott. 4" of web.

Strg. #4 @ S. side/Bent 11 - Cond. "A", 3/8" loss in top 6" of web.

Strg. #5 @ S. side/Bent 11 - Cond. "A" 3/16" loss in top 5" of web.

Strg. #6 @ S. side/Bent 11 - Cond. "A", 6" hole (5" wide) @ top/web. Balance of web is about 5/16" thk.

PM 40° clear 12-12-68 Gonzalez

57.

31st St. Bridge

South Approach - Floor System

Span #12

Stringer #1 @ N. side / F.B. Bent 11 - Cond. "A", 2" hole @ top / web, $\frac{5}{16}$" loss next 6" of depth, $\frac{1}{4}$" loss next 4" & $\frac{3}{16}$" loss in remaining depth.

Strg. 2 @ N. side / F.B. Bent 11 - Cond. "A", .9" hole @ top / web, $\frac{1}{4}$" loss next 1", $\frac{3}{16}$" loss next 9", 1" hole @ bottom & $\frac{1}{16}$" loss in remaining depth. See Photo 2R9

Also 2" ϕ hole in buckle pl. near top flg. / strg.

AM 50° Overcast 12-13-68 Gonzalez

Stringer #3 @ N. side / FB Bent 11 - Cond. "A", $\frac{1}{16}$" loss in top 1" of web, $\frac{1}{2}$" hole, & $\frac{1}{4}$" loss in remaining depth.

Strg. 4 @ N. side / FB Bent 11 - Cond. "A", $\frac{3}{8}$" loss in top 3", $\frac{1}{4}$" loss next 5" & $\frac{3}{16}$" loss in remaining depth.

Strg. #5 @ N. side FB Bent 11 - Cond. "A", $\frac{5}{16}$" loss in top 2", $\frac{3}{16}$" loss next 4" & 6" loss in remaining.

55

AM 50° Overcast 12-13-68 Gonzalez

58.

31st St. Bridge

South Approach - Floor System

Span 12

Strg. #6 @ N. side FB Bent 11 - Cond. "A", 10" hole (6" wide) @ top, 2" hole @ bottom of web, & remaining web about $\frac{1}{32}$" thk. Also 8" mat'l. loss to bott. flg. of strg. Photo 2R10.

Strg. #1 @ S. side / FB 1 - Condition "A", 5" hole (5" wide) @ top / web, $\frac{5}{16}$" loss next 3", $\frac{3}{16}$" loss next 6", $\frac{5}{16}$" loss next 3" & 1" hole (5" wide) @ bott. / web.

Strg. #2 @ S. side / F.B. 1 - Cond. "A", 4" hole (1" wide) @ top / web, $\frac{5}{16}$" loss next 4", $\frac{3}{16}$" loss next 8" & 8" loss in remaining depth.

Strg. #3 @ S. side / FB 1 - Cond. "A", $\frac{5}{16}$" loss in top 4" of web, $\frac{3}{16}$" loss next 7" & 8" loss in remaining depth.

Strg. #4 @ S. side / FB 1 - Cond. "A", $\frac{3}{8}$" loss in top 4", $\frac{1}{4}$" loss next 2", $\frac{3}{16}$" loss next 8" & $\frac{1}{16}$" loss in remaining depth.

56

AM 48° overcast 12-13-68 Gonzalez

59.

31st. St. Bridge

South Approach - Floor System

Span 12

Stringer #5 @ S. side/FB 1 - Cond. "A", 3" hole (2" wide) @ top/web, 5/16 loss next 4", 1/8 loss next 4" & 7/16 loss next 8".

Strg. 6 @ S. side/FB 1 - Cond. "A", 5" hole (6" wide) @ top/web. & 1/2" loss next 5" of depth.

Strg. #1 @ N. side/FB 1 - Cond. "A", 1/2" hole @ top of web, 5/16 loss next 8" & 1/4" loss in remaining depth.

Strg. 2 @ N. side/FB 1 - Cond. "A", 5/16 loss @ top 6" of web, 3/16 loss next 2" & 1/8 loss in remaining depth.

Strg. #3 @ N. side/FB 1 - Cond. "A", 3/8 loss @ top 3", 3/16 loss next 4" & 7/16 loss next 8".

Strg 4 @ N. side/FB 1 - Cond. "A", 1/4" loss in top 3" & 1/8" loss in remaining depth.

Strg. #5 @ N. side/FB 1 - Cond. "A", 2" hole (3" wide) @ top/web 3/8" loss next 2", 1/4" loss next 4" & 7/16 in remaining depth.

57

PM 49° overcast 12-13-68 Gonzalez

60

31st St. Bridge

South Approach - Floor System

Span 12

Stringer #6 @ N. side/FB 1 - Cond. "A", 1" hole (4" wide) @ top/web, 5/16 loss next 3" 3/16 loss next 3", 1/4 loss next 4" & 3/16 loss in remaining.

AM 13° clear 12-16-68 Gonzalez

Stringer #1 @ S. side F.B. Bent 12 - Cond. "A", 1/4" loss in top 6" of web 3/16 loss next 4" & 1/8 loss in remaining depth.

Strg #2 @ S. side/FB Bent 12 - Cond. "A" 2" hole (3" wide) @ top/web, 3/8 loss next 7" & 1/8" loss in remaining depth.

Strg. #3 @ S. side/FB Bent 12 - Cond. "A", 5/16 loss in top 6" of web, 1/4" loss next 7" & 1/8" loss in remaining depth.

Strg #4 @ S. side/FB Bent 12 - Cond. "A", 5/16 loss in top 4" & 1/8" loss in remaining depth.

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AM 13° Clear 12-16-68 Gonzalez

Col.

31st. St. Bridge

South Approach - Floor System

Span 12

Stringer #5 @ S. side / F.B. Bent #12 - Cond. "A", 5/16" loss in top 6" of web & 8" loss in remaining depth of web.

Strg. #6 @ S. side / F.B. Bent #12 - Cond. "A", 5/16" loss in top 4" of web.

Span #13 (Bent 12 to Bent 14)

Strg #1 @ N. side / FB Bent #12 - Cond. "A", 4" loss in top 7" of web & 8" loss in remaining depth.

Strg. #2 @ N. side / FB Bent #12 - Cond. "A", 4" hole (3" wide) @ top / web, 5/16" loss in next 7" & 8" loss in remaining depth.

Strg #3 @ N. side / FB Bent #12 - Cond. "A", 5/16" loss in top 4", 1/2" loss next 6" & 8" loss in remaining depth.

Strg. #4 @ N. side / FB Bent #12 - Cond. "A", 4" loss top 4", 3/16" loss next 6" & 8" loss in remaining depth.

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AM 13° Clear 12-16-68 Gonzalez

Col. 62.

31st. St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer #5 @ N. side / FB Bent 12 - Cond. "A", 4" hole (5" wide) @ top / web cope, 3/8" loss in next 3", 1/4" loss next 3" & 3/16" loss in remaining depth.

Strg. #6 @ N. side / FB Bent 12 - Cond. "A", about 5/16" loss in top 3" of web.

PM 13° Clear 12-16-68 Gonzalez

Span 13 (Continued)

Strg. #2 @ S. side / FB 1 - Cond. "A", 5/16" loss in top 15" & 1/4" loss in remaining depth.

Strg. #3 @ S. side / FB 1 - Cond. "A", 1/4" loss in top 7", 3/16" loss next 7" & 8" loss in remaining depth.

Strg. #4 @ S. side / FB 1 - Cond. "A" 3/16" loss in half depth & 1/16" loss in lower half depth.

Strg. #5 @ S. side / FB 1 - Cond. "A", 1/2" hole @ top / web, 5/16" loss in next 5" & 8" loss in remaining depth.

60

PM 19° Clear 12-16-68 Gonzalez

63.

31st St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer # 6 @ S. side / FB 1 - Cond. "A", 1/2" hole @ top / web, 5/16 loss next 2" & 3/16" loss next 3"

Stringer # 1 @ N. side / FB 1 - Cond. "A", 8" loss in top 3"

Strg. # 2 @ N. side / FB 1 - Cond. "A", 3" hole (5" wide) @ top / web 3/16" loss in next 7" & 1/16" loss in remaining depth.

Strg. # 3 @ N. side / FB 1 - Cond. "A", 3/16 loss in top 6" of web & 1/16" loss in remaining depth.

Strg. # 5 @ N. side / FB 1 - Cond. "A", top 4" of web 1/32" thick (5" wide) & 1/16" loss in remaining depth.

Strg. # 6 @ N. side / FB 1 - Cond. "A", 3" hole (4" wide) @ top of web & 1/4" loss in next 4" of depth.

61

PM 19° Clear 12-16-68 Gonzalez

64.

31st St. Bridge

South Approach - Floor System

Span # 13 (Bent 12 to Bent 14)

Stringer # 1 @ S. side / FB 2 - Cond. "A", 1/2" hole @ top / web.

Strg. # 2 @ S. side / FB 2 - Cond. "A", 1" hole @ top / web & 3/8" loss in next 6"

Strg. # 5 @ S. side / FB 2 - Cond. "A", 1/2" hole @ top / web, 5/16" loss in next 6" & 1/16" loss in remaining depth.

Strg. # 6 @ S. side / FB 2 - Cond. "A", 1" hole @ top / web, 5/16" loss next 1", 3/16" loss in next 4" & 1/16" loss in remaining depth.

AM 20° Clear 12-17-68 Gonzalez

Strg. 1 @ N. side / FB 2 - Cond. "A", 1/4" loss in top 12" & 3/16" loss in remaining depth.

Strg. # 2 @ N. side / FB 2 - Cond. "A", 1" hole (1" wide) @ top / web, 3/8" loss next 3" & 1/16" loss in remaining depth.

Strg. # 5 @ N. side / FB 2 - Cond. "A", 5/16" loss in top 2" of web & 1/16" loss in remaining depth.

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AM 20° Clear 12-17-68 Gonzalez

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31st St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer #6 @ N. side / FB 2 - Cond. "A", 3/16" loss in top 5" & 1/16" loss next 5".

Stringer #1 @ S. side / FB 3 - Cond. "A", 1/16" loss in top 6", 1/8" loss next 6" & 1/16" loss in remaining depth.

Strg. 2 @ S. side / FB 3 - Cond. "A", 2" hole (3" wide) @ top / web & 1/4" loss in next 3" of depth.

Strg. #3 @ S. side / FB 3 - Cond. "A", 1/8" loss in top 3" of web.

Strg. #4 @ S. side / FB 3 - Cond. "A" 5/16" loss in top 4" of web, 1/4" loss next 4" & 1/16" loss in remaining depth.

Strg. #5 @ S. side / FB 3 - Cond. "A", 1" hole (2" wide) @ top / web, 3/8" loss next 4" & 3/16" loss in remaining depth.

Strg. #6 @ S. side / FB 3 - Cond. "A", 1/16" loss in top 3" of web.

Strg. #1 @ N. side / FB 3 - Cond. "A", 1/16" loss full depth.

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AM 20° Clear 12-17-68 Gonzalez

66.

31st St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer 2 @ N. side / FB 3 - Cond. "A", 3/8" loss in top 3" of web.

Strg. #3 @ N. side / FB 3 - Cond. "A", 1/16" loss full depth.

Strg 4 @ N. side FB 3 - Cond. "A", 1/8" loss in top 3" & 1/16" loss in remaining depth.

Strg. #5 @ N. side / FB 3 - Cond. "A", 1/4" loss in top 3" of web & 1/8" loss next 2".

Strg. #6 @ N. side / FB 3 - Cond. "A", 1/2" hole @ top / web, 5/16" loss next 5" & 1/16" loss in remaining depth of web.

Strg. #1 @ S. side / FB 4 - Cond. "A", 1 1/2" hole @ top / web, 1/16" loss next 15" & 1/8" loss in remaining depth.

Stringer #2 @ S. side / FB 4 - Cond. "A", 3/8" loss in top 2" & 1/16" loss in next 6" of web depth.

Strg. #3 @ S. side / FB 4 - Cond. "A", 3/16" loss in top 4" of web

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AM 20° Clear 12-17-68 Gonzalez

67

31st St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer #5 @ S. side / FB4 - Cond. "A", 4" loss in top 4" of web & 1/16" loss in remaining depth.

Strg. #6 @ S. side / FB4 - Cond. "A", 1/4" loss in top 4" of web

PM 25° Clear

Strg. #1 @ N. side / FB4 - Cond. "A", 5/16" loss in top 3" of web, 1/4" loss next 8" & 3/16" loss in remaining depth.

Strg. #2 @ N. side / FB4 - Cond. "A", 1" hole @ top of web & 3/8" loss in next 1".

Strg. #3 @ N. side / FB4 - Cond. "A", 8" loss in top 3" of web.

Strg. #4 @ N. side / FB4 - Cond. "A", 8" loss full depth of web.

Strg. #5 @ N. side / F.B. #4 - Cond. "A", 1/4" loss in top 2" of web.

Strg. #6 @ N. side / FB #4 - Cond. "A", 1/4" loss in top 2" of web.

65

AM 20° Overcast 12-18-68 Gonzalez

68

31st St. Bridge

South Approach - Floor System

Span 13 (Bent 12 to Bent 14)

Stringer #1 @ S. side / FB 5 - Cond. "A", 3/16" loss in top 6" of web.

Strg. #5 @ S. side / FB 5 - Cond. "A", 5/16" loss in top 3" of web.

Strg. #6 @ S. side / FB 5 - Cond. "A", 8" loss in top 5" of web.

Strg. #1 @ N. side / FB 5 - Cond. "A", 1/2" hole @ top / web & 1/4" loss next 2".

Strg. #5 @ N. side / FB 5 - Cond. "A", 1/2" hole @ top / web, 1/4" loss next 3" & 1/16" loss next 5".

Strg. #6 @ N. side / FB 5 - Cond. "A", 1/4" loss in top 2" of web & 1/8" loss next 4".

Strg. #1 @ S. side / Bent #14 - Cond. "A", 5/16" loss in top 3" of web & 1/16" loss next 3" of web.

Strg. #6 @ S. side Bent #14 - Cond. "A", 3/16" loss in top 3" of web.

66

PM 24° overcast 12-18-68 Gonzalez

69.

31st St. Bridge

South Approach - Floor System

Span 14

Stringer #1 @ N. side / Bent #14 - Cond. "A", 5" hole (7" wide), 3/16 loss next 11" & 2" hole (1 3/4" wide) @ bottom of web.

Strg. #2 @ N. side / Bent #14 - Cond. "A", 2 1/2" hole (4" wide) @ top / web, 5/16" loss in next 6" & 1/16" loss in remaining depth.

Strg. #3 @ N. side / Bent #14 - Cond. "A", 2" hole @ top / web, 1/4" loss next 3" & 1/16" loss in remaining depth.

Strg. #4 @ N. side / Bent #14 - Cond. "A", 5/16 loss in top 2" of web.

Strg. #6 @ N. side / Bent #14 - Cond. "A", 2" hole (3" wide) @ top / web, 5/16" loss in next 4" & 3/16" loss in next 3".

Scupper drain pipe (5"ϕ) separated from 45° elbow 6' below top / stringer #6 near Bent #14.

Some corrosion to top flgs. of both floorbeams @ Bent #14 from roadway drainage thru expan. dam. No appreciable loss / matl. Requires cleaning & painting.

67

PM 24° overcast 12-18-68 Gonzalez

70.

31st. St. Bridge

South Approach - Floor System

Span 14

Girder expan. brgs. E. & W. @ N. side of Bent #14 - No apparant movement @ plate under lower casting.

Stringer #1 @ S. side / FB 1 - Cond. "A", 1/4" loss in top 6" of web, 3/16" loss in next 6" & 1/8" loss in remaining depth.

Strg. #2 @ S. side / FB 1 - Cond. "A", 1/8" loss in top 6" of web.

Strg. #3 @ S. side / FB 1 - Cond. "A" 3/16" loss in top 3" of web & 1/16" loss in next 3" of web.

Strg. #4 @ S. side / FB 1 - Cond. "A", 1/16" loss full depth of web.

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31st. St. Bridge
South Approach - Floor System

Span #14

Stringer #1 @ N. side / F.B. 1 - Cond. "A", 4" loss full depth of web. About 6" loss in bott. flg. @ end 12".

Stringer #2 @ N. side / FB 1 - Cond. "A", 5/16" loss in top 6" of web & 8" loss in remaining depth.

Strg. #3 @ N. side / FB 1 - Cond. "A", 4" loss in top 6" of web, 8" loss in next 4" & 16" loss in remaining depth.

Strg. #2 @ S. side / FB 2 - Cond. "A", 2" hole (2" wide) @ top / web, 3/8" loss next 2" & 16" loss in remaining depth.

Strg. #3 @ S. side / FB 2 - Cond. "A", 4" loss in top 4" & 8" loss in remaining depth.

Strg. #5 @ S. side / FB 2 - Cond. "A", 4" loss in top 4" of web & 8" loss in next 2".

Strg. #6 @ S. side / FB 2 - Condition "A", 3/16" loss in top 2".

Strg. #1 @ N. side / FB 2 - Cond. "A", 4" loss full depth of web & 4" hole @ bottom. East side of bott. flg reduced to 4" thk. @ end 12".

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31st. St. Bridge
South Approach - Floor System

Span #14

Stringer #2 @ N. side / FB 2 - Cond. "A", 1" hole @ top / web, 5/16" loss next 3" & 16" loss in next 3".

Strg. #4 @ N. side / FB 2 - Cond. "A", 8" loss in top 5" of web.

Strg. #5 @ N. side / FB 2 - Cond. "A", 8" loss in top 5" of web.

Strg. #6 @ N. side / FB 2 - Cond. "A", 4" loss in top 2" of web & 8" loss in next 2".

Strg. #1 @ S. side / FB 3 - Cond. "A", 3/16" loss in top 4" of web, 8" loss next 4" & 16" loss in remaining depth.

Strg. #3 @ S. side / FB 3 - Cond. "A", 8" loss full depth of web.

Strg. #6 @ S. side / FB 3 - Cond. "A", 8" loss in top 4" of web.

Strg. #1 @ N. side / FB 3 - Cond. "A", 3/16" loss in top 3" of web.

Strg #6 @ N. side / FB 3 - Cond. "A", 4" loss in 2"

Strg. #1 @ S. side / Bent 15 - Cond. "A", 8" hole (6" wide) @ top / web, 4" loss next 2", 8" loss in remaining & 4" loss in bott. 2".

70.

AM. 28° 12-20-68 Gonzalez

73.

31st. St. Bridge

South Approach - Floor System

Span 14 (Continued)

Stringer 3 @ S. side / Bent 15, Cond. "A", 16" loss full depth of web.

Strg. #6 @ S. side / Bent 15, Cond. "A", 5" hole (5" wide) @ top / web & 1/4" loss next 3'.

Span 14

AM 30° 12-23-68 Overcast & windy Gonzalez

Floorbeam @ S. side / Bent #15 - F.B. web @ E. end packing out behind brg. stiff. on N. side of web. About 16" loss full depth of F.B. web.

Span 15

Floorbeam @ N. side / Bent #15 - O.S.L. of stiff. L under Strg. #1 completely gone for height of 12", feathered to knife edge next 10" & gone at bottom 7". Also 3/16" loss to stiff. leg against bott. flg. L of F.B. @ bott. 5". About 8" loss to O.S.L. of F.B. bott. flg. L (N.) between stiff. & end of F.B. (2'-6 length) Also 8" loss to vert. leg of bott. flg. L over same 2'-6 length. See Sketch. Photos 3R4, 3R5 8" loss / vert. leg



AM 30° 12-23-68 Overcast & windy Gonzalez

74.

31st. St. Bridge

South Approach - Floor System

Span 15

Stringer 1 @ N. side / Bent #15 - Cond. "A", hole (9" wide) full depth of web. Also some loss of mat'l. to bott. flg. On E. side, end 6" of flg. gone & next 6" reduced to 3/16" thickness. On W. side, bott. flg. thickness varies from 1/16" to 1/8" thk. at end 18". See Photos 3R4 & 5.

Strgs. #2, 3 & 4 @ N. side / Bent #15 - Cond. "A", 16" loss full depth / web.

Strg. #5 @ N. side / Bent #15 - Cond. "A", 4" loss for half depth of web.

Strg. #6 @ N. side / Bent #15 - Cond. "A", 2" hole (3" wide) @ top / web, 5/16" loss next 2", 1/4" loss next 4" & 8" loss in remaining depth.

Strg. #1 @ S. side / F.B. 1 - Cond. "A", 1 1/2" hole (1 1/2" wide) @ top / web, 3/16" loss next 12" & 1/16" loss in remaining depth.

Strg. #2 @ S. side / F.B. 1 - Cond. "A", 5/16" loss in top 6" of web & 1/2" loss in remaining depth.

Strg. #4 @ S. side / F.B. 1 - Cond. "A", 8" loss in top 6" of web.

Am 30° Overcast & windy 12-23-68 Gonzalez

75.

31st. St. Bridge

South Approach - Floor System

Span #15

Strg. #5 @ S. side / F.B.1 - Cond. "A", 3/16 loss in top 6" of web & 1/16" loss in remaining depth.

Strg. #6 @ S. side / F.B.1 - Cond. "A", 1" hole @ top / web, 1/16" loss next 4" & 1/16" loss in remaining depth.

Strg. #1 @ N. side / F.B.1 - Cond. "A", 1/8" loss in top 9" of web & 1/16" loss next 3" of depth.

Strg. #2 @ N. side / FB1 - Cond. "A", 1/8" loss top 2" of web & 1/16" loss next 4".

Strg. #3 @ N. side / F.B.1 - Cond. "A", 1/8 loss in top 3" of web & 1/16" loss next 3".

Strg. #5 @ N. side / F.B.1 - Cond. "A", 1/4" loss in top 5" of web & 1/8" loss in remaining depth.

Strg. #6 @ N. side / F.B.1 - Cond. "A" 3" hole (4" wide) @ bott. / web. Remaining web thickness 1/8". West side of bott. flg. @ end 12" reduced to 3/16" thk.

73

PM 22° 12-23-68 Gonzalez

76.

31st. St. Bridge

South Approach - Floor System

Span 15

Floorbeam 1 - Some corrosion to top side of bott. flg. on North side / web at end 6", about 1/8" loss. Also some loss to bottom 4" of web stiff. o.s.l. under strg. #6. Leg feathered to 1/16" thk. Corrosion caused by trapped water.

Stringer #1 @ S. side / FB2 - Cond. "A", 1" hole @ top / web, 1/16" loss half depth & 1/8" loss in bott. half.

Strg. #2 @ S. side / FB2 - Cond. "A", 1/4" loss in top 5" & 1/16 loss in remaining depth.

Strg. #3 @ S. side / FB2 - Cond. "A", 1/8" loss in half depth & 1/16" loss bott. half.

Strg. #4 @ S. side / FB2 - Cond. "A", 1" hole @ top / web & 1/16" loss in next 4".

Strg. #5 @ S. side / FB2 - Cond. "A", 1/4" loss in top 5" & 1/8" loss next 2".

Strg. #6 @ S. side / FB2 - Cond. "A", 1" hole @ top / web, & remainder of web reduced to 1/8" thick.

A

AM 19° Snow 12-24-68 Gonzalez

77.

31st. St. Bridge

South Approach - Floor System

Span #15 (Bent 15 to Pier 17)

Floorbeam 2 - Some corrosion on S. side of web @ East end of F.B. near connection to girder stiffener ∠. About 3/16" loss for top half of depth & 8" loss @ bottom half of web depth.

At North side of F.B. web a.s.l. of stiff. ∠ under strg. 1 feathered to 16".

At E. end of FB., area between F.B. web & girder stiff. ∠ packing out with 3/16" loss to o.s.l. of stiff. for height of 2".

At E. end of FB. considerable corrosion with 3/16" loss to fill plate @ end conn. ∠ on N. side / F.B. web.

Also considerable corrosion to N. side / bott. flg. of FB under strg. 1 over 2' length. Some packing out between bott. flg. ∠ & cover plate. Cover pl. feathered to knife edge & 8" to 3/16" loss in o.s.l. of flg. ∠. Also 8" loss to vertical leg of flg. ∠ over same 2' length.

75

PM 19° Clear 12-24-68 Gonzalez

78.

31st. St. Bridge

South Approach - Floor System

Span #15 (Bent 15 to Pier 17)

Stringer 1 @ N. side / FB2 - Condition "A", 5/16" loss to top 6" of web & 4" loss to remaining depth of web.

Strg. #2 @ N. side / FB2 - Cond. "A", 4" loss in top 2" of web, 8" loss next 3" & 16" loss in remaining depth.

Strgs. 3 & 4 @ N. side / FB2 - Cond. "A", 16" loss full depth of web.

Strg. #6 @ N. side / FB2 - Cond. "A", 3/16" loss full depth of web.

AM 10° Overcast 12-26-68

Span 15 (Bent 15 to Pier 17)

Strg. #1 @ S. side / end FB Pier #17 - Cond. "A", 4" hole (4" wide) @ top / web. Remaining web measures about 8" thick. Also considerable corrosion to W. side of strg. web @ bott. flg. fillet over most of span from water running down slope on top / flg. with hole in web 4" length (1½" depth) & 2' from end of blocked flg.

Slight amount of corrosion to F.B. web near bott. flg. / strg. 1 with 3/16" max. loss over 12" x 12" area.

76

AM 10° overcast 12-26-68 Gonzalez

79.

31st St. Bridge

South Approach - Floor System

Span 15 (Bent #15 to Pier #17)

Strg. 2 @ S. side/end F.B. - Cond. "A", 1/4" loss in top 6" of web, 1/8" loss next 4" & 1/16" loss in remaining depth.

Strg. #5 @ S. side/end F.B. - Cond. "A", 3/16" loss in top 6" of web & 1/16" loss in remaining depth.

West Girder Brg @ Pier #17

Portion of concrete under masonry plate broken off exposing about 12" of S. West anchor bolt. See Photo 3RG. Grout in anchor bolt sleeve loose & very fine consistency; bolt can be moved by hand. N. West anchor bolt tight but 1/4" clear under nut allowing entrance of water. Also small clearance under masonry pl. allowing water to enter anchor bolt sleeve. N. East anchor bolt shows slight movement by hand & 1/4" clear under nut allowing entrance of water. Also clearance under masonry plate @ N. E. corner for water to enter sleeve. Small portion of conc. broken off under mas. pl. exposing 1" of S. E. anch. bolt. Shoe otherwise in good condition.

77

AM 10° overcast 12-26-68 Gonzalez

80.

31st St. Bridge

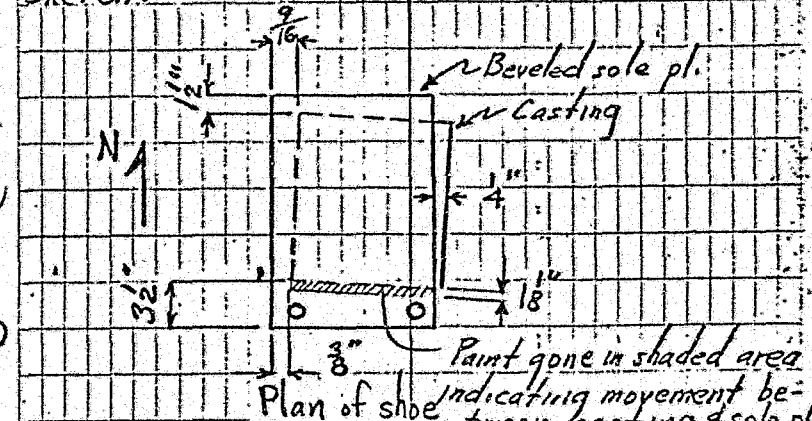
South Approach - Floor System

Span #15

East Girder Bearing @ Pier #17

All anchor bolts tight. N. West sleeve exposed about 1/2" under masonry pl 1/2"

4 bolts connecting casting to girder sheared off & some shift evident between beveled sole plate & casting as shown in sketch.



Plan of shoe

78

AM 10° overcast 12-26-68 Gonzalez

81.

31st. St. Bridge

South Approach - Floor System

General Note:

At the ends of most floorbeams the top flange area including the sidewalk support bracket showed considerable corrosion (layers of scale). Amount of material loss poses no threat to strength of floorbeam. This area requires good cleaning & painting.

78A

AM 29° overcast 1-3-69 Gonzalez

82.

31st. St. Bridge

South Approach - Sidewalk (West)

Bent 1 Brkt. O.s.l. of N. top chord L feathered to knife edge @ end 18". No corr. since last painting.

Bent #5 Brkt. - O.s.l. of N. top chord L feathered to knife edge @ end 2". No corrosion since last painting.

General Note:

O.s.l. of East top flg. L on fascia stringer generally 25% max. loss of material over most of South Approach. Caused by condition of orginal concrete sidewalk. No apparant loss/matl. since installation of new sidewalk.

Scattered areas of corrosion with no appreciable loss of material on brackets & conduit supports requiring good cleaning & painting.

79

AM 13° snow 1-7-69 Gonzalez

83.

31st. St. Bridge

South Approach - East Sidewalk

Bent #7 Brkt. (Sidewalk & conduit cage) o.s.l. of both top chord Ls gone over most of length

Bent #11 Brkt. 25% of o.s.l. gone on both top chord Ls over most of length.

General Note:

O.s.l. of West sidewalk shelf L on fascia generally shows about 25% max. loss of material over most of South Approach. Caused by condition of original concrete sidewalk. No apparent loss of material since installation of new conc. sidewalk. Scattered areas of corrosion with no appreciable loss of material on many sidewalk support brackets & conduit supports requiring good cleaning & painting

AM 25° clear 1-9-69 Gonzalez

84.

31st. St. Bridge

South Approach - Sidewalk & Handrail (East)

Span #1 - Good condition

Span #2 - Good cond.

Span #3 - " "

Span #4 " "

Span #5 " "

Span #6 " "

Span #7 " "

Span #8 " "

Span #9 " "

Span #10 " "

Span #11 " "

Span #12 " "

Span #13 (Bent #12 to Bent #14) - Good cond.

Span #14 Good cond.

Span #15 " "

PM 20° Clear 1-9-69 Gonzalez

85.

31st St. Bridge

South Approach - Sidewalk & Handrail (West)

Span #1 - Good cond.
Span #2 - " "
Span #3 - " "
Span #4 - " "
Span #5 - " "
Span #6 - " "
Span #7 - " "
Span #8 - " "
Span #9 - " "
Span #10 - " "
Span #11 - " "
Span #12 - " "
Span #13 (Bent #12 to Bent #14) Good cond.
Span #14 - Good cond.
Span #15 - " "

PM 20° Clear 1-9-69 Gonzalez

86.

31st. St. Bridge

South Approach

Observations from roadway

Bent #9 - Both scuppers clogged with dirt.

Bent #14 - West scupper clogged with dirt. Photo 2R11

East scupper clear but not connected to 45° elbow @ 6' below top of stringer.

Crack in ½" grooved plate of expansion dam. Photo 2R12 (East half rdwy dam.)

South Approach Spans.

Floor System ~ Holes in webs of stringers ~ Not shown in photographs. Summary of holes in stgr. webs - see field notes.

Span 1	@ End FB., S. Abut.		S 2	Top 2" ø ±¼"	
Span 2	FB 1, N		S 6	5" depth.	
Span 4	FB 2, N		S 5	1½" dn.	
			S 6	1" ø Top	
@ Bent 4			S 6	sim. S 1.	
Span 5	FB 1 S.		S 2	1" dn.	
			S 5		
	FB 2 S.		S 6	1" dn.	
	FB 3 N.		S 1	4'2" x 3½" 2 Holes	
	FB 4 S.		S 1	1½" Top	
	FB 5 S		S 1	2" Top	
			S 6	½" + loss	
	FB 5 N.		S 1	2"	
	FB 6 S		S 1	5" x 3"	
			S 2	1"	
			S 6	1"	
	FB 7 S		S 6	3" x 4"	
	FB 7 N		S 1	1½" + loss	
			S 2	2 holes	
			S 4	1"	
			S 5	2" + loss	

South Approach Spans. Summary of holes.

Span 6	@ Bent 5 FB.		S 1.	3" out.
Span 7	@ Bent 7		S 3	sketch.
			S 4	sketch
Span 8	@ Bent 7 N.		S 6	sketch.
	FB 1 N.		S 1	
	See notes on FB 1. N.			
	FB 2 S.		S 1.	4"
			S 5 S 6	4" 2"
	FB 2 N.		S 6	3" x 5"
	FB 3 S		S 1	4"
			S 6	5"
	FB 3 N.		S 6	5"
	@ Bent 8 S.		S 6	5"
Span 9	@ Bent 8 N.		S 1	8"
			S 2	2"
			S 6	5"
	FB 2 N		S 5	3"
			S 6	4" x 5"
	FB 3 S		S 5	1"
			S 6	2"
	FB 3 N		S 1	2"
			S 6	1"

S. App. spans.
Summary of holes in Stgr. webs.

Span 9	con't'd	@ Bent 9	So.	S1.	2" hole
				S6.	2"
Span 10		@ Bent 9	No.	S1.	2"
				S2	1"
				S3	4"
				S6	6"
	FB 1	S.		S2	1"
	FB 1	N.		S2	4"
				S3	1"
				S6	1"
	FB 2	S.		S2	3" x 4"
	FB 2	N.		S1	3" x 3"
	FB. @	Bent 10	So.	S1	3" x 3"
				S6	4"
					5" x ¾ Bot.
Span 11	FB @	Bent 10	No.	S1	6" x 6" Top
				S2	9" x 5" w.
				S3	4" x 1½
				S6	5" x 6" w
	FB 1	S.		S2	1½"
				S5	1" □
	FB 1	N.		S2	2" x 4"
				S5	1½" x 4"
				S6	2" x 2"

South Approach Spans - Flr. System.
Summary of Stgr. Web holes.
See field notes for description.

				Holes
Span 11 (Cont'd)	FB 2	N.	S2	1"
			S5	2" x 2½"
			S6	notes.
	FB 3	S	S6	2" x 3"
	FB 3	N	S2	1" □
			S5	1½" x 3"
			S6	2½ x 4" w.
	FB @ Bent 11	So.	S6	6" x 5" (notes)
Span 12	@ Bent 11	No.	S1	2"
	FB 1	S.	S1	5" x 5" top 1" x 5" bot.
			S2	4" x 1"
			S5	3" x 2"
			S6	5" x 6"
	FB 1	N.	S1	1½"
			S5	2" x 3"
			S6.	1" x 4"
	@ Bent 12	So.	S2	2" x 3"

South Approach Spans ~ Flr. System.
Summary of Stgr. web holes.
See field notes for description.

Span 13	@ Bent 12	No.	S2	4"x3"	
			S5	4"x5"	
	FB 1	N.	S2	3"x5"	○
			S5	1/32" thk. S'	○
			S6	3"x4"	
	FB 2	S.	S2	1"	○
			S6	1"	○
	FB 2	N.	S2	1"x1"	
	FB 3	S.	S2	2"x3" w.	
			S5	1"x2"	
	FB 4	S.	S1	1½"	
	FB 4	N.	S2	1"	
	FB 5	N.	S1	1½"	
Span 14	@ Bent 14	No.	S1	5"x7"	○
			S2	2½x4"	○
			S3	2"	
			S6	2"x3"	○
	FB 2	S.	S2	2"x2"	○
	FB 2	N.	S2	1"	○
	@ Bent 15	So.	S1.	8"x6"	○
			S6.	5"x5"	○

South Approach Spans ~ Flr. System.
Summary of holes in stgr. webs.
See field notes for description.

Span 15	@ Bent 15	No.	S6	2"x3"
	FB 1	S.	S1	1½x1½
			S6	1"
	FB 1	N.	S6.	3"x4"
	FB 2	S.	S1	1"
			S4	1"
			S6	1"
	@ FB @ Pier 17	So.	S1	4"x4" See notes.

10-29-68 36° Rain Wiedwald 93

S. Approach Spans.

Col. Base 15 E.

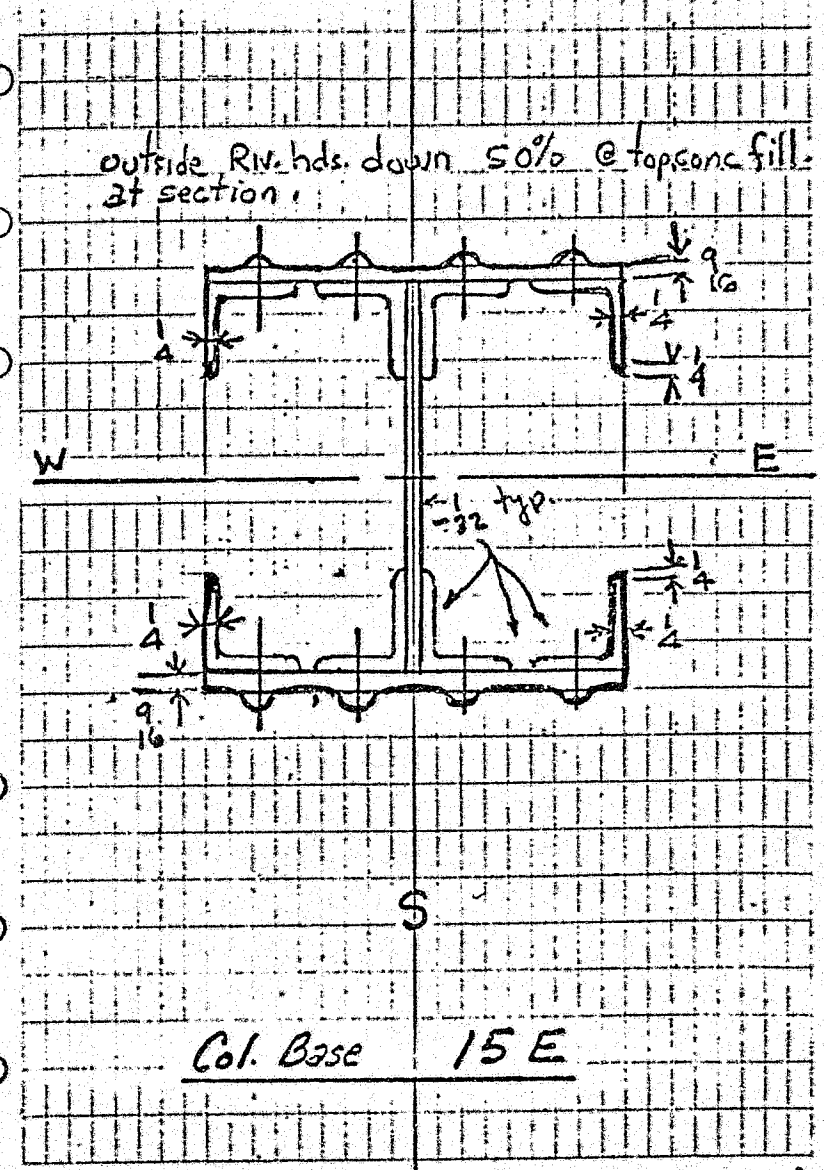
Conc. broken off.
Corrosion between col. & conc.
Rn. hds at section reduced
50 %, others below reduced
20 to 30 %.
(See photo 3-20A)

Col. Base 15 W.

At top of conc., loss of
1/32 all around.
Conc. in fair condition.

10-29-68 Wiedwald 94

S. Approach Spans



Col. Base 15 E

10-30-68 32° Wiedwald

S. Approach Spans 95.

BENT 15

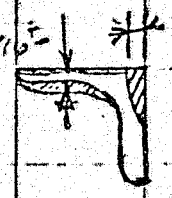
Top Strut:- see sketch →

	Lacing		
M10. Strut:	-10%	to	-30%
L's.	-5%	to	-10%

At W. end ~ tie pl. is abt. 1" @ End & ¾ @ W. end. ½" Cut into E. end very thin. Same across pl.

Fist lacing bar broken.

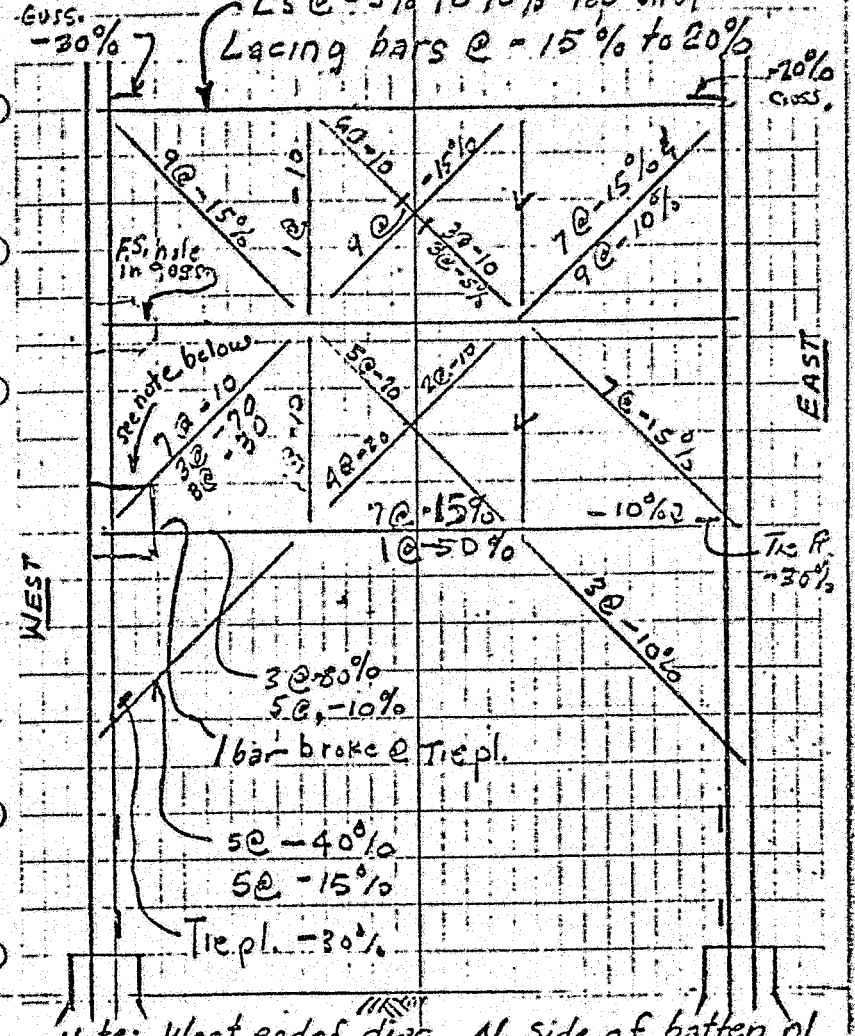
Hole in N. Vert. guss. above osl of L.



Sect. No. L @ Guss.

(See photo 4-5A)

S. Approach Spans 10-30-68 Wiedwald 96.



Note: West end of diag., N. Side of batten pl. & N. guss are ⅛" thick., heavy corrosion. N. osl of diag. L @ 50%.

Bent 15

Look N.

10-30-68 Wiedwald

S. Approach Spans 98.

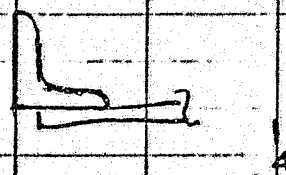
Bent 14:

Top Strut. - Lacing @ -20% to -30%. Angles at abt -10%.

Tie plates at all struts reduced abt. 20% at E. end.

1/4" pack-out N.S. Guss

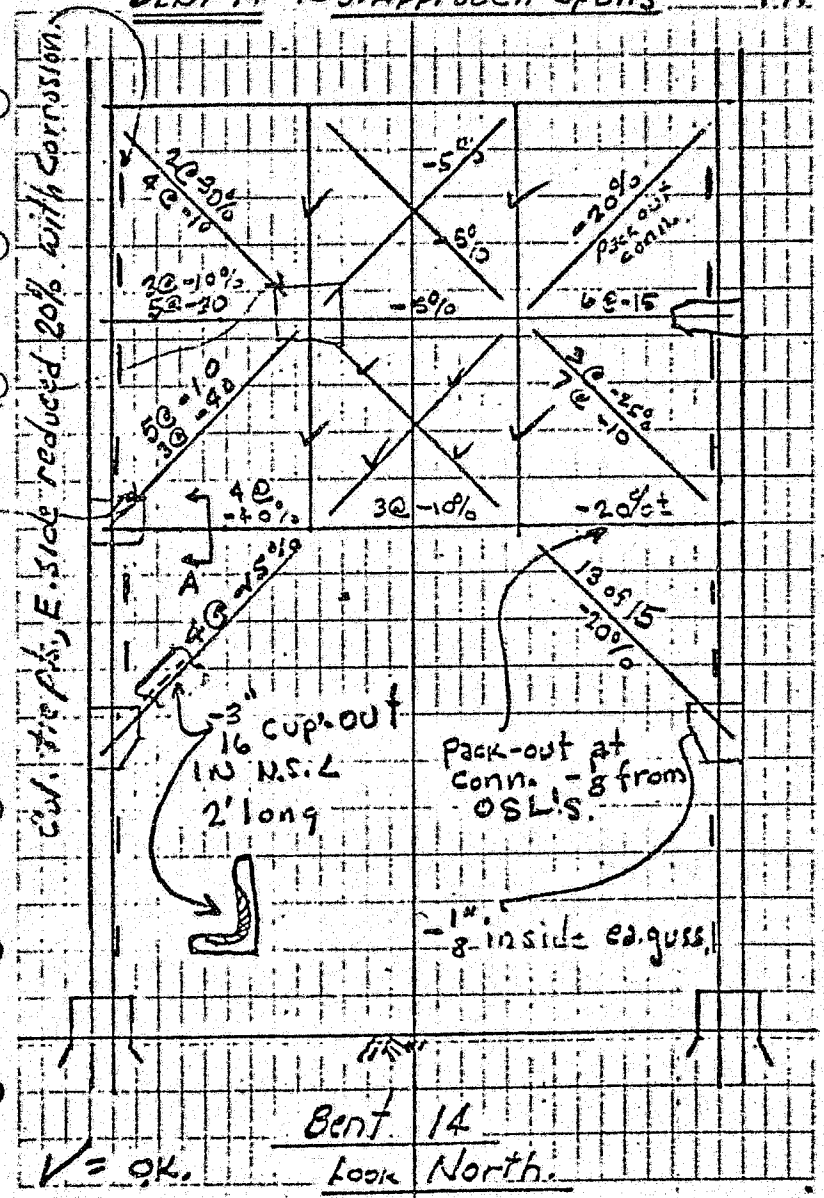
1/2" pack-out N.S. Guss.



SECT. A

10-30-68 Wiedwald

BENT 14 ~ S. Approach Spans 99.



Bent 14

Look North.

V = O.K.

10-29-68 Wiedwald 100.

S. Approach Spans

Col. Base 14 E.

Conc. decomposed all around base.

Similar steel condition to Col 15 E.

Scupper Downspout to First coupling broken & displaced horizontally abt. 6" (see photos 5-16 & 4-0A)

Col. Base 14 W.

Steel section similar to 14 E.

10-29-68 Wiedwald 101.

S. Approach Spans

N

Section at top conc. but below rivet line.

Pho. 5-16

5/8"

1/4

1/8

1/8

3/16

1/8

W

E

Pho. 4-0A

1/8

3/16

1/4

1/4

1" ± 2 ±

S

Col. Base 14 E

F 68 11

10-29-68 Wiedwald

S. Approach Spans 102.

Col. 13 (E): At top conc. section is fair.
Loss of 1/32 skin all around
Corner cracks at 3 corners of of col.

Col. 13 A (W) N. side conc. broken off. South corners cracked. Loss of steel is 1/32+ all around. Heavy scale. (see photo 5-20)

Tower Span:

Col 12 E. Conc. seperating from guss plates E & W. sides. & cracked at N. corners.
loss of guss. thickness at conc about 1/16"
At Conc. fill at top of guss. Col. steel is good but still requires cleaning.

Col. 12 W. - Similar to 12 E. but no conc. seperation

11-4-55 T 55° Wiedwald

S. Approach Spans 103.

Col. 11 E. E & W. guss. similar to Col. Bases 12 E.
Loss of -8 at top conc. of S. web plate
Crack at S.E. corner of conc.
Overall loss of abt 1/16 inside col. at top conc. encasement.

Col. 11 W. similar to 11 E.

Generally lower col. bases fair - require cleaning.
Photo 4-2A shows W. Bot. strut.

Col. 10 E. Conc. cracked on all corners.
Loss -1/8 all around outside

Col. 10 W. Conc. broken all around -1/8 loss on S. & N. web pls. & angles. E. inside OK
W. OSL's - loss of 1/4" from toes of OSL's. (photo 5-2)

11-4-68 55° Wiedwald

S. Approach Spans 104

Col. 9 W. Drainage down-spout, poor. with splits and patches over holes pipe is filled with wet sand and gravel. (see photos 5-0 & 5-1)

Conc. encasement broken off all around.

Col. E. osL's abt 1/8" thick & feathered, full of fillet.

W. osL's abt 4" thick.

Loss of 1/8"± all around outside of col. at top of conc encase. & on down col. where conc is broken off.

Inside, E & W. -1/16 all around.

11-4-68 Wiedwald

S. Approach Spans. 105.

Col. 9E. ~ Conc. broken off at S. side. -3/16" loss on S. web cov. pl.

Conc. cracked at N. corners -1/32" from N. web cov. pl.

Drainage downspout poor. 12" slit about 20° up from rdwy. Cover taken off about 6' up from rdwy. pipe filled with debris & sand. (see photo 5-3)

W. osL's abt 3/16" thick & tapered to fillet

E. osL's abt 1/4"± thick.

Top conc. at riv. line. West inside, loss -1/8"± all around.

East, inside, good (-1/32")

Anchorage for factory fence adjacent to osL's of col., pack-off of L's. photo 5-14.

12-30-68 Clear 25° Wiedwald 107.

South Approach: Bents

Bents 12 & 11 of Tower Span.

Bent 12 - Good condition with only minor scale on bracing and lacing, less than 3/4 loss on any member, including lacing. West bot. strut loaded with Eazor Junk (Photo 4-2A)

Bent 11 - fair condition, requiring cleaning. Vert. bracing good. About 90% of all lacing in bracing corroded to loss of -10% to -20%.

Top strut, East end tie plate corroded through abt 1" ϕ hole near east edge. From E. to W, plate down 50% t. & gouged abt 7" wide.

E. S.W. brkt. appears corroded at Top flange o.s.l.s. approx. 50%.

12-30-68 Wiedwald

S. Approach - Bents Cont'd. 108

Bent 10, bracing angles fair with only slight corrosion in some locations. About 80% of all lacing corroded to 10% to 20% loss.

1-9-69 35° cloudy Wiedwald
109

S. APPROACH SPANS

Bent 9

Very wet condition over entire bent.
All lacing reduced 5% to 10%.

Bot. Strut:

E. end tie pl. has 2" ϕ hole near E. edge and 50% reduction remainder of pl.

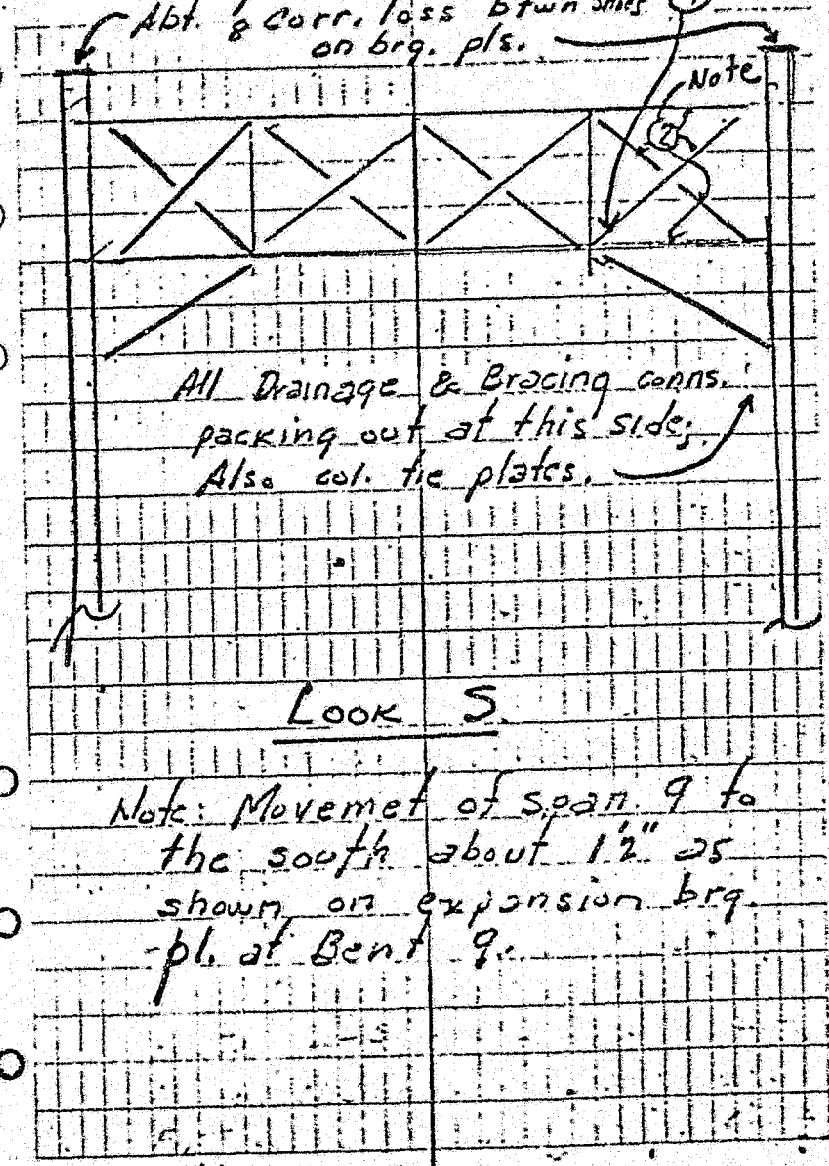
W. end tie pl. is reduced about 90%.

Note (1) (See sketch) 2" ϕ hole in tie plate (middle) with abt. 50% reduct. remaining thickness

Note (2) Angles in this bay reduced abt. 15%.

1-9-69 Wiedwald
110.

Bent 9, S. Approach



Note: Movemet of span 9 to the south about 1½" as shown on expansion brg. pl. at Bent 9.

1-9-69 36° PM Clear Wiedwald Patterson 111.

South Approach Spans

Column Bases:

#1 W. column mat'l at top conc. scaled, Conc. cracked at 4 corners down to lower base.

#1 E. Similar to #1 W. with loss of -⅛ from S.W. col. angle. Conc. separated ¾" from col. cover pl. on S. side.

Knee brackets are good. E & W.

#2 W. At top conc. N. & S. cov. pls. reduced -⅛". 3 of 4 col. L's are feathered edge tapered to fillets. Conc. broken off on E. side of col. 2 W. corners cracked top to bottom. -3/16 on web plate at top conc.

#2 E. on two E. L's at top of conc. feathered. Other L and plates -1/32 all around. Web pl. -3/16 at top of conc. Conc encasement cracked, 4 corners.

1-9-69 Patterson Wiedwald 112.

S. Approach Spans

(Bent 2 cont'd.)

Knee braces, E & W cols. both bent. (Hit by trucks.) (see photos 5-20A, 7-12, 7-10 & 7-9)

#3 W. S.W. L reduced 1" on o.s.l. Abt. ½ cocrosion all around col. material at top of cone. 4 corners conc. cracked.

#3 E. Good at top of conc. Conc. encasement cracked at 4 corners.

W. Knee brace good. E. knee brace is bent. Could be heated and straightened. (2 L's, 3 ft. at bott. and 6 bent bars) (see photo 7-11)

#4 W. South cover plate -¼ across face L's reduced 3/16 o.s. L's. Encasement cracked at all 4 corners. Abt. 1 ft. conc. broken off on S. half.

#4 E. Col. reduction at top conc. abt. 16 all around.

Bott. of bkts. collect pigeon dirt. Corrodes Cl.

1-9-69 36°, Cloudy Wiedwald

SOUTH APPROACH 113.

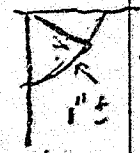
Column Base #8 E.

Small loss of mat'l at top of conc., -1/32" at most all around. Conc. cracked and opened at 4 corners abt. 4", Cracked down to base abt. 1' below top.

Column Base 8 W.

Abt. -1/16" loss on Col. S. cover plate & S.E. angle. loss on N. side negligible.

Conc. Spalled at E. side of ped.; cracks on W. side down to lower base (1' below)



E. Knee brace lacing, 50% reduced abt. 15%.

W. Knee brace lacing, 80% reduced abt. 15%. Lower portion angles corroded 15% at lacing connections.

1-9-69 Wiedwald
S. Approach Spans Patterson

Col. Bottoms continued. #4 E&W. 114.

Bott. corners of bkt. angles should be cut off to minimize dirt collection.

#5 W. Conc. encasement cracked and broken off at corners. Col. matl. in good condition.

#5 E. Same as 5W.

Brackets are corroded on top face of lacing. Reduced abt. 10%. Bkt. 5E., south angle, o.s.l. reduced abt. 25% at batt. 3'.

#6 E & #6 W. Good cond. Cols. and Knee braces.

Longitudinal bracing in good condition between #5 & #6 both E. & W.

#7 W. Conc. encas't. cracked and broken off at corners and W. sil. Matl. reduced abt. 1/8 all around.

1-9-69 | Wiedwald Patterson

S. Approach Spans | 115.

#7W. Knee brace. Main brace, 3 lac. bars gone, 5 abt -50%, remainder -20%. Knee brace strut lacing reduced abt. 20%. Laced legs of angles reduced abt 20%

#7E. Encasement, broken off on south side, upper part. Cracked at corners. Matl. reduced abt 3/16 across S. plate near top of conc. S. o.s.l.s of col. is feathered.

#7E Knee brace. Main brace, 1-bar (-)70%, 5-bars (-)40%, abt. 10 at -15%. Laced legs of angles reduced abt. 15%. Knee brace strut lacing abt. -20%.

Span 17 West Arch Rib.

General:

Typ. condition of Gunite cap is tight. Most panels — mastic seal gone or dried out or deteriorated. Along inside edges of top cover plates abt 2" corrosion is 3/16" ± into cov. pls. Inside rows of rivet heads are greatly reduced & pointed.

E. top cov. pl. of this for fig. is in poorest condition due to the buckle plate leakage through weep holes. This cover plate is pocked & corroded badly; several measurements of thickness are 3/8" ± 7/16" ± — some cup-outs = -5/16".

Suggested repair: Sand blasting steel and

SPAN 17 W. Arch Rib

loose gunite (along edges). Cover these joints with a mastic out to 2nd row of rivets adjacent to gunite.

Where gunite is broken or transverse cracks are loose, dig out decomposed gunite & concrete, clean angle facing, and replace new concrete. Probable depth of decomposed concrete is about 6" to 8". (Re. West Rib, span 17. p.p. 2-3)

10-14-68 Wiedwald

118

ARCH RIB — SPAN 17.

West Rib at Pier 17.

(Pho. 1-6) Inside pier is polluted with pigeon droppings and debris. At rib anchorage, dirt is piled up Aalf dram. of pin, (L.O.) Scale is present all over this area from shield to shoe. web. riv. hds. reduced -30%±; at bot. portion, -70% near rib bot. flg. (Photo 1-7)

6 nuts on OSL's of casting conn. and rib L's (8"x8"x¾), are corroded away. — E. E. W. Ribs. (Pho. 1-3)

Vert. Stiffs. at ℄ pin. (6x6x¾ ∠s & ⅝ fill.) badly corroded. Sect. A-A Dwg 10357

Riv. hds. on sides of shoes can be broken off. (See photos 1-0, 1-1)

10-22-68 50° clear Wiedwald

119

SPAN 17 Arch Rib West

Col. 1. West. — Base.

1" base pl. meas. 36t ⅜" on edges. At col. deeper scale pockets.

Inside rows of riv. hds. near col. are reduced 50 to 70%. while out side rows are fair.

OSL's of col. conn. angles parallel to base plate have lost 3/16" ± with pocks. The vert. legs are heavily corroded, as is OSL's and ½" pl., loss of ⅛" + on vert. legs.

Wing pls. are in similar condition at the col. pin. as is outside pin plates. which are conn. to webs of col. channels.

The south web, outside, of col. channel is blistered with scale pockets, with ¼" to ⅛" cup-out up to middle strut.

10-22-68 Wiedwald

17-W. Col. L1. base. 120

The down hill enclosure plate is packed out abt. 3/8" full length along edges of wing pls.

The splash plates: down hill is corroded at bot. edge abt. 50%.

Uphill splash plate is very thin from bend line on down to the bot. edge where edge is jagged with 0" thickness. The N. bot. corner is corroded away. (Photo 2-4)

The uphill enclosure plate is laminated with scale & 50% mat'l. remaining.

Overall condition of base of L1 is heavy layers of paint & scale requiring severe cleaning & possible renovation of some defor.

(See photos 2-5, 2-6, 2-8)

10-14-68 Foggy, clearing 50°+ Wiedwald 121.

ARCH SPAN 17

Bent L1

Bot. Strut - all lacing corroded to -50% ±.

At outside, b'twn back of angles, heavy pack-out. Hor. OSL's at 50% ±.

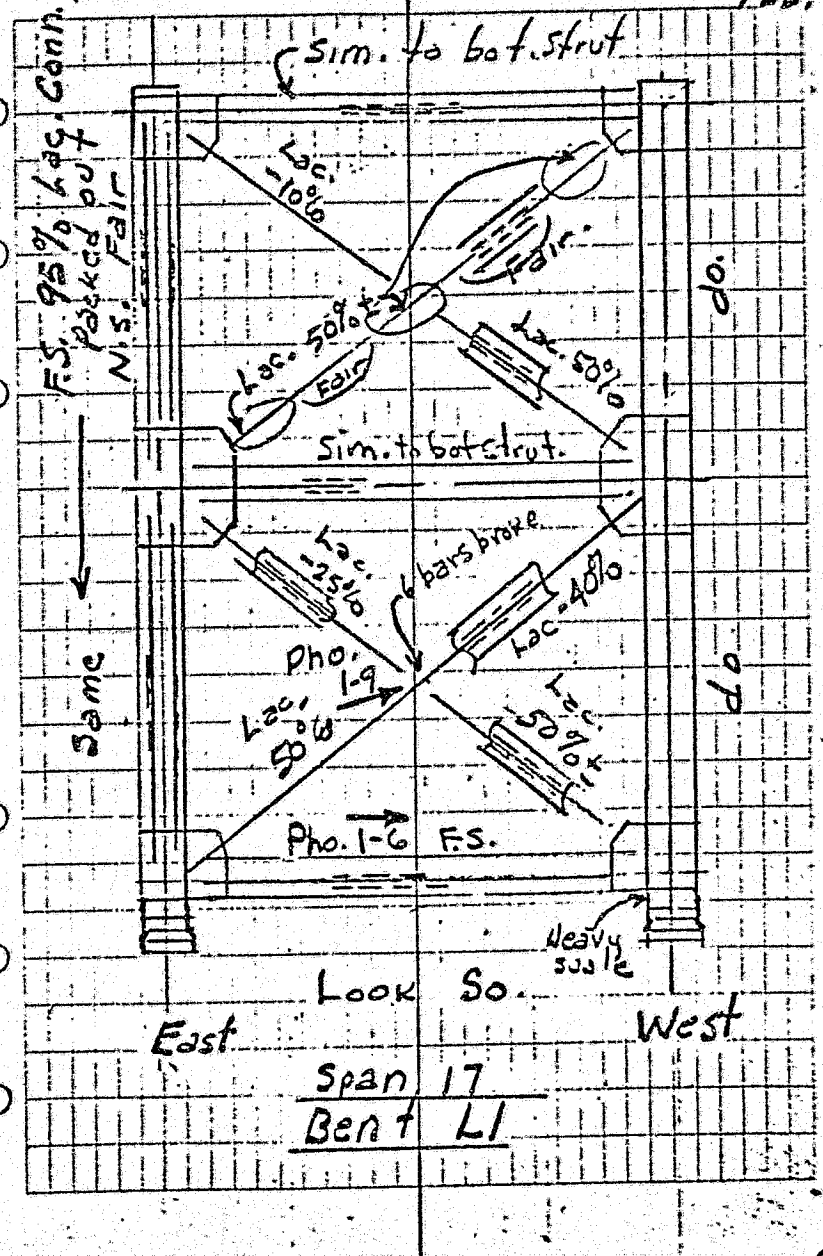
First diag. X-ing long diag, abt. 6 bars broken.

All top Guss. are fair. Bot Strut Guss. packed out at conns.

E. col. inside, filled with dirt up to within 7" of top of bot guss. (see photo 2-10)

W. col. inside, has scale on guss. pls. More heavy scale on outside of col. base than E. base.

10-14-68 Wiedwald 122.



10-24-68 45° Cloudy Wiedwald 123.

Span 17
Bent L 14.

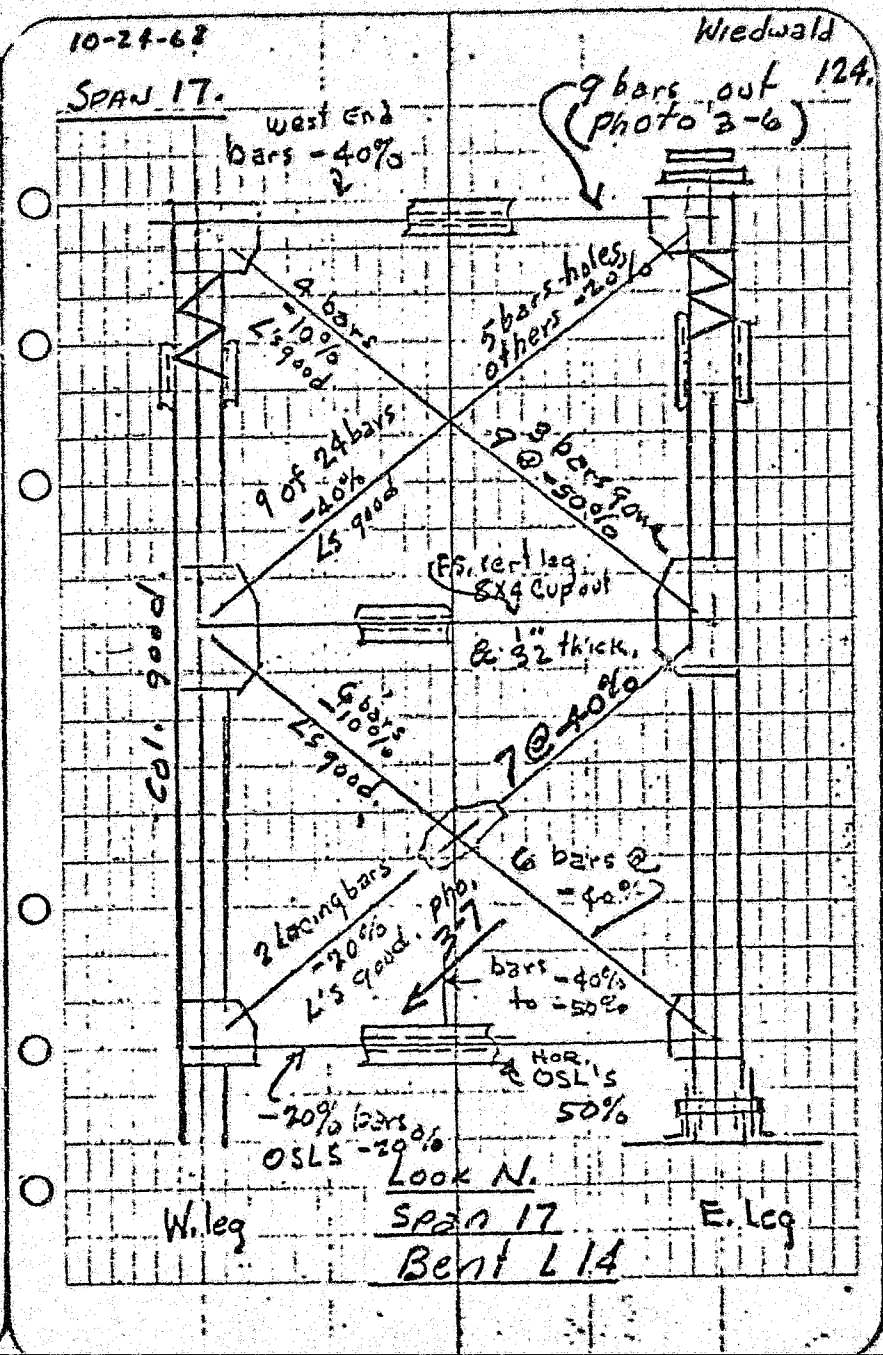
Bot. Strut - see sketch

Middle Strut: Lacing is poor condition, typ. of bents at exp. Joints, 6 bars are broken at E. half other bars reduced 40 to 70%
Hor. conn. OSL's lose a total of 4" with heavy pack out between backs of angles. Riv. hds down 30%.

Top Strut: End 9 bars knocked out, hole in two bars near middle.
hole in OSL, Hor. conn leg. 5' from 14 E.

10-24-68 Wiedwald 124.

SPAN 17.

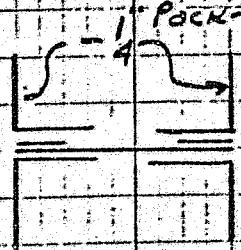


10-24-68 Wiedwald 125.

SPAN 17

Col. 14 E: (see photo 2-20A)

Inside pin pls 3/4" with packed-out scale laminations. Pin is scaled heavily. Water trap inside below pin. Scale on base pl. outside, OSLs of col. base conn. Ls loss of 1/8 t. West wing pl. & L vert. leg scaled -1" loss, usual loss in this area.



SECT THRU E. END OF TOP STRUT BENT 14.

10-15-68 clear 55° Wiedwald 126.

SPAN 17 Arch Ribs:

West Rib:

At Col L1, extensively corroded Top flg. pl. (see pp. 119 for description.)

L1 to L2—

Gunite upheaved 1" at lower 2/3. 2 transverse cracks.

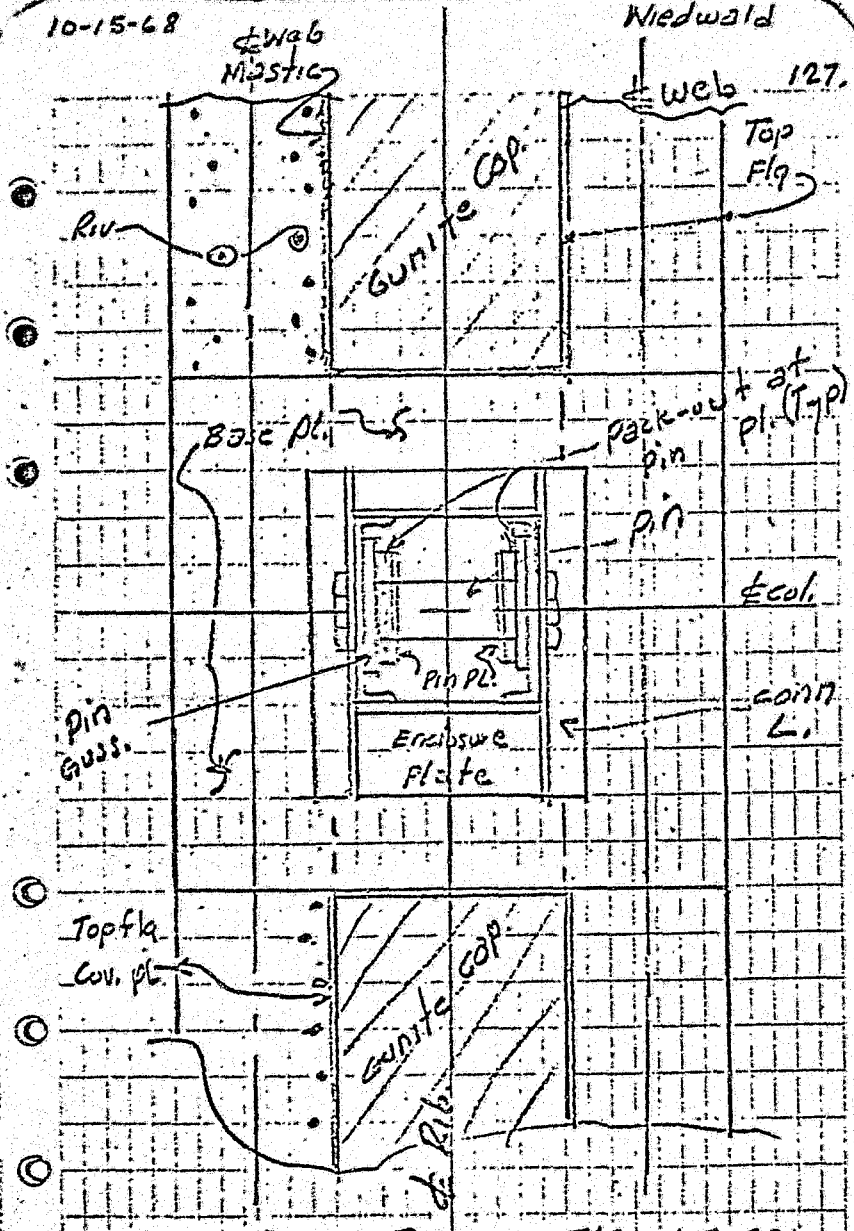
Top flg: cover pls. corroded with random pits. Avg loss 1/8" to 1/16"; again, lower 2/3 of panel point. 70% riv. hds. reduced 50%+, especially the inside two rows adjacent to the gunite conn. & at the lower 2/3 of both flgs.

Cd. 2 W. — Debris inside.

W. pin pl packed-out 1/4"

E " do 1/2"

10-15-68 Wiedwald 127.



TYP. PLAN RIB TOPFLG. AT COL. BASE ~ SPANS 17, 19.

10-15-68. Wiedwald 128.

Span 17 W. Rib

Col. L2 W.

Top Flg. pl. down hill side is reduced abt. 3/16" across col. conn. N. Bot Guss. pitted 8" ± pp. 2 to 3

Gunite cap at lower is point raised 2" ±, or 4" ± from cov pl. to top conc. cracked & broken at this point. Conc. inside rib is deteriorated, decomposed and sandy — can easily be dug out. Conc. is scooped out on west side abt 4" ± with mud & mess present. Another transverse crack at ½ point. Depth of bad conc. is abt 8" ±

Top flgs. pitted, corroded, with loss of 1" ±, prevalent at down hill 82.

10-21-68 Clear, 40° Wiedwald

Span 17, W. Rib 129.

pp. 3 to 4

Gunite cap is good. Corrosion of Top flgs. adjacent to gunite, with typ. riv. hd. reduction.

E. top flg. cover plates heavily pitted with avg. loss across flg of ~3/8". 3/8 @ mid.

Riv. hds on this flg. reduced 50% ±.

Mastic is gone around gunite cap.

Col. L3 W. — down hill enclosure plate pulled out 1" at bot. Bot. 4" abt 1/4" thick.

Uphill encl. plate reduced 50% with corrosion.

Inside col. has 2" pigeon debris. Col. squeaks under L.L.

Col. L4 W. — Down hill encl. Pl. 1/4" pack-out. Uphill corroded at 1/2" base pl. & packed-out 1/4". Scale on inside pin plates. Debris on bot.

10-21-68 Wiedwald

Span 17, W. Rib 130.

pp. L4 to 5 typ.

E. top flg. bad, same pcs 5/16 deep @ downhill half of rib.

Thickness near middle of span, abt. 3/8" along E. edge.

Possible 3/8" thickness across top cover.

Col. L5 W. — 1" pack-out at downhill encl. pl.

At bot uphill encl. pl. the 1/2" base pl is corroded along col. conn. & edge (top 3" of 1/2" base pl.) 1/4" deep ±.

Inside col. — difficult to paint — surface rust all around. Several inches of fine dust collected at bot.

10-21-68 Wiedwald 131

Span 17, W. Rib

p.p. 5 to 6

Typ., Gunite tight.

West top flg. cover R. deep corrosion, t = 7/16"±
Riv. hds. pointed, & reduced.

p.p. 6 to 7 typ. sim to 5-6.

10-16-68 Clear 50+ Wiedwald 132

SPAN 17: Arch Rib West

p.p. 7 to 8 @ ctr. rib.
Conc. gunite tight.
E. top flg. pitted, reduced to 1"±.
Riv. hds reduced badly along gunite on E. top flg. abt. 70%±

Rib bracing from ℄ to pp 8, is good. Guss. @ ℄ & Xing sealed on top 2 guss. pls.
4" pack-out at E. top guss.
" do @ W. do.

p.p. 8 to 9 Rib.
Conc. gunite tight.
Similar to pp. 7 to 8.
Pack-out along gunite & top cov. pl. 1/2" wide & 1/4" deep. Mastic is decomposing.
Heavy scale on top Cover pls of top flgs.

10-16-68 Wiedwald

Span 17, W. Arch Rib 133.

Bracing is good, except condition of Sect A, bracing sheet, loss of OSL of top flg of -⅛. Typ condition under buckle-plate weeps.

#8 Col. stool good

#9 Col. - uphill side on ½" col. conn. pl. -¼± along col. conn. Pack-out along vert legs of col. conn. angles of -⅛± @ ½" conn. pl. on top of rib.

10-16-68 Wiedwald

Span 17- Arch Rib, West: 134.

pp. 9 to 10:

Similar to 8-9.

E. top flg corroded to 7/16"t. of top cov. pl.

Mastic peeling away from gunite.

Gunite tight.

Heavy scale on uphillside of col. 10 @ conn. to rib.

Inside col. 10, pin covered with pigeon droppings.

Enclosure plates, both sides, packed-out slightly indicating corrosion inside at col. base conn. angles & enclosure plates. These plates generally warped from pack-out.

Under column, the depth of corrosion into ½" base plate is undetermined; under the enclosure plates, the depth into base pl. is -⅛±, typ.

10-16-68 Wiedwald

Span 17 West Rib.

Col. 10 135.

Inside washer around pin at West guss. packed-out 3/8" ±. The east washer is tight against east guss. pl.

10-16-68 wiedwald

SPAN 17. Rib West. 136

p.p. 10-11 = typ. top. flg.

Top Cov. pl. gouging along gunite, pitted, with riv. hd. reduction. E. top cover, as usual, worse than west.

Vibration on rib & squeaking at col. 10, when LL. on bridge.

Base Col. 11. similar to 10. Pigeon debris inside col. Enclosure pl's packed out. Corrosion into 1/2" Col base pl.) typ.

Inside (pin pl.) washer at west guss. around pin packed out 1/2" - East washer o.k.

10-16-68 Wiedwald

SPAN 17 West Rib 137.

p.p. 11 to 12: typ. top flg.
Some gunite chipping on edges into concrete fill at West edge of top cover plate.

Col. 12 base ~ uphill enclosure plate corroded -25%; downhill enclosure plate packed-out & warped at edges 1/2".
Inside col cleaner than previous - no pigeon debris.
Inside washer at West guss. (pin pl.) packed-out 1".
On East side washer packed out 1/2" at top.

p.p. 12 to 13.
Rib top flgs. & gunite, typ.
Riv. hds. at top not as bad as previous panels; but, rows adjacent to gunite same (reduced to points.)

Wiedwald

Span 17 W. Arch Rib 138.

Col. 13: Encasement plate downhill packed-out 1/2".

Inside pin washer at East guss. packed out 1/2" & packed out 1/4" on West pin washer.

Gunite corners cracked off at col. 13.
Gunite erroded for several feet along east edge of west top flg. cover plates exposing conc. fill ~ Moss growing.

10-22-68 Wiedwald

SPAN 17 ARCH. RIB EAST 139.

Col. L1 E.: similar to Col. 1W. base.

p.p. L1 to L2.

Top flg. - gunite is tight. Typ. corrosion (-1/8") of top cov. pls adjacent 2" along gunite, with inside row each side, being reduced 30% ±.

Mastic fill around gunite gone.

Inside (W.) web of L1 strut is corroded with paint blister, but minor loss of steel thru the depth of this web. L1 east at same web location is similar.

10-22-68 Wiedwald

SPAN 17, EAST ARCH RIB. 140.

Col. L2 E: Conditions - typ.
- Enclosure pl. packout.
- ½ base pl. cup-out along col. on downhill side.
- Minor reduction of Col conn angle OSL's.
- Col. squeaks under L.L.

p.p. L2 to L3.: Gunite cap is raised abt 1" above top cov. pls. of top flgs. with dirt & moss collecting along open edges. Bot. west corner, near col. L2, is broken off. Decomposed conc. fill abt. 3" ± deep is sandy & wet. (photo 29) The entire panel should be removed of all loose conc. and repacked. This edge of the top flg. cov. pls. is reduced only slightly, in spite of this wet condition - less than 1/16".

10-22-68 Wiedwald

Span 17 E. Rib. 141.

p.p. 3 to 4 } typ. & fair
pp. 4 to 5 } dried out mastic.
Riv. hds. top flg. - fair.
Few pocks on top Cov. Pls.

Col. 3 E: typ. col. base.
Inside - very little debris,
but rusty appearance at
bot portion because of
lack of paint.

Col. 4 E. Similar to Col. 3 E.
Cols. 3 & 4 squeak under L.L.
Col. 5 E. Similar to Col. 5 W.

pp. 5 to 6. typ.
On West top flg. - heavy
paint scale & pocks. -
This condition similar
to bad top flg. (E. side
of West Rib.)

10-23-68 40° Wiedwald

Span 17 E. Rib. 142.

p.p. 6 to 7 typ.
W. rib pitted, similar to
pp. 5-6
Riv. hds. bad on W.
top flg along gunite.

Col 6 E stool good.
Scale on uphill
OSL's ea. side of center
vert stiff L's.

pp. 7-8 typ. Rib. top flg.

Bracing X E. side:
top Guss pitted
& riv. hds. top @
50%
½" pack out N.E.
diag. at top Guss
& L. (Photo 2-12A)
Col. 8 E - Stool good.
Col 9 E: Uphill side, ¼"
deep gouge into ½" base pl.
along col. base. 2" wide,
inside OSL's curved.

10-23-68 Wiedwald 143.

SPAN 17 E. RIB

pp. 8-9 Typ.
9-10
10-11

Col. 10E: 6" debris inside
inside pin pls (washers)
packed out 1/4"

Some pack out at
each enclosure plate, 1/4"
Uphill side at base pl
- 1/4" along col conn.

Col. 11E: Inside pin pls.
good. 6" debris inside.
outside encl. pls. ok.

Vertical undulation of rib
under live load.

pp. 11-12 typ.
Col. 12E. debris inside,
W. pin pl packed out 3/4"
and laminated
E. pin pl. p.o. 1/4"
(see photo 2-16A)

10-23-68 Wiedwald 144.

Span 17 E. Rib.

Col. 13E: debris inside, 6"
Both. pin pls. packed out 1/4"
Base conn, outside
requires scale removal
all around.

pp. 12-13 } typ.
pp. 13-14 }

Rib Bracing at L19:

West strut & East Strut
are similar:
Uphill bot flg. & OSL
corroded to 1/4" ±
Vert. leg is almost
gone in three locations
of lacing conns. ~ 1" hole
in center of vert. leg and
paper thin otherwise.
Riv. hds. are reduced
10% at guss. Vert & hor. conn.
Lacing bar at bot. flg.
conns. are reduced 20% to
50% across these struts.

10-16-68 Wiedwald

145.

F.B. @ Span 17 – Bent L1.

Expan. Side (So.)

Bad corrosion at stgr #6.

Stgr 6 seat, very poor condition, vert. stiff. under bronze pls. corroded away – (photos 1-11 & 1-12)

F.B. stiffs., supporting the stgr seat very thin at seat elev. – should replace stiffs.

4 Nuts on top of stgr bot flg. gone.

Bot. flg. of dam support channel almost gone.

Heavy pack out on web (back) of this channel

Stgr. 6 Web ~ W. side – 1/4 ±

E. side – 1/8 ±

Top cov. of F.B. @ 50% ±

All legs of top flg. Ls are at 50%

F.B. web has some loss

10-14-68 Wiedwald

Stgr. Conn. to Bent L1, Span 17. 146

on both N & S sides all in vicinity of stgr beam.

Generally all other stgr. seats and F.B. stiffs should be replaced or repaired.

Stg 1, web stiff. at L has holes near top and very thin thru out.

the supporting lug L on web of stgr 1, west side has hole in at L near dam, channel web where same channel flg. is bad.

All stgr. webs & Bot flgs. require attention.

Stgr #1 – similar to Stgr 6 comments. (See photo 1-10 for W. elev. of connection.)

10-24-68 Span 17 Wiedwald
Exp. N. side of L14. 147.

Stgr. 1 (west ext.) (see pho. 3-0)
Very poor condition.
Stgr web 1/8" ± thick
Corrosion all around stgr, stgr. seat. & FB.

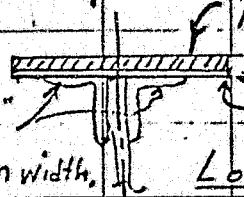
Dam support conn. to chp L on stgr. almost corroded thru.

Inside vert. stiff. o.s.L. holes.
Bot. flg. of Sl. abt 50%

F.B. Stiff. at seat, hole & thin.

Top flg. FB, W. of Stgr. — corrosion.

Sect. at edge of Curb Casting:

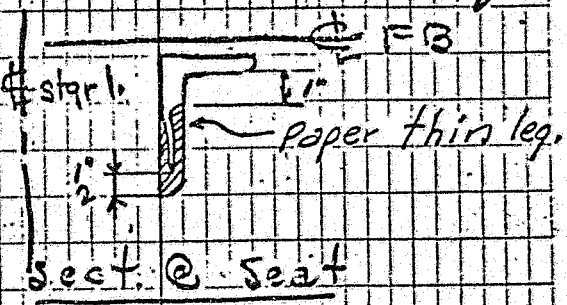


o.s.L t = 1/4" Look East
Ea. L, loss = 1/2" in width.

10-24-68 Wiedwald
Exp. N. Side of L14 148.

As observed from outside — Dam channel web is gone at stgr., poor for 2 ft. to East. (See photo 3-1)

Outside FB. stiff. corroded thin



Sect. @ Seat

Bot. flg. of FB. o.s.L's abt. 5/16 to 3/8 thick. under stgr.

Stgr. 1 on S. side of F.B. loss of 1/4" ± into web at conn. (See photo 3-3)

Facia Channel, 1/2" pack-out, bot flg. 2# bolt.

12-4-68 Wiedwald

SPAN 17 Flr. Sys. 151.

P.P. 3N. S1, inside, pitted -1/8±; 6x6" scar, outside, -1/8" at top.

Along inside top flg of S1 and buckle plate joint, typ. gouge into buck. pl. -1/4 to -3/16 ± some along S2 also.

S2, 3, 4, 5 Small hole e cope Some scale at top cope, stain & leakage at conns.

S6 - Hole 2" w. x 5" thin, 4" wide scar ea. side of web.

P.P. 4S. S1, scar 8" w. -1/4 ± 2/3 dn. inside. -1/16 c.o. @ top outside. 3/4

S2, 3, 4, 5 typ. fair c.o. 3" ϕ.

S6, Old scar -1/8" inside, 8" w. outside, Scar 2" w. x 10 @ -1/8"

12-4-68 Wiedwald

Span 17 Flr. Sys. 152.

P.P. 4 N. S1. - inside, gouge along toe of conn. L. -1/4" - outside, -1/16 @ cope with 9" W. scar.

S2, 6" ϕ c.o. } S4, 5 typ. fair
S3, 4" ϕ c.o }

S6, 4"x4" scar, ea side -1/16" total.

All S1 thru S5

P.P. 5S } 3" ϕ to 6" ϕ scale at top
P.P. 5N } cope, typ. fair.

PP 5S ~ S6, Hole in upper 1/3 web, paper thin 1/2 depth upper, pack-out at toe of conn L. Scar, outside, 9" W @ -1/4"; inside, scar 6" W. @ -1/16" loss.

PP 5N ~ S6, (See photo 2-11) 1/2" slit along bot flg fillet 6" long, continuing up web along toe of conn. L. abt half depth. Remaining upper half of web is paper thin. Repair width abt 12"

12-4-68 Wiedwald

Span 17 Flr. Sys. 153.

P.P. 6S. ~ S1, outside, scar 7" W. @ -3/16"
Inside, 3" ϕ c.o.
S2, 3, 4, 5 typ. scale at top cope.
S6, 6" ϕ scar @ top cope, good.

P.P. 6N. ~ S1, 4" ϕ c.o. ea. side -1/8"
S2, 3, 4, 5 typ. scale at cope.
S6, 4" W. scar, gouge along toe of conn. L 1" wide ea. side, net t for upper 2/3 web is paper thin. The bot 1/3 depth is -1/8" ea. side.

About 5' N. of P.P. 6, buckle-pl. has small hole leaking. Typ. loss along top flg S6 -1 1/4" ± into buck-pl. 75% length

P.P. 7 S. ~ S1, out. 3" ϕ c.o. top. Inside, Scar 7" W, 3/4 depth -3/16" ± loss. Pack-out at toe Conn. L. full ht.
S2, 3, 4 typ. fair c.o.
S5, 3" ϕ at cope, thin, hole at cope, Remainder good.

12-6-68 Wiedwald 154.

Span 17 Flr. sys.

pp. 7 S. ~ S6, small hole at top. inside, scar 6"x7".

V V outside, scar 12" w. & half depth pitted. tweb ref = 1/4" ± bot haff.

p.p. 7 N. ~ S1, -1/8" inside 3"x3" scar. -1/4" gouge at inside top flg fillet, abt 3' long.

S2, 3, 4, 5. typ. fair.

S6 ~ (See photo 1-17) Hole 2" w. x 12" up from bot. flg., top 7" of web is paper thin. Stgr. bot. flg. reduced -1/4". F.B. Stiff under stgr. has hole; scar is 3" up from F.B. o.s.L. Wet area.

F.B. o.s.L. is bulbed at toe, from stiff to br.kt. bend line, loss of stiff = -1/4" ±

pp. 8 Sv. S1, outside, -1/4" gouge along toe of conn. L. 1" w. (Scar 9" w for repair.) Inside, 6" w. @ -1/8" for 2/3 dn. web. Remaining o.k.

V V Should clean & strengthen.

12-6-68 Wiedwald 155.

Span 17 Flr. Sys.

pp. 8 S. ~ cont'd. S2, 3, 4, 5 typ. fair.

S6, Inside, 2" ϕ hole @ 1" below top cope, thin at top, but remainder o.k. Outside, -1/8, 3" w. full ht. P.O. @ toe L.

p.p. 8 N. ~ S1, (see photo 1-13) 1 1/2" ϕ hole abt 3" dn. from top cope. P.O. at toe of conn L. -50% upper half & -60% lower half web. Scar 8" w.

V V Gouge at top flg fil. 2' lg., at bot fil. abt. 12" back. Web thick @ top abt 1/16" ±.

S2, (see photo 1-14) 2" ϕ hole, @ top cope, scar 7" w x 6" dn. P.O. along toe of conn. L at top 8" ±.

S3, S5 Scale 6" w. -1/16 ea side

S4, good.

S6, (see photo 1-15) Hole 4"x4" @ top and 10" dn. toe L. Lower half web -1/8 ea. side.

V V F.B. o.s.L. -1/8, cleaning needed.

12-4-68 Wiedwald

156

Span 17 Flr. Sys.

p.p. 9 S. ~ S1, 2, 3, 4, 5. typ. c.o. -1/16 ±. ca side. @ cope. S1 top flg has typ.
S6, inside, old scar pitted -1/8" outside, -1/8" for 3" @ top. scale arrested.

p.p. 9 N. ~ S1, in. & outside, 6" w. scar. pitted & painted over.
S2, 3, 4, 5 typ. fair.
LL S6, (see photo 2-15A) 2" vert. x 8" ± hole @ top, gash 8" dn. @ top of conn. L, & 3" x 1" hole @ bot. web. 12" trail gouge along bot. stgr. fillet @ -1/8 ±. Net remaing web thickness is abt. 1/8" ± t, 8" lg remain. Buckle plate joint along S1 is poor. Gouge is 4" to 5" wide at pp. 10, Wet, depth is -1/4" or more. serious condition.

12-4-68 Wiedwald

157.

Span 17 Flr. Sys.

p.p. 10 S. ~ S1, 5" ϕ c.o. -1/16" total.
S2, 3, 4, 5 typ. fair.
LL S6, Web gouged deep -1" ± full ht., 14" wide at bot. Net thick = 1/8" or 3/16" ± Should be strengthened.

p.p. 10 N. ~ S1, out. good; inside, old scar, pitted and arrested. 7" W. @ top, to 5" @ bot. -1/4, -3/16, -1/8" pocks.
S2 scale 6" w. half way dn. thin web @ top cope.
S3, 4, 5, typ. fair.
S6, scar 7" w. full ht. net t web = 3/16 ± with pack out at toe conn. Ls.

p.p. 11 S. ~ S1, 6" ϕ cp. @ cope @ -1/16 ea.
S2, 3, 4 typ. fair.
S5, 3" ϕ c.o. @ -1/8" @ cope.
S6, old scar ca. side, but fair.

12-4-68 Wiedwald

158.

Span 17 Flr. Sys.

p.p. 11 N. ~ S1, 4" w. scar, -1/8" ea. side.
S2, 6" ϕ C.O.
S3, 4, typ. fair. (little scale)
S5, 4"×4" C.O. @ -1/8" top. ea. side
S6, pitted, but arrested, good.

p.p. 12 S. ~ S1, old scar 4" w, pack-out at conn. L with -1/8" loss ea. side.
S2, 3, 4, typ. fair
S5, C.O. @ top. -1/8"±
S6, 3"×3" C.O. @ top

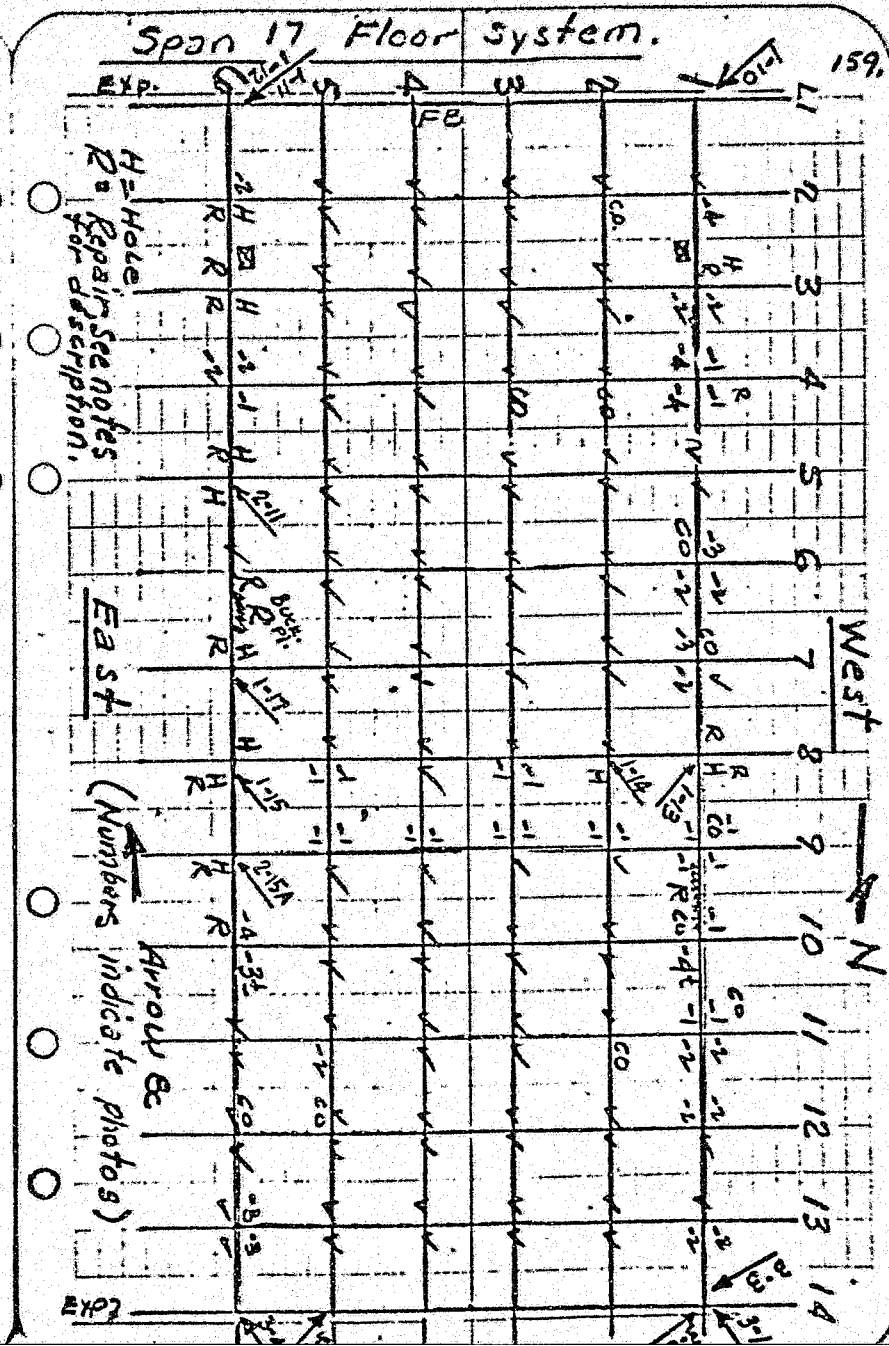
p.p. 12 N. ~ S1, 2, 3, 4 wet & pumping, & S5, S6, typ. fair. ok.

pp. 13. S ~ S1, 2, 3, 4, 5 typ. fair
S6, scar 4" w. -3/16 deep pitted inside; outside scale.

pp. 13. N. ~ S1, old scar 4" w, -1/8 ea. side, arrested, full ht.
S2, 3, 4, 5, typ. fair.
S6, 7" ϕ C.O. -3/16 @ top. at. inside; outside, scale.

Span 17 Floor System.

159.



10-19-68 Wiedwald

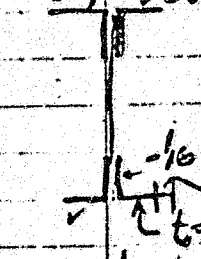
SPAN 17 - Rib Bracing, S. HALF 160

Bot. Guss. at shear lock:

Water and dirt collecting at apex of joint. Nuts for connect. of batten pls. & shear lock casting, inside corroded to point -4" out of inside of these batten pls. at diag. conn. near bot. flgs. (See photo 1-4)

Bot. guss very thin, knife-edged across front bot flg

Inside angles of diags reduced more than 50% at conn.



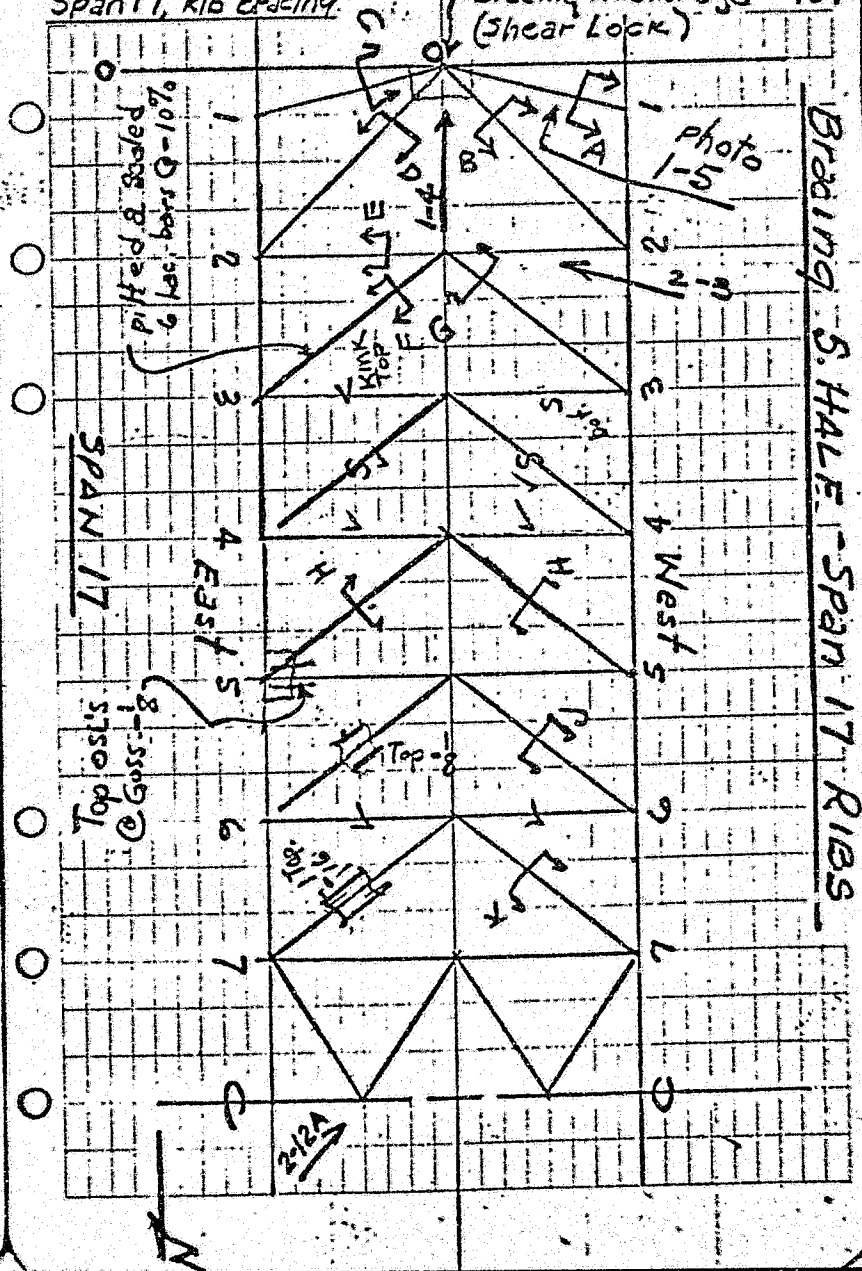
Sect. B.

(For S. shear lock at ppl. see photos 1-8 & 2-7.)

Wiedwald

Span 17, Rib Bracing

Bracing Anchorage (Shear Lock) 161



10-14-68 WIEDWALD

SPAN 17, RIB BRACING, S. HALF 162.

L E gone

Sect A (see photos 1-5 & 2-3)

Lacing in strut L1, west has 50% loss at bot. flg. connections & pack-out at X-ings.

web pl. corroded 50% -- gone

Sect. C

t = 1/2" & t = 3/16"

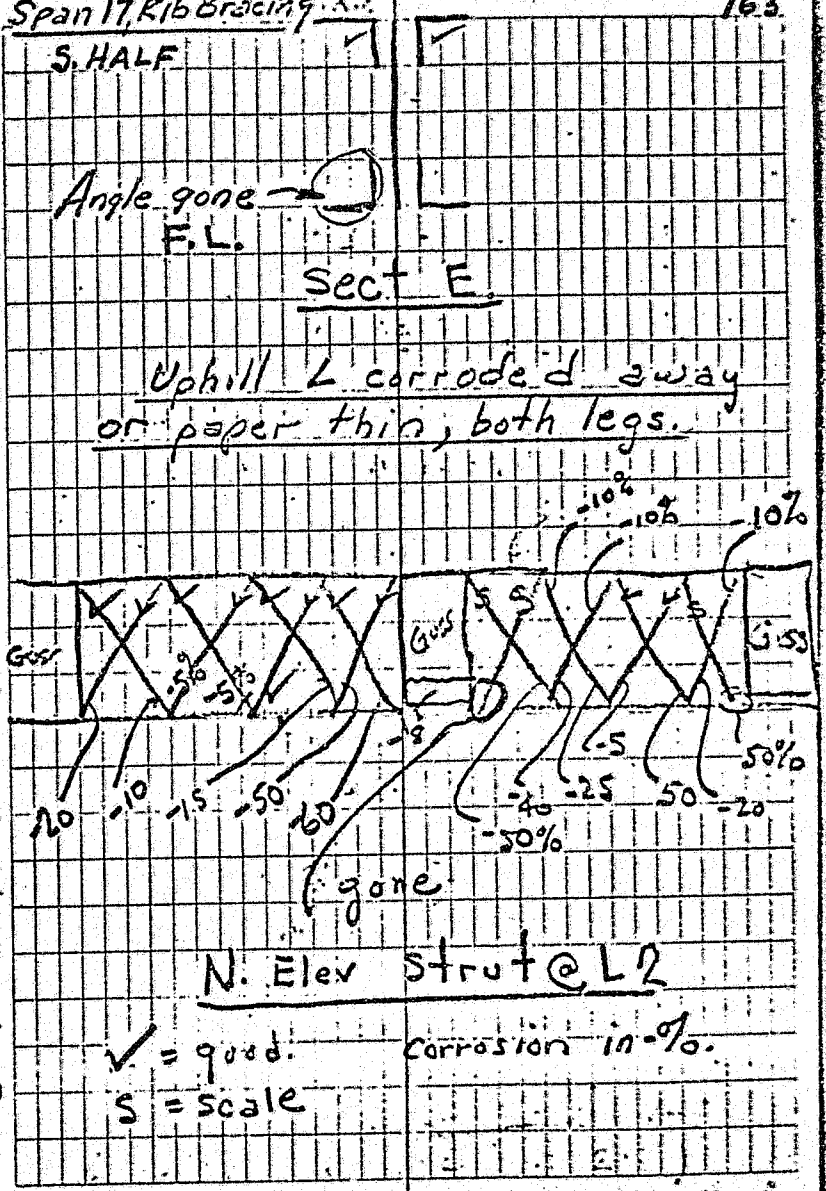
t = 1/8"

Sect D.

10-21-68 Clear 50% Wiedwald

Span 17, Rib Bracing 163

S. HALF

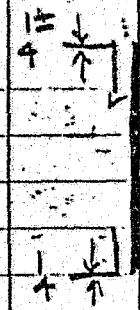


10-21-68 Wiedwald

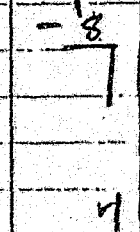
Span 17 Rib Bracing S. HALF 164.

Sect F. top flg pitted -1/8
bot. lac. bar conn -20%

Sect G.



This member pitted thruout.
4 lacing bars corroded to -15% t.
Fist bar near L3 is gone at top flg. of diag.

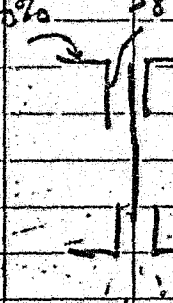


Sect H
Pitted for 2' length

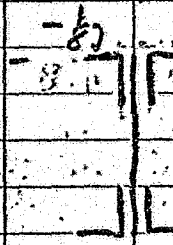
10-21-68 Wiedwald

165

Span 17
Rib Bracing.
S. HALF

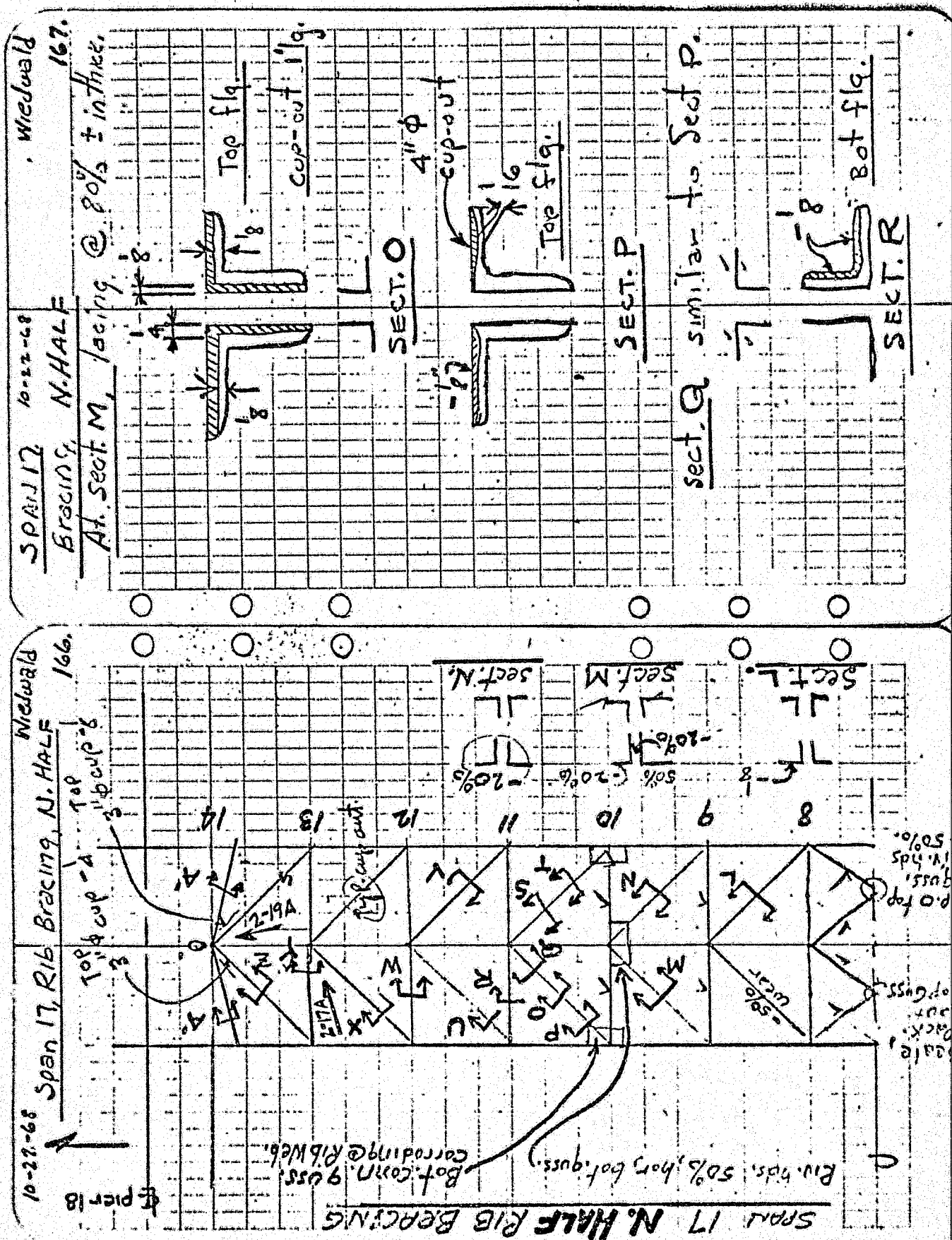


Sect J



Sect K

12" lg (W.)
12' lg (E.)


Wiedwald 167.
SPAN 17 N. HALF
Bracing @ 20½ ± in Three.
At Sect. M
10-22-68
Top flg.
Cup-out 1" flg.
4" ϕ
Cup-out
Toe flg.
SECT. O
SECT. P
Sect. Q similar to Sect P.
SECT. R
Wiedwald 166.
Span 17, Rib Bracing, N. Half
10-22-68
Top
11" ϕ cup-4
Top ϕ cup-4
12-19A
Fly'g cup out
Sect. N.
Sect. M
Sect. L.
20%
50%
Span 17 N. Half Rib Bracing
Plu. bds. 50% hors. bolt. quss.
Bolt. conn. quss. corroding @ Rib Web.
Pier 18

10-22-68 Wiedwald

Span 17 Rib Bracing, N. HALF 168.

Sect. S, O.S.L.s. Top flg, 4" ϕ cup-out, - 3/16.

Sect. T. O.S.L.s, Top flg, Corrosion 1" lg. abt. 50% gone.
Bracing under sect. J, 2 bars corroded 50%

Sect. U. O.S.L.s, Top flg, corrosion 2" lg. - 50% & 90% @ pits.
Vert. Legs, - 8 ea.
4 other 3" ϕ pits on this same member, gouged to net 1/8" ±; can be bent with chipping hammer.

Sect. V. one O.S.L. cupped-out, t = 1/8 ± & 3" ϕ.

Sect. W. Bot. flg., uphill O.S.L. & vert. leg. abt. 50%

10-22-68 Wiedwald

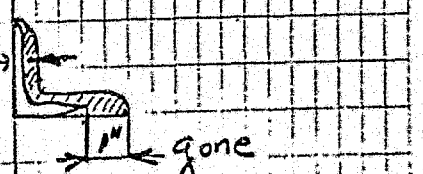
SPAN 17 Rib Bracing 169.

N. HALF

Sect. X. typ. pit, 5" ϕ, 3/16" deep, ea. O.S.L.

Sect. Y. Strut L13: (Pho. 2-17A)
Top flg. good.
Bot flg., uphill angle very badly corroded. Eastend is fair, but through middle conn. the entire angle is almost corroded away. Through this conn. the riv. hds. are 95% gone

At W. side bot guss.:



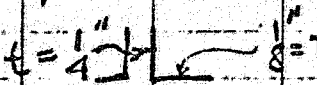
1 Ft. west of guss.:

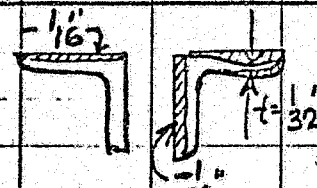


10-22-68 Wiedwald

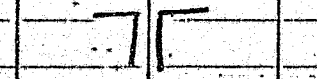
Span 17, Rib Bracing N. HALF 170.

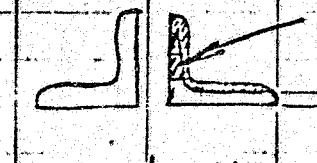
3 to 4' West portion of L : strut 13





Sect. Z





Sect. A'

10-31-68 Wiedwald 171.

SPAN 18 — EAST RIB - INSIDE & General

Inspection manholes were opened at pp. L1, L6, L11 & L1'. Photo 5-12 shows the opened manhole in west web of the east rib at L1. The bolts were burned off and knocked out. Photos 4-13 & 4-14 show the good condition of the rib components inside, in the area from end pin, L0, to pp. L2. At L6 the Arch Mat'l is in good condition. At L11 photos show good condition of inside rib. pho. 4-16 show the bot. flg looking S. toward pp. 10. photo. 4-15 shows the milled surface of the S. center casting for center pin.

West Elev. of East Rib center pin is shown in photo 6-4. Scale on pin retainer and nut and also bot. flg L. is typ. for both ribs. Loss into bot. flg osc's. is abt 1/8" to 3/16" at various

Wiedwald 172.

Span 18 Arch Ribs. - General,

locations throut span 18. this condition would require severe cleaning, and also at several web conditions, especially in the down hill p.p's, under influence of draining scuppers. see photos 3-18A; 3-11. Generally, the rib top flg. cover plates are in fair condition in the down hill p.p.'s (1 thru 4 & 4' thru 1'). see typ, photo 9-7A.). From p.p. 5 uphill to to center of the arches, the top cov. pls. become more distressed. Photo 9-9, show pitted condition from buckle-plate wee page, in p.p. 6 to 5. Photo 9-11 shows increased corrosion of top flg. at S. side of Col. 8, W. rib. Loss into cov. pl. abt. 1/8" to 5/16".

Wiedwald

SPAN 18 ARCH RIBS General. 173.

The painted bronze plates of top of cols. 8 & 8' show. no sliding.

East. Rib

p.p. 11 to 11' ~ photos 6-0 & 6-1, show poor condition of 1½" "hood" plates over center pin castings. These plates, when struck with a hammer, sound more like an oil can, than plate matl. the edges, above the center pin are feathered. scale is piling up on the pin below. Weepage from buckle-pl. rests on this level area. E. & W. arches are similar.

11-27-68

SPAN 18 ARCH RIB EAST. 174

Top flg at pp. 10 to 11, scaled badly., 90% riv. hds. are reduced 90%, N. side of 10, on outside, o.s.l. of top flg L, is reduced 50% for abt 2". Cov. pl. thick, ⅜" bot cov. ½" top cov. Top cov. very poor, scale, pitted thru out. (see photo 9-18.)

SPAN 18.

East Rib:

At downhill side of col. Base L2' there is a hole in top flg. plate. Location ~ at midpoint of sloping enclosure plate and under the end of this encl. pl. for abt. half the diam. of the hole. (Photo 8-19)

The inspection Man Hole at L1' was opened to inspect this lower portion of the rib.

Water has collected in the belly of the rib at connection diaph. ahead of the end casting. Water dimensions: 2' long & 2" ± deep. (Photo 8-11)

The color of the water is blue-black.

The bulk of the water was removed. A thin layer of scale was

SPAN 18. E. RIB.

Scraped off the inside of top of bot flg. (Photo 9-0) The surface appears slightly pitted with little loss of material to plates, angles, rivet heads or nuts.

The floor (inside bot. cov. pl.) from pp. L2' to casting (0') has only surface rust.

The rib webs are spotted with mildew above the water and above the horiz. longit. diaph. (photo)

All other components inside the rib are in good condition.

The hole at L2' was sealed with caulking compound. (See photo 8-16 - spud wrench protruding thru hole at L2' top. flg).

10-28-68 36° Cloudy Wiedwald

177.

Span 18

Bent at L1.

Bot. strut - Heavy laminated pack-out betwn backs of angles all aorers, N.S. & F.S. Very poor shape - Similar to L1. of span 17.

Mid. strut - Lacing bars are 80% to 90% gone. O.S.L's L's are 50% Eff of -1/4" cup-out inside top L, N.S.

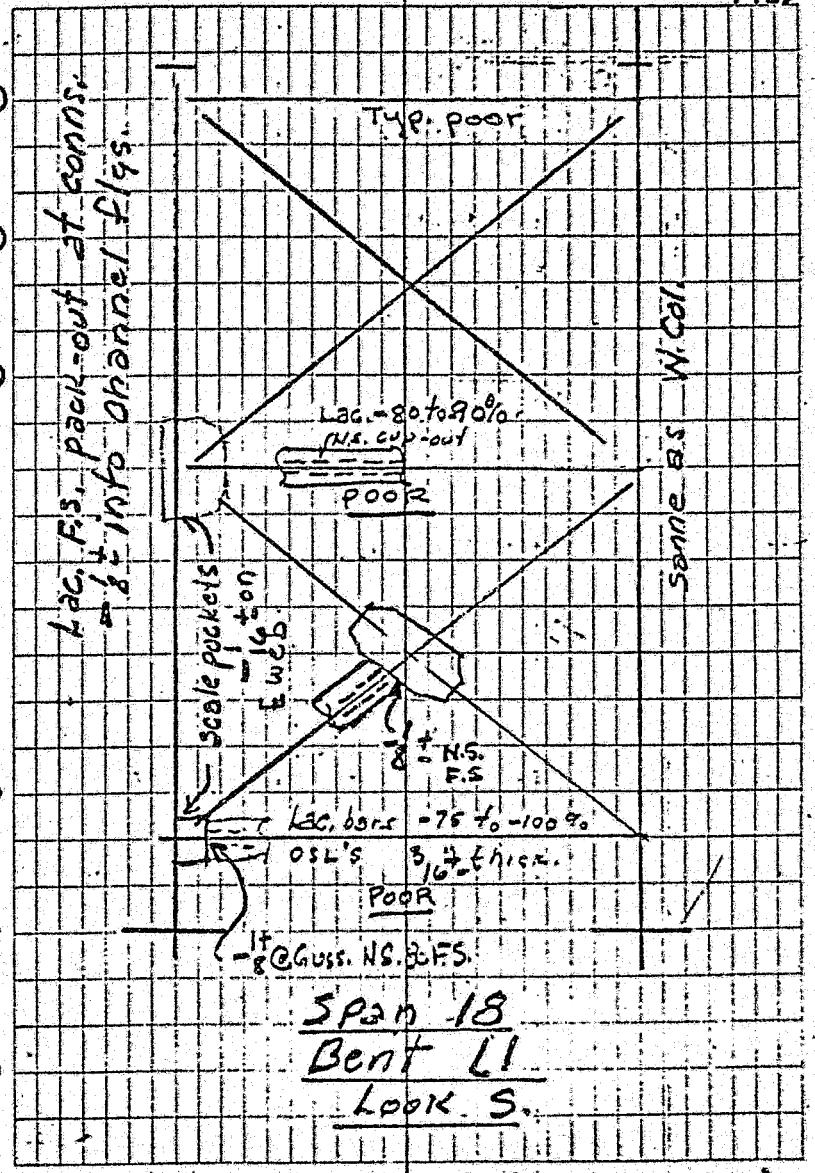
Top strut - typ. poor condition.

E.Col. Lacing, 3. Elev. packed-out at connections with abt. -1/8 ± into flgs. Through out elev. the inside web pls. pack-out about 1/4"

W. col. similar to E. Col. but 1/2" pack-out between channel web and inside web pl.

10-28-68 Wiedwald

178.



Span 18
Bent L1
Look S.

11-22-68 Wiedwald

179.

Span 18

Bent L1.

3 Hor. struts. typ. Poor; buts
diags. are in fair shape.
Diag. lacing with 20% —
damage as compared fo
other End bents.
Diag. O.S.C.'s (vert.) fair
by comparison.
Some pack out at diag guss.
at intersections.
(See photo 3-13, for N. side
of Bent L1 bot. strut.
(See photo 3-14 for inside
col. 1 West; poor condition
of pin & pin plates.
(See photo 3-15 for inside
col. 1 East, scale and trapped
water.
(See photo 3-8, for underside
Bent L1 bot. strut.

11-22-68 | 30° Clear, sunny | Wiedwald | 180.

Exp. Jt. - Pier 18. on S. Side of Bent L1 ~.

Typ. condition of this exp. location. (Sim. Span 17 Bents)
Under stgr. seats, loss of mat'l of osc at bot flg of FB.
At Stgr. 1. FB osc down to feathered edge, & cutable with hammer.
others, loss of 3/16" ±
Vert. leg, not bad loss.
FB Stiffs. typ. at stgr. seats at stgr. 4, 2"x1" hole D.S. side, 1"x1" hole U.S. side.

At Bot. of webs of stgrs.
S2, 10" x 3/4 slit along bot. flg ~ under stgr stif.
S3, 4 x 1/2 slit same loc, as 2.

Typ loss of stgr. bot flg

11-22-68 SPAN 18. | Wiedwald | 181

Exp. at S. side Bent L1.

on bot. ~ S3 1/4" at west (d.s. side)

At S 1 & S6 corrosion into F.B. web behind Stgr seats depths is undetermined (difficult location.
Riv. hds. ok.

Attention to: F.B. top flgs at Exterior stgrs. (cont)
① FB webs @ S.1 & 6
② F.B. osc Bot. flg. FB. under stgr. seats
③ Bronze pls @ seats
④ FB. stiffs ea. side of seats.
⑤ stgr webs
⑦ Exp. channel.

see photo (5-13)

(See next sht. for additional notes)

11-22-68 Wiedwald

SPAN 18, Exp. side Bent L1 182.

FB. at S1., Top cover pl. extended to outside is gone & abt. 50% loss to o.s.l. of top flg. L is gone. This portion of FB. is cantilevered from top of col. & serves as sidewalk bracket. At curb casting, scale is laminated, pack-out. Riv. hds. on top flg. of F.B. are exploded, mushroomed about 2"ϕ.

So. 2 bolts gone out of facia exp. side pls., both E. & W. facias. Arch span movement is ahead abt. 2" to N.

11-26-68 Wiedwald

Span 18, Stgr. Conns. to F.B. N. side 183.

Bent L1' (Expansion Side)

Typ. heavy corrosion of seats, stiffs, & FB.

At S1, F.B. bot. flg. osl. dn. -1/8

At S6, FB. bot. flg. osl. is feather edged and reduced out to sidewalk brkt. bend line.

Stgr. web reduction similar to L1 conns. in that the pack-out of the web is along the bot. flg. fillet.

S2, small hole in web at bot. fillet & corroded back along bot. fillet several ft. (5' max)

FB. osl (bot.) some loss at S3, S4, S5.

S6, hole in seat stiff. under Bronze.

Conns. S. side F.B., similar to L1.

1¼ pack out at stgr. webs, at conn.

At S6, heavy scale into F.B. web

P.P. 1 to 2 Ext. Stgrs 1 & 6.
Along inside edges of Stgr Top flanges, cover plate, typ corrosion 2"± wide -1/4± deep

P.P. 2(S) Stgr. 1 S. side: Corrosion South pattern on webs:
Inside ~ 8" wide for 2/3 ht, & 3" high & 2' long along fillet of bot. flg -8±
outside: 6" wide full ht -1/8±
S6. 4" ϕ Hole @ top web. remainder OK

P.P. 2 N. Stgr. 1 N. side of FB:
Web inside ~ 1/4" deep & 6" wide full ht.
Web outside ~ 1/8" deep & 4" wide

Stgrs. 2, 3, 4, 5. Generally, the webs at FB. conns. are painted over arrested corrosion showing rough surface about 6" t wide

for full ht. of web. If any corrosion exists it appears as a cup-out at the top flg with about a 6" diam. pattern.
S6 -4" ϕ C.O. ea side, -1/8", scale.

P.P. 3(S) S.1, S. Side, at top of web, 3" ϕ hole at conn. to FB. The web and bot. flg. of stgr. is scarred back beyond scupper abt. 1" The scupper down spout conn. to the bot. flg. is in poor cond. with pack-out.
(S6 below)

PP.3(N) S.1, N. Side, at top of web, 4" hole. Scar pattern is 7" width full ht. of web. -1/8±
Other conns. on N. side 2, 3, 4, look good.
S6 N. web inside, cup-out at top. -1/8 scale on outside.

S6 S. side at cope, Hole, corrosion at scupper. Photo. poor around scupper plus 3' to S. (Photo 9-14)

11-22-68 Wiedwald

Span 18, Flr. Sys. 186.

P.P. 4 S.1 N & S. sides, 4" ϕ hole at top of webs.

S2 (So.) 6" ϕ Cup-out at top. S6, S, 4x3 Hole at top ins. outside - 4 4" long. 2, 3, 4, 5, typ. N. & S. S6, N: -⅛" ea side

P.P. 5 Stgr 1 S. side 2" ϕ hole at top web. scar abt. 8" wide full ht. web.

Stgr. 1 N. side loss on ea. side of web abt ⅛". 8" width of scar.

S. Side, pumping at S.2, with scale only.

S 3 scale

S 4, S 5 typ.

S6, scale -⅛ ea. side

N. Side typ. 3 to 5.

Pumping at S2, with scale

11-22-68 Wiedwald

Span 18, Flr. Sys. 187.

P.P 6- S2 good on S. side.

S1 N. Side at top 4' Bot. of web, 2" ϕ hole ea. - 8" back from conn. angle; same at bot. hole at fillet of bot. flg.

S.2, pack out into web at top flg. coping, similar process to S2 top hole.

S5 cup-out at top. 4" x 8" (O.S. side)

P.P. 7. S. side S 1 gouge at top, 12" h x 5" Bc - 3/16 deep. on inside. Outside, abt -⅛ full ht.

S2 scale at coping

S3, S4 good.

S5 Cup-out top, 5" ϕ

N. Side, S1. outside -3/16 inside -3/16 8" wide.

11-22-68 Wiedwald
Span 18, Flr. Sys. 188.

PP. 7 Cont'd. ~ S2 -1/8 ±
S3 2" ϕ cup-out at top flg. coping.
S5 similar
S4 typ.

11-25-68
P.P. 8 S.
S1 1×3" hole at top flg. w.e. Cope. -1/8 from web on outside, 6" cup-out inside, max width of corrosion abt 8"
2, 3, 4, 5 typ.

N. side
S1, 3"×10" hole in web, Photo 9-9A, width of corrosion abt 10" full ht. web.
F.B. bot. flg osc. loss of 1" on top at S1 stiff.
Stiff. osc. abt. 8" thick 4" high.

11-25-68 30° Wiedwald
Span 18, Flr. Sys. 189.

P.P. 8 N. side cont'd.
S2, S3, S4 scale on both sides of webs, pumping
@ S4, S5 corrosion at top of web (west) 6" ϕ cup out 6" width.
Scar pattern 7" ± wide.

PP. 9 S. Side
S1, -1/8 at top web inside -1/16 @ top " outside
Scale pattern 2" wide

S5 at top web, paper thin, abt. 6" ϕ.
Other, scale only, typ. painted arrested scale.

N. side F.B. S1 outside, pitted -1/8 to -3/16 full ht. abt 8" wide. Inside web -1/16 ±.
Others good.
S5 3" ϕ cup-out @ top -1/8" @ side.

11-25-68 Wiedwald

Span 19 Flr. Sys. 190

F.P. 10, S. side S1 1" 8" thick

web at top 2"

Outside lower 2/3 of ht good. Inside web - 3/16 ±

Scar pattern 6" wide full ht.

Others typ. good.

N. side ~ S1 inside pitted - 1/8" ± full ht. 6" wide

Outside pitted at top 4" skin loss lower portion of web.

3, 4, good S5 4"x4", loss - 1/8" near top web

S2 - 1/2" of top (d.s.) 2" ϕ

P.P. 11 S. Side of F.B.: Stgr. 1. inside of web is corroded out 1/4" abt. 8" wide at top stgr. & 6" wide the remainder. This loss is between 2 riv. lines of the stgr. conn. to extended conn pl.

pp 11 S. The conn. pl. is on outside. Outside ~ down from top of conn. 6" long, pack-out into stgr. web abt. -8.

FB. Bot. flg. osc. (south) abt. 4" downstream S1 conn. L. ~ 3" ϕ cup-out on top of osc. abt. 4" deep at middle of dip.

S2, 2" x 6" down from top conn. pl. -8.
S3, S4, S5 good.

P.P. 11 N. side, S1 only 6" of paper thin web remains. (photo 9-12) Bot. flg is feathered at edges at seat abt 4" thick at stgr.

Seat stiff. gone at outside & featn. on inside of seat

Under seat vert. leg of

FB. Bot flg L loss -1, osc loss about -16". Bot flg. generally very pitted & scaled.

FB web scaled behind S1 seat depth undetermined.
S6 - see photos - (6-2) & (6-3)

P.P. 11' S. - S1, 2, 3, 4 only slight scale, typ. painted over web with rough appearance.

S5 3" x 2" wide hole, thin for about 6" x 6" area at top of web, -8 6" wide on E. side.

11' N. side - Scale on S2, 3 3" ϕ cup-out top of S4 @ top of web -8" ea. side.

S5 similar S4.
S1 pitted both sides -8 at top of web.
S6 4" x 12" hole, photo 12" wide (7-19)
near

Span 18 Flr. Sys.

P.P. 10' S. Side. All all fair with slight cup at top near cope. S5 has 2" ϕ hole at cope, 4" scar. S6 similar to N. side.

N. side - All fair with S1, & S2 typ 3" ϕ pattern, -8 ea. side

S6. paper for upper half. 4" wide

11-26-68

PP 9' S. side Sfgr. 1. Scale on both sides webs -1/16" ea. 7" wide

S8 scale & pitted, -1/16.

S3, 4, 5. slight scale.

S6, -1/8 inside full ht x 4", Top only

N. side - S2, -1/16" near top web

Others good.

PP 8' S. Side. S1. Cup out top & bot. ea along fillet of bot flg. -1/4" inside abt 12".

5" ϕ scar at top web.

11-26-68

Span 18, Flr. Sys.

PP. 8' contd - Scale on others

S6. scale only.

N. side - little scale at top S1, S2, S6, S3, 4 good.

S6, 1" ϕ Hole at top web, 8" wide scar.

Remainder web -1/16 ea. side.

P.P. 7' S. Side: S2, hole 2" x 4" lg. in web under cope and top flg.

Scale width 6" wide

S3 looks similar to S2, with scale at top of web.

S1 S4 & S5 scale at top, but good.

N. Side - All scale at top under cope. good.

S6, N & S. Scale inside 3" ϕ cup - but outside -1/8".

P.P. 6' S. Side. S1 scale on web outside, inside -1/8 at toe of conn L & web 4" wide full ht. web. S6, -1/16 outside

S2, scale 8" wide -1/16"

S3 4 5 scale at top, good.

N. side - All, little scale, good

S6, -1/16" along inside bot flg. 3' long

Span 18 Flr. Sys.

P.P. 5' S. & N. side, similar, slight scale at top of webs. All stgrs. S5, N&S. -⅛ cup out 3"Φ E. side. S6, S -⅛ inside top, -3/16 outside. S6 N. scale

PP 4' N. & S. sides - some stgrs have scale at cope, others good. S5, N&S, 3"Φ cup-out top -⅛ S6. N&S, -1/16 inside.

P.P. 3' S. Side: S1 inside web -⅛, outside -1/16 ±, 8" wide. S2. 5"x5" pocket -⅛ @ S3, 4 good. S5 6" cup out, E. side -3/16. S6 -3/16 outside 8" wide, -1/16 inside.

N. Side: slight scale at top webs other wise good. S#6, 6"Φ ea. side -⅛.

P.P. 2' S. Side: S1 scale outside, inside, 2"Φ cup-out top C -⅛, -¼ along fillet of bot. flg. inside, 12" long 1" high. Others typ. point over S5, cup-out E. Side S6 -⅛ inside 2" wide. -⅛ outside x2"

Span 18 Flr. Sys.

PP 2'-N. Side. Typ. others good. S#6, -4"Φ cup out inside & outside abt. -⅛".

P.P. 11 N. Exp. side. All stgr. seats appear frozen. Typ. heavy scale from dam. leakage. S1 is described previously. S2, stiffs. at sides of seat corroded but not as severe as S1. o.s.f. of FB. under stgrs., S2, scale; #3, scale. S4, -⅛ gone from stiffs. Condition, S6. (photos 62, 63) stiffs. at stgr seat are gone. Bot flg stgr. almost gone, t=¼ ± and reduced 2" in width. At stgr top fillet, gouge along fillet -¼", 3' from diaph. conn. Buck. pl. gouged -¼" for abt half span.

scale at top S1, S2

11-27-68 Wiedwald

Span 18 Flr. Sys. 197.

F.B. bot. o.s.l., 2" paper lc/f.
Full leg 6" to W. of conn. & outside, about 6" up to bend line of brKt.
F.B. web under seat is packed out heavily; riv. hds. dn 50%±
Vert. leg of bot flg L -1/8±
This location is very wet, scaley, including rib top flg. & F.B. stool.
The F.B. top flg, outside, is corroded; the o.s.l's are dn. abt. 50%, plus hole where rivet is missing. both N. & S. sides similar.

pp. 11 S. ~56 (see photo 4-17)
Web has gouge along bot. flg fillet, outside, 3' lg, 2" high. -1/4". Riv. hds. for conn. to extended plate, 50%, dn.
F.B. bot. flg. o.s.c. dn. 50% at conn. for abt. 1 ft.
S6. Web hole 9" x 1/2".

11-27-68 Wiedwald

Span 18 Flr. Sys. 198.

pp. 10 N. S.6, 2" ϕ hole abt 4" from top of stgr. 6" scar. -1/16 ↙↙ inside, -1/4 loss, 9" W. full ht., outside.

pp. 10 S. ~56 (see photo 4-19)
↙↙ similar 10 N, 6 S.

pp. 9 N, ~56 (see photo 4-20)
↙↙ Buckle pl. gouged near F.B., & along stgr. Gouge 6" wide near F.B. and 2" wide along stgr.
small hole in buck. pl. near F.B.
Web scar, inside, 1½" long at top, 7"± at middle and trails along bot flg abt 6' @ 6" high. Trail scar is arrested
3" ϕ hole in web at middle.
At bot flg, the conn. L (stiff.) is cracked back to fillet of o.s.c.
Web, outside, pack-out full ht.

11-27-68 Wiedwald

199.

SPAN 18 Flr. Sys.

p.p. 9N. cont'd.

FB. bot. flg. at outside, dn. -1/8". to bend line of brkt.

pp. 9S. ~ S6, 1" ϕ hole at cope top. Inside, web loss -1/8 top half. out, 3" ϕ C.O., -1/8 loss full ht. typ. gouge in buck. pl.

p.p. 8N. ~ S6, (See photo 4-20A). ⌐⌐ Holes at top web, paper thin, net t. Scar 14" w. at bot flg.

pp 8 S. ~ S6, inside, web loss -3/16" 5" wide; out. -1/8", rough, painted over. Buck-pl. typ. grief.

pp. 7 N. ~ S6, scar, inside, 4"x4" ⌐⌐ gouge at cope; outside, gouge dn. toe of conn L. small hole at cope. Web thin, top half.

11-27-68 Wiedwald

200.

SPAN 18 Flr Sys.

pp. 7 S. ~ S6, inside, web scar ⌐⌐ at top, -1/8" ± full ht. outside, loss 4" ± full ht. Net t web = 1/8 ± ".

pp. 6 N. ~ FB. osl. under stgr. S6 conn reduced to 4". osl. of conn. stiff. is corroded away at FB. bot flg. osl. for ht. 3" ± from osl.. Brkt bot flg, out from bend line, has scale (3/16) laminations in osl's, not much loss of mat'l. S6, 4" ϕ hole at top cope, -1/8 ea. side.

p.p. 6 S. ~ S6, 3" ϕ hole at cope, inside, -1/8 loss. 4" w. outside, -1/8 loss 12" w. FB. top flg, outside, osl of flg ⌐, -4". Buck-pl typ.

Span 18 Floor System pp 1 to 11

202.

Scupper

121

N

1 2 3 4 5 6 7 8 9 10 11

Exp.

— Number shows loss in 1/16ths.

C.O. = Cup out.

H = Hole see notes.

R = see notes

Good

Top C.O.

Top H.

R 1x3

P-9A

9-12

A-20A

A-19

A-17

6-3

6-2

Photos

4-20

EXP

Scupper

→ Indicates photo

Wedewald

201.

11-27-68

SPAN 18 Flr. Sys.

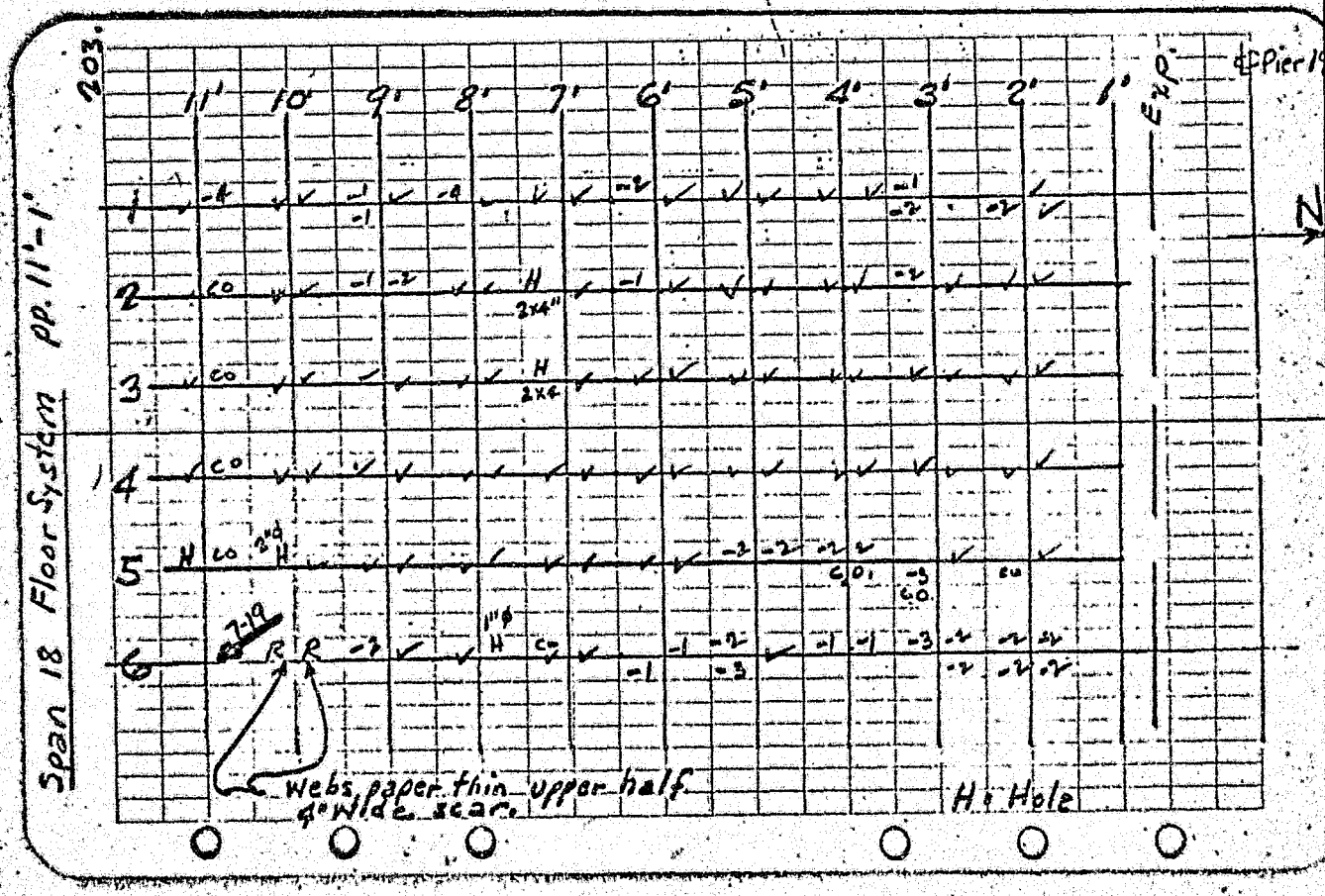
pp 5 N 2 SG.

VV scar 4"ϕ C.O. - 8 @ top

Inside 3 1/2" N, outside, arrested 1 1/8".

FB. bot flg. osc. corroded

dn. -8 to bend line.


Span 18 Floor System pp. 11'-1'
203
11' 10' 9' 8' 7' 6' 5' 4' 3' 2' 1'
℄ Pier 1
N
1
2
3
4
5
6
H
CO
2x4"
2x6
3x8
11"ϕ
7-19
R
Webs paper thin upper half
9" Wide scar.
H: Hole

10-31-68 50° Wiedwald

SAAN 18 RIB BRACING. 204.

E. Diag. 1 to 2 (see photo 3-12)

1" Hole -8¼

Bot. flg. Scar 15" lg.

Sect A
See plan →

-⅛" t=¼"

Top flg. Scar. 1' Long

Sect B-See plan →

East bot. flg., midspan — -1/16" for abt 12'¢ top of osl.

W. Diag. ~ pack-out at lacing bar conns. has corroded the vert. legs. of bot flg. ∠s. -30% to 50% almost all conn.; top conns. are similar.

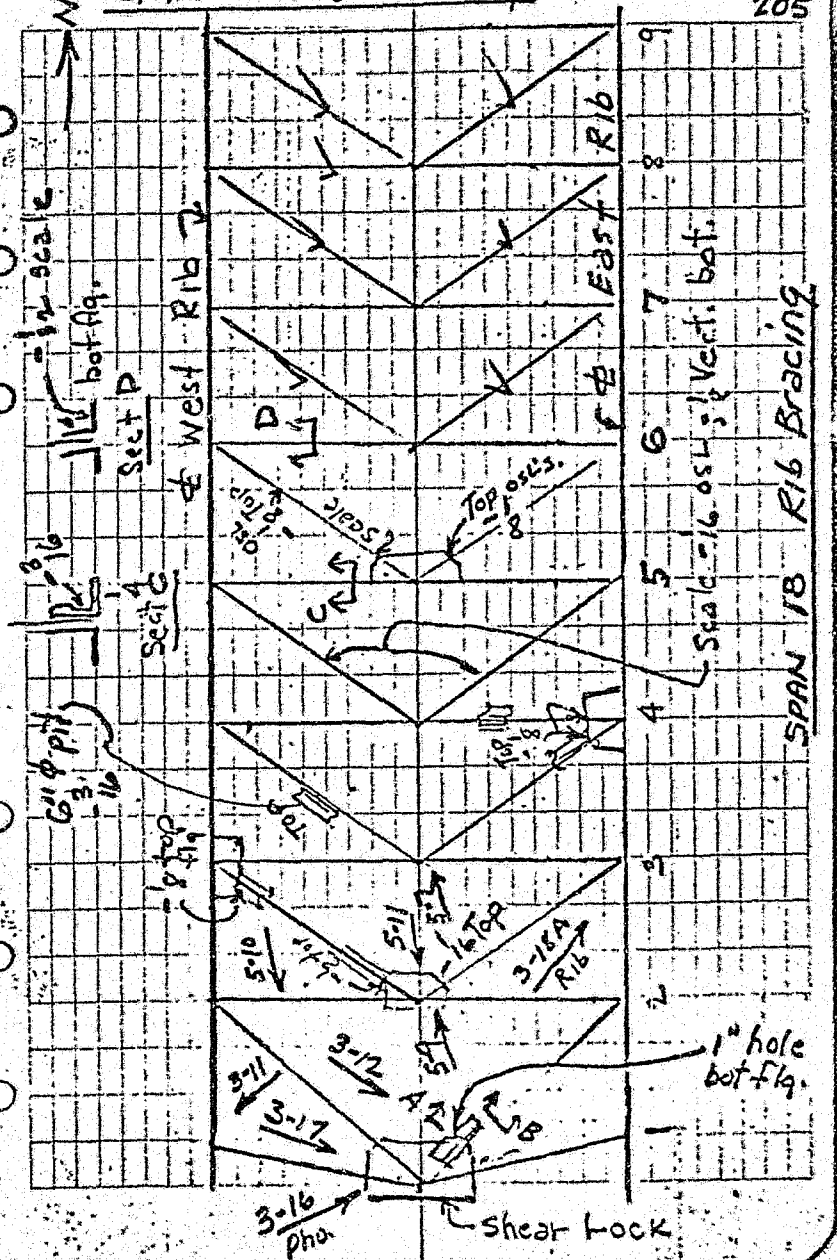
E. Diag. ~ 11 bar ends conns. reduced 20%

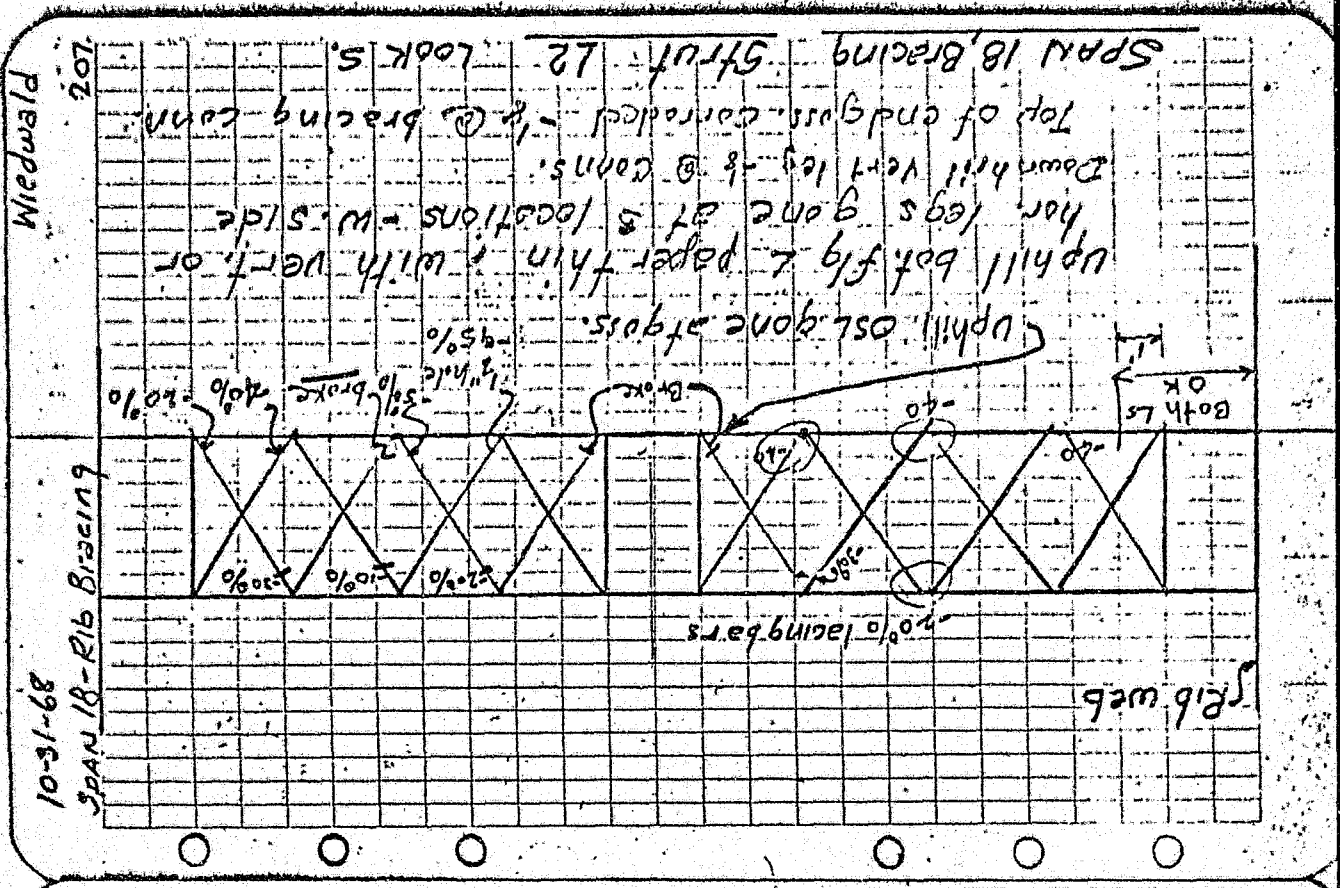
W. Diag. ~ 12 bar ends conns. " -20 to -30%

Bot. flg. OSL -1/16" for 10' @ top.

Wiedwald

SPAN 18-Rib Bracing 205




Wiedwald
206
10-31-68
SPAN 18-Rib Bracing
Rib web
Uphill osl. alone at yoke.
Uphill bolt fly & paper thin with vert. or hor. legs game at 8 locations - w. slide
Down hill vert legs & @ roans.
Top of endgusset connected - i.e. @ bracing conn.
SPAN 18 Bracing Struts 12 Look S.
20% @ roans
Both Ls OK
Yoke
Brace
Rib 3e
Broken
Shear Lock Casting
Osl's
Gusset
F.S. OSL cut out
Gusset
Lac. bars
Lac. 30% @ conn.
Wiedwald
206
10-31-67
SPAN 18-Rib Bracing
Rib Web
Sect. A
Sect. B.
Sect. C
Sect. D
Gone
Gusset
Lac. bars
20% @ roans.
Strut L1
Look S.

10-31-68 Wiedwald

SPAN 18 Rib Bracing 207-A

P.P. 2 to 3.

E. Diag.

5 Bars @ -30, -40% at bot flg conns

2 Bars @ -20 " " top flg conns.

Some scale on o.s.l's of bot flg L's.

W. Diag.

4' of cup-out on bot flg.

W.O.S.L. @ -1/8", near pp. 2

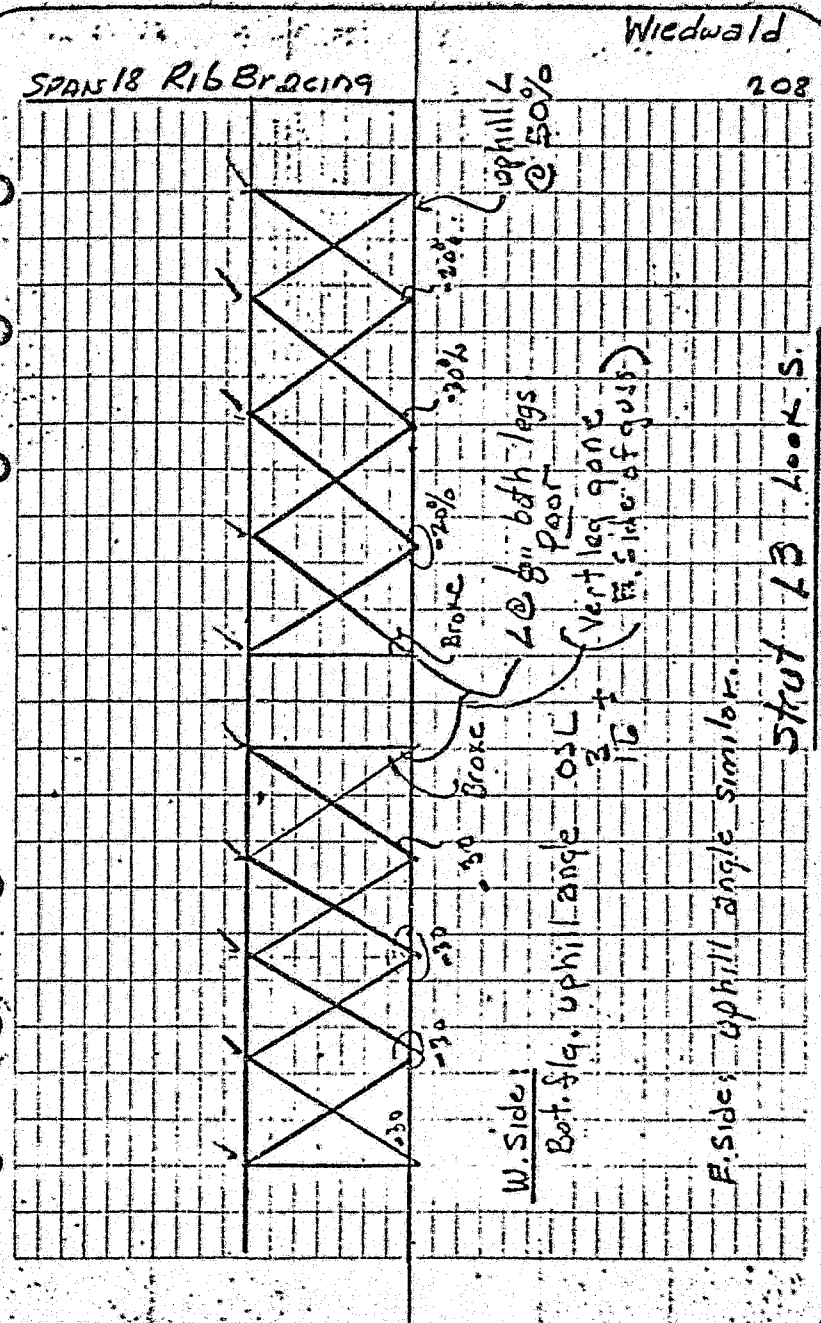
5 Bars @ -90 to 95% at top flg. conns

6 Bars @ -40% @ Bot flg. conns.

p.p. 3 to 4

E. Diag ~ 3 lacing bar conns. @ -30%.

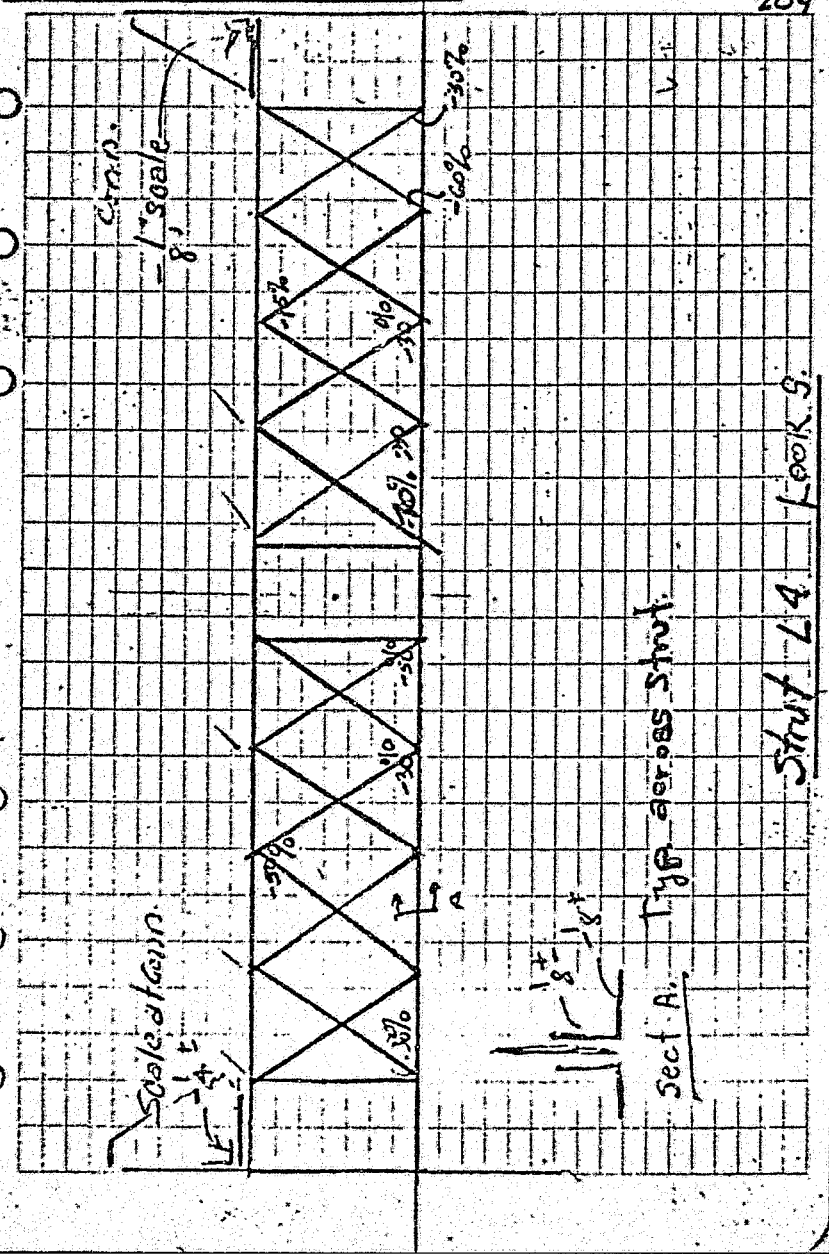
W. Diag ~ 6" ϕ cup-out at west top flg. o.s.L. -3/16" at mid-span.



10-31-68 Wiedwald

SPAN 18 - Rib Bracing

209



10-31-68 Wiedwald

SPAN 18 - Rib Bracing

210

pp. 4 to 5

W. Diag. ~ scale pockets along top of top flg -1/16 for abt a total of 4'± on osc. 1 Lacing bar conn. at -1/8. on bot. W. osc of bot flg. similar to top.

E. Diag. ~ 1 bar conn. -1/4" S @ abt -1/8"

Bot. flg. east osc. has -1/16 loss for about total pocket lengths of 3'±

General top and bot. guss. at strut conns. to Rib. are heavily scaled with loss of -1/8± on osc of conn. Ls and scale pockets in gusset pls. ~ Pp. 1 to 4.

11-13-68 29° Cloudy Snow Gonzalez Wiedwald 211.

SPAN 18
Rib Bracing

$t = \frac{1}{4}$ℓ $\quad \delta t = \frac{3}{16}\pm$

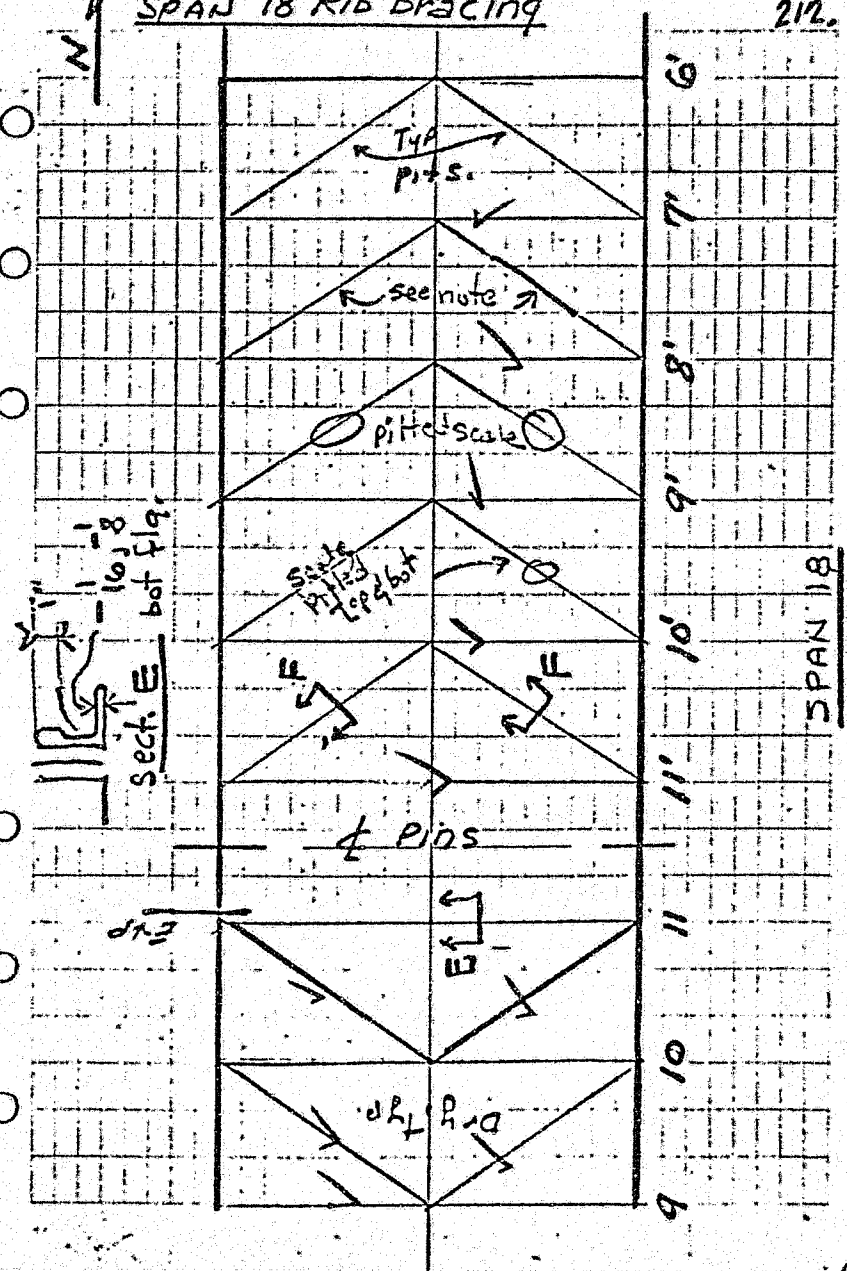
$-\frac{1}{16}\pm$ @ backs pitted 2" long.

SECT. F. see plan →

pp. 8-7' Both diags. top flgs. have typ. deep 6" ϕ pits in osl's; packed & pitted, net $t = \frac{3}{16}$ @ mid-span.

11-13-68 Wiedwald

SPAN 18 Rib Bracing 212.



11-13-68 Wiedwald

SPAN 18-Rib Bracing 213.

p.p. 4' to 3':

East diag. ~ 1" ϕ hole in osl. bot flg (E. leg) at guss near p.p. 3'

Abt. 1.5' from this guss same leg (osL) 6" hole.

Lacing bars are corroding @ top conn. 20% to 50%, with 1 broken.

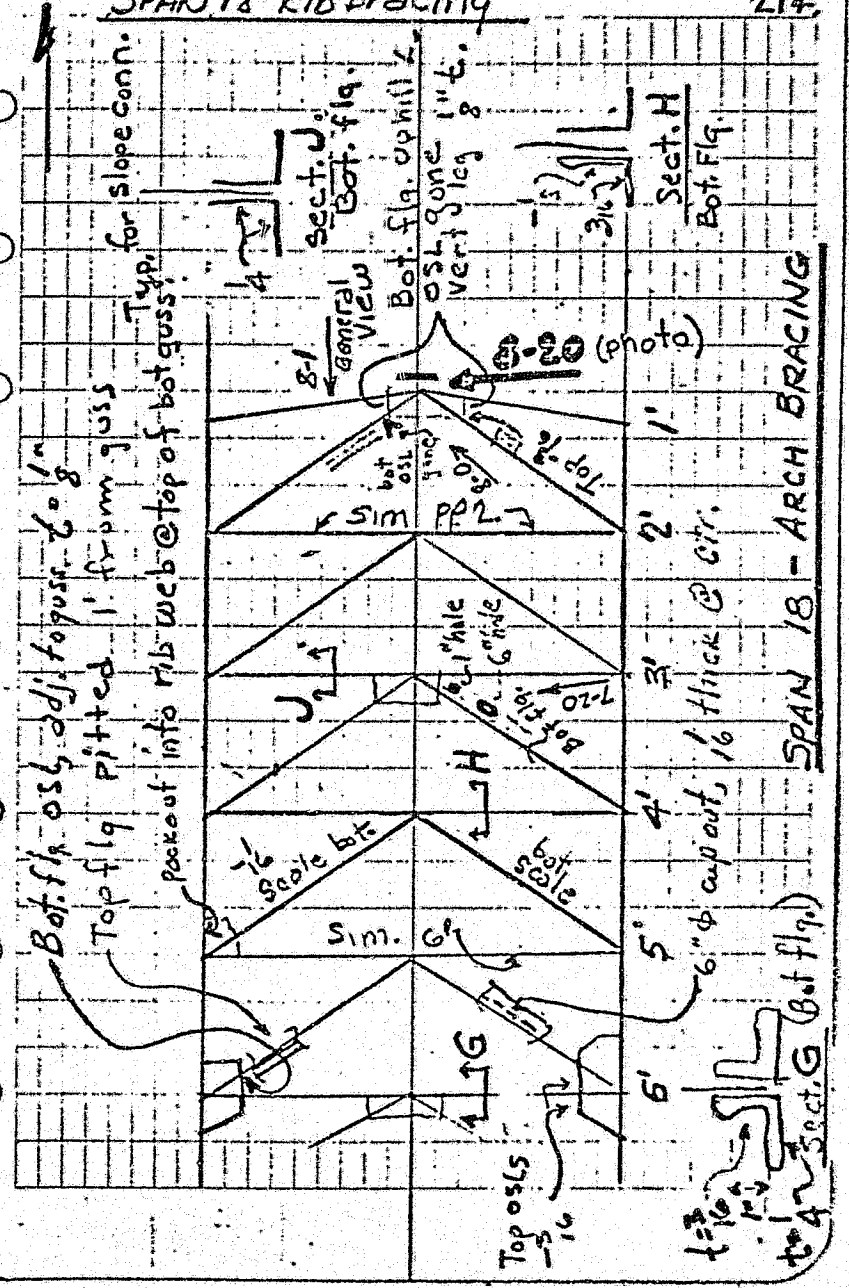
Bot. lacing bar similar to top.

W. diag. - Sim. to E. with corrusion of outside bot flg osc. (loss of 16 ft) bot no holes.

Lacing condition similar also.

11-13-68 Wiedwald

SPAN 18-Rib Bracing 214.



11-29-68 Wiedwald

SPAN 19 FLOOR SYSTEM 215

Expansion Side, S. side of Bent L1.

These conns. similar to other expansion details at End Bent exp. sides. Typ. deterioration of stgr. seats, F.B. stiffs at stgr. seats, stgr. webs & flanges, stgr web stiffs., dam channels F.B. webs at seats, F.B. bot flg. loss under seats, seat stiffs., top flg of F.B. at ext. stgrs.; this, as does the other arch span exp. locations require renovating. S6, is shown in photo 8-3, with typ. grief for an exterior stgr.. Photo 8-4 shows seats & F.B. bot. flg., looking west. Photo 9-5 shows the W. elev. of S3 conn. to F.B.

N. side of L1:

Photo 9-6A shows general corrosion on N. side of F.B. at Bent 1. all stgrs similar.

12-3-68 Wiedwald

SPAN 19 FLOOR SYSTEM 216

P.P. 2 S. ~ S1, inside, 6"ϕ c.o. @ top @ -⅛", then 2"w. dn. web @ -1/16. outside, scale.

S2, S3, 4, 5, typ. c.o. @ copes.

S6, 7"w. scar full ht, -⅛± inside, @ -¼± outside. roughly pitted.

P.P. 2 N. ~ S1, typ. cleaned & painted

S2, 3, 4, 5 typ. fair.

S6, outside, scale, inside, 4"w. scar -1/16" full depth.

PP. 3 S ~ S1, Scar 7"w. x 10 dn @ -1". on inside; outside, 6"ϕ c.o. -1/32±

F.B. bot. flg. has some scale under paint. PP 2 similar.

S2, -1/16 loss full depth. 5"ϕ

S3, 4, typ. fair; S5, -¼" c.o.

S6, 6"w. -⅛" inside, -1/16" outside.

Pack-out @ Conn. stiff.

Inside Col. base, 4"± pigeon debris.

Typ. pack-out at pin plates, ½"±.

12-3-68 Wiedwald

SPAN 19 Flr. Sys. 217.

P.P. 3 N. ~ S1, scale at top ea side
S2, S3, 3"W scale →
S4, S5 C.O. @ cope.
S6, inside, -1/16 @ 4"W for 1/2 depth, outside, 6"x6" scale.

P.P. 4 S. ~ S1, typ, S2, 3"ϕ C.O.
S3, 7"W. scale; S4,
S5, typ. fair ~ co @ top.
→ Buckle pl. @ S1 top flg. is typ. gouge pp 4 to pp 1.
S6, scar 4"W. -1/16" ea. side. Buck-pl. typ. gouge. pitted.

PP. 4 N. ~ S1, 2"ϕ CO. @ cope.
Buck. pl. typ @ joint.
S2, pumping, 7"W, -1/8 ±.
pack-out at toe conn. L.
S3, S4, S5, typ. fair, co. @ top. cope.

S6, inside, 5"W. x 6" -1/8" @ top
scale remainder.
outside, scale.

11-29-68 40° Rain Wiedwald

SPAN 19 FLOOR SYSTEM 218

P.P. 5 S. Side: S1 6"ϕ cup out of top, both sides, -1/8 ea. 8" wide scar full ht. scale on bot flg of stgr.
S2. Small hole broken through under cope of top flg. 4"ϕ cup-out in this area, 5" width of scar at same. Remainder of web OK. Some pack out along toe of connecting angle.

S3, pack-out along top of conn. angle.
S4, fair, typ
S5, 2"ϕ cup-out at top,
S6, 8"W full ht. -1/8 out, & -1/16 in. Pack out at conn. L.

pp 5. N. side: S1, similar to S. side.

S, 3, 4, 5. typ. scale at top.
S6, 8"W scar, -1/8 ± loss ea. side, Typ. buck-pl. gouge.

SPAN 19 Flr. Sys.

PP 6 ~ S. side: S1, 5" wide scale outside, 5" deep - ¾ scale 5" wide full depth web inside. -1/16 ± each side S2, 3, 4, 5 typ pointed over webs with 5 ea/c at top of web. S5, Co. 3"x6" E. side. S6, (See photo 10-3) -3/16 inside, paper @ top.

PP 6 ~ N. Side: S1 scale S2, 3 good S4 typ cup - out 3"φ @ top web. S5, 1"φ hole at cope. Balance of web ok. S6, -⅛" ea side 10" w full ht.

PP 7 S. Side: S1, (See photo 9-15) poor shape web. Hole 1"x 4" 2" from bot flg. & 5" out from conn ∠ toe. Scar width at top 8" ± wide, trails along bot. flg. 1-6 ±. Bot flg. loss. S2, 3, 4, 5. typ. scale @ top. S3 -1/16 each side, top S4 -⅛ each side, top General corrosion into web along fillet of bot Stgr. flgs. S6, 6" W, -⅛" ea. side, full ht.

SPAN 19 Flr. Sys.

PP. 7. N. Side: S1. typ. ok, pitted, corr. arrested S2, -1/16 ea. side web 6" wide S3, 5"x5" scar top S4, 5 typ. S6, 7"x4 scar @ -⅛ ea. side. Buck-pl. typ. gouge. Excessive pigeon debris in this area.

PP 8 S. side: S1 typ. pitted. ok. S2, 3"φ cup out @ top 1⅛" thick on top. S3. Similar to 2. with small hole broken through. S4, 5 scale. S6, 3"φ hole, 3" from ∠ @ top. Thin for 7" dn x 7" W. F.B. o.s.l. = ¼" under Stgr conn. stiff, corroded at o.s.l. 3" up with t = ⅛ ±. → Bulbed at toe of o.s.l. to brkt. bend line.

P.P. 8 N. S1, pitted, scale. S2, 3, 4, 5, 2"φ c.o. @ cope. S6, 7" W. scar.

pp. 9 S. side S1, -1/16 ea. side at top of stgr. web. pack-out along toe of conn ∠.
(photo 9-16)
V S2, poor, scar 10" wide E/ paper-thin series of holes about 6"x6" at upper third of web. -1/8 west side. Lower half of web. E. side scale lower half.
S3, scale at top.
S4, -1/16 @ top ea. side 4" ϕ.
S5, -1/8, 2"x3" top, ea. side.
V V S6, paper-thin tw. = -1/8 -.

PP9 N. side - S1, 3 & 5 scale at top.
S2. thin under cope. pack-out 6" d. w. along toe of conn ∠. - 6"x4" scar.
V V S6, scar 12" w. Hole at top 3"x1", top half of web thin & holey. Pack-out along toe of conn ∠.

p.p. 10 S. ~ All stgrs. similar, with 3" ϕ c.o. at top.
S2, -1/8 West, -1/16" East side.
S6, inside, 6" ϕ -1/4", -1/8 on dn. Outside, pitted deeply. Net t web = 3/16 ± or 1/8" ± at toe of conn. ∠. Scar 6" w. F.B. o.s. ∠ pitted, -1/8" ± under stgr. conn.

pp. 10 N. ~ S1, outside ok. Inside, 6"x12" gouge from top web @ -1/8 ± but corrosion arrested.
S2, 6" ϕ c.o. at cope, 1/4" ϕ hole.
S3, 4, 5 typ. scale at cope.
V V S6, Inside 12" w. to 9" w. scar, full depth, gouge at top -1/4", -1/8" ± remainder; Pack-out -1/8" ± at toe conn. ∠. Outside, same scar, bot. flg. fillet for 1/2 stgr. span is gouged along fillet -1/16 ±.
Net web t. = 3/16 ±, less @ top.

11-29-68 Wiedwald

223.

Span 19 Flr. Sys.

p.p. 11 S. ~ S1, scar 26# 10"w, -¼" from out side, -⅛± inside, ✓✓ Net web thick. is thin & can be dented with chipping hammer. Conn. ∠ stiff o.s.L. is reduced 50% @ bot. flg. of stgr. also at F.B. bot. flg o.s.L. F.B. + " " 26#. 7/16" thick from col. out to brkt. bend.

S2, 3, 4, 5. typ. scale @ cope.

✓✓ S6, (see photo 10-5) Almost all stgr. web gone, 6"± of paper thin remaining. Scar 12" W @ top, less @ bot. Pack-out at toe of conn ∠. o.s.L. of conn. stiff ∠ is knife-edged at F.B. bot flg o.s.L. F.B. o.s.L. is 26# ¼" thick @ 6" ea. side of conn. & is reduced out to bend line of sidewalk brkt. bend line.

11-29-68 Wiedwald

224.

Span 19 Flr. Sys.

p.p. 11 N. ~ S1, 12"w. scar. with -¼" 6"x4" c.o. @ top web, inside & remainder pitted & painted over.

S2, 3, 4 S typ scale at copes.

S6, scar 12"w. -⅛ ea. side. F.B. o.s.L, under conn. good.

p.p. 12 S. ~ S1, inside, 12"w. scar -¼± web was not cleaned before painting. 3"Φ c.o. outside.

S2, 3, 4, 5 typ. at copes.

S6, 4"w. scar full ht. -⅛, inside. Outside, 7"x7" scar at top -1/16". Remainder web o.k. F.B. bot. flg. good.

p.p. 12 N ~ S6, scupper location -. ✓✓ pack-out at stgr. copes for scupper conns. At conn. to F.B. scar 12"W. with net t web = 1/16"± & can be dented with hammer.

11-29-68

Wiedwald

225

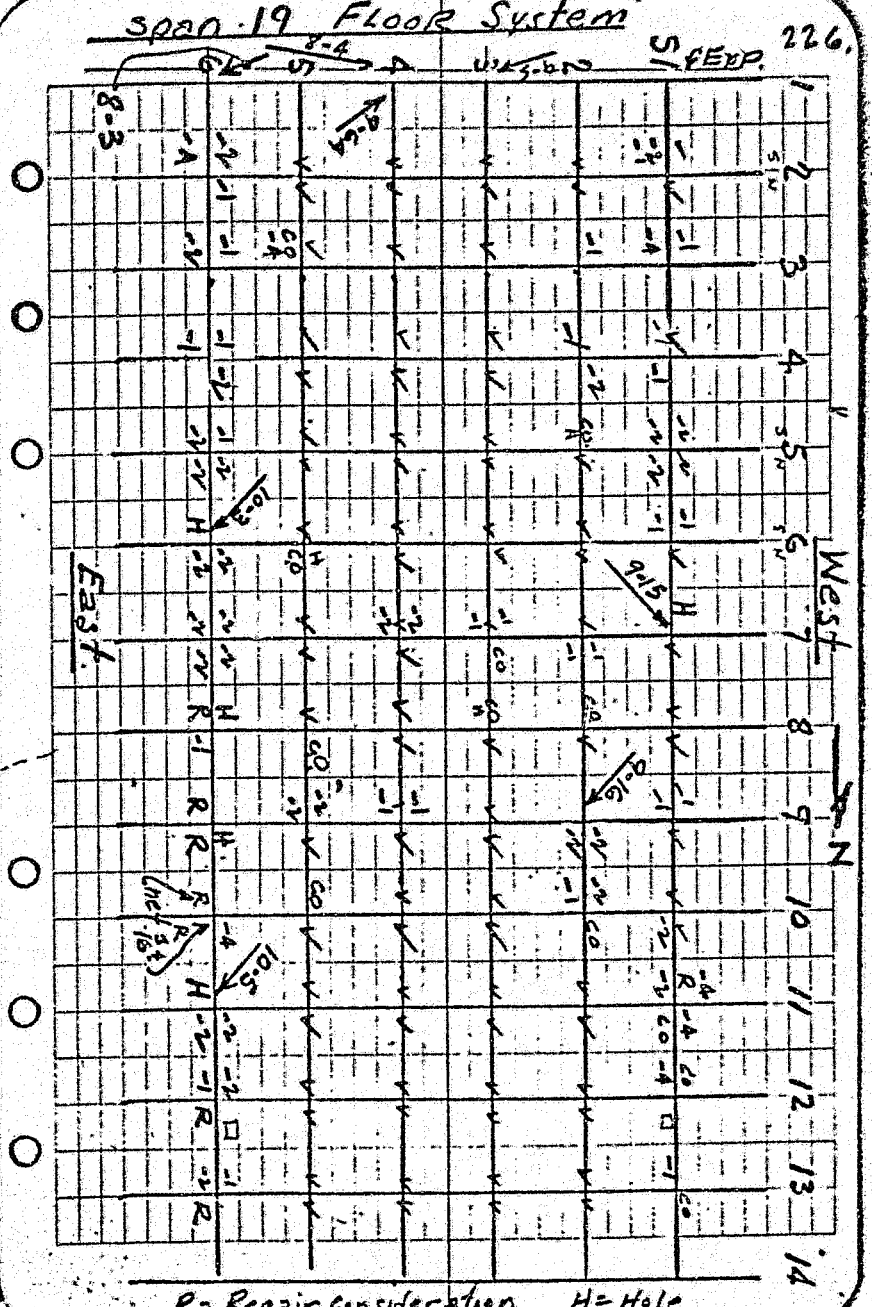
Span 19 Flr. Sys.

pp. 13 S. ~ S1, -1/16" 7"w full ht.
S2, 3, 4, 5, typ. scale, fair.
S6, 6"x7" scar -1/8 outside.
Inside, -1/16" 4"w. full ht.

p.p. 13 N. ~ S1, 2"ϕ c.o. @ Cope.
S2, 3, 4, 5 typ. fair.
LV S6, 10"w. scar, hole at top. upper half is paper thin. Net t web 1/8" ± or less, on lower half.

226.

Span 19 Floor System



11-20-68 Cloudy, flurries 26° Wiedwald 227

SPAN 19.

RIB BRACING:

P.P. L1

Struts, similar to span 17 L1

Uphill osl's of bot. flg gone at apex. Heavy pack-out at lacing conns., top & bot.

Water (now ice) collected in apex bot. Guss. pt. with riv. hds reduced and nuts badly corroded (photo 8-2)

Bent L1 is similar to all end bents.

L1-L2

E. Diag. - fair condition, pack-out at lac. conn at ~30% reduction. Uphill osl, bot flg, t = 1" ± 4

osl's top & bot flgs. have some cup outs

11-20-68 Wiedwald 228

SPAN 19 - RIB BRACING.

W. Diag. - Similar to E. Diag. 10 lac. conns. down. Uphill, bot. flg osl has more cup-out, full length. ~1/16 deep. Top osl's at apex ~1/8 at top guss.

L2 - Strut

uphill osl's gone at apex bot guss. & holes thru span. Vert leg gone on west & 1/4" thick on east. Over all very pop - Sc jagged thru out. 90% lacing conn. reduced ~30% to ~50%.

L2-L3: E. Diag. - 1/4 in cup-outs top & bot flgs. osl's. 11 lac. conn. pack-out with only abt. ~20% loss.

11-20-68 Wiedwald

SPAN 19-RIB BRACING 229

L2-L3 ~ W. Diag. Top flg o.s.L.
5 typ. cup-outs @ -3/16 ± on west side.
Bot. flg. E. o.s.L. scaled Full length, loss -1" ± with some loss into vert. leg.
1 lacing bar gone near L3. Apt. to packed out at conns. at -20 to -40% loss.

L3 - Strut Similar to L2

General - at Strut conns to Arch ribs. -1/8 loss in hor. guss. Pack-out into rib pls. with loss -1/8 ±. (Typ. cond. at downhill panel point all rib spans.)

At L3, West end, top flg. o.s.L. @ -1/8" on top.

11-20-68 Wiedwald

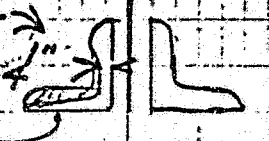
SPAN 19-RIB BRACING 230.

pp. 3 to 4 ~ E. Diag., typ. cup-out condition. 1" ϕ hole in o.s.L. 4" from pp. 4.
E. top flg., 2" from pp. 4. Scale on flgs. with general improvement in condition.

W. Diag., typ. scale on E. o.s.L. of bot. flg..
W. o.s.L., top flg, cup-out 12" long with net. t = 1/4" t, located 4' from pp. 4.

7 lacing conns. packed-out with loss of -20 to -30%.

L4 - STRUT ~ At apex guss. pl., bot. flg uphill o.s.L. gone on E. side.



Typ. Thru-out strut.
Look E.

11-20-68 Wiedwald

SPAN 19 RIB BRACING 231.

p.p. 4 to 5 ~ Diags, improved condition, with slight cup-out on top flg. o.s.L's at mid-span.

Strut L5 ~ in fair condition. Uphill o.s.L. of bot. flg. at 50% thickness at all guss. conns. Vert. Leg at 50% also.

p.p. 5-6 ~ W. Diag., 7"x3" hole in W. o.s.L. of top flg. at mid-span. (See photo-9-1)

E. Diag. ~ Typ. cup-out in E. o.s.L. of top flg.

Strut L6 - Good.

p.p. 6-7 ~ E. Diag., Typ. slight cup-out loss at W. side.

W. Diag, 5% age loss.

Wiedwald

Span 19 - Rib Bracing 232

p.p. 9-10 ~ E. Diag., Top flg. E. o.s.L, leg gone at mid-span.

W. Diag., Top flg. W. o.s.L, leg gone at mid-span.

p.p. 10-11 West Diag., 6"x2" ± hole in Top flg. W. o.s.L. at mid span.

Lacing conn. condition and Struts for p.p. 11 thru 14, also diags., would be similar to p.p. 1 thru 4.

p.p. 12 See photo 9-19, West conn. of strut to W. rib, Top flg. gone or reduced, Uphill bot. flg gone.

11-20-68 Wiedwald 233.

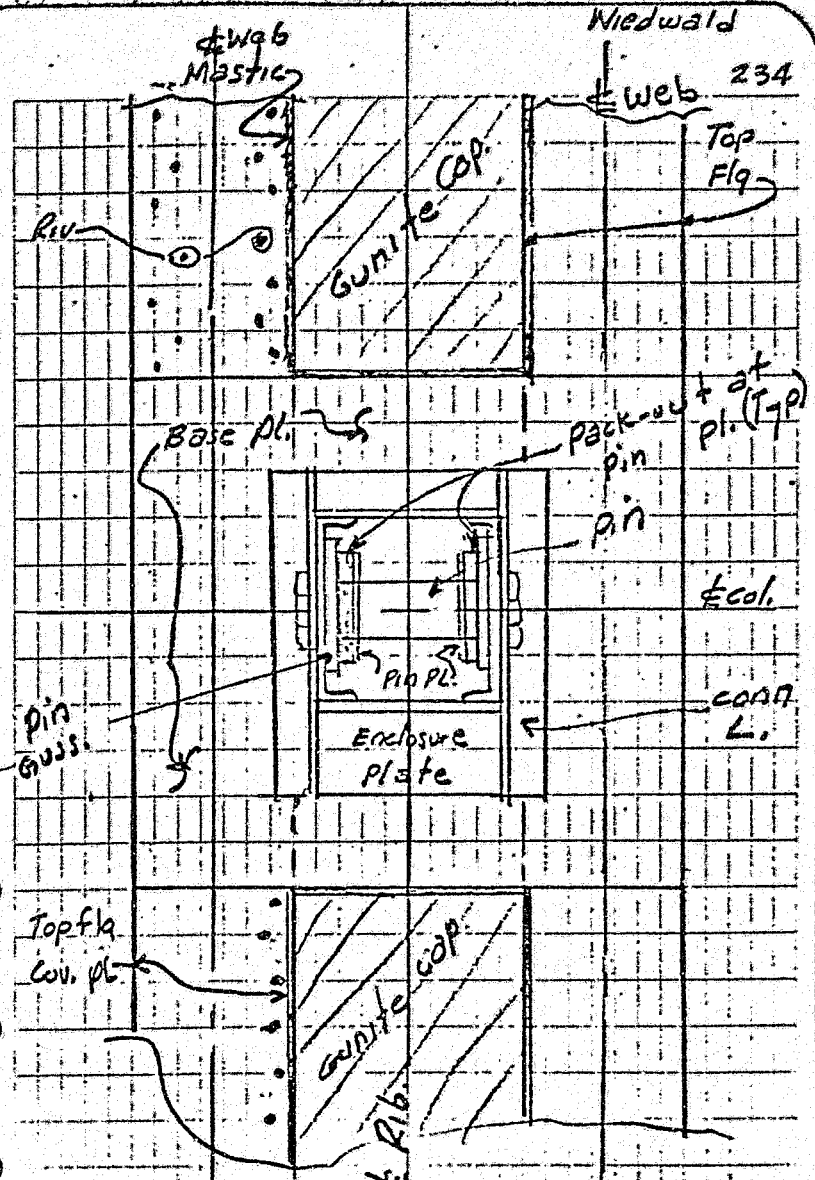
SPAN 19

General condition of Rib top flanges, Cols, & misc.

WEST RIB.

Bent 1: Typ poor condition as other end bents. Col. base inside, half full of dirt. Col. lacing, rib side, not bad, but, pier side, E & W. Web plates are packed-out from channel webs, at edges 1/4" ± ; sporadic up the col. Lacing conns. are packed-out at channel flgs., loss into flgs abt. 1/8" ±. Bar loss -10% - 20%. ; T bar at bot. abt. 50% ; abt. 8 bars from bot, one bar almost gone. Strut, hor. o.s.s are reduced 50% ±, as is strut lacing loss 50% to 100%. Diag. lacing dn. 30 - 50%. Diag. main mat'l better cond. than strut mat'l. Pack-out at diag, guss. pls. & strut conns.

Wiedwald 234



TYP. PLAN RIB TOP FLG. AT COL. BASE ~ SPANS 17, 19.

11-20-68 | Wiedwald

235

SPAN 19

West Rib, cont'd.

p.p. 1-2 ~ Gunite, at col. 1, erroded thru from dripping. Mastic gone and cracked loose from gun. & top flg. cov. pl. edges. At 2 corners cracked off, requires clean-up and replacement.

Col. 2 ~ Encls. pl. packed-out 1/2". Inside pin pls packed-out 2 bt. 3/4". Debris under pin, Scale on outside of pin nuts.

pp. 2-3 ~ typ. Gunite appears tight, but mastic is gone, riv. hds. loss slight, also flg. covers ok.

11-21-68

p.p. 3-4, Near 3, gunite tight crack 2 1/2 x 1" at West corner. Riv. hd. dn 20-30% at gun.

Col. 4, encl. pl. scaled, dn. hill, also col. base pl. Inside debris to bot. pin. N. encl. pl. packed-out 1/2".

11-21-68 Wiedwald

SPAN 19 - W. RIB. 236.

p.p. 4-5 ~ Gunite tight, typ. mastic, riv. hd.s, typ. . Inside Top flg cov. pitted, not much loss, weep holes drip. col. 5, typ. encl. pl.; 2" inches pigeon debris, inside. N. encl. pl. packed-out ½" at edges.

pp. 5-6. ~ Gunite, at 5, corner cracked off, inside, 8" x 3". W. top flg fair. E. or inside, top flg typ grief. Weep hole at 6 top flg. loss. Col. 6, built-up col. good.

pp. 6-7 ~ Scale on both top flg. covers. Much scale on both sides. Riv. hds. good. Gunite good. Calc. deposits on inside flg from weeps. Col. 7, scale at stool, & base pl. . Stool good

11-21-68 Wiedwald

SPAN 19 W. RIB. 237

p.p. 7-8 (middle panel)

W. top flg. good. Much dripping from back-pl. weep holes. Gunite good, mastic typ gone. Riv. hds. on inside at -40 to 50%. Much scale near p.p. 8 4'-5' along cov. pl. full width.

p.p. 8-9 - Top flg, inside, is chewed up, much scale. Riv. hds. dn. inside rows, at gunite, 50-80%, outside rows 20-30%. Outside top flg, fair. Gunite fair #9 Stool, loss -⅛" of col. conn. L's. Much scale at base, slight reduction.

pp 9-10. - Gunite good. Inside Top flg. cov. pl. abt 3' from 9 is corroded, pocked abt. -1/8" to -3/16". Riv. hds dn. to 3' from 9. Out. Flg. fair. Gunite near 10 fair.

11-21-68 Wiedwald

SPAN 19 W. Rib. 238

p.p. 10-11 ~ Base pl. good. Gunite good. typ. mastic, riv. hds. -40%±
col. 11, encl. pl. & base pl., pack-out. Inside, debris.
Pits & pocks on outside Top flg.
4" of paint scale on flg. inside.

Col. 11, encl. pl. pack-out
Scale into col. base pl.

p.p. 11-12 ~ Gunite cracked near 11.
W. top flg. typ., scale along gunite. several 6" ϕ pocks from weeps. Inside top flg. typ, riv. hds. -40-50%.
Loss of 1/8" at scaled points from weeps.
Col. 12. Gunite cracked off, 3"x3" near 12. Scale on L o.s.L. col. conns. to base pl.
N. Side of col., encl. pl. pack-out & scale on col. base pl.

11-21-68 Wiedwald

SPAN 19 W. Rib. 239

p.p. 12-13 ~ Gunite broken at inside corner abt mid-panel. Inside flg., top, typ. pocks. Gunite on out side begins to heave up 2" at mid-panel on down to 13. Crack across 4' from 13, gunite erroded from both cov. pls. Reinf. wire exposed & L Lacing can be seen near 13 where gun. corners are broken off & croded, feathered.
Col. 13, 5" debris above pin. o.s.L. of col. Conns. are scaled badly. Scupper location at col. 12.
Typ. panel condition under scupper. Much scale on dn. hill side of encl. pl. 4' col. base pl., -1/4"± loss in col. area.

11-21-68 Wiedwald

SPAN 19 - W. Rib. 240.

pp. 13-14 - Gunite broken near 13, at top flg. edges, but is tight abt. 1" ± below flg. cov. pls. Gunite poor, typ., for panels at ends where there is scupper drainage. (See photo 9-18) Gunite cracked & heaved 2" ± towards 14, reinf. wire exposed, gun. is leached out, sandy & damp. Top flg loss, generally, would be random, at scale pockets from weepage, avg loss - 1/8 to 3/16 t. at most.

11-20-68 Wiedwald

SPAN 19 241

General condition of Rib top flanges, Column bases, & misc.

East Rib - Span 19 sim. to span 17.

pp. 1-2. - All mastic sealer adjacent to gunite cap is gone or loose. Few fine cracks in gunite. 2 Rows riv. hds adjacent to gunite reduced.

Col. L2, typ. reduction of base plate, - 3/16 t, on low side of col. scale under encl. pl., & bowed out at edges.

pp. 2-3. - Typ. mastic loss, riv. hd. reduction at mastic.

Crack across gun. 2' N. of 2. Rib, inside web (W.), has large painted over scale bubbles.

Col. 23, typ., upper col good, inside pin plates packed-out 1" at inside guss. pls. Encl. pl. pack-out at E. W. edges.

pp. 3-4 - Typ. mastic, riv. hds dn. 40% ± at inside rows.

Col. 24., inside, pigeon dirt up to top of pin. typ inside & outside at base.

11-20-68 Wiedwald.

242.

Span 19

E. Rib -

pp. 4-5 - Gunite cracking off at corners near pp. 4. Replace loose conc., & mastic. Fine crack across middle of cap. Riv. hds. dn 40% ±

pp. 5-6 - Gunite, fine crack 1½' from col 5., Typ. mastic, riv. hds. reduction, under buck-pl. weep. also at inside top flg, near pp. 5 col. 6, scale at base.

pp. 6-7 Gunite broken off at 6, 4" x 4" at corners, slight lifting of cap here. Some decomposition for 3' to North, inside 1½' on outside. Riv. hds, inside 50%, due concentrated buck-pl. weepage, but not great loss of flg. thickness. Rib web, inside good some scale on bot flg. o.s.l.

11-21-68 Wiedwald

242-A

SPAN 19-E. RIB.

p.p. 7-8 - Inside top flg, body scarred, riv. hds. dn.; buck-pl. weeps are only abt. 3' above flg. & flg. is almost level at this panel, therefore, most weepage lies on flg. Riv. hds. dn. 50 to 80%; at gun. hds. are just lumps, flg. loss abt -8, -3/16 ± about half. E. flg. better condition, paint bubbles. Gunite fairly tight, with dry mastic. Col. 8, good., base pl. good. Much pigeon droppings everywhere on f.b. o.s. sand bracing gussets. 6" high.

p.p. 8-9 ~ W. flg., painted over scale. 40-50% riv. hd. reduction at gunite. Gunite tight. #9 stool. - collect moisture on high side of base, requires severe cleaning, -1/8 ± matl. Paint laminated about 1" ±

11-21-68 Wiedwald 243

SPAN 19. E. Rib

p.p. 9-10 ~ Top flgs., typ. Gunite corner broken at 7 6"x4". Fine crack at mid-panel. Calc. on top flg. Col. 10 - typ., but encl. pl. tight.

p.p. 10-11 ~ typ riv. hds at mastic. Slight improvement in cond. 3 pocks in cov. pl coinciding with buck-pl. weeps. At col. 11 gunite bad for abt. 6". Col. 11 (see photo 8-5) worst pigeon drop condition of all spans. Stacked 2-3" above bot tie pls. Typ. Scale on base pl.

p.p. 11-12 - typ. Col. 12. Gunite bad at col. Debris, inside, 6" above pin.

11-21-68 Wiedwald 244

Span 19 E. Rib.

p.p. 12-13. (Scupper above) Gunite poor, lower 2/3 of panel heaved, 1 1/2" ±. Moss at edges. At 13, gun. is decomposed, sandy. Should replace panels 12-13, 13-14. Maybe 1' foot in depth to be removed. Col. 13. Inside, pigeon drop. 1" over pin. Typ. scale at base at encl. pls.

p.p. 13-14 Gunite poor, heaved for half span at 14, wire reinf. and scaled ∠ lacing exposed. Col. 14 Inside full of dirt.

11-8-68 42° Rain Cloudy Wiedwald

245

Inside pier 18: Rib Anchorages.

At E. pins - debris at inside of pins - pigeon droppings filling around pins.

Top flgs. corroded, moisture under scale.

Nuts down 50% on (Top flgs) 1'± splice pls @ both castings. (17N & 18S)

18S. is corroded more. 50% Riv. hds. reduced 50% ±

Matl. loss top flg. loss - 1"± up to shield on 18S.

17N. similar to 18S. Riv. hds. better shape.

At W. pins better condition.

Throughout pier floor ~2" or 3" of pigeon droppings & conc. spalls.

11-8-68 Wiedwald

246

Inside Pier 18

General filthy condition of Arch anchorage of Arch rib 17E, N. end & 18E, S. end, are shown in photos 6-13 & 6-13. Debris is lodged behind pins at the yokes. Photo 6-14 shows scale on top flg. of Rib 18, & splice plate to casting. Photo 6-15 shows general corrosion around pin retainer and anchorage yoke (E. elev. of 18 E. Rib.)

E. & W. pits are similar.

Inside Pier 19 - Anchorages.

Condition is similar to Pier 18.

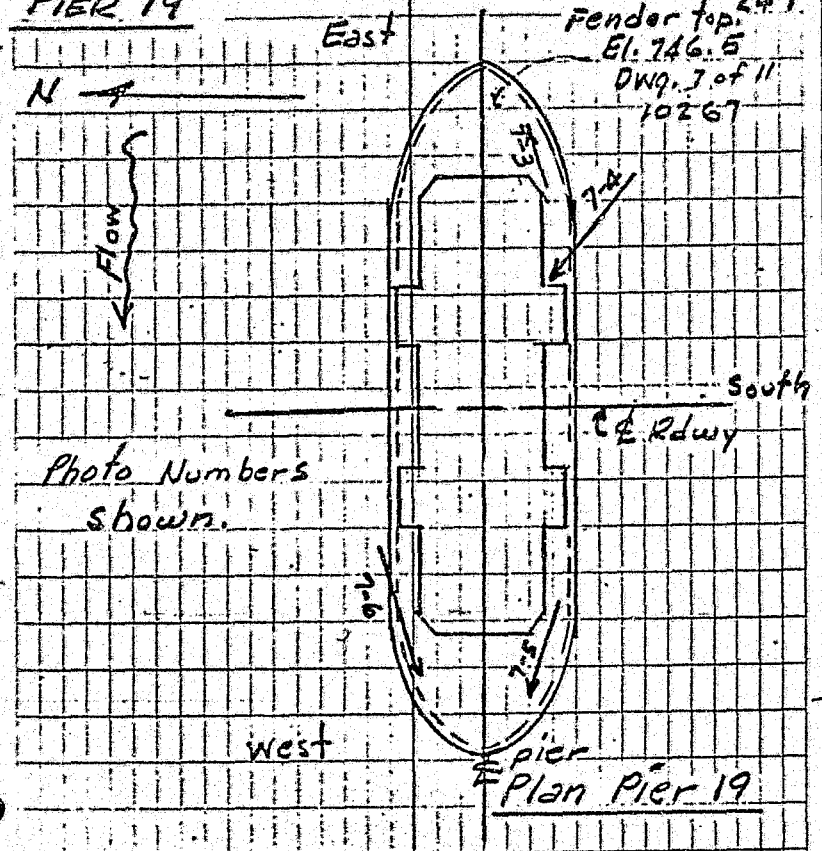
E. Ribs. ~ Bot. flg. o.s. L.S. corroded. Photo 7-14 shows S. end, Rib 19 E., corrosion & pigeon debris on top flg. under shield; splice pl. to casting, lower portion of pho. 2"-3" hump on top flg. cov. A.

W. anchorages similar to E.

Wiedwald

247.

PIER 19



Photos show poor condition of coping & floor at El. 746.5

11-18-48

Wiedwald

248.

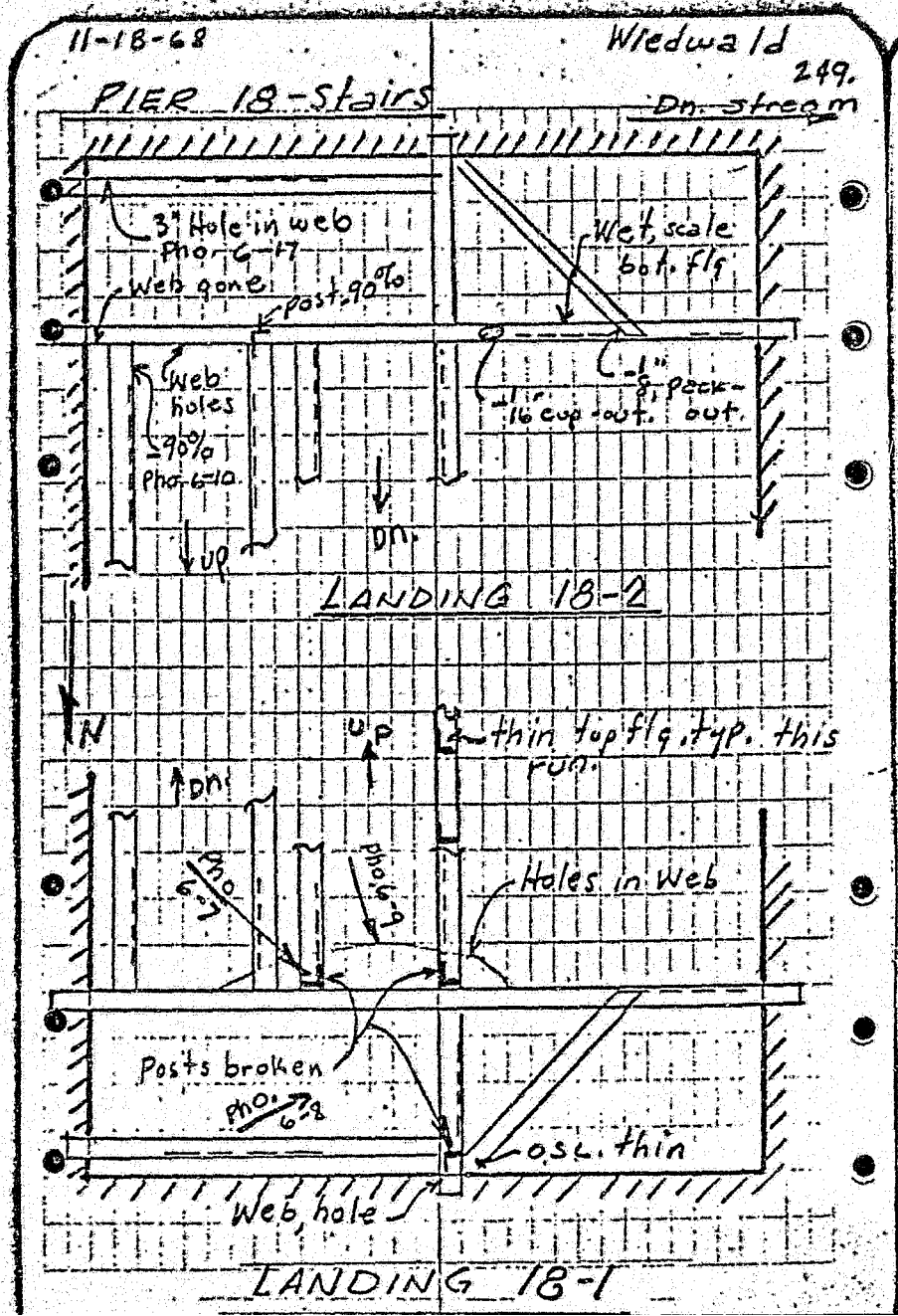
STAIR & LANDINGS ~ PIERS 18, 19

Trap door frames, at sidewalk level, are of make-shift repair. At Pier 19, the door frame has wobbled enough to crack out the recently placed sidewalk concrete — See photo 8-8. & 9-4 for pier 18. The first run channel stgrs are corroded deeply at treads due the wet condition from leakage. see photos 3-19 A & 6-19 for pier 19. The serious corrosion of stair membes is shown on respective sketches, along with additional photos.

A replacement contract is now in progress along with navigation light replacement.

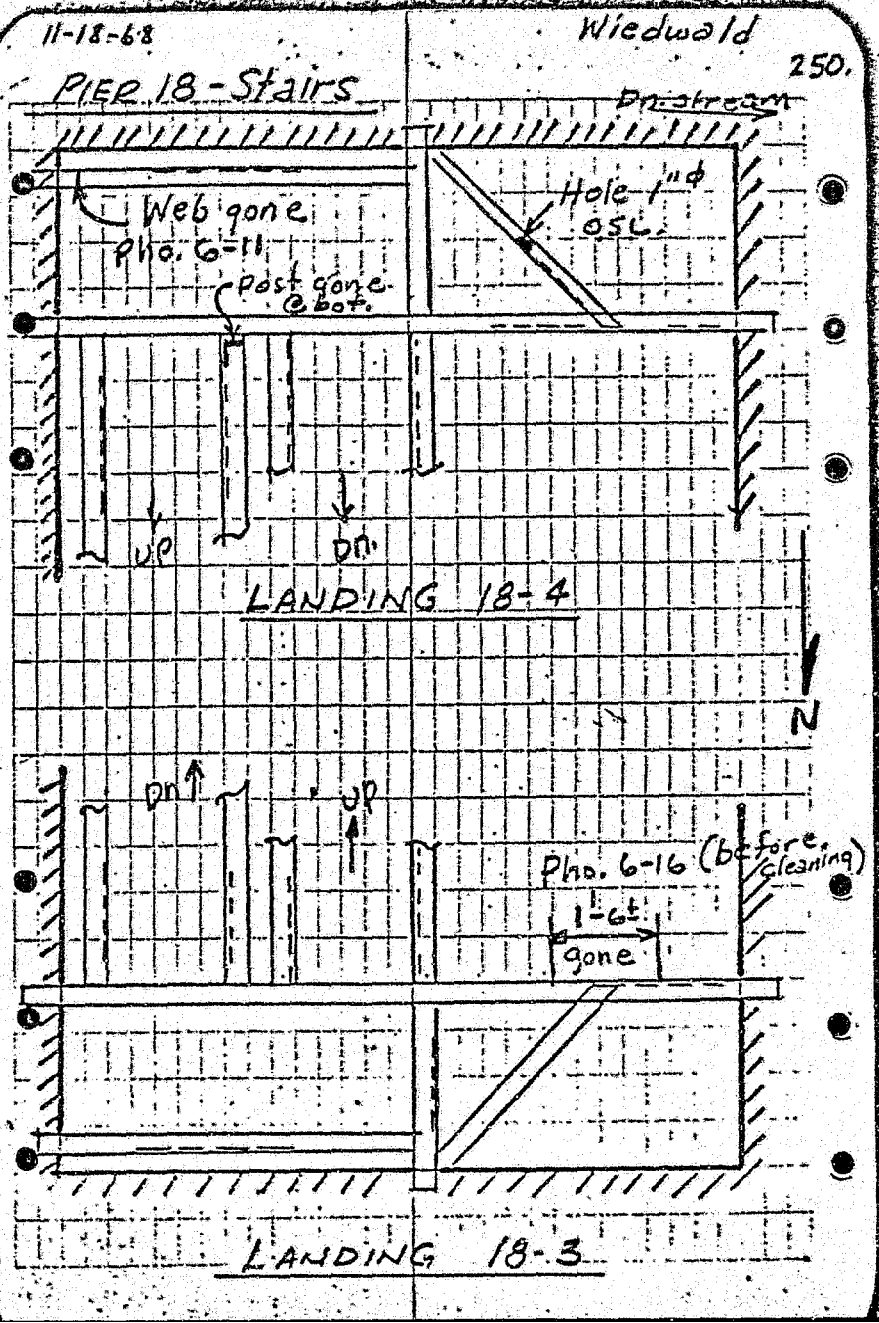
11-18-68 Wiedwald 249.

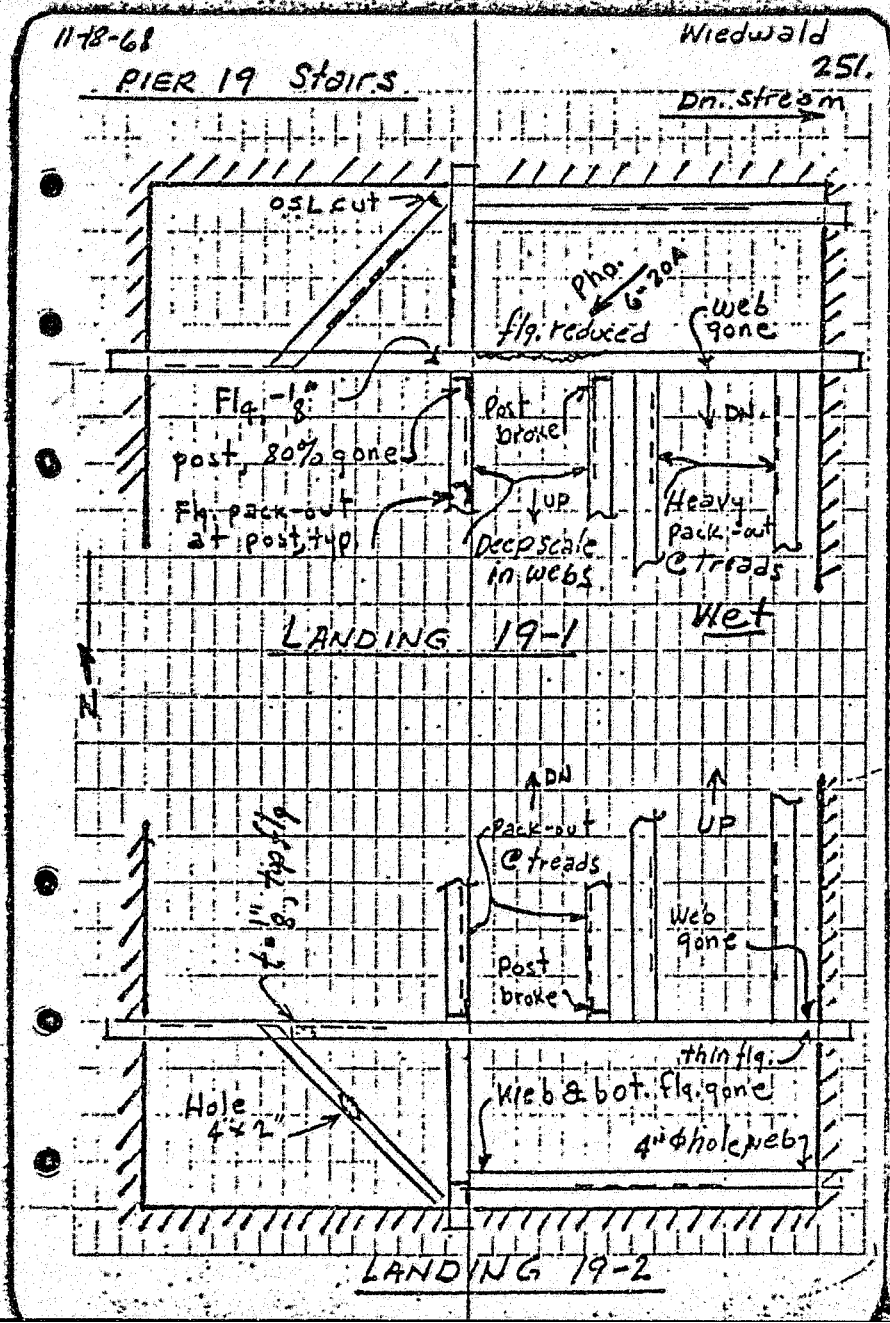
PIER 18-Stairs Dn. stream

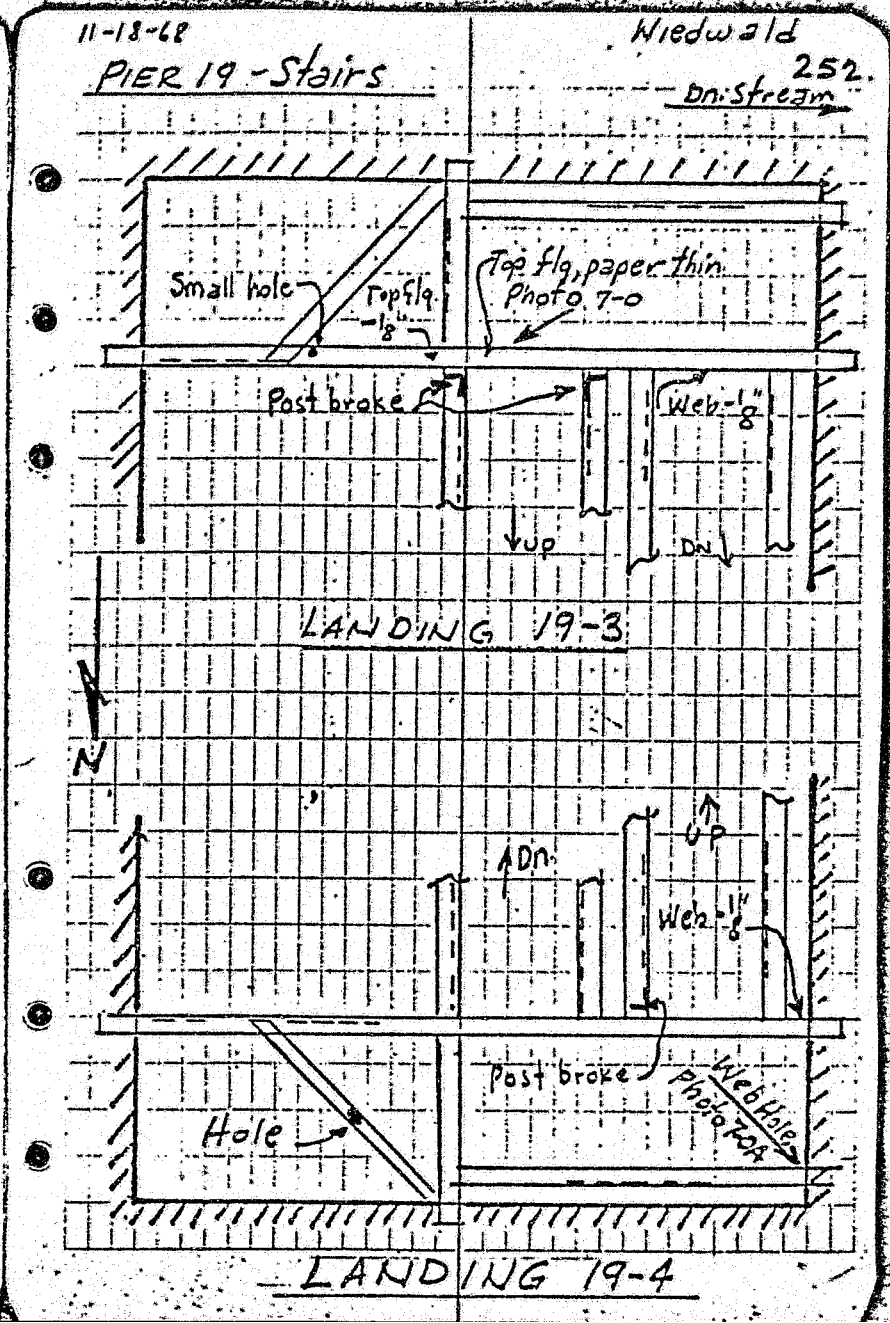


11-18-68 Wiedwald 250.

PIER 18-Stairs Dn. stream




11-18-68
Wiedwald
251.
PIER 19 Stairs
Dn. stream
OSL cut
Pho. 6-20A
flg. reduced
web gone
Flg. -1/8"
post, 80% gone
Flg. pack-out at post top
Post broke
UP
Deepscale in webs.
DN
Heavy pack-out @ treads
Wet
LANDING 19-1
N
DN
Pack-out @ treads
UP
Web gone
Post broke
thin flg.
Web & bot. flg. gone
4" ϕ hole web
Hole 4x2"
LANDING 19-2


11-18-68
Wiedwald
252.
PIER 19 - Stairs
Dn. stream
Small hole
Top flg.
-1/8"
Top flg, paper thin
Photo 7-0
Post broke
Web -1/8"
UP
DN
LANDING 19-3
N
Dn.
UP
Web -1"
Post broke
Web Hole
Photo 20A
Hole
LANDING 19-4

10-10-68 Wiedwald

253

PIERS 17 & 20

Companion piers 17 & 20 are in similar poor shape where the Arch ribs enter the piers. The N. elev. of Pier 17 is comparable to S. elev of pier 20. Photo K-19A (Pier 17) shows spalling condition at the W. rib. All pit shields should be replaced or revised. Pit drainage pipes should be replaced or lengthened. Photo K-20A shows the E. rib at Pier 17.

Photos 10-1, 10-2 show spalling & deterioration at Pier 20. The aggregate is loose, damp and can be knocked off. Under the shield the pocks are 4" ± deep. At the N. elev. of pier 20, a fine crack shows at abt. the E. center, vertically, from near the pilaster seat elev. dn. the pier.

12-5-68 30°, Blizzard Wind 40MPH Wiedwald

254

Inside Pier 20, North Anchorage of Arch Span 19.

Anchorage pits, Arch rib material, end castings, pins, yokes & built-up anchorages in same deplorable condition as South anchorage of Arch span 17, inside Pier 17.

West Rib Anchorage: (see photos 10-6, 10-8, 10-9, 10-10)

Rib web rivet hds. are reduced about 20% avg. under pit shield and ahead of end casting, some hds. are mushrooming with scale. Thick bubbles of scale have been painted over.

The nuts on the rib web to end casting conn. ∠ (8 x 8 x 3/8 O.S.L.) are shapeless and almost corroded away.

The nuts on 12" splice plate across rib top flg. and connecting to top of casting have no shape, & gone 90%.

12-5-68 Wiedwald

SPAN 19 N. Anchorage 255

West Rib, continued:

Pin is not covered with dirt & debris; damp around yoke & pin with heavy scale.

Riv. hds reduced 50% on ea. side of the anchored yoke (the built-up anchorage.) The osL's of the yoke stiff L's, E. & W. sides, have 2 rivets missing. (Towards pin) (photo 10-8)

Between the stiff. osLs there is 1/2" pack-out. The bot. set of yoke stiffs. are half buried in debris & dirt.

Pin NUTS are corroding, & becoming rounded.

Yoke riv. hds. down. 50%.

Rib west web riv. hds. corroded, but light loss.

Rib. conn. L osL (8x8) to end casting ~ nuts typ. reduced.

8x8 L loss abt. 1/8".

[Refer Dwg. 10357 (sh. 17 of 39)]

12-5-68 Wiedwald

Span 19 N. Anchorage 256.

EAST RIB ANCHORAGE: Hole was cut in shield at W. web to gain access to anchorage pits.

Pin is half submerged in debris, dirt & pigeon droppings. More scale on pin & yoke.

Scale & loss of yoke stiff L's similar to W. anchorage, with 2 missing rivets on ea. side, & 1/2"± pack-out betwn osL. of stiff L's.

At back slope face of conc. pit, where built-up yoke is anchored ~ 4x4 □ washer on Anch. bolt, is corroded away (E. side, top), NUT is almost gone, & Anch. bolt corroded to point 2 1/2"± projection. Riv. hds are down abt 90% in legs of 8x8 L. at this side. On W. side, yoke stiffs. same. Anch. bolt abt 1" or 1 1/4" diam. 4x4 wash. abt 3/16" thick. Bot. yoke stiffs. buried.

Span 19 N. Anchorage

E. Anchorage, cont'd. ~ Moist debris, & pigeon droppings holding moisture in pit.

Scale on pin hubs; pin nuts have no shape, dampness on hub, pin & casting yoke. Rv. hds - 50± on yoke.

Rib top flg. riv. hds. down 20%, no paint. Splice plate (12") scaled, typ.; nuts 90% gone.

E. web, riv. hds. mushrooming @ 20% full depth of web.

8x8 conn. L @ end casting, nuts, no shape. Thick. of 8x8 L leg abt. ½" (¾ orig.)

At W. web ~ 7 nuts at conn. typ.; ¼" pack-out betwn 8x8 o.s.L. & end casting flange.

Measurement of top fin of built-up yoke near pin = 2¾" (orig. 2⅞")

Span 19 N. Anchorage.

E. Rib Anchorage cont'd: (See photo 10-13, Looking in, at bot. flg and W. web of E. Rib, towards end casting conn.)

At end of 1" bot. cov. pl., the o.s.L. of bot. flg. meas. 5/16" thk. (orig. ½") The bot. cov. pl. meas: abt. ⅝" (orig. = ¾") The 1" plate is down - ⅛"±.

The riv. hds. Top & bot. are reduced abt. 95% in this area in the flg. Ls., from the Rib lateral bracing @ L14 back into anchorage pit at the end casting conn.

Generally, inside pier wells, the floor is covered with spalls, Junk, pigeon debris, 3"±, with dampness under side-walks & inside anchorage pits.

12-6-68 31st. BRIDGE — Wiedwald

NORTH APPROACH SPANS — 259.

SPAN 20

Top of West pilaster for fixed shoe for girder G20 W. - Concrete spalled off front of pilaster in front of bearing grillage beams. (Similar condition exists at Pier 17 of the S. Approach span 16, N. end.)

The plate on front end of grillage is exposed and corroded to knife-edge on top. the remainder of this plate is in poor condition. Small 1"Φ ± hole in seat at the N.E. corner of shoe. Pigeon droppings piled up on shoe and anchor bolts. The condition of the E. seat is similar. The tops (seats) of these pilasters require cleaning and replacement of conc. cover over these front plates. The seats appear dry. but morsture has been deteriorating the conc. on these front edges. (Photo 10-15)

12-9-68 2° Snow, 20° Wet. — Wiedwald

N. Approach Spans — 260

SPAN 20 - Generally the floor system in this span & span 21 is in very fair condition. Only considereble corrosion exists at the curb detail vert. plates where they both usually near floorbeams. Stgr. corrosion & condition is as follows:

Stgr. #6 - Conn. to F.B. 2, S. side, 6"Φ scar on outside web near T/flg. cope, -1/16" ±. Buckle plate, some rusting along top flg of S.6. but, not the typ. loss of the river spans.

Stgr #6 - conn. to F.B. 3, N. side, outside web, scale along fillet of top flg for abt. 2'. no serious loss.

SPAN 21

at F.B. 1 S. - S6 conn., at cope, some cup-out, -9/16 inside & -1 1/8 outside.

12-9-68 Wiedwald

Span 21 Flr. system cont'd. 261.

at FB 2-S. 56, scale under top flg -1/16 outside; -1/4 off top flg. near curb pl. butt. conn.

at FB. 2-S. 51. outside web -1/8 along top flg., 2' long. L shaped scar at bot. flg and toe of conn. L., -1/4".

Thruout Spans 20, 21, pigeon dropping piles are 6"± on all FB. bot flg. o.s. Ls. Pigeon population thrives in this area due to location of animal pens to E. of these N. Approach spans.

Photo

Patterson
Dec. 11, 1968
T. 0° to 11°. 262.

Bent C-21

Concrete piers in good condition except west side of W. pier spalled off at top edge. Reinforcement bars exposed. South side of W. pier spalled off as shown in bent elevation. (See photo 10-18A)

Structural steel generally pock marked with scale built out under paint. Pock marks seldom penetrate surface more than 1/8" and do not reduce sections more than a small percentage.

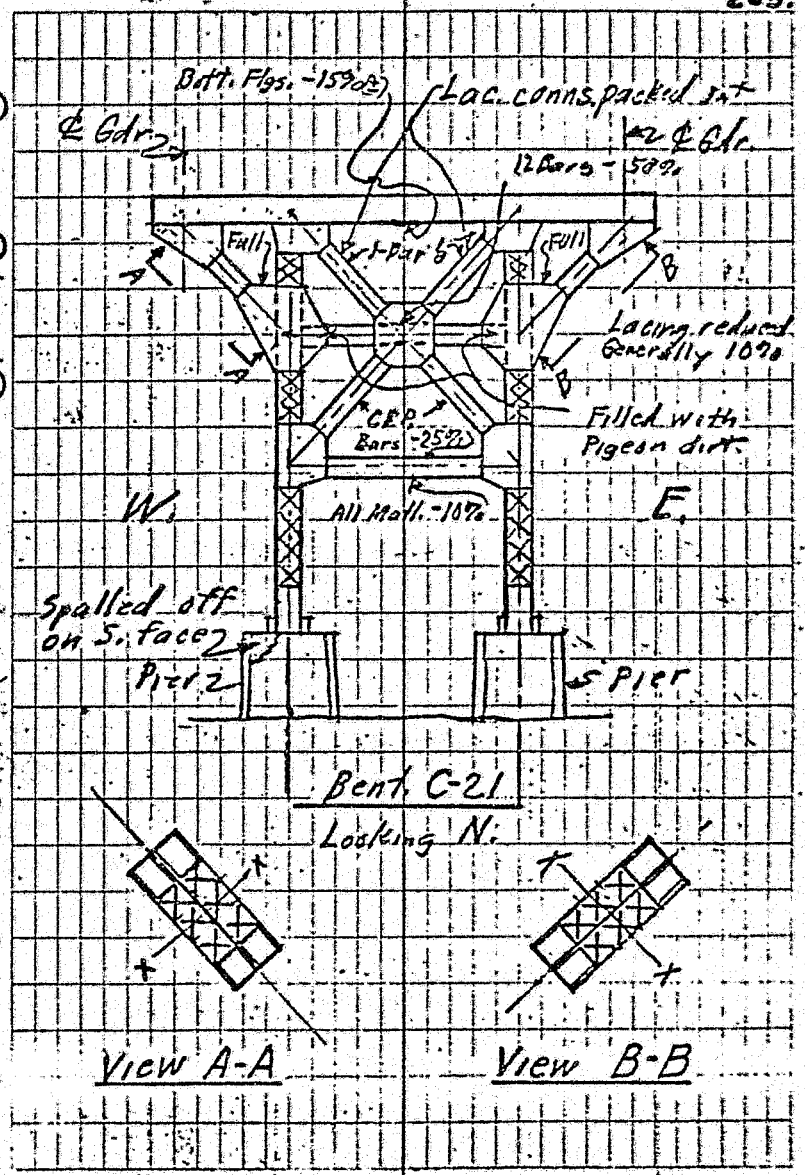
Rust and dirt has filled in the space between webs of back-to-back chanels. There is some section loss in these webs. The exact amount cannot be determined. There is an estimated loss of 1/2 sq. in. of each center chanel web at section X-X. See View A-A & B-B.

The bent needs to be sand blasted & painted to prevent any further corrosion. (Photo 10-18A)

12-11-68

Patterson

263.



Patterson
Dec. 12, 1968
T. 1° to 18° 264.

Bent C-22

Concrete piers are generally sound. W. side of W. pier is spalled off along top edge. East side of E. pier is spalled off along top edge and carried around to north top edge. (See photos 13-19, 10-20A)

Steel is generally pock-marked under paint same as Bent C21. Pock-marks do not decrease sections more than a small percentage.

Sections X-X has reduced sec. area of center channels on the back to back faces of webs. Extent of reduction cannot be determined. Could be as much as 30 %.

Lacing bars are heavily corroded. Many have lost abt. 50% of section and some 100 %. See locations on sketch. All lacing on Horizontal members is reduced from 15 to 25 %. These boats are filled with Pigeon nests. Members should be thoroughly cleaned. Plates should

12-12-68 Patterson 265.

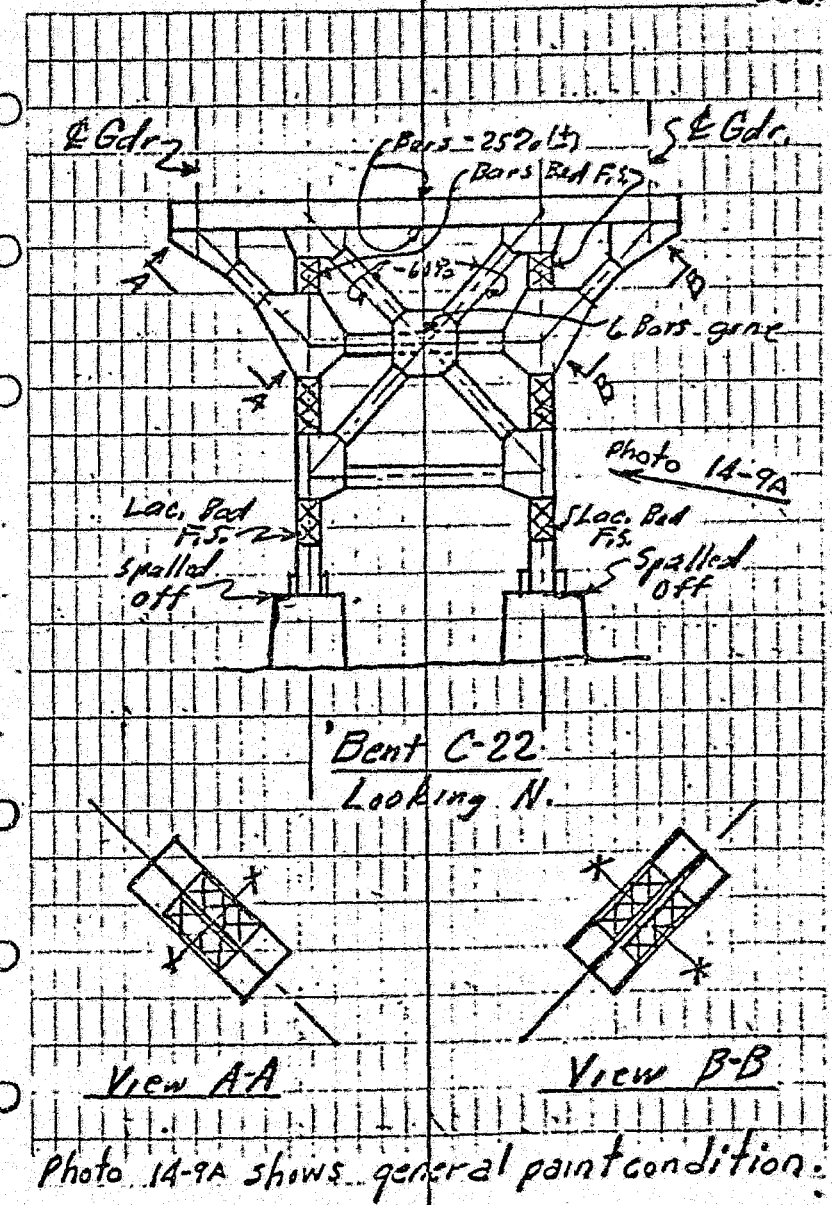


Photo 14-9A shows general paint condition.

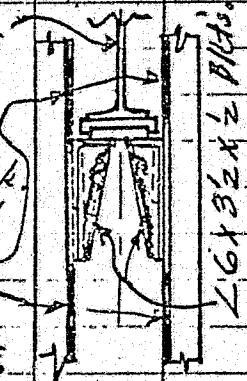
Bent C22 cont'd

be installed to replace lacing and all pockets and holes closed off to eliminate the corrosion caused by pigeon debris.

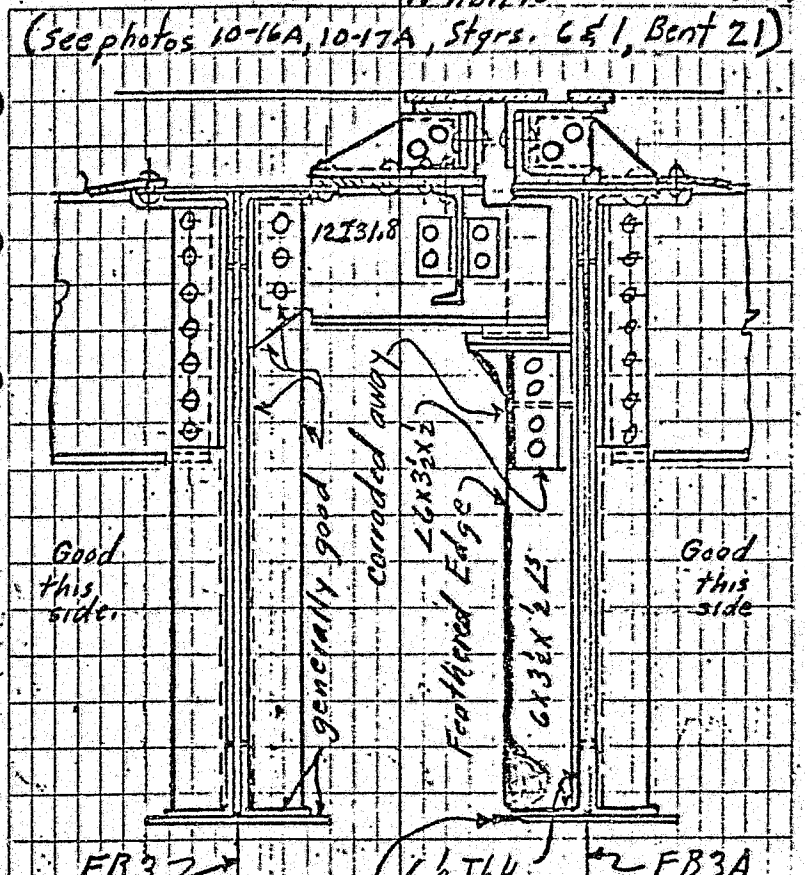
Greatest damage to bent is from salt water washing down through the exp. dam & running over bent. Exp. dam of better design should be installed to eliminate this condition.

Expansion dam supports on FB3A are over 50 % corroded away. The exterior supports are practically gone. The stiffener angles, 6x3½x½ supporting the brg. pls. for the 12I31.8's have outstanding legs of wedge shaped cross-section — from "0" thk. at edge to 5/16 thk. at fillet.

O.S.L.'s of bracket Ls 6x3½x½, corroded off.



(See photos 10-16A, 10-17A, Stgrs. C & 1, Bent 21)



Typical section and exterior supports for Exp. dam at bents C21 & C22.

Patterson
Dec. 12, 1968
T. Abt. 10°

268.

All exp. dam support seats should be completely rebuilt or entire expansion joint re-designed.

FB3A at both bents C21 & C22 are so heavily corroded on the side toward the exp. joint it appears the whole beam should be removed. Heavy web corrosion; stiffeners are corroded off at bottom. Bottom flange L reduced 50 % & flange plate reduced as shown in sketch.

Bronze brng. plates are cracked off through bolt holes on exterior supports.

All elements on joint side of FB3A should be replaced.

12-12-68 12° ± Wiedwald

269

N. Approach Spans.

Observations from ladder working off roof of Rendering Plant.

Vicinity of spans 22 & 23.

E. Facia at Pier 23.

The facia bot. flg. L o.s.l. under newel post is reduced 50% for width of N.P. for about 1' in length. Scale is building up inside the post. The post conn. as seen from inside the facia bm. is good.

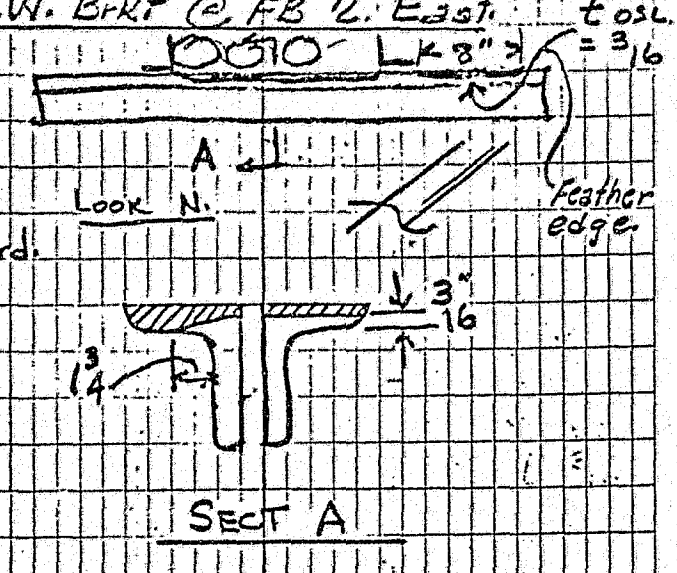
The facia expansion detail is in poor condition - See photos 11-0A, 11-0. Pack-outexists at the slotted holes. Top bolt & washer are gone in the bot. exterior plate. Photo 11-3A shows a view of the inside of the facia expansion. Movement of 1" is shown by scraped paint at the slots.

The single L fac. top flg. o.s.l. @ the wire fence support abt 6' N. of Pier 23 is corroded away. (see photo 11-1A)

12-12-68 Wiedwald 270

E. Facia. Span 22.

S.W. Brkt @ FB 2. East.



12-12-68 Wiedwald 271

N. Approach Spans.

The typ. condition of the fac. top flg. osL is feather-edged and reduced 50% or more. See photo 11-2A at 1st. N.P. N. of Pier 23. The use of the 6"x¼" plate at bot. of the fence at the top facia L has trapped dirt & moisture and therefore hastened corrosion of the fence L osL and the 6" plate itself. This is a typ. condition.

Top flg. osLs of sidewalk brkt. N. @ Pier 23 are good although have some painted over corrosion. Sidewalk expansion L osL (N.) reduced 50% - see photo 11-3A.

Side walk brkt. @ F.B. 1. top osL's have little loss. Conduit sliding over these legs may be aiding cleaning during expansion or contraction of bridge or conduit.

12-12-68 Wiedwald

N. Approach Spans 272

At 2nd. N.P. N. of Pier 23, the facia bot o.s.L. is knife-edged. The riv. hds. in the vert. leg of this L, under the N.P. are reduced to "0".

At Pier 23, the expansion side at the tie down shows about 3/4" movement to the north on the bronze sliding plates. The west bearing is same as the east.

West Facia:

Span 22, at FB1 ~ top flg o.s.L. of facia - similar to E. side, with typ. condition of reduction to feathered edge -

S.W. bi-kt @ FB2. - top of o.s.Ls not painted recently, but in good shape.

Wire fence bot. at top fac. L is typ. corrosion at 6x1/4" pl. S.W. bkts good to FB1, Span 23.

12-12-68 Wiedwald

N. Approach Spans. 273

West Facia: Span 23

At Pier 23 Exp. side (N.) Curb detail at S1 top flg. is poor with heavy pack-out at this joint.

Main Girder material, & paint are good in Spans 22, 23, But, top flgs. of Main Girders are not painted thru out the N. Approach Spans. The top cov. pls. & riv. hds are pocked, but not much loss in material.

The S. o.s.L. of S.W. expansion dam is reduced to 1/8" over the main girder.

W. Facia Exp. @ Pier 23, 2 bolts & washers at top gone. Similar condition to E. facia.

Photo 14-0 shows fire hazard buildings under Spans 22 & 23.

12-10-68 18° Wiedwald

N. APPROACH SPANS. 274

SPAN 22 - Flr. System. - Stgr. conns. to respective Floorbeams. >

S1 is the W. exterior stgr.

S6 is the E. exterior stgr.

N. Side of FB. Bent 22, All stgrs. typ. at top cope.

℄ F.B. 1 - S. side:

S6 - W. side of web, 6" ϕ scar, - 5/16 deep, scar continues along top flg. fillet for 9". Inside, or E. side, 4x2" scale at top cope.

S1, S2, 3, 4, 5. are typ. fair, with only approx 3" ϕ scale scar at the stgr. top flg cope at conn. L.

F.B. 1 N. Side:

S6 - outside (W) old scar 9" wide, full depth of web, - 3/16 ±. Inside, old scar 3" W., - 1/8 ±.

S2, 3, 4, 5 typ. fair, same cut-out at top flg. cope.

S1 - Stain at cope, - 1/16 ea. side.

B.R. along S1, & S6, 3" to 5" wide scale at inside top flgs. in first 2 bays.

12-10-68 Wiedwald

N. Approach SPANS. 275

SPAN 22 Floor System:

F.B. 2 - S.:

S1 - 5" ϕ c.o. @ top cope, ea. side, - skin loss.

S2 - 7" ϕ do - 1/16 ea. side.

S4 - do do, pumping B.R.

S3, 35 scale, typ. fair.

S6, 6" ϕ c.o. - 3/16 ± out.; in, 2" ϕ @ - 1/8 @ Top

Along S1 @ top flg. & Ext. R., FB1 to FB2 panel, 6" wide ± - 1/4 loss gouge. F.B. Bot. ost. under S1 is painted over scale. Similar pigeon piles in area.

F.B. 2 - N.:

S1 - 7" ϕ c.o. ea. side, - 1/16" total loss.

S2 - 1/2" ϕ Hole, 1" down from cope.

West side - 6" □ scar @ cope, - 1/4"

East side - 3" ϕ scar do ~ Net

Web thickness at top is paper thin for 3".

S3 - 4" □ scar, - 1/16" ea. side.

S4 - Scale, painted, fair.

S5 - West side - 6" w x 4" dn.

East side - 3" ϕ c.o., Net is paper thin @ top 3".

S6 - 7" ϕ c.o. both sides, - 1/8 ea.

Remainder web, ok.

Buck. R. P.O. @ S6. Top flg. Gen., no paint on Main Girder top flgs.

12-10-68 Wiedwald

N. APP. SPANS. 276

SPAN 22 - Flr. Sys.

F.B. 3-S.:

S6 - outside -3/16, inside -1/16, scar 8"x4".

S1, S3, typ. fair.

S5. 3" long hole at cope in 6"x6" scar, net ~ thin at top.

West side - -1/8 ± from pits.

S1. - scale only, ea side. Web is good here in spite of deterioration (hole) in F.B. top cov. pl. extension to outside.

F.B. 3-N:

S1 - old scar 4"W x 7" dn, outside -1/8 ±

S2, 3, 4, 5 Scale at cope - typ. fair.

S6 - Scale only ea. side

Along top flg. inside, typ. B.P. scale.

12-11-68 14°

S. F.B. @ Pier 23 - S. Side:

S1 - Scale, ea. side

S2 - Buckle-pl. pumping, wet & pitted 12" W. scar, west side, -1/8". Along bot. flg. fillets, trailing scar 2" lg.

E. side web, scale only.

F.B. bot. flg. osl. -1/8" on top. P.O. at toe of conn. L and stgr. web.

12-11-68 0° + Wiedwald

N. APPROACH SPANS SPAN 22 cont'd. 277

S. F.B. @ Pier 23., S. Side cont'd.

Stgr. S2 cont'd ~ P.O. at stgr. bot. flg. cope and the long, full depth Conn. L (or F.B. stiff.) -1/8 ± osl.

S3.

S4, 6" ϕ, -1/8" ea. side, scar 8" W.

S5. 1" Hole at cope, 2" long hole along top flg.

West side - 6"x6" scar.

East side - 8"x6" scar.

Corr. at bot flg cope at stiff sim. 2.

S6. West 10x5" -1/8"

East 14" W -3/16" full depth deep pits.

3" high trailing scar -3/16 along bot flg fillet.

Conn L at bot flg cope is feathered, 12" below stgr. is full sect.

Loss at stgr. -3/16 from osl.

F.B. top of bot flg. requires sand-blast.

Main Girder E. typ. pocked no paint, pigeon droppings.

12-11-68. Wiedwald

278

N. Approach Spans.

SPAN 23.

N. FB @ Pier 23 - N. Side:

S1 - outside, scar 10"W x 7"dn, -⅛±
inside scar 7"W x 6"dn, -⅛±

Along bot. flg fillet, trailing scar 3" high, -⅛" 5' long. Bot. flg reduced slightly.

S2, 3, 4, 5, good.

S6 - inside, 12"W x 6"dn, C.O. @ top.
outside, 14"W x 15"dn, -⅛
Net tweb @ top = ⅛±

F.B. top flg cov. pl. extension, poor, deteriorated.

Main Girder pitted on top cov. pl, no paint

FB 1-S.

S1 - outside, 12"W, -⅛ ea. side.

S2, S3, S4, S5, typ. c.o. @ cope, fair.

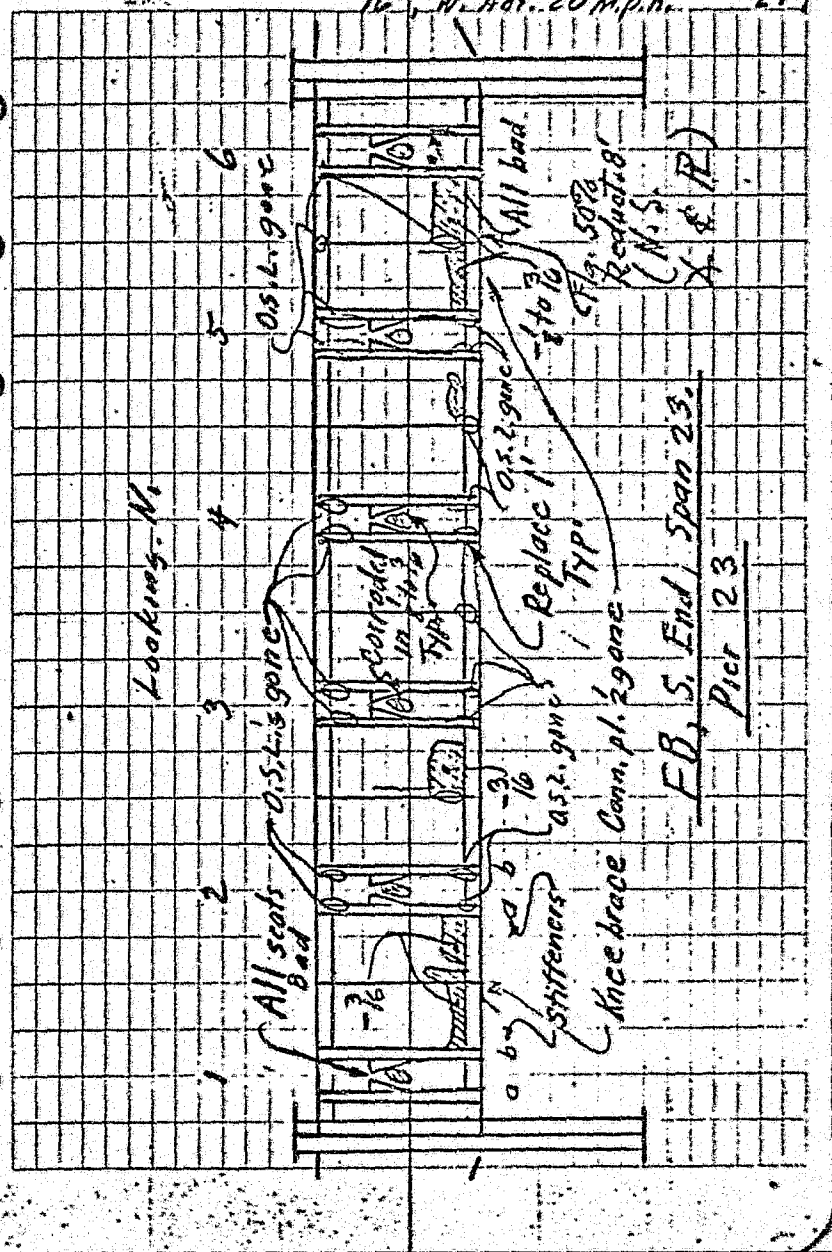
S6 - out. 7"W x 6"dn. C.O. -⅛
in. 6"W x 6" scale.

P.D. @ stgr. bot. flg cope at stiff. O.S.L.

At F.B. bot flg. Web stiff corrosion 2" up O.S.L.

Wiedwald & Pattison
Jan. 8, 1969
16°, W. Abt. 20 m.p.h.

279



12-11-68 Wiedwald

N. Approach Spans 280

SPAN 23 Flr. system.

FB. 1 — N. side:

S1. - 2" gash at cope & under top flg

S2. Similar to S1, scar 4" lg. Horiz. w/scale remainder on webs.

S3, S4, scale typ. fair.

S5. 3" Φ c.o. at cope Remain. good.

S6. out. - 10" W x 7" dn. - 1/8"
in. - 8" W x 6" dn - 1/8
scale, the remainder

12-18-68 Patterson Wiedwald

FB. 2 - S.:

S1 - Both sides web - 7" W x 12" dn.
- 3/16" out. on E. side - 1/8 on down.

S2 - 1" Φ Hole at top stgr. fillet, 6" from toe of conn. L.
West side, top half - 3/16", bot. half - 1/16
E. side - 3/16 for 6" dn, - 1/8 for 4" Rem. Scale.

S3 - W. side, pitted, packed then painted
E. side - 1/8" full depth.

S4 - W. side, - 1/8" full depth, P.O. at toe of Conn. L.
E. side, 4" Φ c.o. at top cope, - 1/8

S5 - 1/2" Hole at top cope, W. side scale
E. side, - 3/16 CO in 6" W x 5" scar.

S6 - - 3/16 full depth, W. side
- 1/16 do E. side

12-18-68 Patterson, Wiedwald 281

N. Approach Spans

SPAN 23 Flr. Sys.

FB. 2 N. side:

S1 - Scar ea. side 12"W. x 7" dn. - 3/16 ea.
S2 - 1" Hole at cope, in 6" ℄ C.O. - 3/16", on West. E. side 4" ℄ C.O. @ - 1/8"
S3, Good,
S4 - 15" ± dn - 1/16 on W. side.
S5 - 2" ℄ C.O. - 1/8 ea. side.
S6 - 1" Hole at cope. 4" dn, paper thin. - 1/16 on dn @ W. side.

FB. 3 — S.

S1 - West side, - 1/8" top 7", - 1/16" Rem.
E. side, - 1/8 do, good Rem.
S2 - 2" C.O. @ cope, - 1/16"
S3 - do
S4 - W. side, - 3/16 for top 6"
E. side, 3" ℄ C.O. - 1/16"
V.V. S5 - Hole 6"W. x 4" dn. West, scale. E. side, - 1/16 on dn.
V.V. S6 - Hole 6"W. x 3" dn., West, - 1/16" - 3/16" upper half, East side 1/8 P.O. at toe of conn. L.

12-18-68 Patterson, Wiedwald. 282.

N. Approach Spans.

SPAN 23. Flr. Sys.

FB. 3 - N.

S1 - West side, - 3/16" ± for 7" dn. & - 1/16 ± Rem. E. side of web, - 1/8 ± for 7" dn. - 1/16 for 7" & full the remainder.
S2 - 1/2" ℄ hole near top cope, rem. ok.
S3 - 1" ℄ hole do - 1/8 for 3" ea. side.
S4 - - 1/8" ea side for 2"
S5 - 1/2" ℄ hole near top cope, - 1/16 for 4" dn. ea. side.
S6 - Hole in top of web, 1" from conn. L. 9" vert. 15" lg. along top of hole & 12" lg. along bot. of hole. Web at toe of conn L - 1/8" for top 4" & - 1/8 remainder.

S.W. bracket, E. side, heavy corrosion on o.s.L. of top L's under conduits, Also, outer end near guss. pl. L's.

V.V. Requires further consideration.

12-19-68 | 32° R in steam from Rendering plant | Wiedwald Patterson | 283

Span 23

F.B. @ Pier 24

S. Side Stgr. Conn's.

S1 - W. side web good. On E. side -⅛" upper half, scale rem.

S2 - 1½"Φ hole at top cope, rem.ok

S3 - W. side 3"Φ c.o. @ -½" @ cope, E side ok.

S4 - 3"Φ c.o. @ -1/16" ea. side

S5. - 3"Φ c.o @ -3/16" total at top fillet. Westside -1/16 for half depth.

S6. - Very little paint on E. side of stgr. web. Hole in web under top fillet, 6" lg. x 2½" Vert. -⅛" remainder.

SHOES on Pier 24 - are in good condition. Heavy coat of paint on shoes. All anchor bolts are sound. Shoe pad grout around grillages is cracked all around grillages. Grillage is exposed along N. edge of West grillage.

12-19-68 | Wiedwald Patterson. | 284

Span-24 Flr. Sys.

F.B. @ Pier 24

North Side Stgr. conn's.

S1 - slight c.o. ea. side @ top.

S2 - 1"Φ hole @ top, & then 5" Vert. -3/16" ea. side.

S3 - -⅛" on E. Side, 4" vert. only.

S4 - 3" c.o. @ -1/16" ea. side.

S5 - 1"Φ hole, with -3/16 for 6" Vert on W. side, -1/16" full depth E side.

S6 - -¼" loss scar 6" Vert x 8" West side, -⅛" at same scar on E. side.

Center F.B. of SPAN 24

S. Side

S1. -1/16" full depth.

S2. total loss -3/16" @ 3"Φ C.O. top.

S3. good.

S4. -⅛ total loss full depth.

S5. 3"Φ c.o. -1/16 ea. side.

S6. 1½"Φ Hole at top cope. W. side ~ -3/16 for 7" & -1/16" rem. E. side ~ -⅛ for top 7" & rem. good.

Buck. pl. corrosion @ S1. top flg, - Heavy.

12-19-68 Wiedwald Patterson. 225

SPAN 24

Center F.B. N. side:

S1. - -⅛" for 7" top, -1/16 for 7" & scale on W. side. 3" ϕ C.O. -1/16 on E. side

S2. ½" hole @ top., -⅛" for 3" then scale; 2" c.o. @ -1/16 far side below hole.

S3 Scale W. side, -1/16 for 6" E. side

F.B. S4, S5, scale @ top.

S6 W. side, -⅛ for 12" Vert. E. side, -3/16 for 8", -¼" rem.

General: All steel in span is heavily pitted, Girder webs, stiffs. flg. plates & web plates. Flg. cover plates are in best condition of girder matl. Where buckle plate connects to inside top flgs. of exterior stgrs (#1 & #6) heavy corrosion exists. Buck. pl. weep holes are corroded to a diameter of 1" avg. Heavy pack-out between scupper and scupper connection on E. scupper.

12-23-68 Windy, snow. 24° Wiedwald Patterson.

SPAN 25, Suspended Span, Flr. Sys. 286

N. side of S. Hinge F.B.

S1. - Scar 10" x 10" @ -3/16, W. side do -1/16 E. side.

S2, S3, S4, S5 good.

S6. - 3" ϕ @ top -3/16" total loss.

F.B. 1 S. side:

S1. -3/16" total for 8" ϕ scar.

S2, S3, S4, S5 ok.

S6. -⅛" total for 1" ϕ @ top.

F.B. 1. N. side:

S1 6" ϕ C.O. -3/16 total @ top.

S2: W. side scar 8" x 10" dn. -3/16, -1/16 rem. & E. side -1/16 for 4" dn. & scale rem.

S3, S4 scale only.

S5 -⅛ for 6" dn.

S6. - 3" ϕ hole on 6" ϕ paper @ top, -1/16 tot. on dn. total.

SPAN 25 287

F.B. 2 thru F.B. @ N. Hinge:

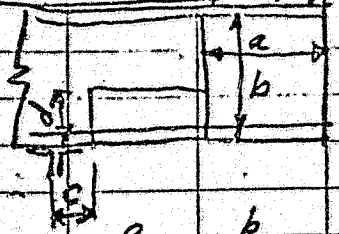
These connections were given cursory examination from the scaffold. All interior stgrs. appear to be in sound & good condition. Only 3 to 4 connections of the exterior stgrs show excessive scale or stain.

1-6-69

Wiedwald Patterson.

288.

Exp. At S. Hinge, Span 25.



New Diaph conn. All stringers.

	a	b	c	d
①	1'-4	Full	5"	5"
②	1'-6	Full	—	—
③	1'-8	Full	—	—
④	1'-5	do	—	—
⑤	1'-4	do	—	—
⑥	1'-4	do	0	6"

Both F.B. cover 50% gage S. side through center. Also Fig. L S. side reduced abt. 50%. Both sides of all intr. stiff on F.B. S. side replace 10", o.s.l.

Wiedwald & Patterson
Jan 6, 1969.
T. 27°, Cloudy,

289.

F.B. South Hinge

① O.S.L. stiff b, bott up 10" & top riv. of seat 10" up. Replace. Seat material reduced 25% ± in thickness.

⑫ Int. Stiff, o.s.l. bott 8" replace.

② O.S.L. Stiff a, replace. Full lgth. Replace seat matl. O.S.L. Stiff b, replace. do do

③ Replace O.S.L. a & b & seat complt.

④ O.S.L. Stiff. a & b and seat complt.

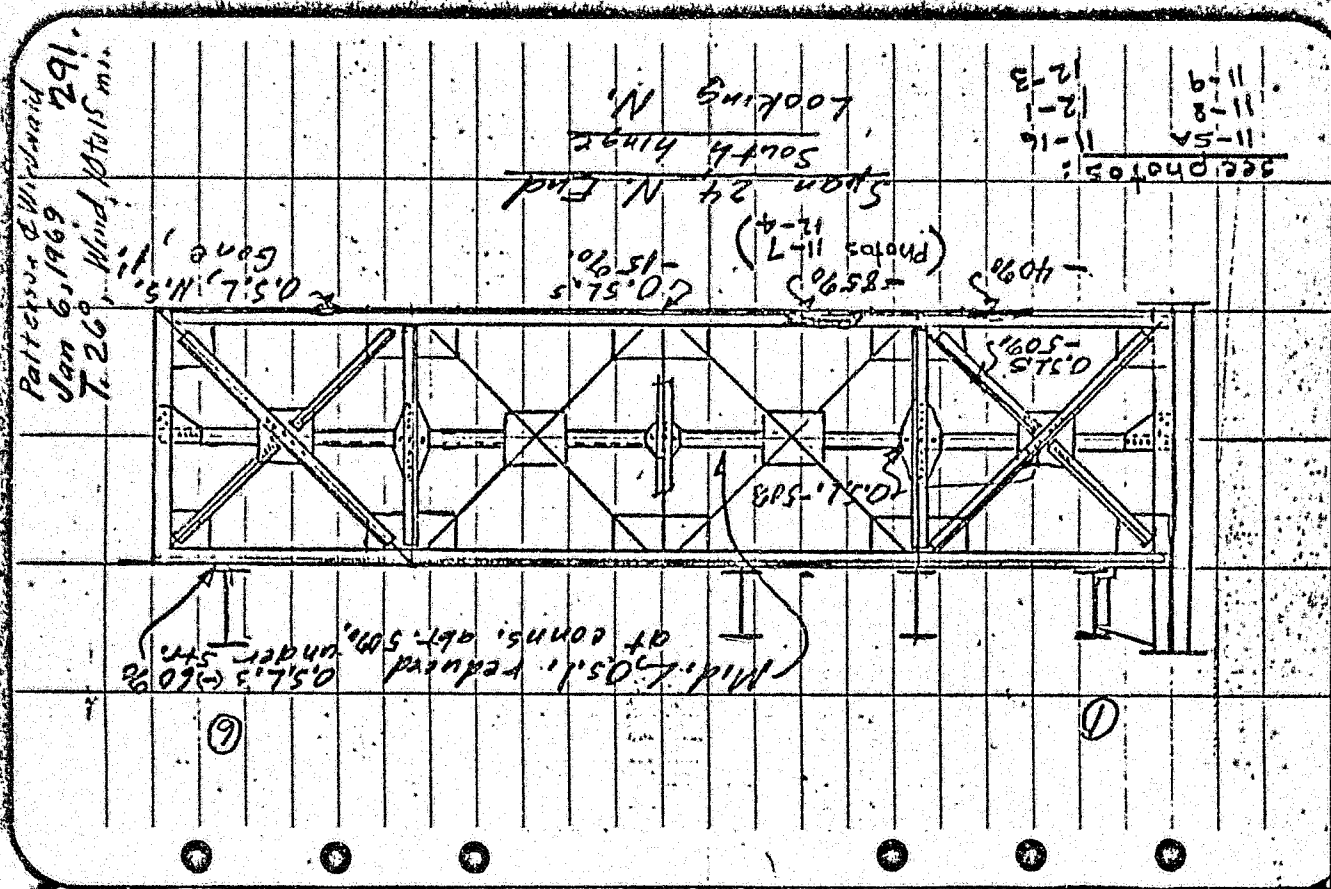
⑤ O.S.L. stiff, a replace bott. 2/3. Replace all o.s.l. of b. Replace seat.

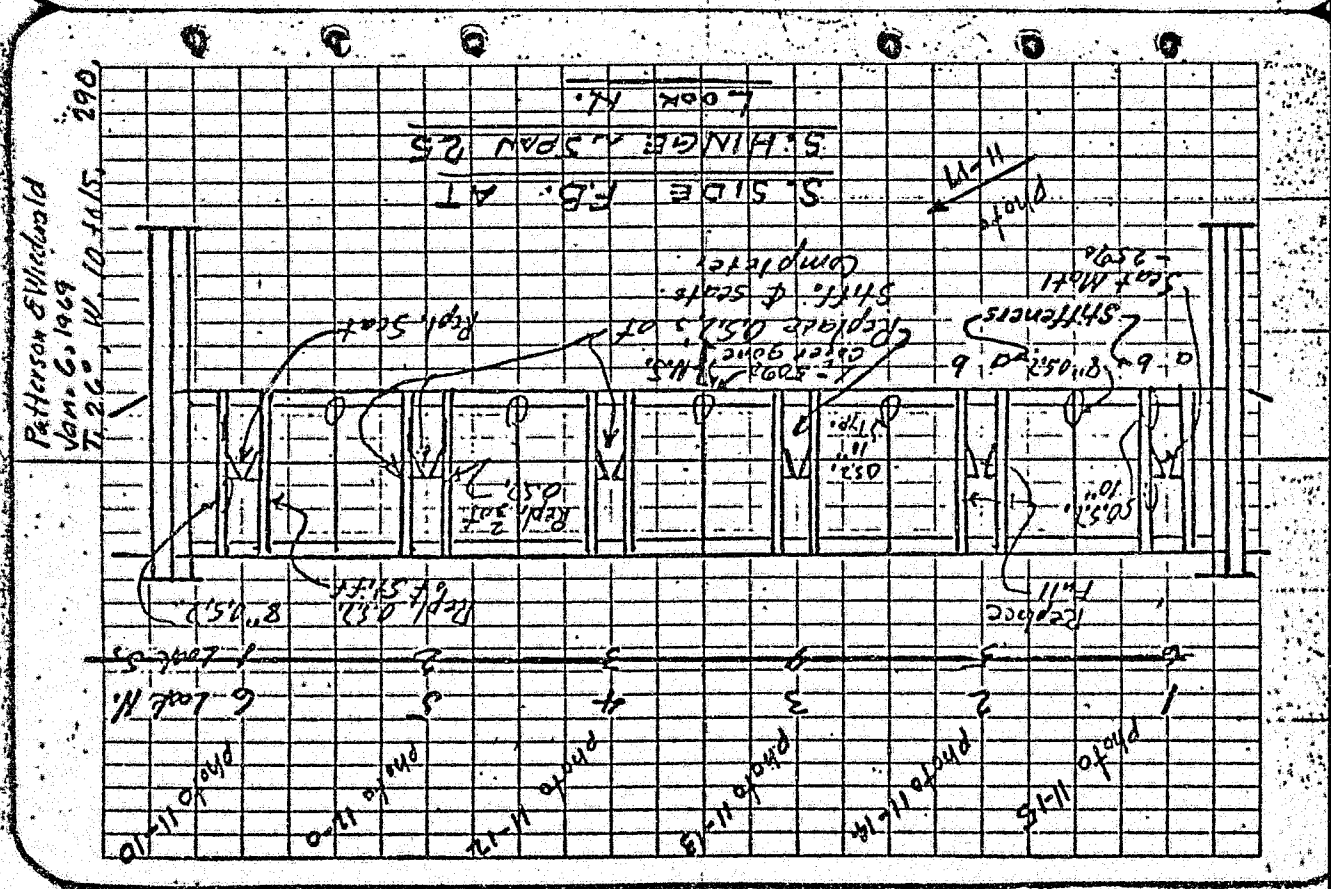
⑥ O.S.L. stiff La, replace all. O.S.L. do Lb, top seat riv. up 8", replace. Replace seat.

Strut top lacing, replace complete.

Strut bott lacing, replace complete.

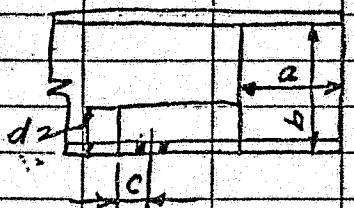
Replace top & bott. chords of shallow truss complete.


Patterson & Wildermuth
Jan 6, 1969
T. 26°
Wind, Plots in.
162.
Span 24 N. End
South Abut
Looking N.
See Photos:
11-5A
11-6
11-8
11-9
12-1
12-3
(Photos 11-7
12-4)
O.S.L. N.S. 1'
Gen.
O.S.L. -15'-0"
-85%
-40%
O.S.L. -50%
O.S.L. -5%
Mid. O.S.L. reduced at conns. 5M. under
O.S.L. 3 (-60%
-5%
6
1


Patterson & Wildermuth
Jan. 6, 1969
T. 26°, W. 10 to 15
290.
S. SIDE F.S. AT
SWINGER SPAN 25
Look N.
Photo
11-17
Replace
F-11
Repl. O.S.L.
8" O.S.L.
Repl. Seat
Repl. Seat
Replace O.S.L. 3 at
Shift. ¢ seats
Completer
Seat Mat'l
-250#
Shifters
O.S.L.
10"
O.S.L.
11"
Typ.
Photo 11-15
Photo 11-16
Photo 11-13
Photo 11-12
Photo 11-10
Photo 11-10
6 Look N.
1 Looks S.

12-31-68 Wied wald Patterson 292.

At N. Hinge, Span 25



		a	b	c	d
At Str.	⑥	1'-6	Full	1'-0	10"
	⑤	1'-0	do	3'-0	5"
	④	1'-4	do	6"	3"
	③	1'-0	do	4'-0	3"
	②	1'-0	do	1'-0	5"
	①	1'-8	do	1'-6	7"

Wiedwald & Patterson Dec. 31, 1968 T. 32°, W. gusty. 293.

FB. N. Hinge — Replace all seats

② O.S.L. Stiff. a & b 6" from seat up. Start at rivet line.

New bolts in seat. Replace seat. (FB. like ③)

⑤ O.S.L. a & b. Top riv. line up.

④ Same as ⑤ (FB. O.S.L. Bot. Flg. L. Gone.)

③ O.S.L. a, 10" from top riv. up. b, from riv. up. (FB. O.S.L. Bot. Flg. L -50%.)

② O.S.L. a, 10" from top riv. up. b, from riv. up. (FB. O.S.L. Flg. -50% Bott.)

① O.S.L. a, 6" from top riv. up. b, OK.

S. L OK?

E. W.

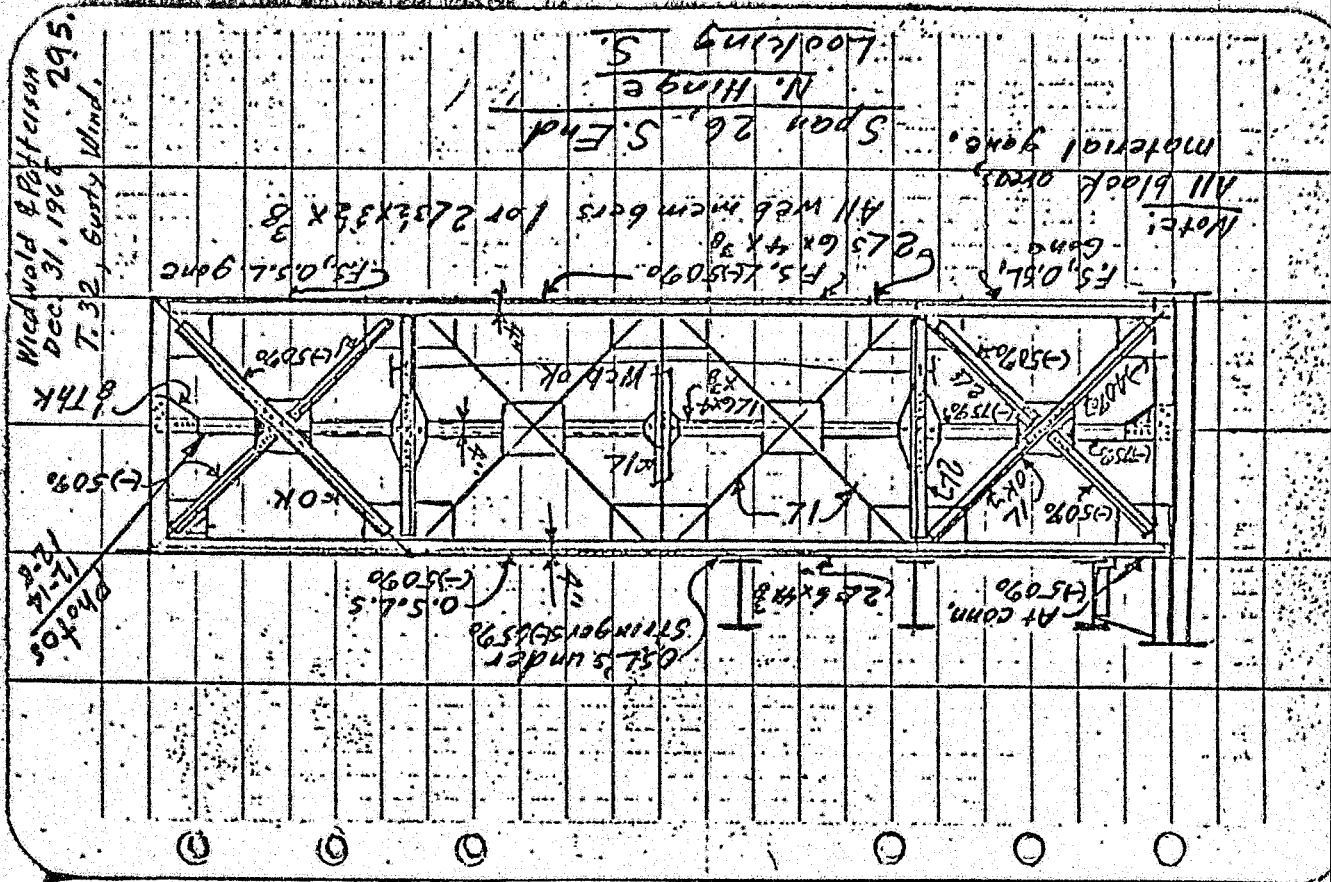
Replace Top Lacing & All

Replace L

No O.S.L. S. L -45% Generol

Replace inside L Batt.

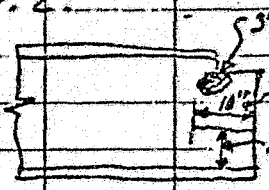
Replace all lacing Vert. Lac. OK.


Wiedwald & Patterson
Dec. 31, 1968
T. 32, Gusty Wind.
295.
Looking S.
Span 26, S. End
N. Hinge
Material 9000.
All bldg. dtls.
Note:
All web members for 2L's 2½x3½x⅜
2L's 6x4x⅜
F.S. 0.S.L. gone
F.S. 0.S.L. gone
Web ok
Photos 12-14
0.S.L.'s under
Stringers 5090
At conn. 5090
2 PL 6x⅜
ok
ok
ok

1-3-69 Wiedwald, Patterson

N. Approach Spans. - SPAN 27 296.

Str. 6, N. FB. 2



Str. 5, S. FB 3, 1x2 hole at cope, 4x5 paper thin, 1/16 remainder.

Str. 3, N. FB 2, 5x7 with 2"ϕ hole center. 1/8 total remainder.

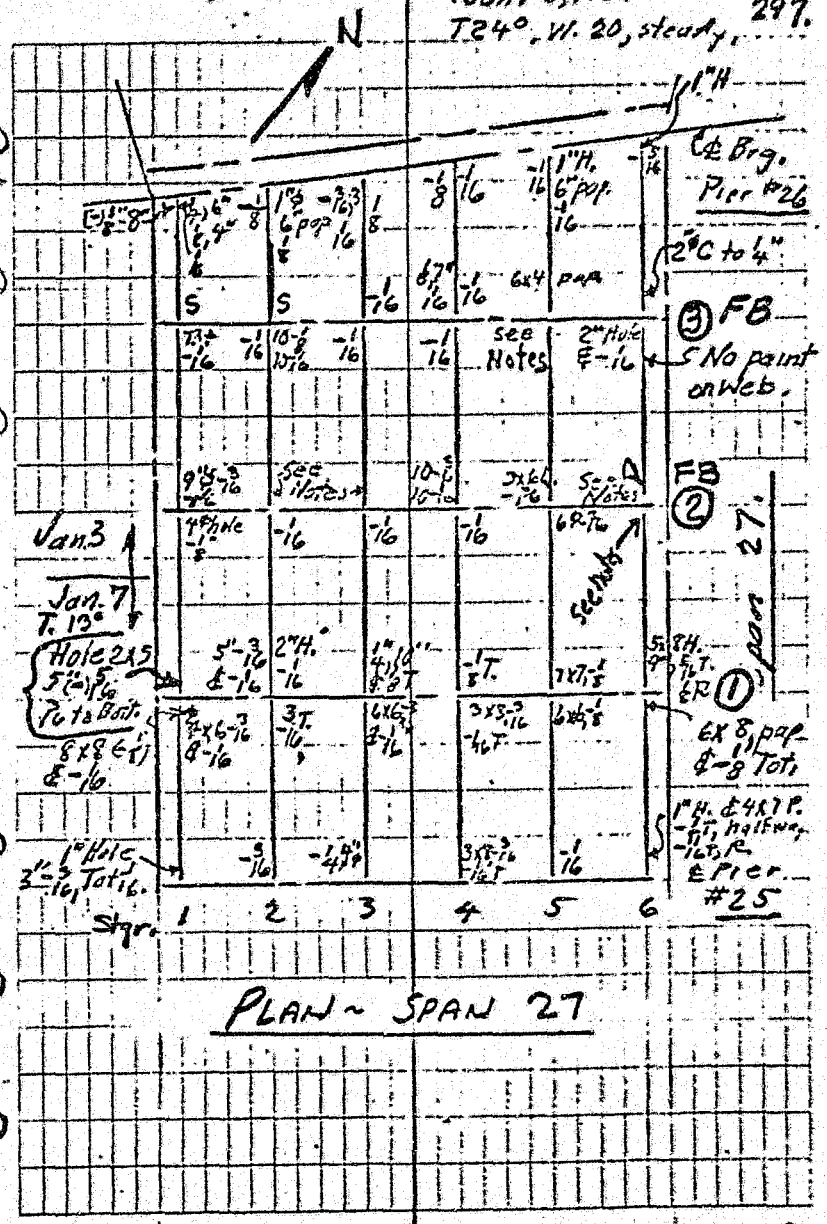
Str. 2, N. FB 2, 2"ϕ 6x6. paper thin, 3/16 remain.

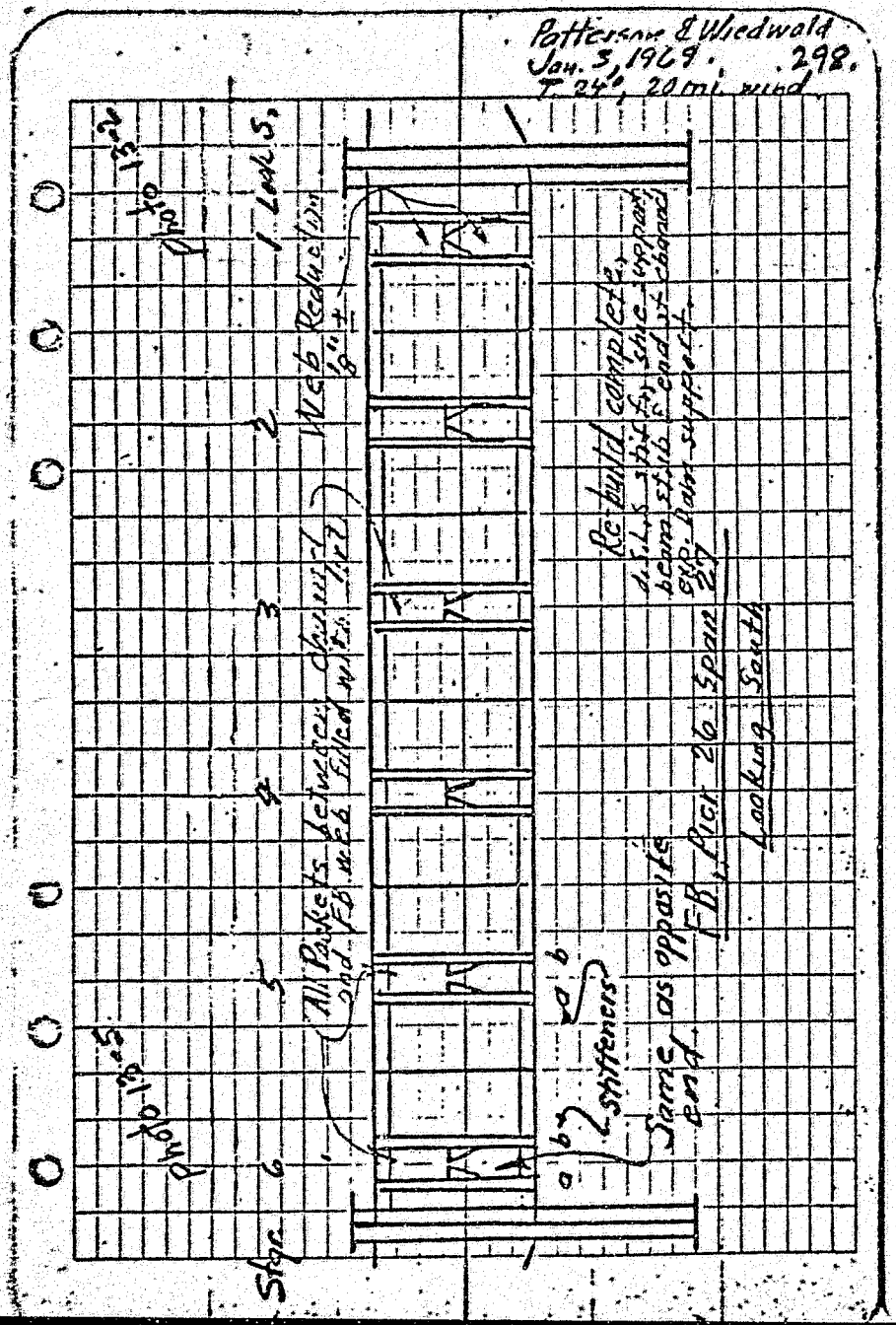
Str. 6, S. FB 2, 2"ϕ Hole in 6"ϕ paper thin, 1/16 remain.

South side of F.B. at pier #25 Webs of all stringers at this side of floorbeam have abt. 1/16 total reduction at connection.

Wiedwald & Patterson Jan. 3, 1969 297.

T 24°, W. 20, steady.





1-3-69 24° Wiedwald

299.

PIER 26 The body of the pier is in fair condition. There are a few fine cracks but only superficial. The pier top is in poor shape. The top coping is spalling off on N. & S. sides. The concrete on top is leaching out and deteriorated on the west half as shown in photo 13-6. The shoes & anchorages should be thoroughly cleaned. photo 13-8 shows the East half of the pier top & the East shoes.

1-8-69 Wiedwald 300

SPAN 28 - GUNITE SPAN

OVER P.R.R. - Gunite cover has fallen off the floor system in many locations, or is unsafely loose. Photos 13-0A & 13-4 show cracked conditions or where the cover is broken off the stgrs. and F.B.'s.

Photos 13-11, 13-13, 13-15 show the serious spalling at the tops of the Brg. pilasters of the N. Abut.

Conduit West of Pier 26:

Electrical conduit is broken or rusted through at several locations. Conduit is suspended from River Ave. Viaduct span. (See photo 14-2.)

Patterson & Wiedwald
Jan. 8, 1969
T. 9°, W. 15. 301.

Sidewalk Brackets.

Span 27. All brackets E. side, top Ls, O.S.L's, 50% reduced in section from gusset to gusset.

All bkts W. side, ok.

Span 26 All brackets E. side top Ls, O.S.L's. 50% reduced in section, full length.

All bkts W. side, good.

Span 25. 2 brackets toward N. end same 50% reduction as above.

All other brackets in span good.

Pier C21 E. bkt., S. side, Ls under conduits, O.S.L's, reduced about ⅓ of thickness.

4-15-68 T-54° Rain Wiedwald

302.

General.

Pier 17 - Expansion Dam.

@ Bent L1: Top plate (West) is loose. Vehicles passing over yield loud banging; as heard from ground level @ N. side Pier 17. See exp. dam notes for additional data.

West curb spalling near span 5 under sidewalk grating bar

Handrail paint wearing thin, showing various shades of undercoat; also pickets, similar.

1

5-13-69 Wiedwald Patterson

303.

General:

South Approach wearing surface is corrugated by black top flow. Good along new curbs.

Surface very poor at S. Abut. constr. Joint, see photos 14-3, 14-4. Surface humped about 6" high at gutters, extending to center of roadway about 6' ±. Constr. Jt. broken down. E. Walk has ½" gap; West walk also gapped ½". need resealing.

Deck Joint Bent 1: is good, only 1' ± loss of seal near east center.

Deck Joint Bent 3: is sealed but conc. replaced with black top at W. center 7" x 5'.

Deck Joint Bent 4: seal erroding abt. 50% of Roadway width.

At Bent 5: similar to 4. Scuppers full!

5-13-69 Wiedwald Patterson. 304.

Deck-General

Deck Jt. Bents 6 & 7. good

Span 8: All span 8 deck shows cracks following buckle plate pattern. Cracks along hills of buck. pl. tranverse & longitudinally.

Deck Jt. Bent 8 — Joint good but plate edge exposed about 4½". Sealer break down on west half of Joint.

Bent 9: Scuppers full, N. side Facia top flg. detail corroded away. E. & W. sides.

SPAN 10: Deck conc. shows cracks sim. to span 8.

Deck Jt. Bent 10 ~ good.

Span 11, buckle-plate effect cracks.

Deck Jt. Bent 11 ~ good.

5-13-69 Wiedwald Patterson 305.

Deck General.

Tower Span 12: Deck cracks. Center Joint (tranverse FB) ~ conc. broken out 6" x 8" on E. half. & seal broken down.

Span 13: deck cracks (buck-pl.) up to Bent 14.

Bent 14. W. scupper full.

Span 15. Buckle plate crack pattern.

Deck Jt. Bent 15 seal breaking down. Plate edge exposed ~ abt 5'.

Span 16: trans. Jt. South from Pier 17 has concrete spalling out. Same buckle pl. pattern cracks.

Deck Jt at Pier 17 good. (N. end of span 16.)

5-14-69 Wiedwald Patterson. 306.

General

Span 17: Scuppers clogged p.p. 35.

Piers 18 & 19 Masonry gunwhales require repointing. (Parapets @ sidewalk level.)

Each spans deck: all have hairline cracks of buckle-plate pattern.

West fire protection fence, South end: first 2 top railing fasteners (2 bolts) broken. see photo of end bracket. (14-6) Screen bot. broken loose Span 21 west. (14-1)

East fire fence: South end bracket 2 bolt broken at top railing. Also, 4th bracket N. of Pier 19 pylon.

Pier 19 Pylon houses, some masonry stone need repointed.

Fire Fence: exp. at S. side of Bent 21 needs renovated. Screen corroded full ht. also along center bar.

5-14-69 Wiedwald Patterson. 307.

General

Fire fence, west side, Span 21 1 broken top fastener @ top railing.

Span 23 - deck, buckle pl. effect cracking.

Deck St. Pier 24 fair, some conc. break-out.

Span 25, 2 F.B. S. of N. hinge, conc. spalled out of deck Joint, filled with blacktop.

Span 24, 25 & 26, some deck buckle-pl. effect.

Pier 25, deck St. good.

Span 28 - N. end deck St. conc. edge good, some black top break-down, but fair. (at E. Ohio St.)

5-13-69 — Wiedwald Patterson.

Expansion dam measurments. 308

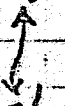
Temp. 61°

	S.W.	W.	W.	℄	E.	S.W.	E
Bent 2.	1 1/8"	2 3/4	2 3/4		2 3/4"	1 1/4"	
Bent 9.	1 3/8	3 3/8	3 5/8		3 1/2	1 5/8	
Bent 14.	Dam closed.						
Span 17 L1	3/4"	2"	1 7/8"		1 3/8	3/8	
(Top cov. West, loose)							
Temp = 69° 5-14-69							
Span 17 L14	1/2"	3/8"	1/4"		0	1/4	
Span 18 L1	1 1/4"	2 1/2"	2 3/4		3/4	2 3/8	
Span 18 pp 11 N.	0	1"	1"		1/2"	1/4"	
Span 18 L1'	1 1/4	2"	2 1/4		2 1/2"	2 1/2	
Span 19 L1	1 1/4	1 1/2"	3/4"		5/8"	5/8"+	
Span 19 L14	1 3/8"	1 1/2	1 1/4		1 1/2"	7/8"	

5-14-69 — Wiedwald Patterson

Expansion Dam Measurments 309.

	Sw.	W.	W.	℄	E.	SW.	E
Bent 21	1 3/8"	1 3/8"			1 1/2"	1 3/4"	2" ±
Bent 22	1 1/2"	2"			1 3/8"	1 1/8"	1 1/8"
Pier 23	1 1/4"	2 1/2"			2 3/8	2 3/8"	1 7/8
Span 25 S.	1 1/4	1 3/8			1 1/8	1 7/8	5/8
	disturb						
Span 25 N.	1/2	7/8			1 1/4	7/8	0
Pier 26	1/2	1/2			5/8"	5/8"	0



5-13-69

Wiedwald
Patterson

310

Expansion

Bent 2.

West sidewalk exp. cov. pl. bent up abt 5/8" at curb.
West facia top flg.:
Flg. angle gone; slip plate gone

SPAN 17

Bent L1 - Span 17 - top cov. riding high, varies 1/2" to 7/8"

Bent L14 - Top cover riding high at western 2/3 of top cover abt 1/2". Approx. 1/2" opening. Dirt & pebbles fill gap. Typ. facia grief on top flgs.

SPAN 18

Bent L1 - Typ. facia grief, top flgs. Dam top cov. pl. riding high 1/4" ±

p.p. 11. ~ typ. facias, top flgs.

Bent L1' - riding high 1/2" ±.

5-14-69

Patterson
Wiedwald

311.

Expansion Dams

		Cov. pl.
SPAN 19	L1 -	Riding 5/8" high, east
		do 1/2" do, west.
		do 1/2" do, ℄
	Cov. pl., west walk,	high 1/4"
	L14 Cov. pl. Riding	High 1/4", east walk
	do	3/8" east side
	do	1/2" west side
	do	7/16" ℄
	do	1/2" west walk
	Bent 21 -	High 3/4", west side
	do	3/4 ℄
	do	5/8", east side
	do	1/4" S.W. East.
	Bent 22 -	High 1/4" W. walk.
	do	7/8" W. side
	do	5/8" ℄
	do	1/2" E. side
	do	3/8" S.W. east
	Pier 23 -	High 1/4" SW. east
	do	3/8" E. side
	do	3/8" ℄
	do	3/8+ W. side

5-14-69

Wiedwald
Patterson.

312.

Expansion Dams

Span 25 (S. hinge):
Cov. pl. riding high. ~ 5/8", W. gutter
1/4", & Br.
1/2", E. gutter
1/4", E. walk.

Span 26 (N. hinge):
cov. pl. riding high. ~ 1/4", W. walk
3/4", W. gutter
1/2", & Br.
3/8", E. gutter
5/8", E. walk

Pier 26.:
Cov. pl. riding high. ~ 7/8", W. walk
1/4", E. walk.

5-14-69

Patterson
Wiedwald

313.

General.

Between F.B.'s,

Bent 2.: Stiffs @ strgrs. 2:
Hole @ top of N. stiff. 1"ϕ
" @ bot. of S. stiff. 1"ϕ

W. Main Girder: Top. col. sliding plates - clean -

Knee Brackets: Exp. plates & bolts @ N. Side of F.B. bot. flgs. - repair. see photo - 7-9 (E. & West. similar.)

Under expansion dam
corroded, flaky, laminated.

Bent 7 N. S. side: Buckle plate conn. to FB leaks, scale, stained badly.

Temp. 69°

Rockers at S. Abut. are plumb.
Rockers at Bent 21 (S) are plumb.
do 22 (N) do.
23 (N) rocked North
abt 3/8" at brg.
Sliding plate at tie down.
closed, previous reading
show 1 3/4" movement to N.

5-14-69 Wiedwald Patterson. 314.

Conduit:

S. Approach Spans ~

E. sidewalk: 4 ~ 4" ϕ } D.L. Co.
1 ~ 2½ } D.L. Co.
& Bridge lighting

W. sidewalk: 4 ~ Bell Tel. pump log conduit
1 ~ 2½ ϕ Bridge lighting

Cols. 6 to 9 west, bot. flg. 3" ϕ piping.

West side:

6" ϕ wrapped pipe under facia. ~ from P.O. bldg. North to FB 3, Span 8.

All defunct piping & conduit, & wiring should be removed. Also, brackets & hangers (cent 9)

Bent 14, exp. dam (under), cleaner by comparison to #2 or #9, which are similar in detail.

5-14-69 Wiedwald Patterson 315.

Conduit: N. Approach Spans:

East: 3 - 4½" ϕ D.L.C.
1 - 2½" ϕ Bridge lighting.

4 Bel. Tel. Co. pump log ducts under west walk.

Arch Spans:

East ~ 6 ~ 4½" ϕ D.L. Co.
West ~ 4 Bel. Tel. pump log ducts

PIER 26: Bearings

Temp. 70° ±

Span 27 - North Bearings

West rocker shoe: Pin 1½" to So.
East rocker shoe: Pin 1⅛ to So.

Span 28 - South Bearings

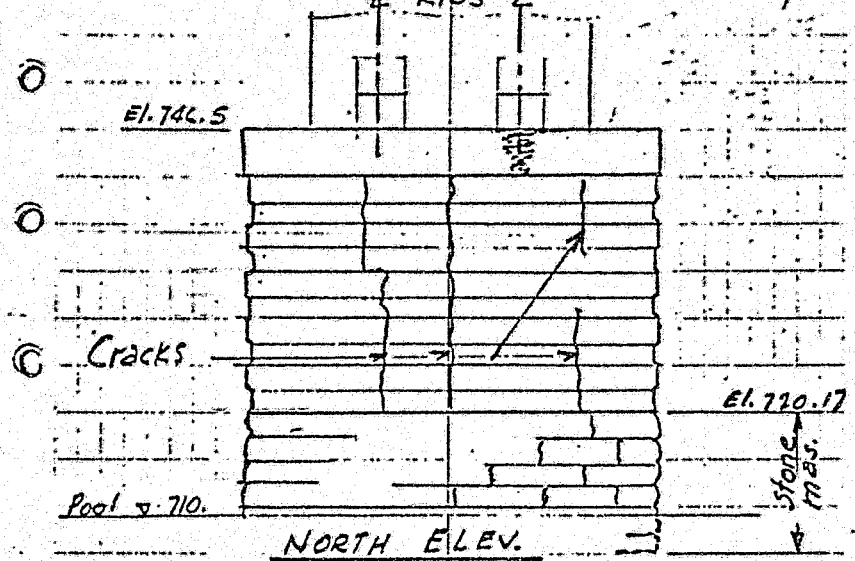
West rocker col.: Top pin 2 9/16" south of bot. pin.
East rocker col.: Top pin 2 5/8" south of bot. pin.
Both top of cols. riding hard against ends of span 27 girders.

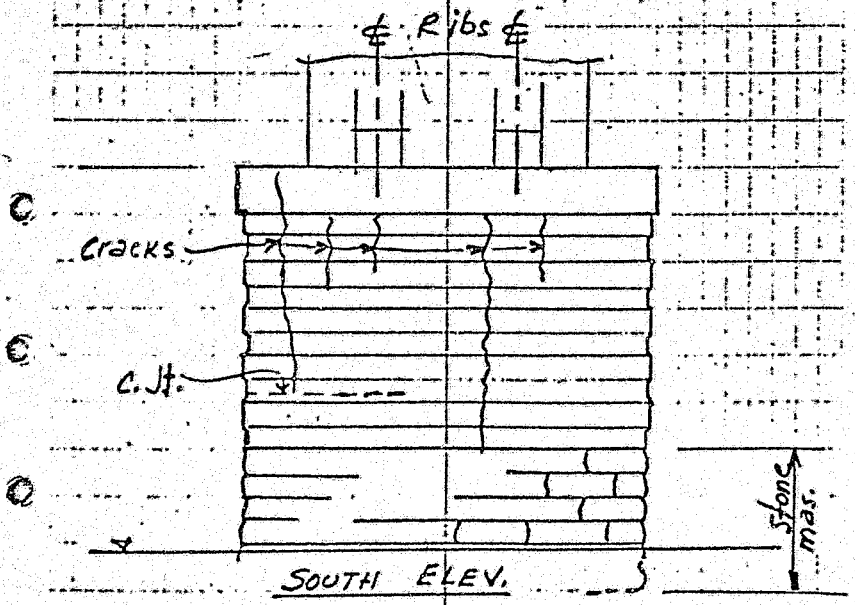
5-15-69

Wiedwald Patterson

316.

Pier 18





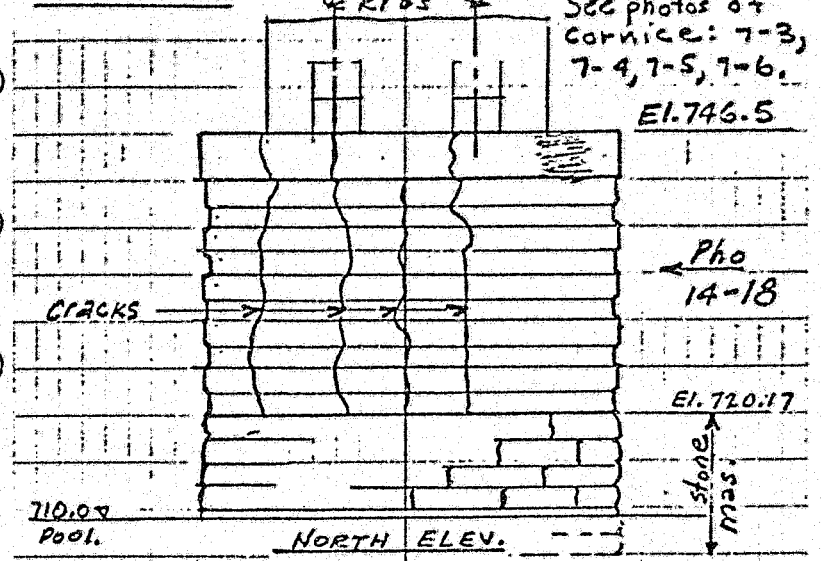
5-15-69

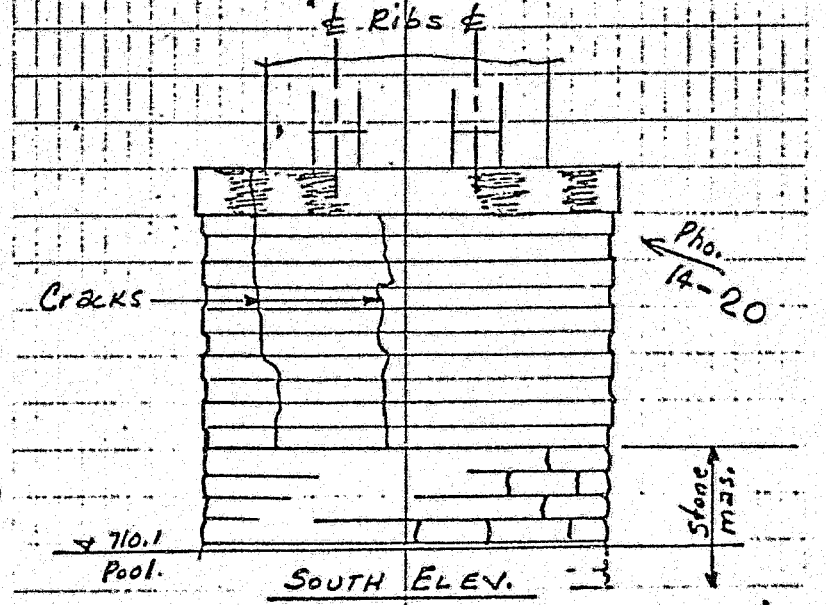
Wiedwald Patterson

317.

Pier 19

See photos of cornice: 7-3, 7-4, 7-5, 7-6.





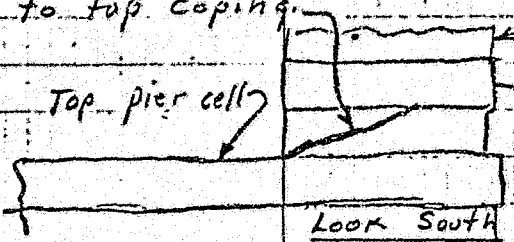
Pho. 14-19

5-14-69 Wiedwald Patterson. 318.

Piers - General

Pier 17, N. elev.

Crack at riser to pylon house, west side, abt half width, up to top coping.



Pier 20 - N. elev: E. pilaster
Rustications on W. face cracked and loose 2, 3 & 4 down from top.

Pier 17 S. & Pier 20 N, drains at ground level @ ℄ piers, snafu'd.

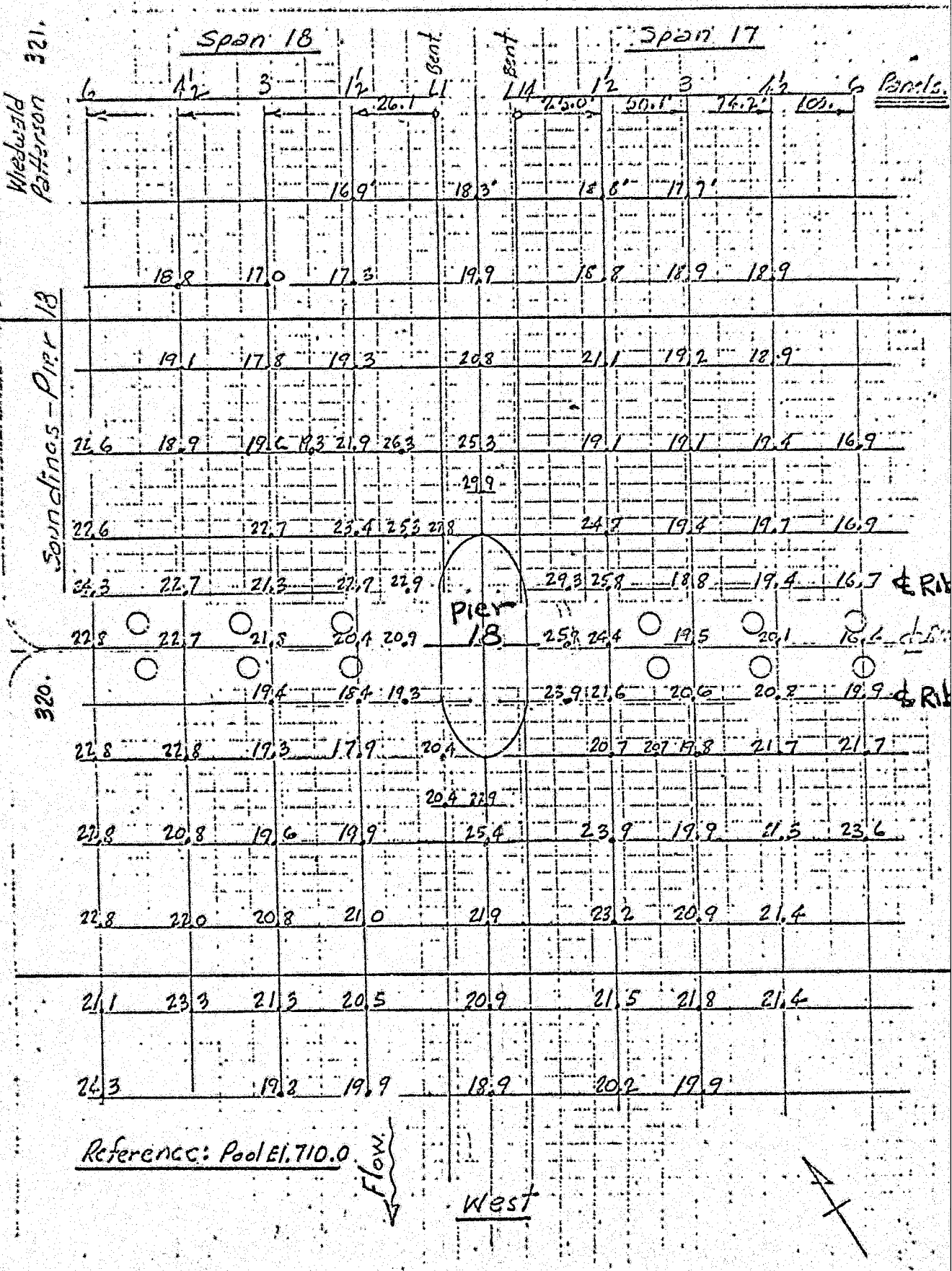
Span 28, North Abut: Plumb measurements were taken about 4'± to the outside of each pilaster (E. & W.) from top of wall to about 2½ ft. above ground.
West side: top out 3¾" ± to south
East side: top out 4⅛" ± to south

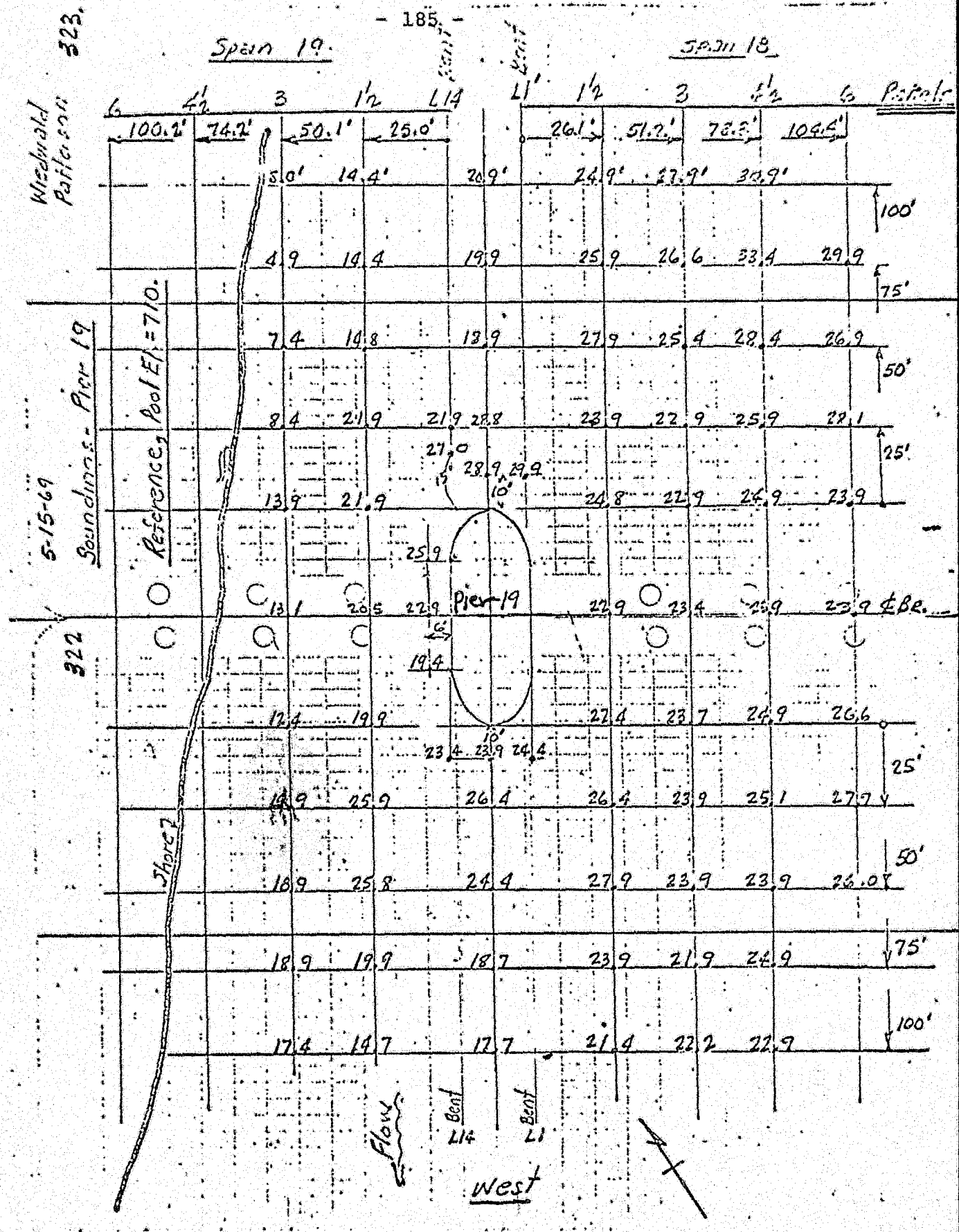
5-15-69 Wiedwald Patterson. 319.

31st Bridge
South Approach Spans - Floor System

Stringer Repairs (Emergency) at connections. (as of 4-15-69)

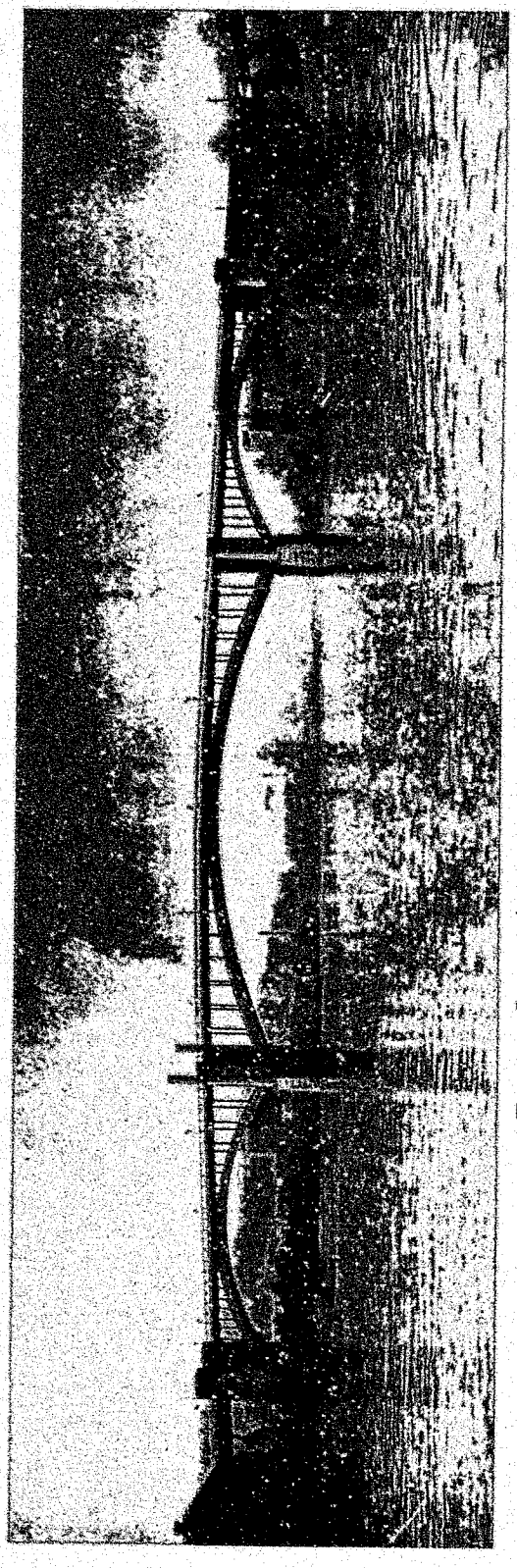
Span 1:	Stgr. 6	@ Bent 1 (S), web	
Span 2:	Stgr. 6	@ Bent 1 (N), web & flg.	
Span 4:	Stgr. 6	@ Bent 4 (S), web.	
Span 5:	Stgr. 6	@ Bent 4 (N), web & flg.	
	Stgr. 6	@ FB 1 (N)	web & flg.
	Stgr. 6	@ FB 2 (S)	
	Stgr 6	@ FB 2 (N)	
	Stgr. 6	@ FB 7 (S)	
	Stgr 6	@ FB 7 (N)	
	Stgr. 6	@ Bent 5 (S)	
	Stgr. 1	@ FB 3 (S), web.	
	Stgr. 1	@ FB 3 (N)	web & flg.
	Stgr. 1	@ FB 6 (S)	
	Stgr. 1	@ FB 6 (N)	
Span 6:	Stgr. 6	@ Bent 5 (N)	
Span 7	Stgr. 2	@ Bent 7 (S)	
	Stgr. 6	@ Bent 7 (S)	
Span 8	Stgr. 6	@ Bent 7 (N)	


Span 18
Span 17
Bent
Bent
Panels
Wheelwald Patterson
321.
320.
Soundings — Pier 18
Pier 18
Reference: Pool El. 710.0
Flow
West

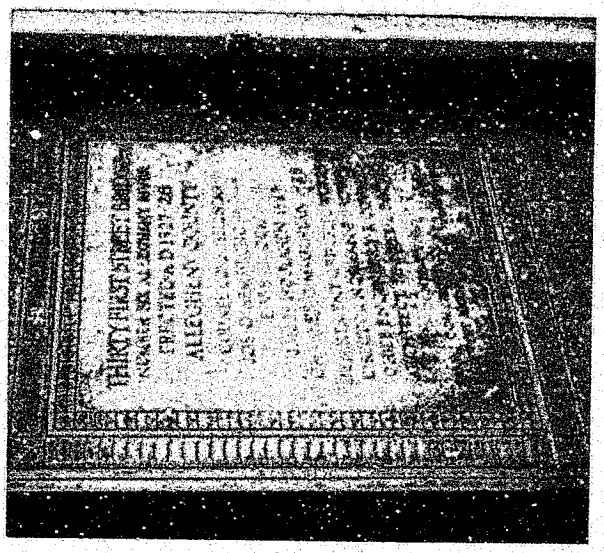

Span 19
Span 18
Westwald Pavilion
323
322
6
4½
3
1½
L14
L1
1½
3
4½
6
Patrol
100.2'
74.2'
50.1'
25.0'
26.1'
51.2'
78.3'
104.5'
5.0' 14.4' 20.9' 24.9' 27.9' 30.9'
4.9 19.4 19.9 25.9 26.6 33.4 29.9
7.4 19.8 13.9 27.9 25.4 28.4 26.9
8.4 21.9 21.9 28.8 23.9 22.9 25.9 28.1
13.9 21.9 25.9 24.8 22.9 24.9 23.9
13.1 20.5 22.9 Pier 19 22.9 23.4 25.9 23.9 ± Be.
19.4
12.4 19.9 27.4 23.7 24.9 26.6
23.4 23.9 24.4
18.9 25.9 26.4 26.4 23.9 25.1 27.7
18.9 25.8 24.4 27.9 23.9 23.9 26.0
18.9 19.9 18.7 23.9 21.9 24.9
17.4 14.7 17.7 21.4 22.2 22.9
100'
75'
50'
25'
25'
50'
75'
100'
Soundings - Pier 19
Reference, Pool El. = 710.
5-15-69
Shore
Flow
Bent L14
Bent L1
West

APPENDIX B

PHOTOGRAPHS



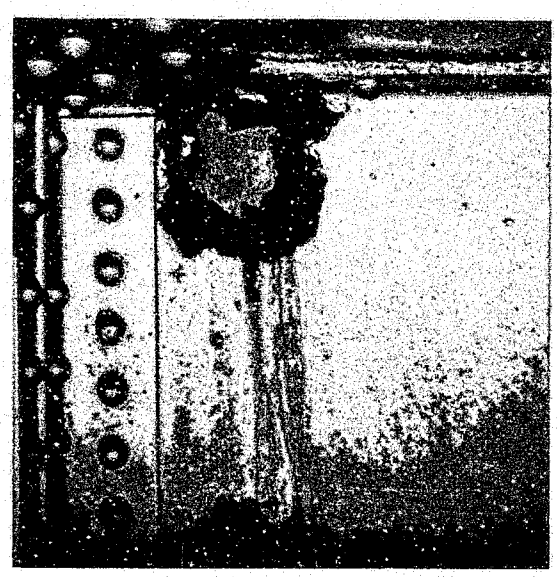
East elevation arch spans 17, 18, 19



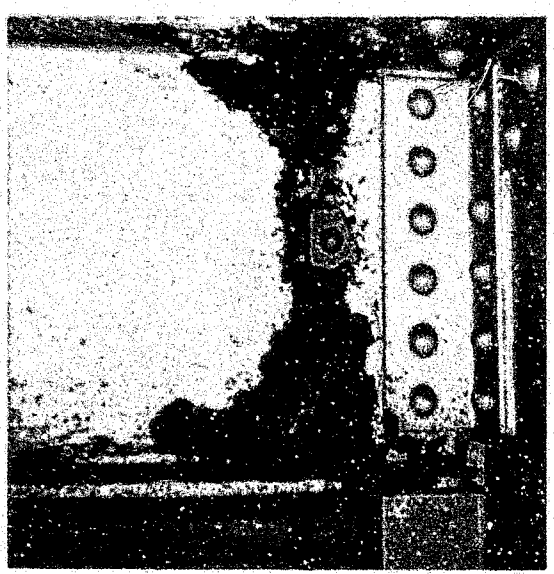
Pylon door



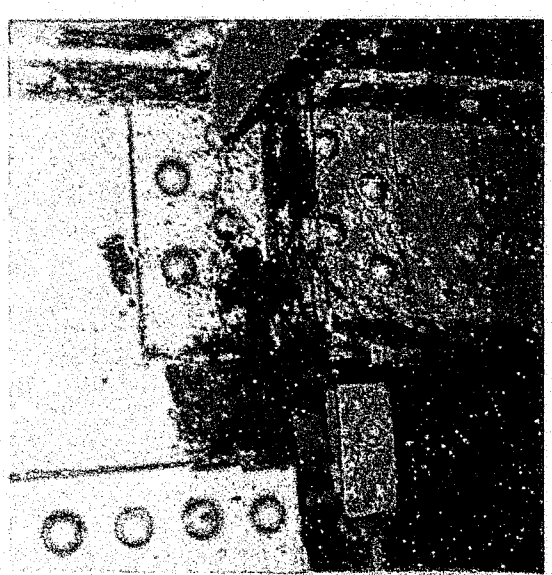
Span 1, Stgr. 5 at end FB of south abutment. (1R1)



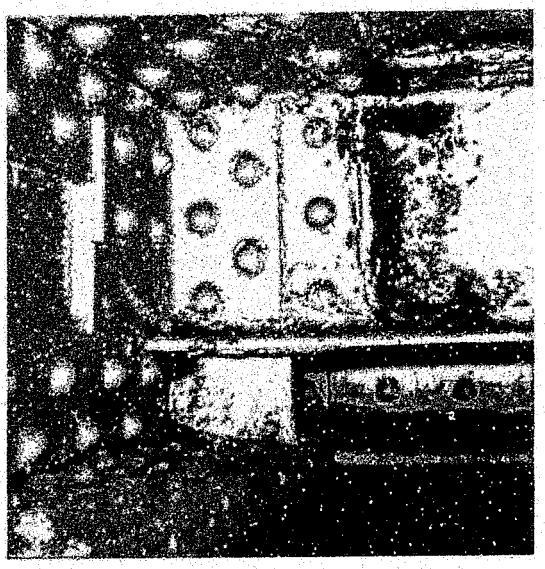
Span 1, Stgr. 6 at south side of FB, Bent 1. (1R2)



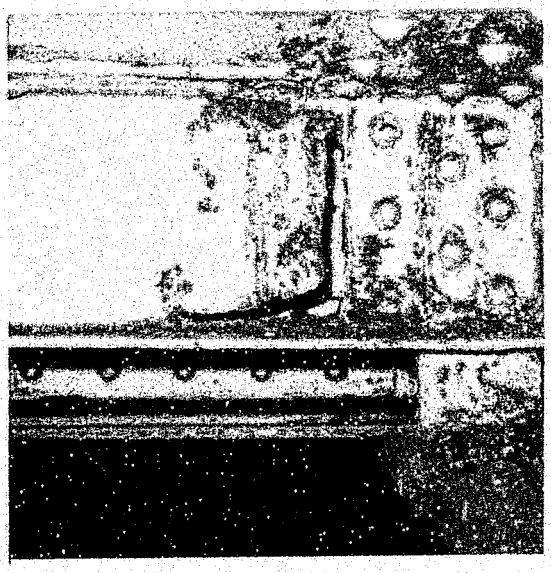
Span 2, Stgr. 6 at north side of FB, Bent 1. (1R3)



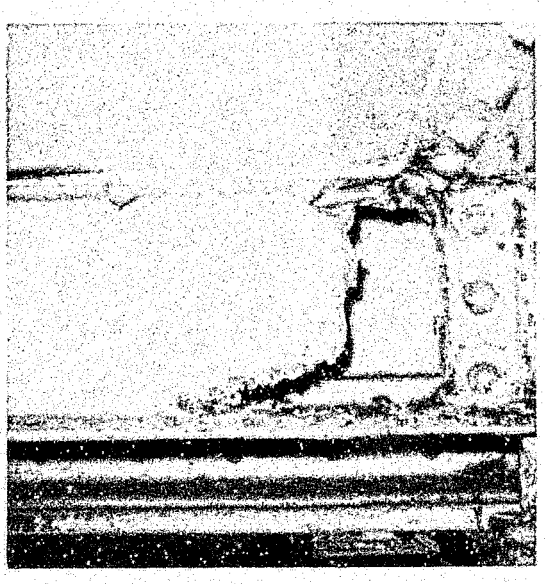
Span 4, Stgr. 1 above FB, Bent 4. (1R5)



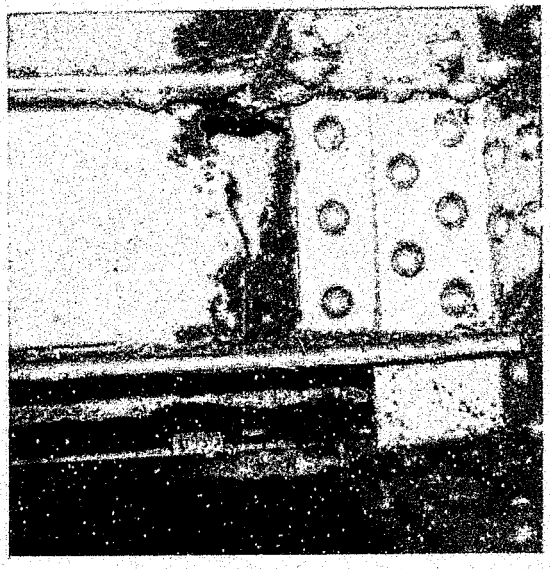
Span 5, Stgr. 1 at north side FB1. (1R6)



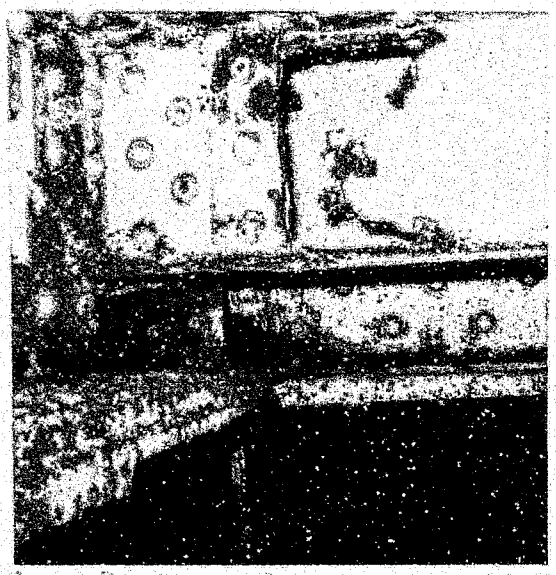
Span 5, Stgr. 6 at north side FB1. (1R7)



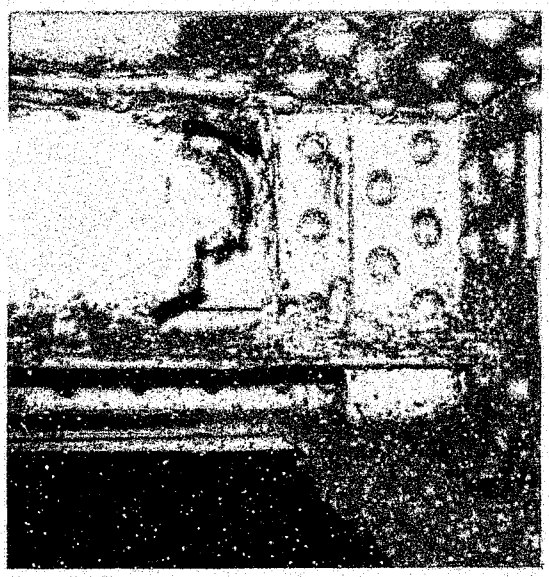
Span 5, Stgr. 6 at north side FB2. (1R8)



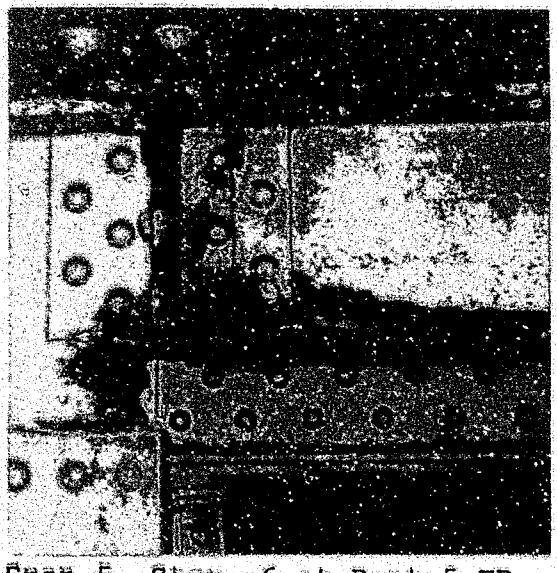
Span 5, Stgr. 1 at south side FB3. (1R9)



Span 5, Stgr. 1 at north side FB6. (1R10)



Span 5, Stgr. 6 at north side FB7. (1R11)



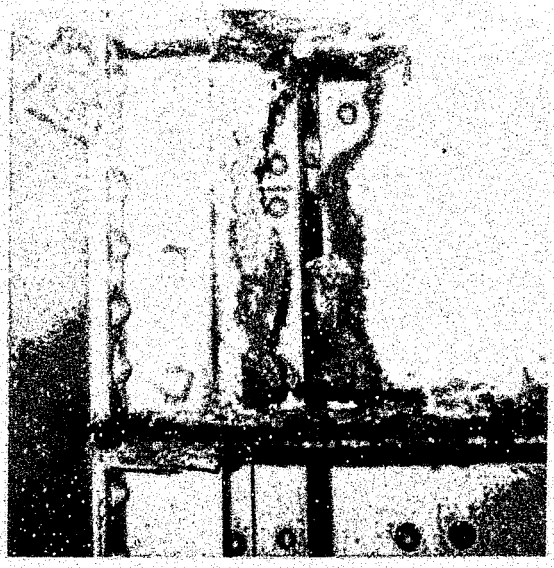
Span 5, Stgr. 6 at Bent 5 FB. (1R12)



Span 7, Stgr. 1 at Bent 7 FB. (2R4)



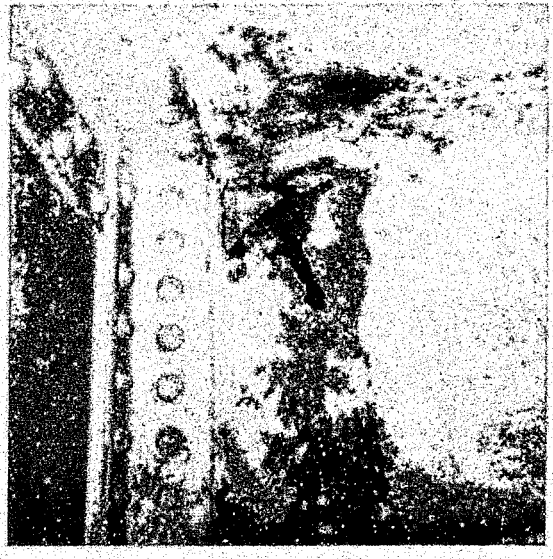
Span 7, Stgr. 2 at Bent 7. (2R5)



Span 7, Stgr. 6 at Bent 7. (2R7)



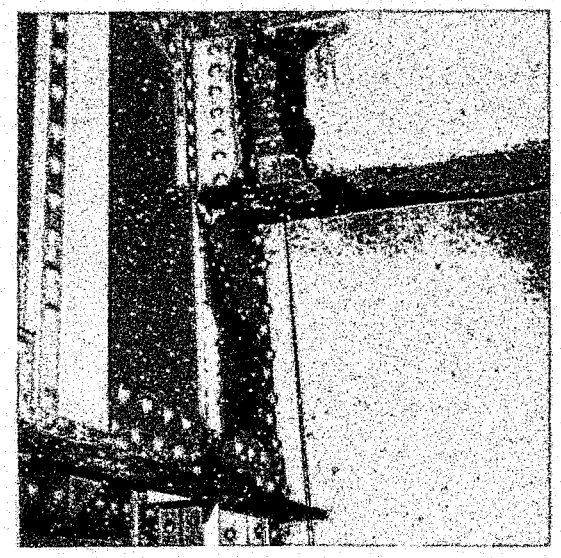
Span 8, Stgr. 2 stiff. at FB1, north side. (2R8)



Span 12, Stgr. 2 at Bent 11, north side. (2R9)



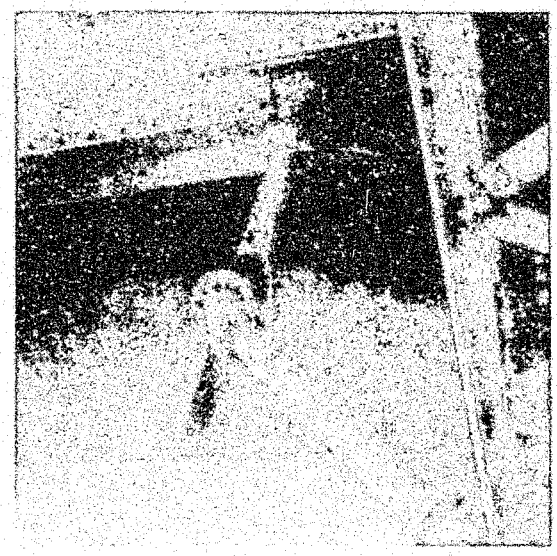
Span 12, Stgr. 6 at Bent 11, north side. (2R10)



Stgr. 1, north side, Bent 15. (3R5)



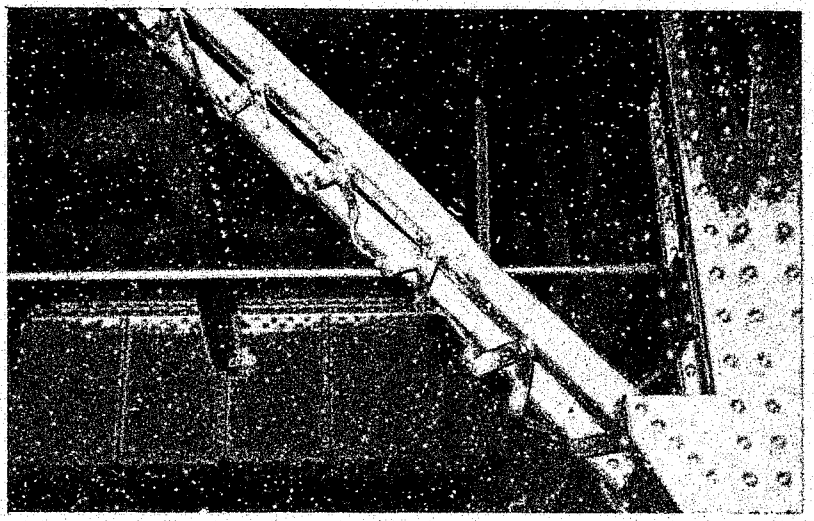
Stgr. 1, north side, Bent 15. (3R4)



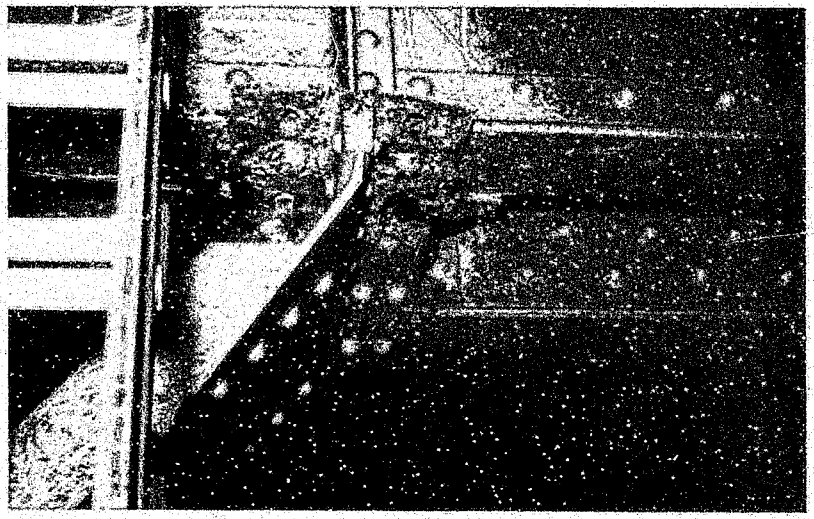
Scupper drain at east end, Bent 14, north side. (3R9)



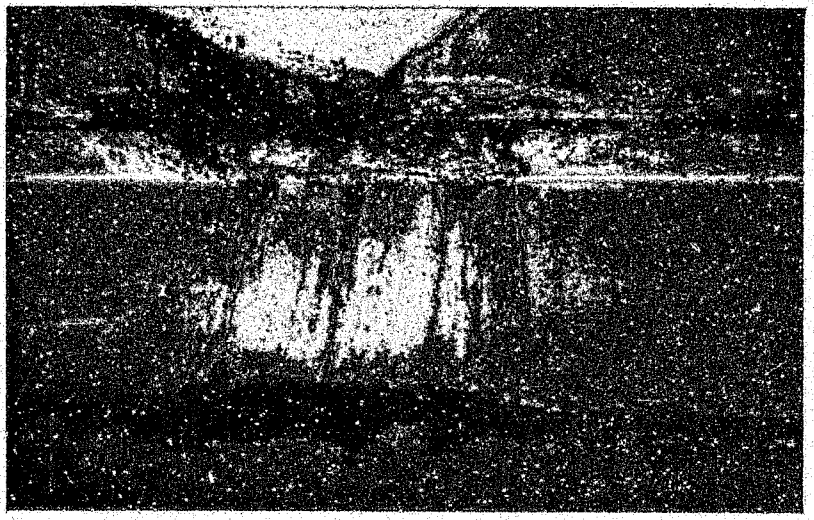
Rain water pouring over face of south abutment. (7-17)



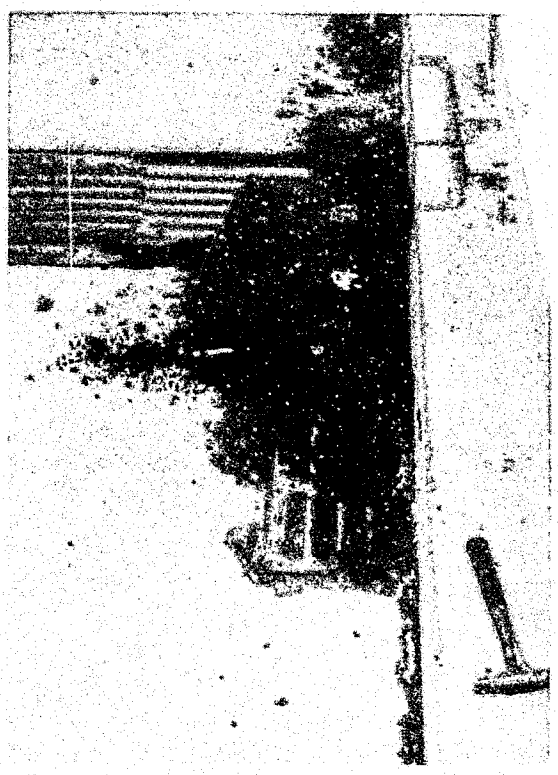
Knee brace at Col. 2 west, looking south. (5-20A)



Top of east knee brace, Bent 2, looking south. (7-9)



Span 3. West elevation of Stgr. 6 near Bent 2. Buckle plate crack at stgr. top flg. (2B-1)



Clogged scupper at west curb, Bent 14. Looking south. (2R-11)



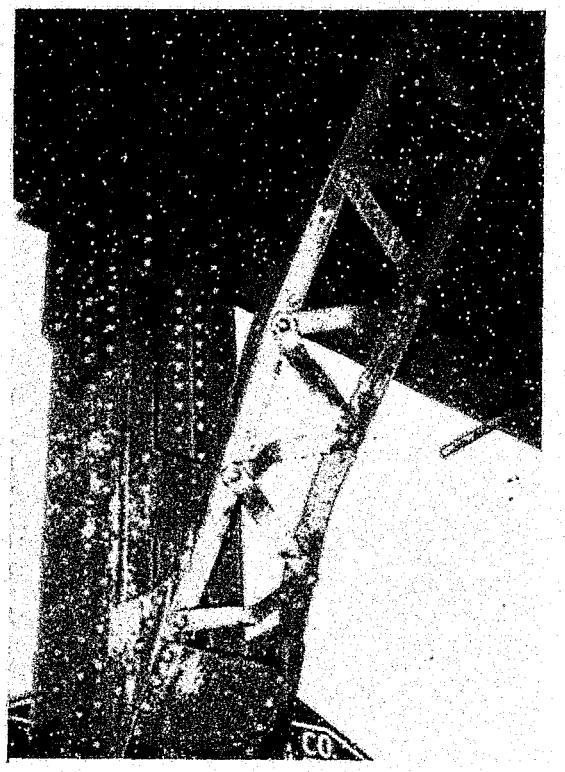
Strut for landing 3, Pier 18. (6-16)



Bent 2, expansion dam at Stgr. 5, looking west. (2R-3)



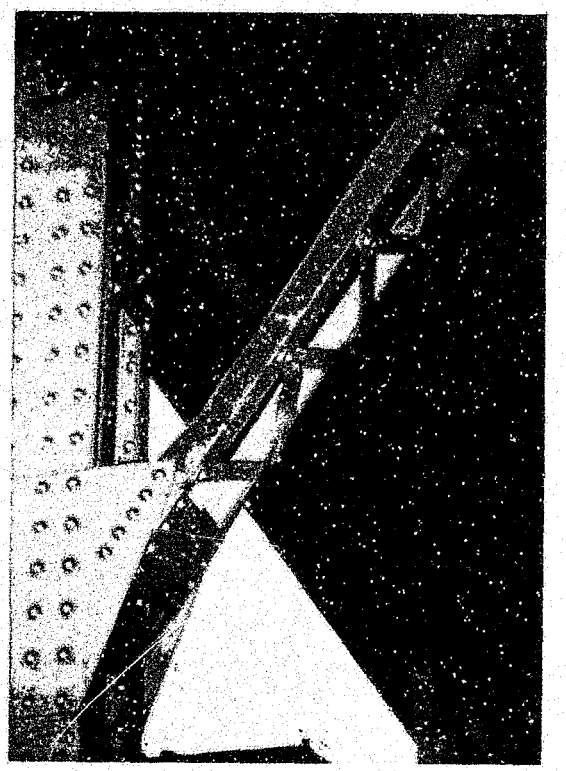
Bent 2, expansion dam at Stgr. 6, looking east. (2R-2)



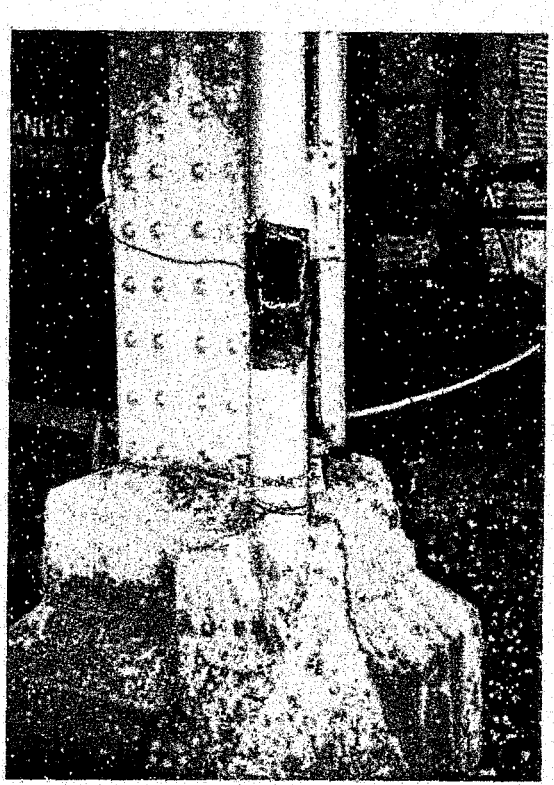
Knee brace at Col. 2E, looking east. (7-10)



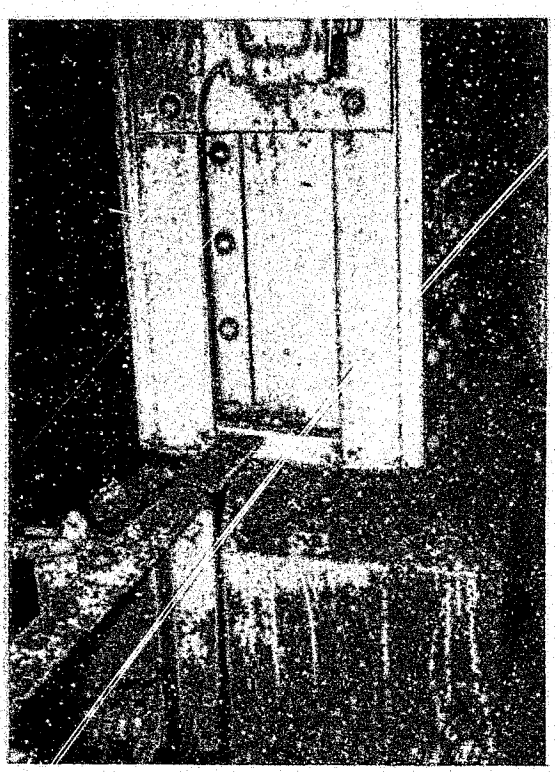
Looking down on knee brace at Col. 2E. (7-12)



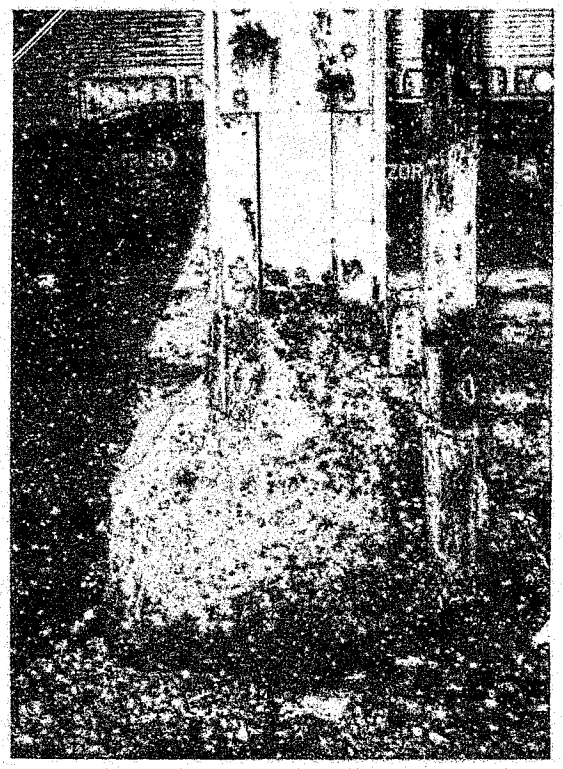
Knee brace at Col. 3E, looking south. (7-11)



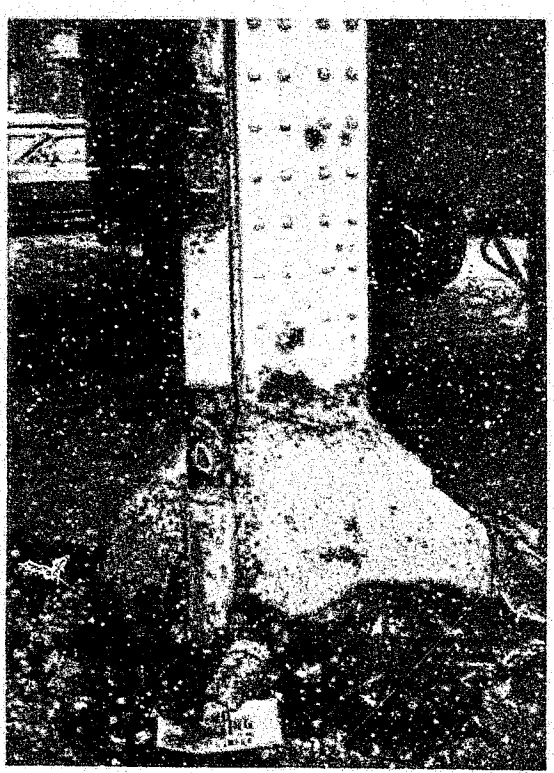
Northwest elevation of Col.9E. (5-3)



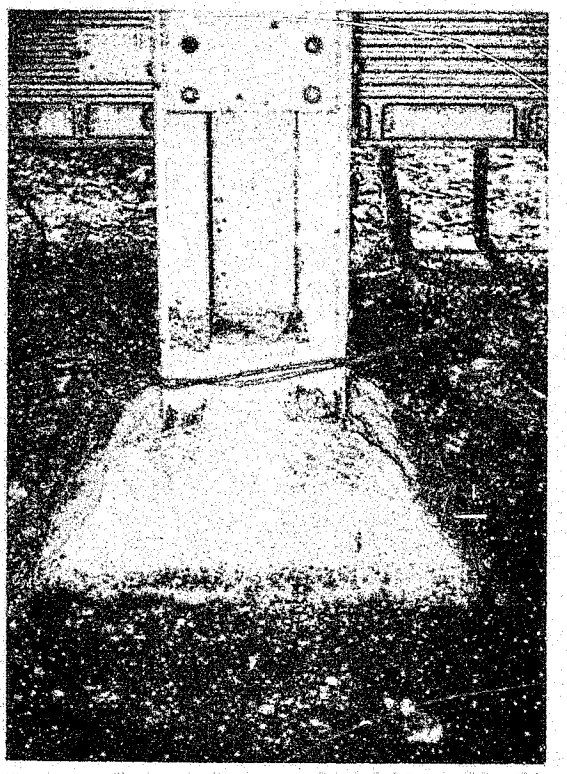
East elevation Col. 9E. (5-14)



East elevation Col. 9W. (5-0)



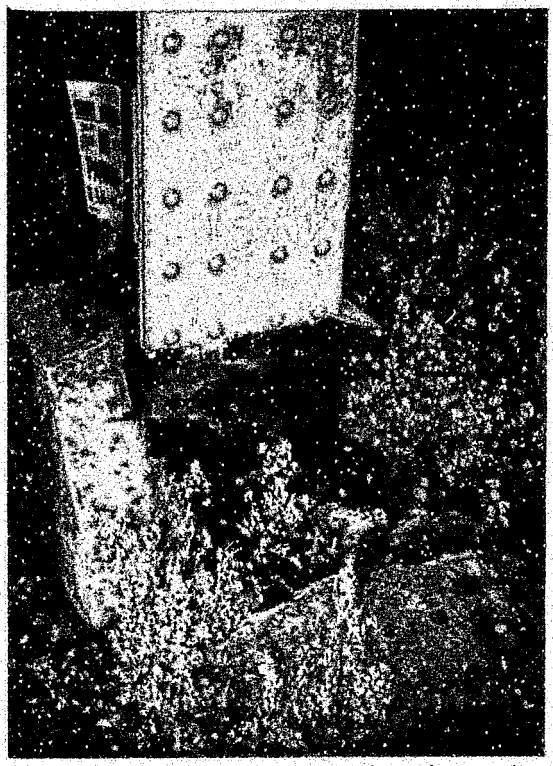
North elevation Col.9W. (5-1)



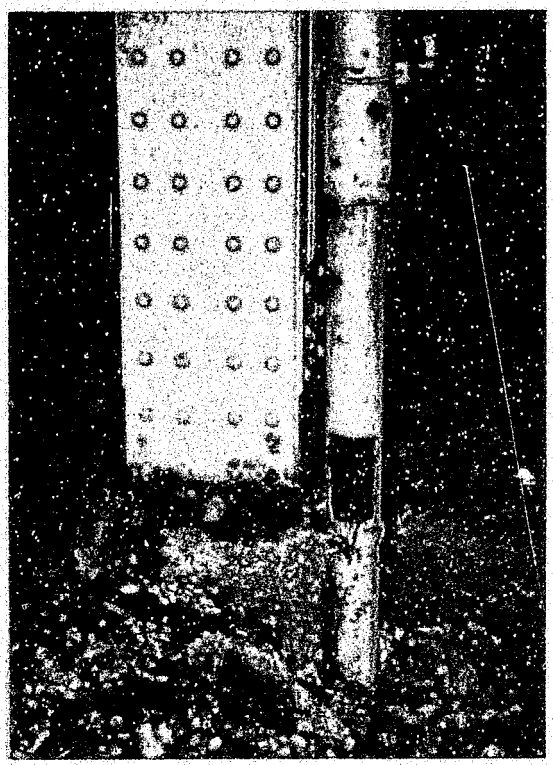
East elevation Col. 10W. (5-2)



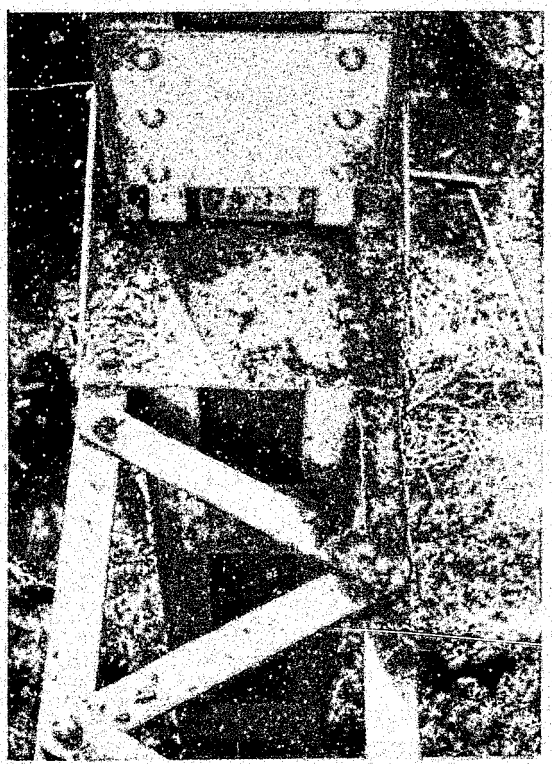
West bottom strut tower Span 12, looking north. (4-2A)



North elevation Col13A (west). (5-20)



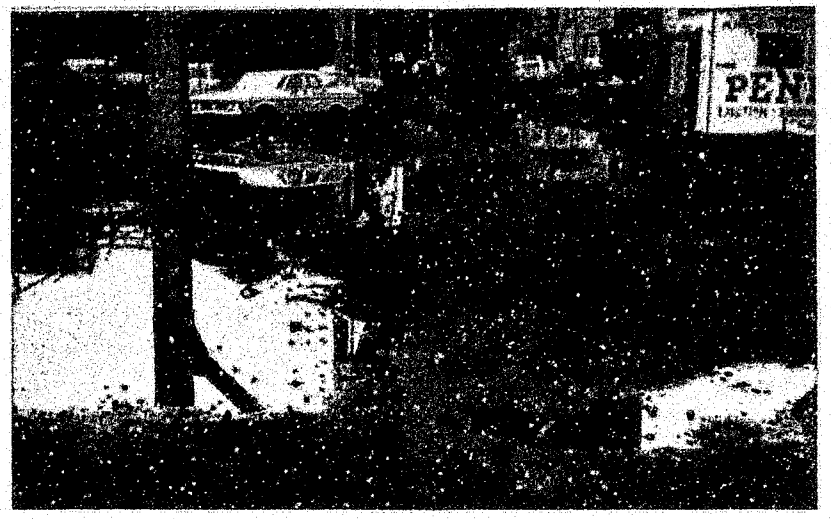
North elevation Col. 14east. (5-16)



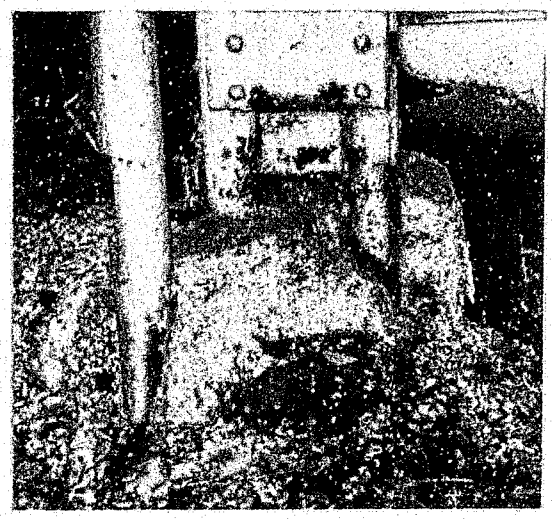
Bent 15. West end of mid-strut, looking west. (4-5A)



West elevation, Col. 15E. (3-20A)



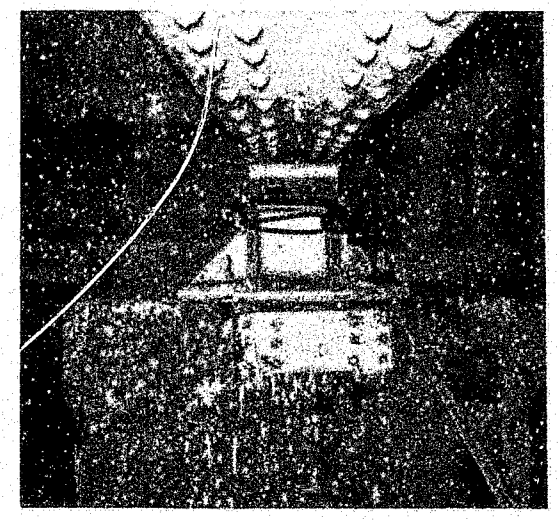
Drainage from deck leakage, looking south from Pier 17. (5-17)



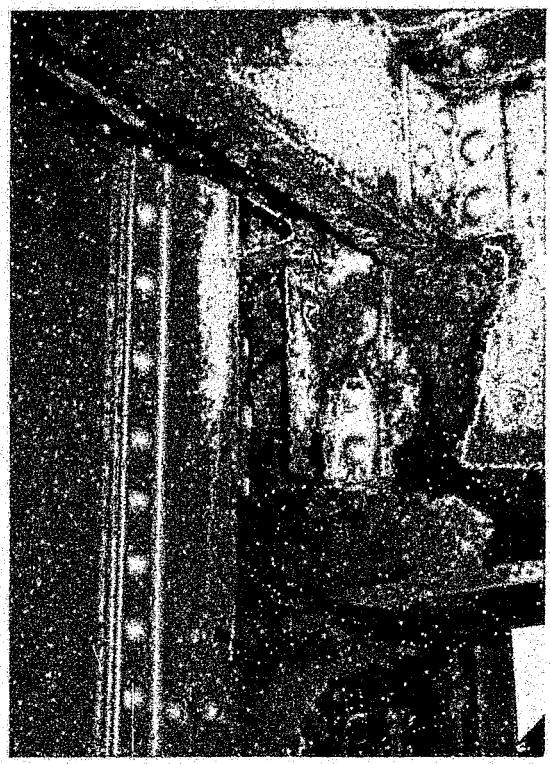
West elevation, Col. 14E. (4-0A)



Scupper drain pipe, east end. Bent 14, north side. (3R8)



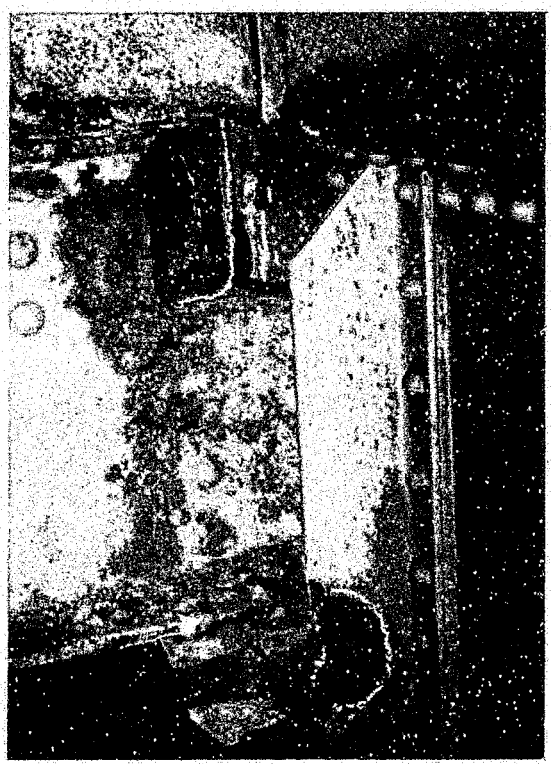
West girder bearing, Pier 17. (3R6)



Span 17. West elevation Stgr. 6 conn. to south side F.B. at Bent L1. (1-12)



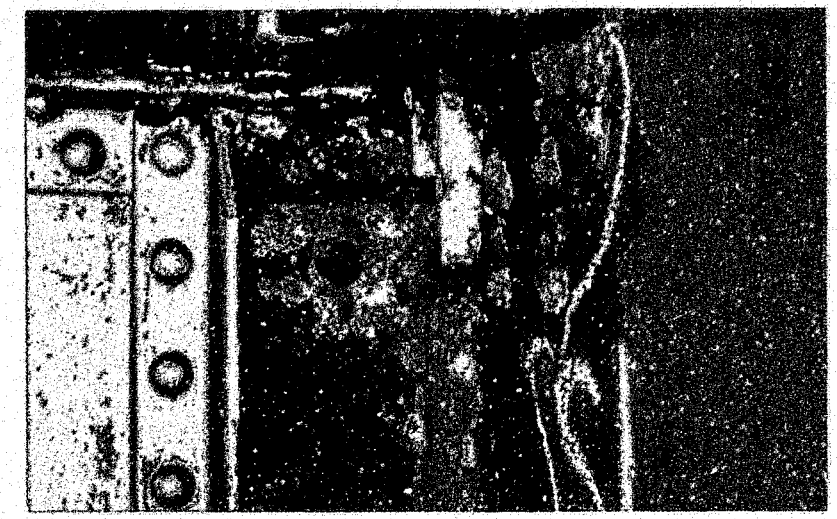
Span 17. East elevation Stgr. 1 conn. to north side F.B. at Bent L14. (3-0)



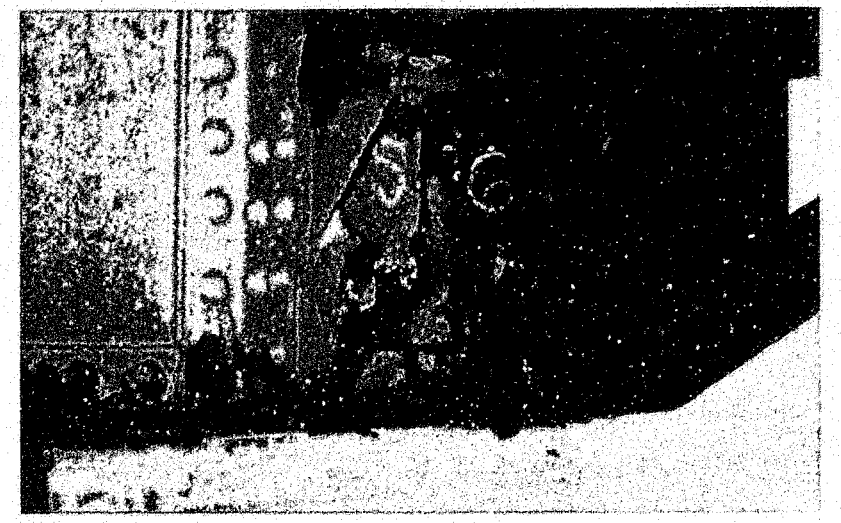
Span 17. West elevation Stgr. 1 conn. to north side F.B. at Bent L14. (3-1)



Span 17. West elevation Stgr. 6 conn. to F.B. 5 north. (2-11)



Span 17. West elevation Stgr. 1 conn. to F.B. at Bent L1. (1-10)



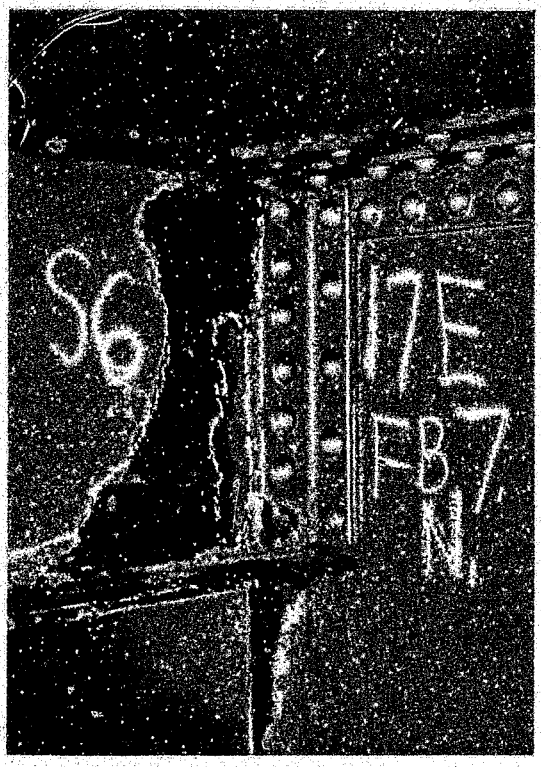
Span 17. South elevation of F.B. & Stgr. 6 seat at Bent L1. (1-11)



Span 17. East elevation Stgr. 5 conn. to north side F.B. at Bent L14. (3-5)



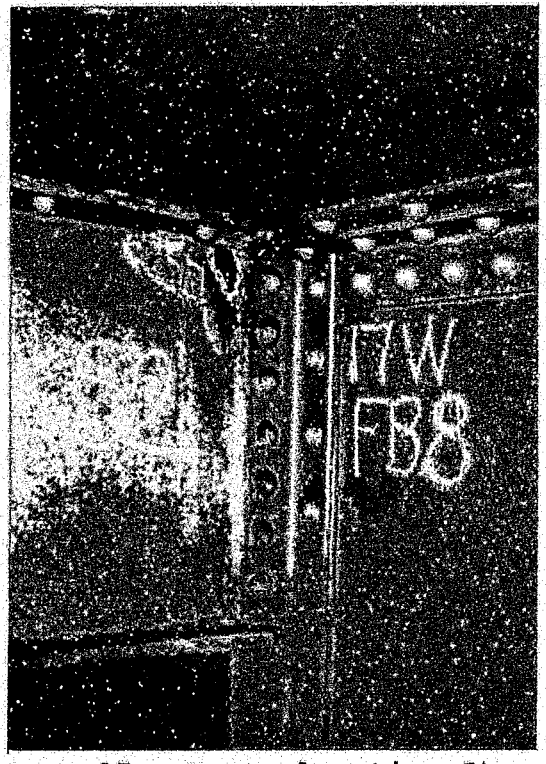
Span 17. West elevation Stgr. 6 conn. to north side F.B. at Bent L14. (3-4)



Span 17. West elevation Stgr. 6 at F.B. 7 north. (1-17)



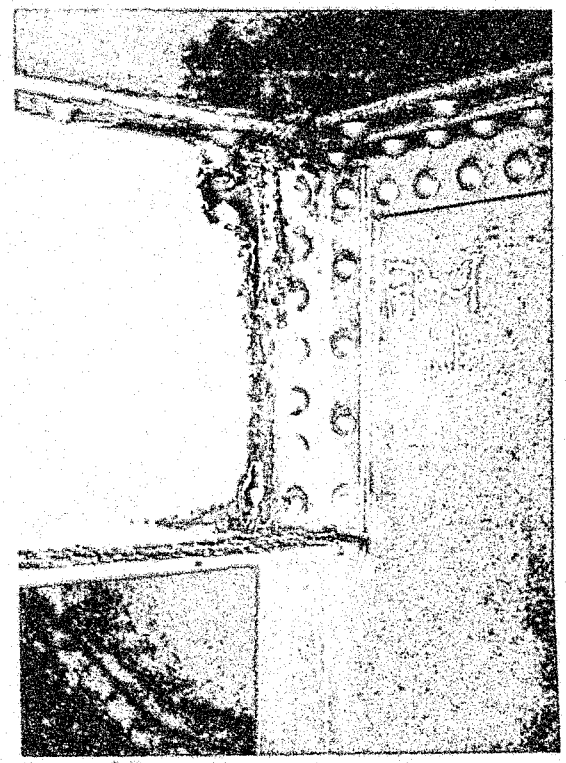
Span 17. East elevation Stgr. 1 at F.B. 8 north. (1-13)



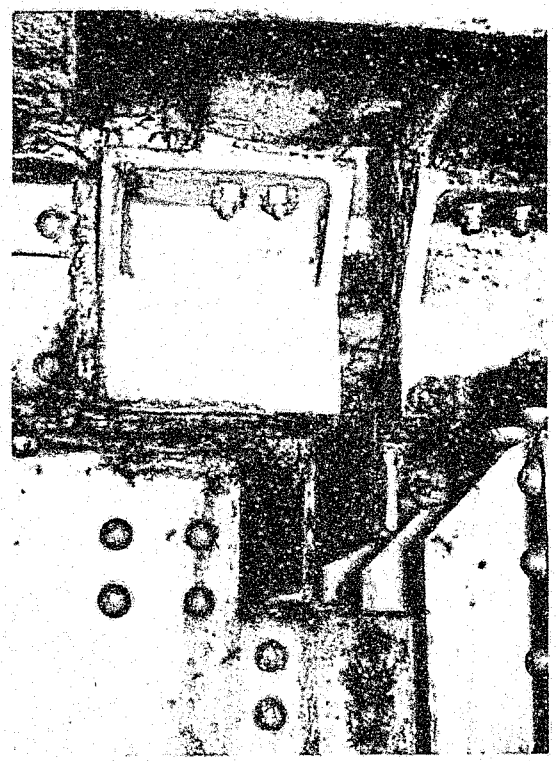
Span 17. West elevation Stgr. 2 at F.B. 8 north. (1-14)



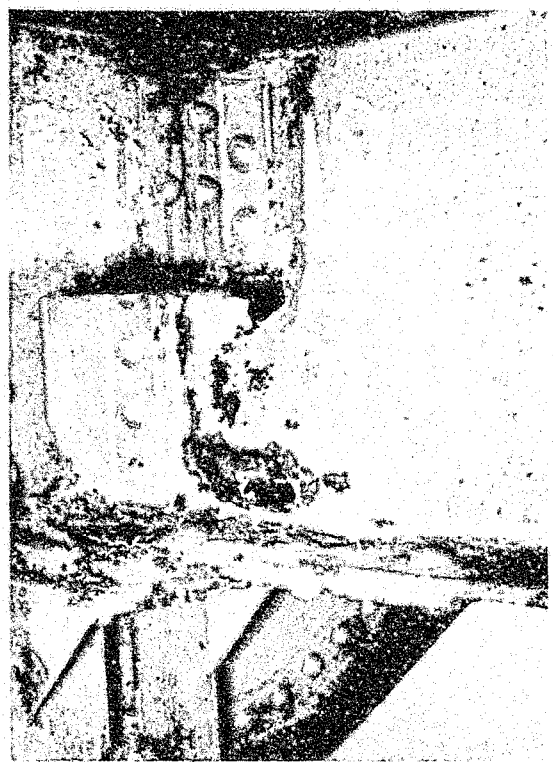
Span 17. West elevation Stgr. 6 at F.B. 8 north. (1-15)



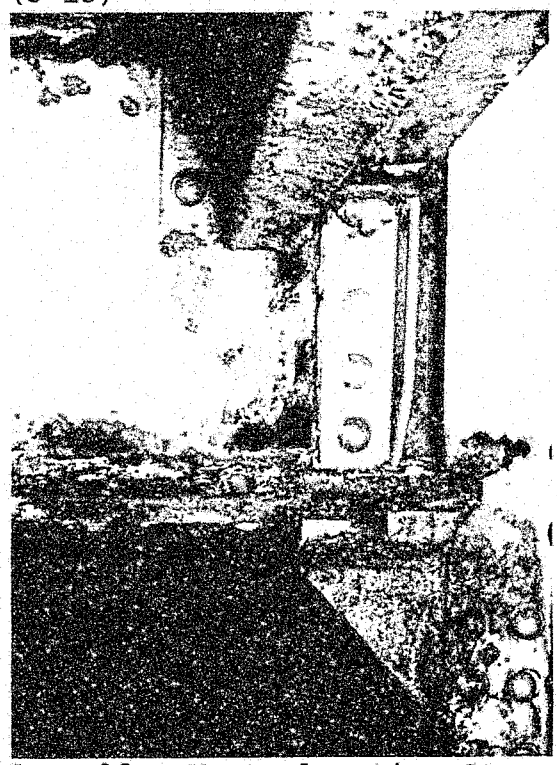
Span 17. West elevation Stgr. 6 at F.B.9 north. (2-15A)



Span 18. East elevation of curb casting above Stgr. 6 at south side F.B. at Bent L1. (5-13)



Span 18. East elevation Stgr. 1 at F.B. 11 north. (9-12)



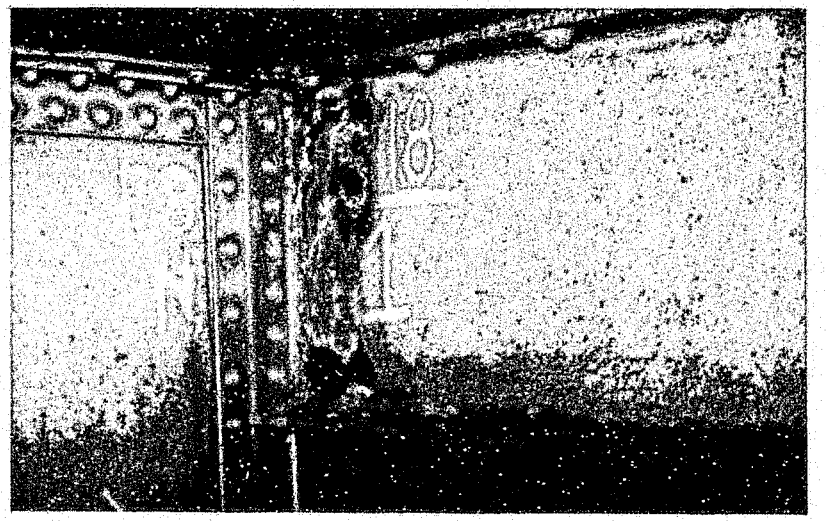
Span 18. West elevation Stgr. 6 at F.B. 11 north. (6-3)



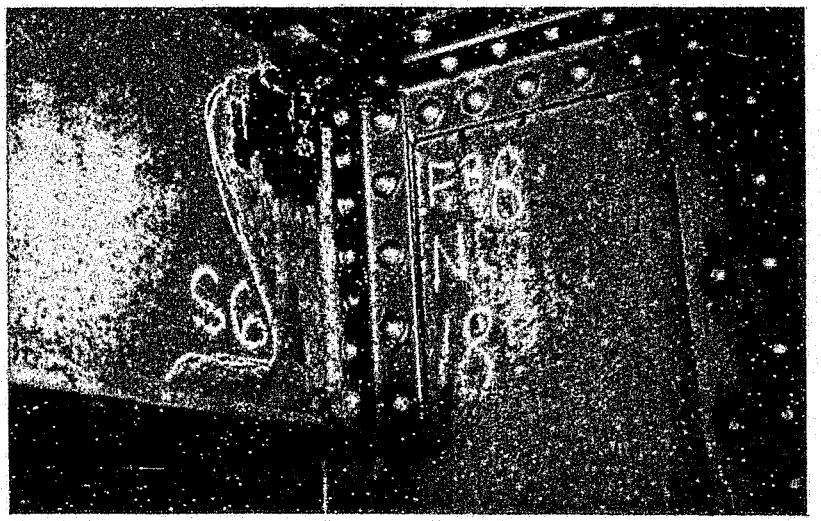
Span 18. North elevation F.B. 11 at Stgr. 6 seat.(6-2).(See photo 6-3)



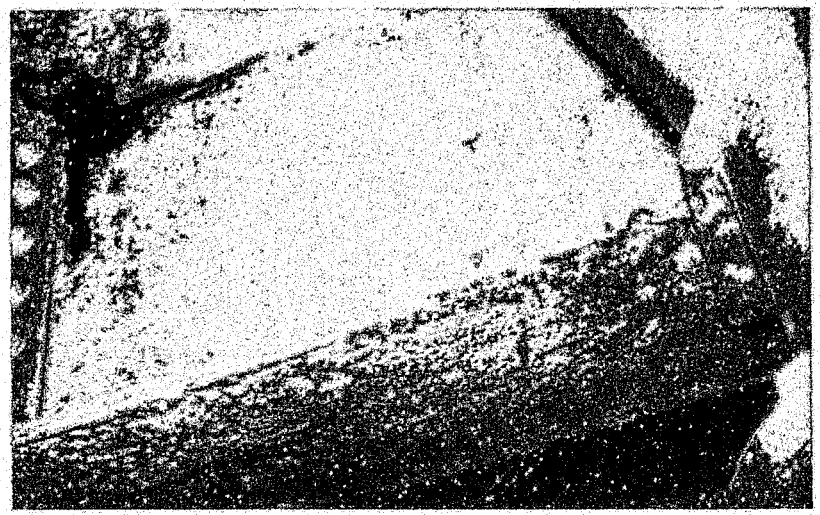
Span 17. West elevation Stgr. 1 at South side F.B. at Bent L14. (3-3)



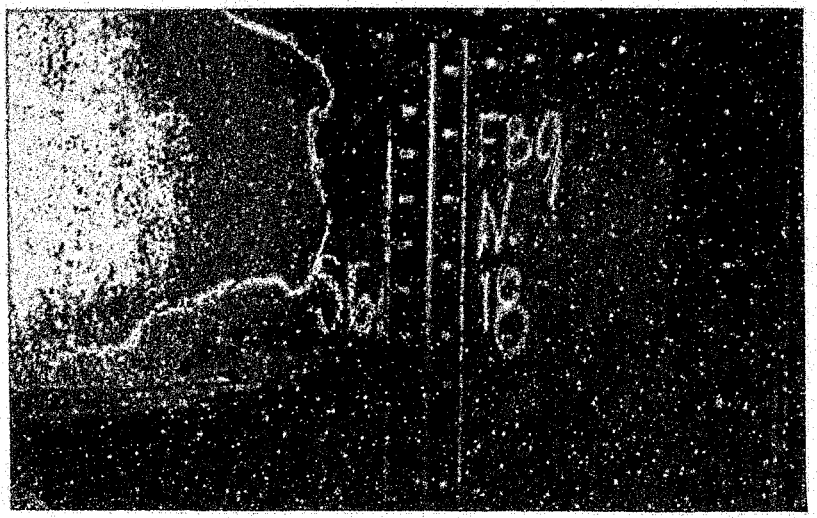
Span 18. East elevation Stgr. 1 at F.B. 8 north. (9-9A)



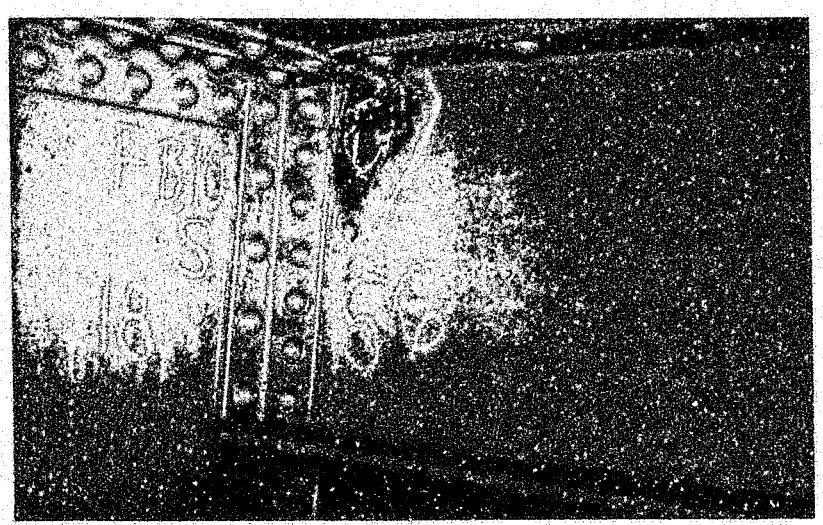
Span 18. West elevation Stgr. 6 at F.B. 8 north. (4-20A)



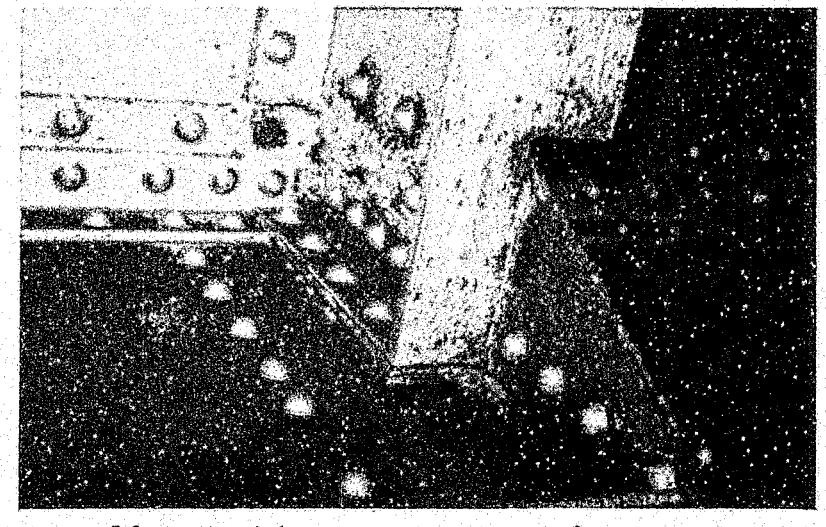
Span 18. West elevation Stgr. 6 at F.B. 3 south. (9-14)



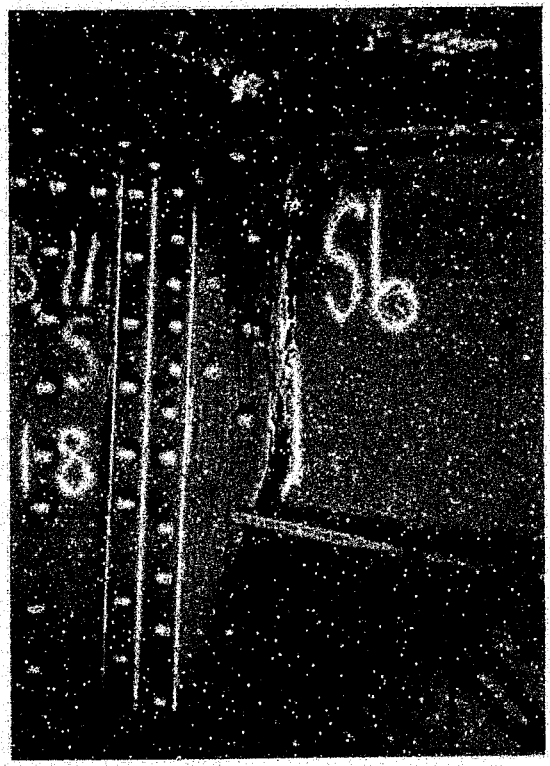
Span 18. West elevation Stgr. 6 at FB. 9 north. (4-20)



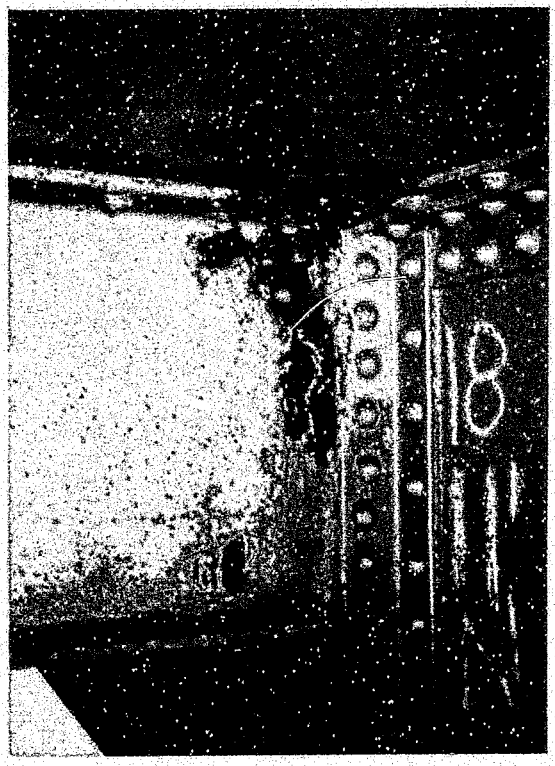
Span 18. West elevation Stgr. 6 at F.B. 10 south. (4-19)



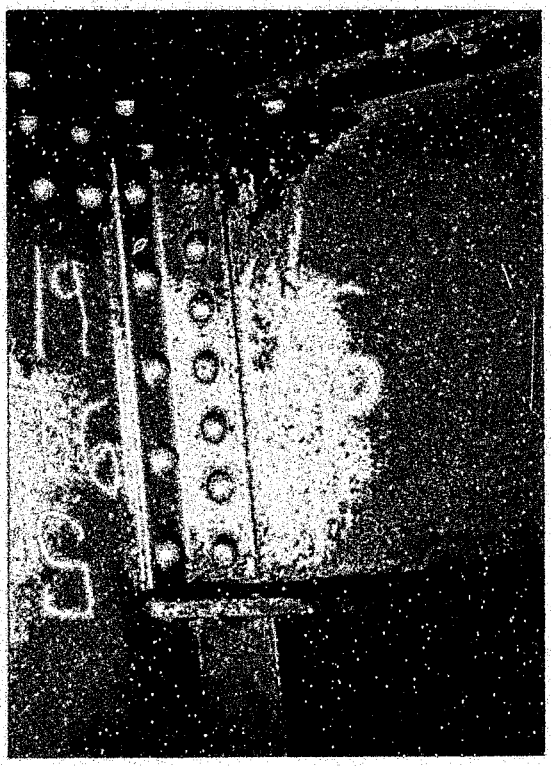
Span 19. Looking up to Stgr. 4 conn. to F.B. at Bent L1. (9-6A)



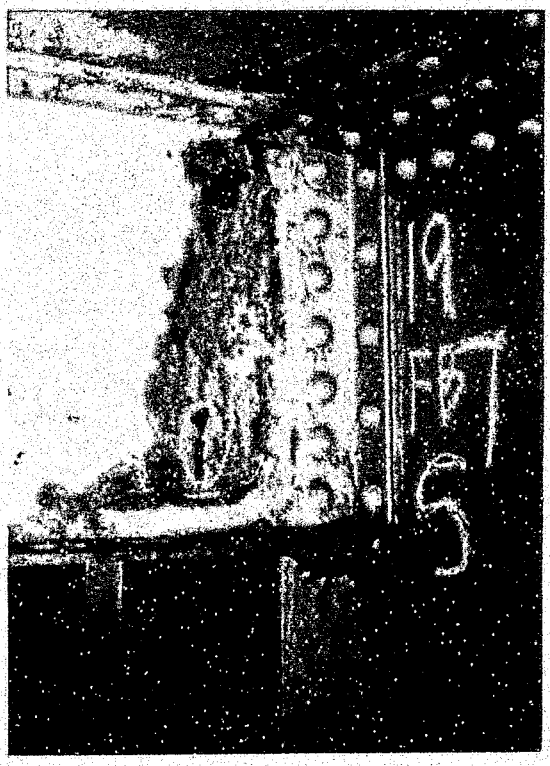
Span 18. West elevation Stgr. 6 at F.B. 11 south. (4-17)



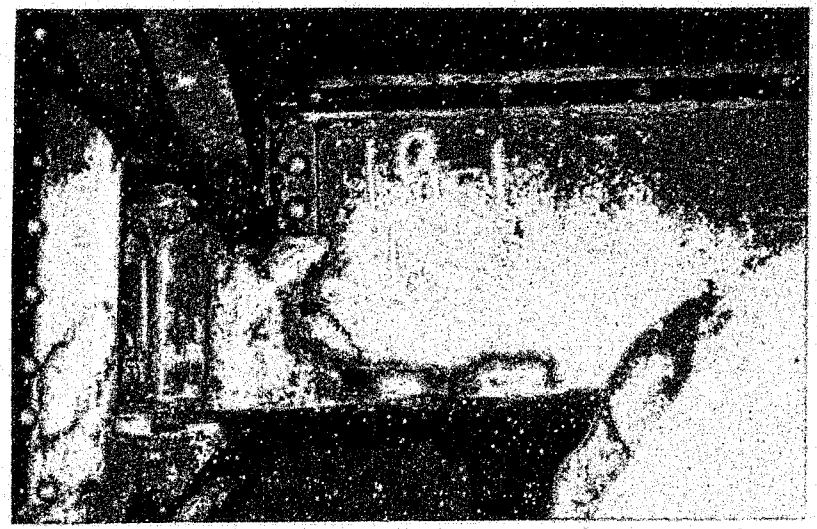
Span 18. West elevation Stgr. 6 at F.B. 11' north. (7-19)



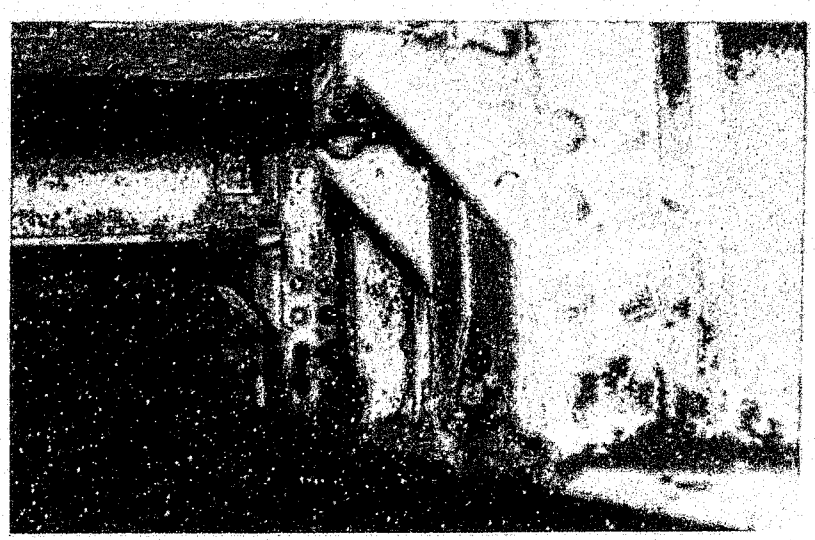
Span 19. West elevation Stgr. 6 at F.B. 6 south. (10-3)



Span 19. East elevation, Stgr. 1 at F.B. 7 south. (9-15)



Span 19. West elevation Stgr. 6 at south side F.B, Bent L1. (8-3)



Span 19. Looking west at stgr. seats at south side F.B., Bent L1. (8-4)



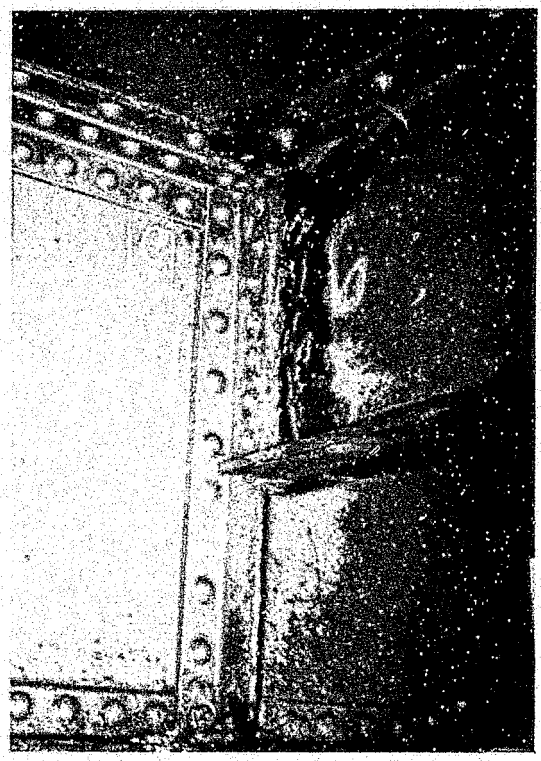
Span 19. West elevation Stgr. 3 at south side F.B., Bent L1. (9-5)



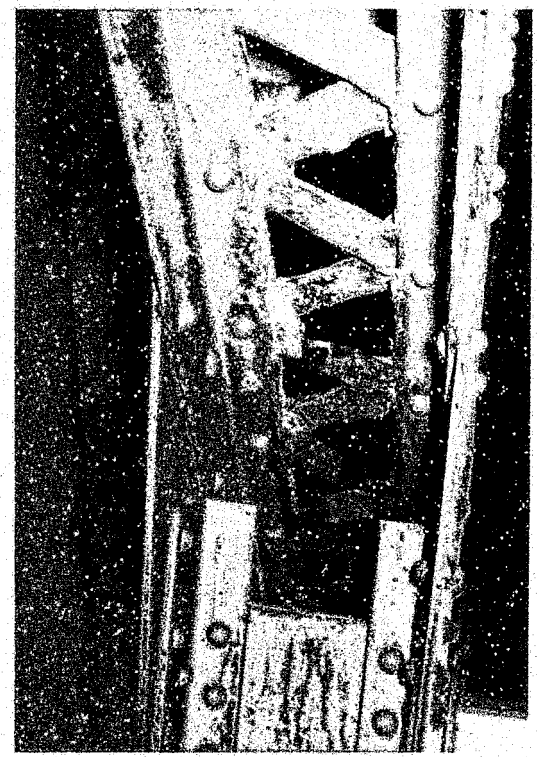
Span 17. Inside bottom Col. 12E. (2-16A)



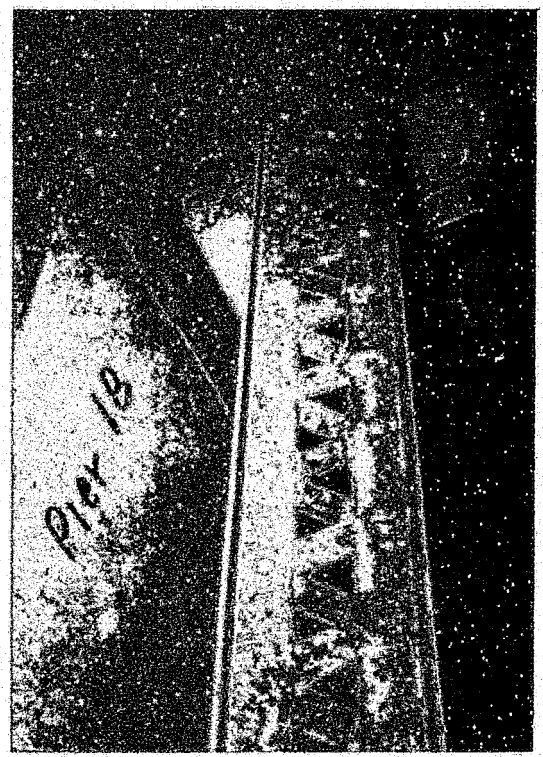
Span 19. West elevation Stgr. 2 at F.B. 9 south. (9-16)



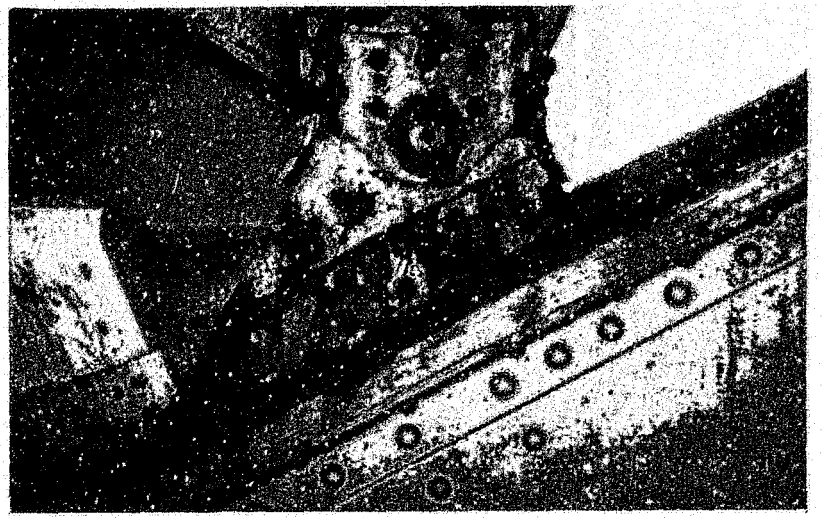
Span 19. West elevation Stgr. 6 at F.B. 11 south. (10-5)



Span 17. Bent L1. Diags intersection above bottom strut, looking west. (1-9)



Span 17. Bent L14. Looking down and east at bottom strut. (3-7)



Span 17. East elevation of Col. 1 west of Bent L1. (2-8)



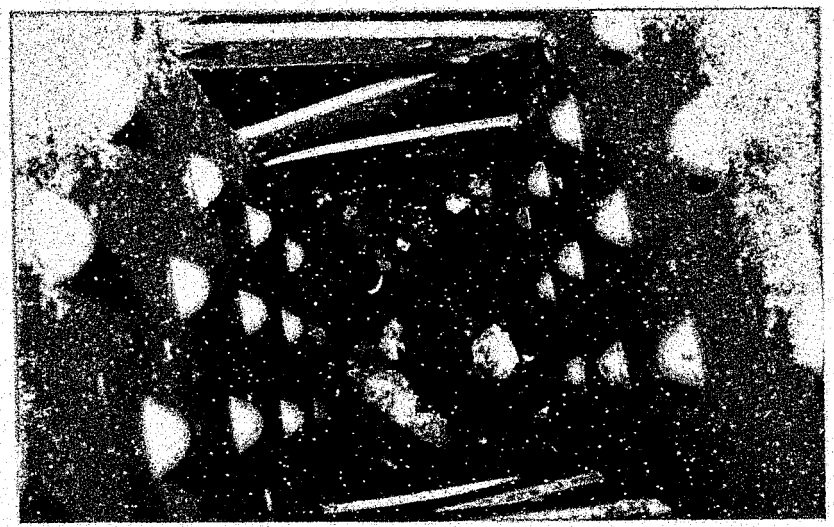
Span 17. North elevation of Col. 1 west of Bent L1. (2-4)



Span 17. West elevation of Col. 1 west of Bent L1. (2-6)



Span 17. South elevation of Col. 1 west of Bent L1. (2-5)



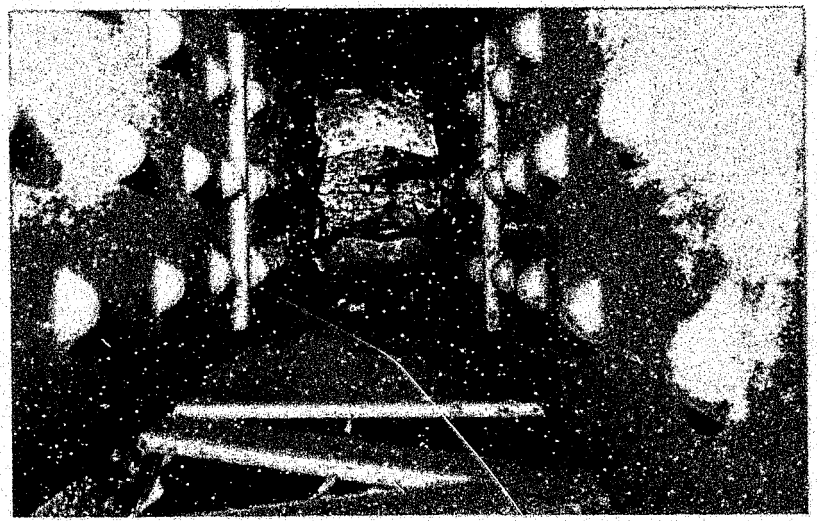
Span 17. Inside bottom Col. 1 east of Bent L1. (2-10)



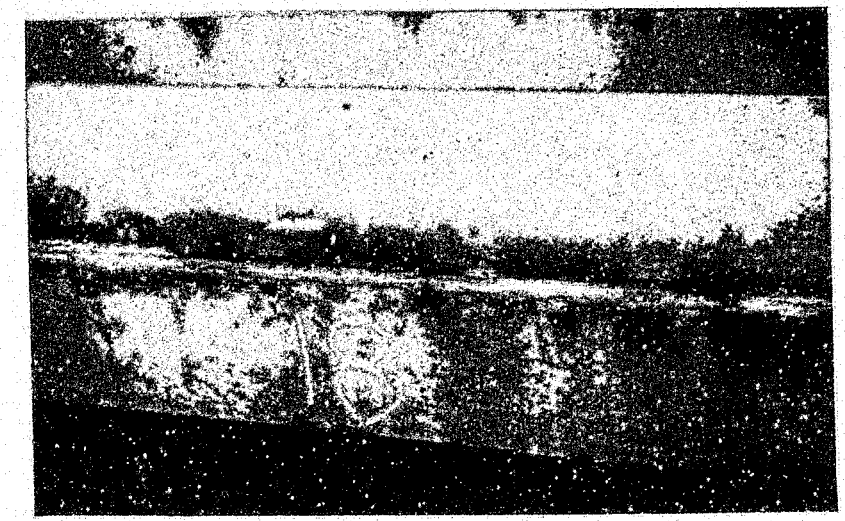
Span 17. South side of bottom strut, Bent L1, looking west. (1-6)



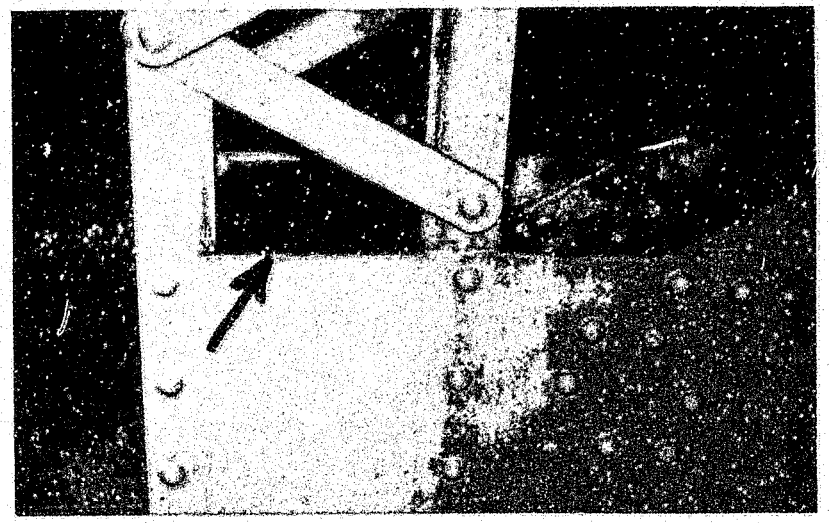
Span 17. Inside bottom Col. 14west, Bent L14. (2-18A)



Span 17. Inside bottom Col. 14east, Bent L14. (2-20A)



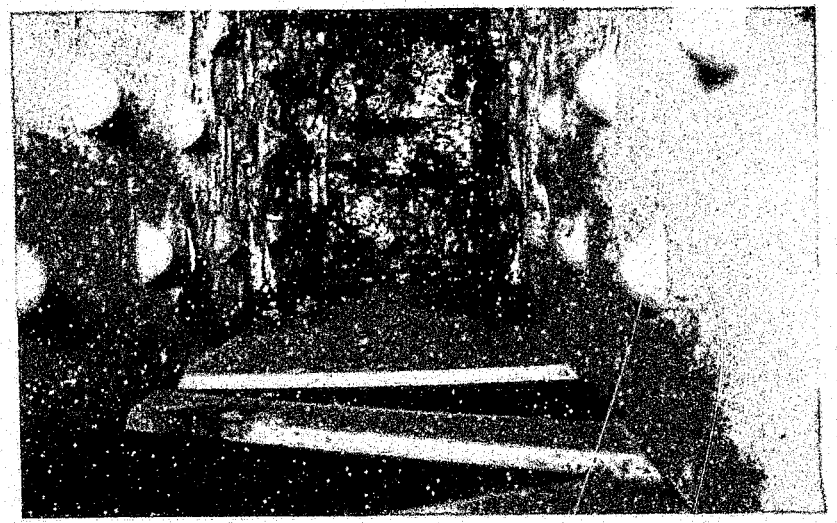
Span 18. North elevation bottom strut, Bent L1. Typical pack-out at back of angles. (3-13)



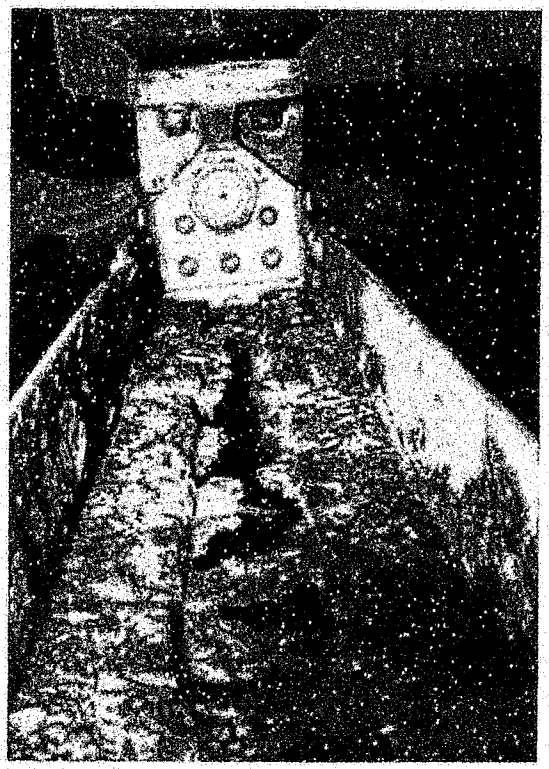
Typical condition at bottom cols. of end bents, water trapped inside. (6-6)



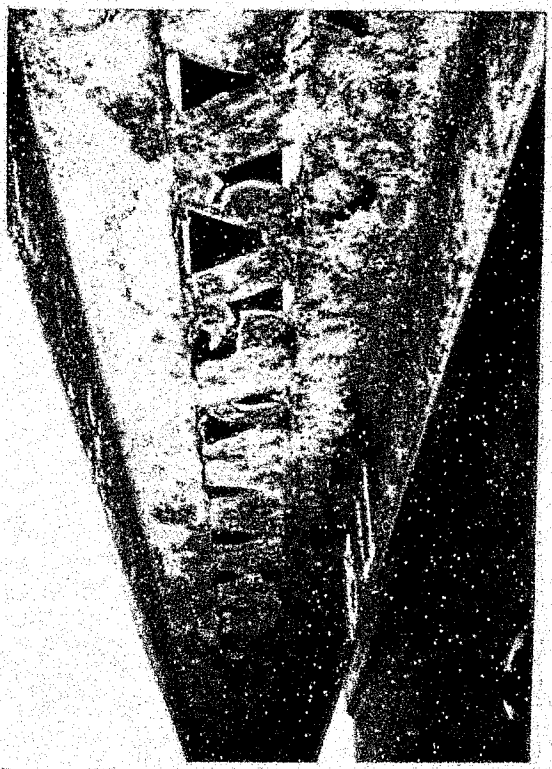
Span 18. Inside Col. 1E, Bent L1. (3-15)



Span 18. Inside Col. 1W, Bent L1. (3-14)



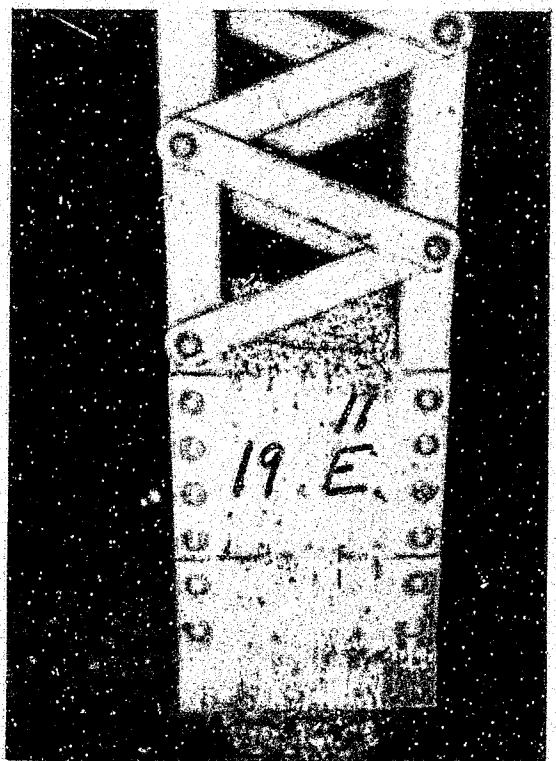
Span 17. East end of top strut, Bent L14. (3- 6)



Span 18. Looking up at bottom strut, Bent L1. (3-8)



Span 17. Arch rib. Gunite cap at east side of top flg. p.p. 2 to 3. (2-1)



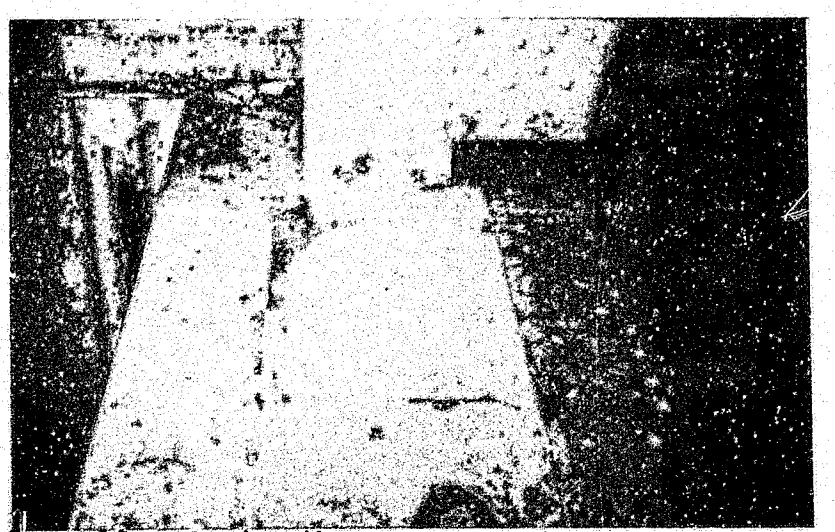
Span 19. South elevation, Col. 11. (8-5)



Span 17. Arch rib west. Looking south from p.p. 3 to 2. (2-2)



Span 17. Arch rib east. Gunite at west side Col. 2E. (2-9)



Span 19. Arch rib west. Gunite at p.p. 13 to 14. Looking north. (9-18)



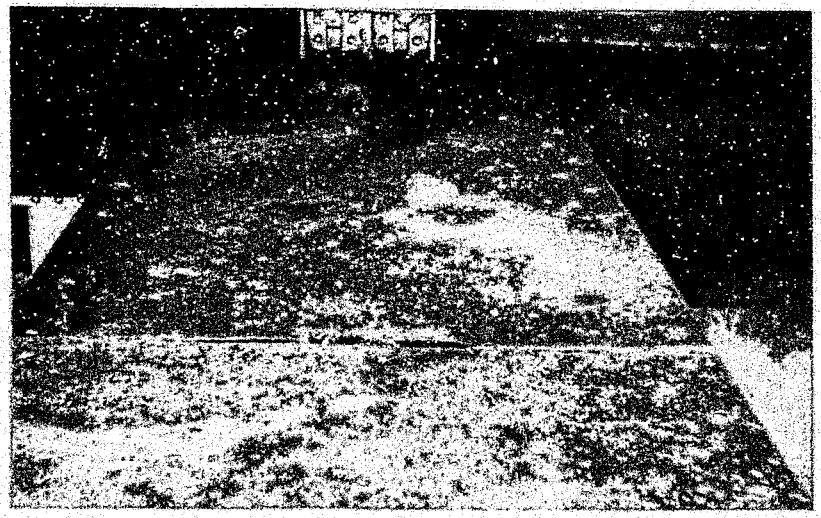
Span 19. Arch rib west. Gunite at Col. 14W. (9-17)



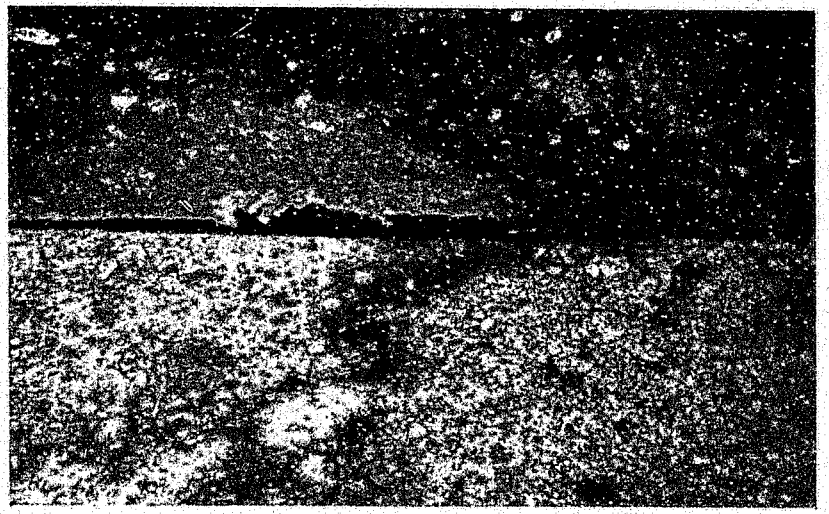
Span 18. Arch rib west at Col. 8W. (9-11)



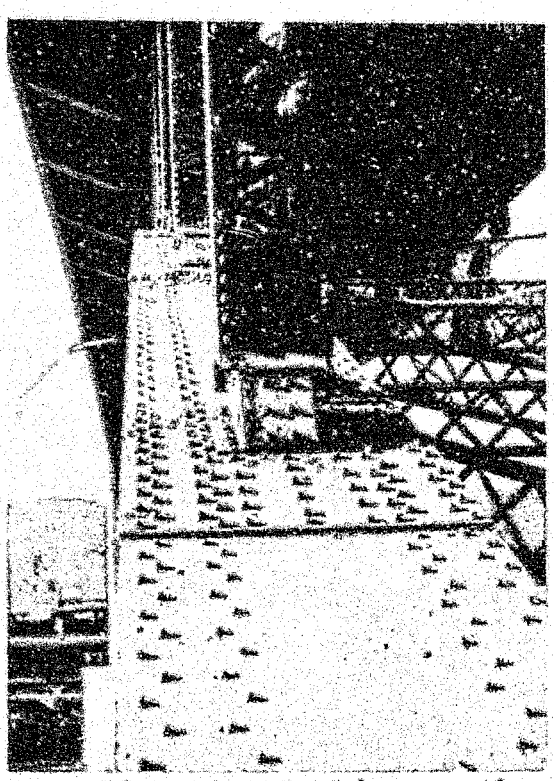
Span 18. Arch rib east. Top flg. cover plate p.p. 11 to 10. Looking south. (4-18)



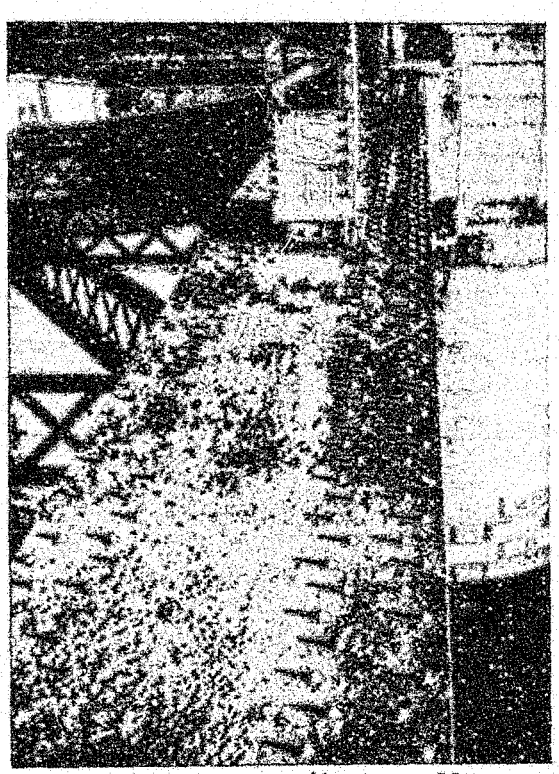
Span 18. Arch rib east. Top plates at center pin. Looking north. (6-0)



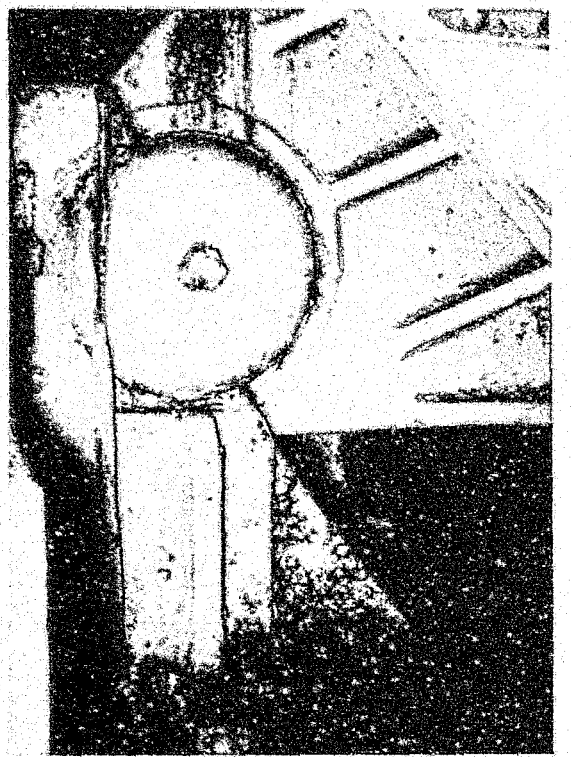
Span 18. Arch rib east. Top plates at center pin. Looking north. (6-1)



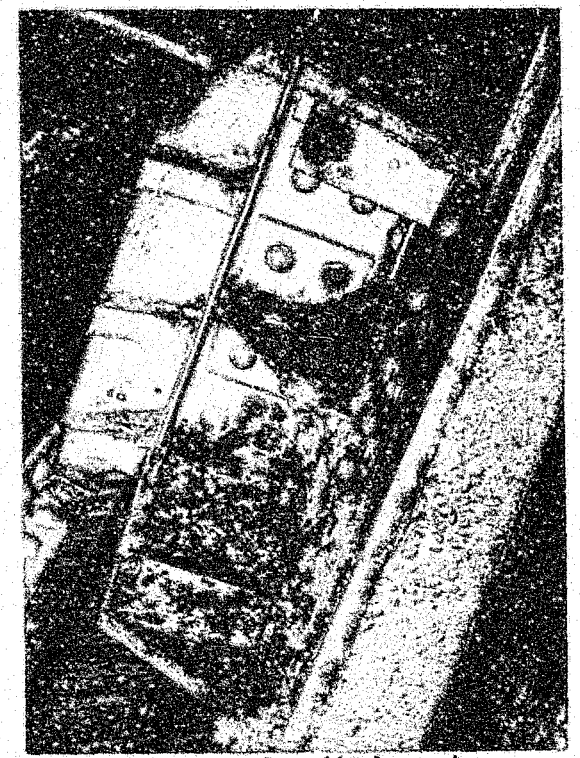
Span 18. View looking north at west rib top flg, p.p. 2. (9-7A)



Span 18. West rib top flg, p.p. 6 to 5, looking south. (9-9)



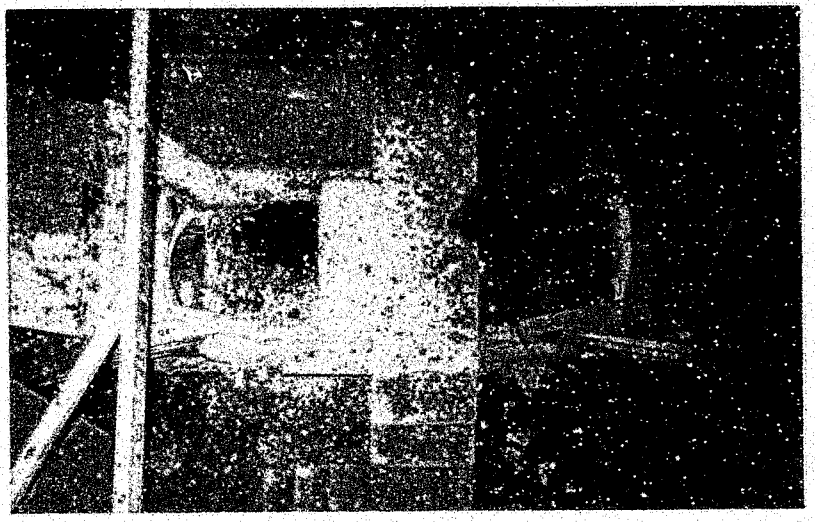
Span 18. East rib at south anchorage at Pier 18. East elevation. (6-15)



Span 17. Arch rib bracing shear lock, west elevation, at Pier 17. (2-7)



Span 17. Col. 9E conn. to top flg. of east arch rib. (2-13A)



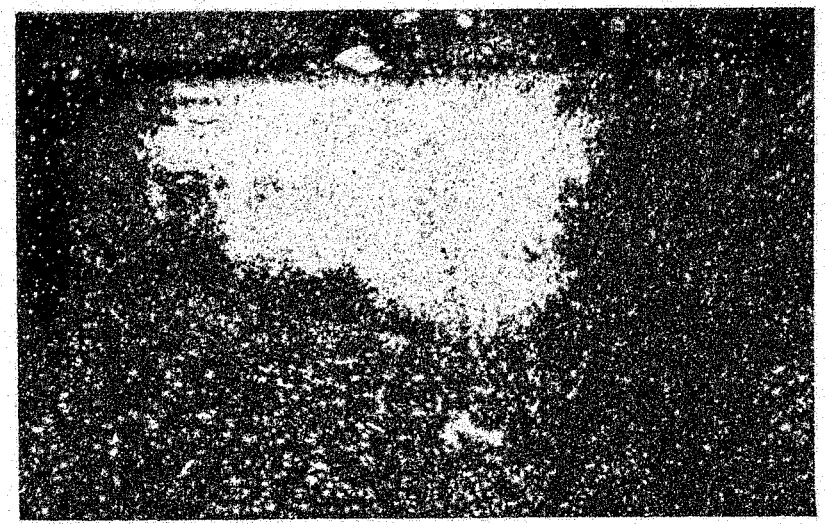
East arch rib anchorages in Pier 18. (6-18)



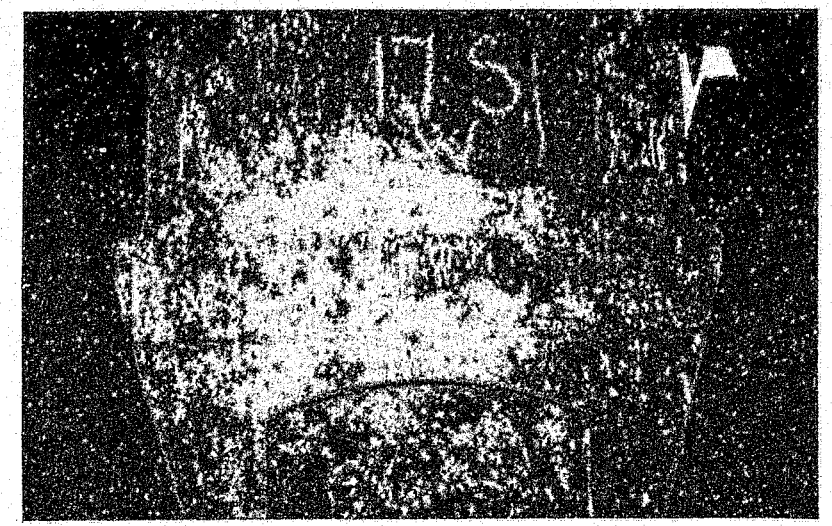
Span 18. South end east rib at pin casting, Pier 18. (6-14)



Span 18. South end east rib at pin, Pier 18. (6-13)



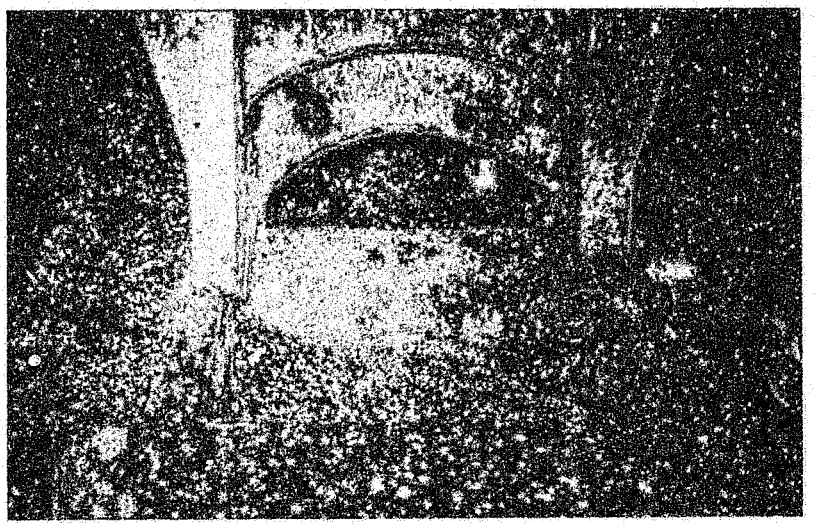
Span 17. Anchorage at south end west rib, Pier 17. (1-0)



Span 17. South end of west rib at pin casting, Pier 17. (1-2)



Span 19. South end of east rib behind pit shield, Pier 19. (7-1A)



Span 17. South end west rib at pin, Pier 17. (1-1)



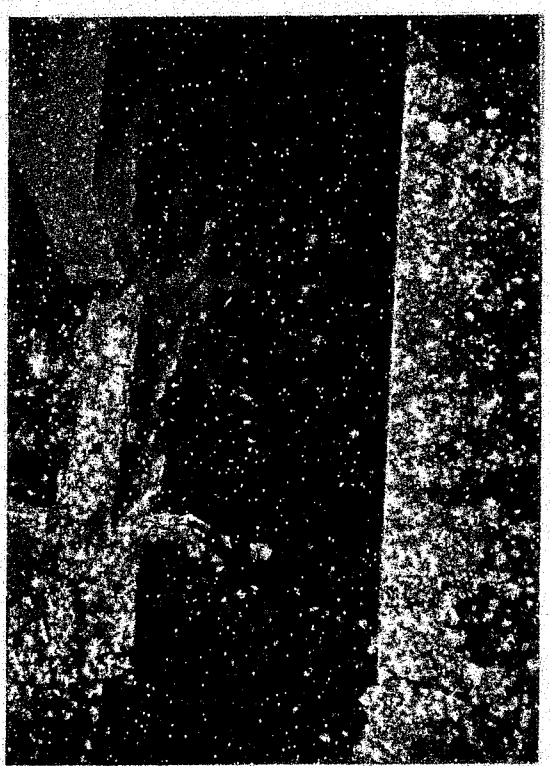
Span 17. West web of west rib at shield and pin casting conn. (1-3)



Span 17. East web of west rib. Looking south towards pin casting conn. (1-7)



Span 19. North end of east rib at pin, Pier 20. (10-11)



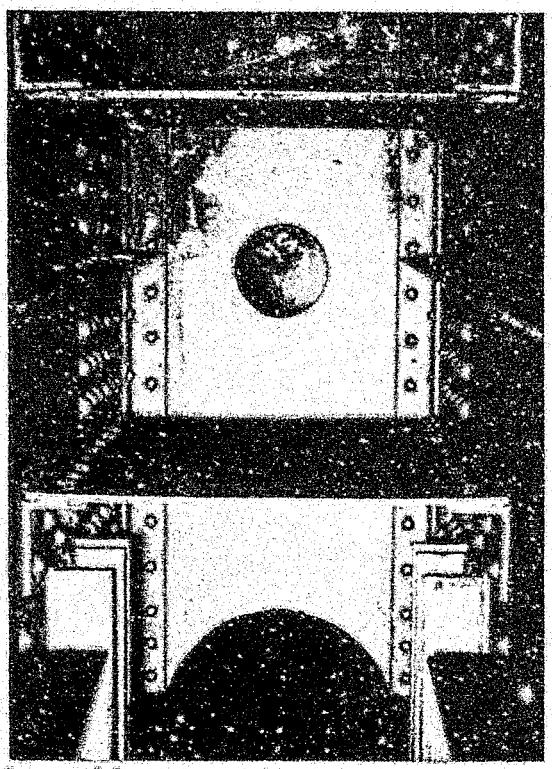
Span 19. North end of east rib at west side of pin, Pier 20. (10-12)



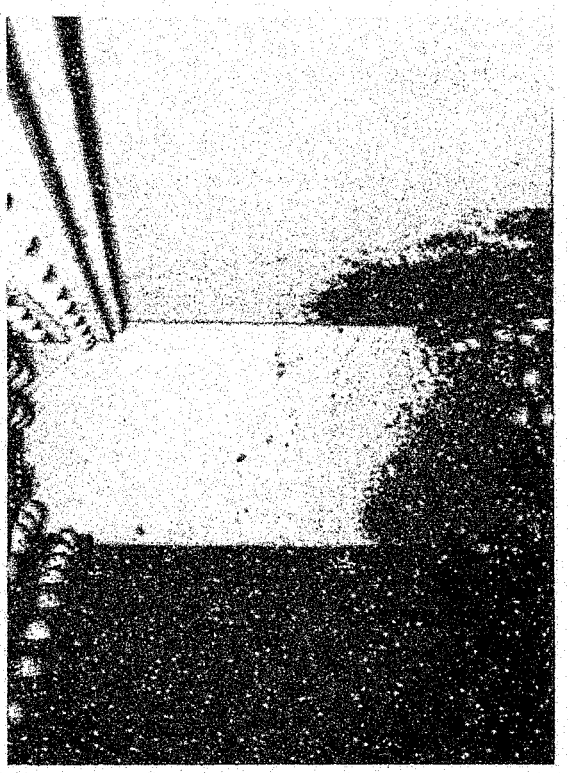
Span 19. North end west rib at pin, Pier 20. (10-6)



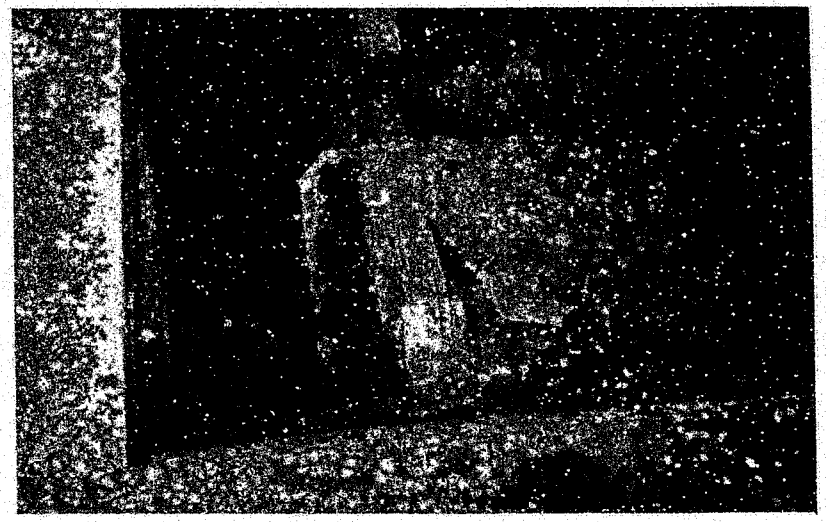
Span 19. East web of west rib, north end at conn. to pin casting. (10-9)



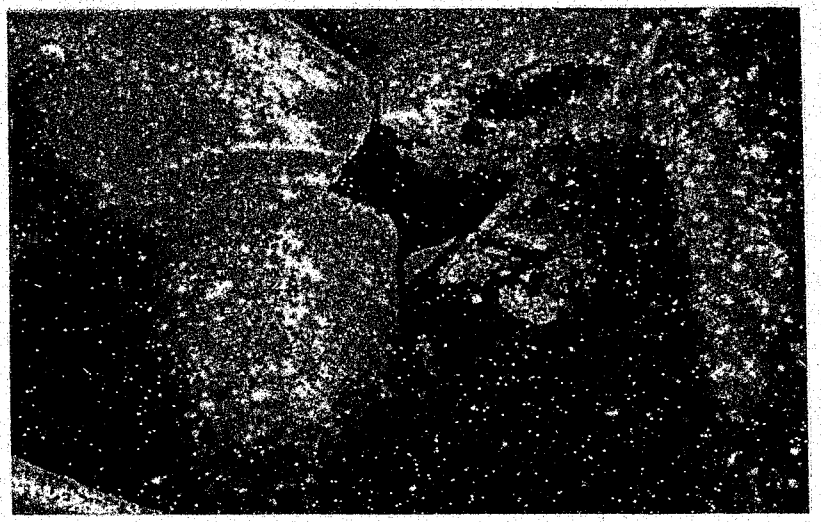
Span 18. Inside east rib, looking north at diaph. at p.p. L2. (4-13)



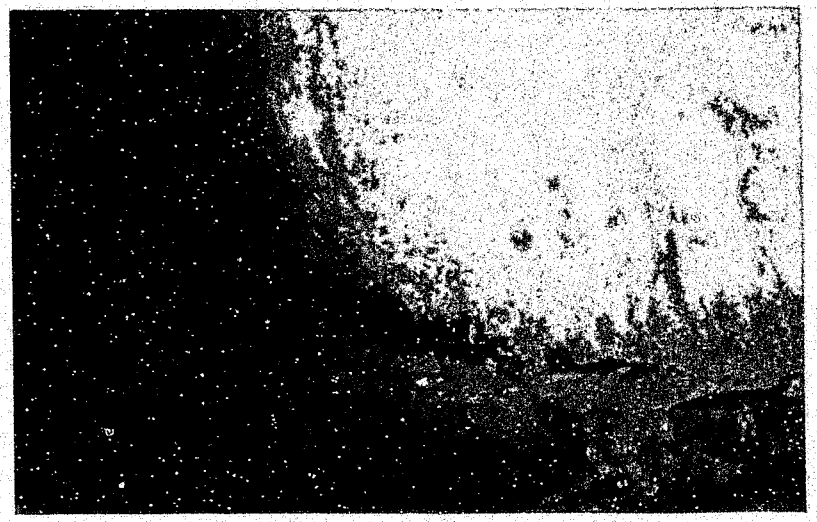
Span 18. Inside east rib, looking north at milled surface of center pin casting. (4-15)



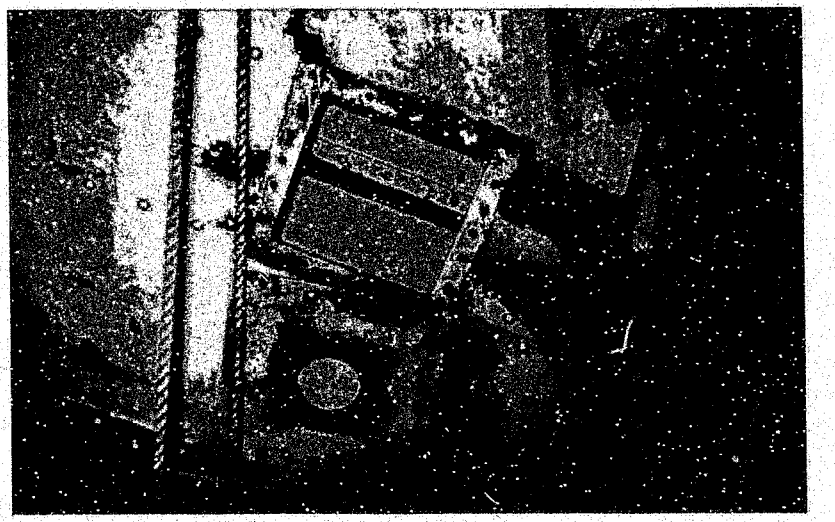
Span 19. North end west rib at anchorage yoke, Pier 20. Note missing rivets.(10-8)



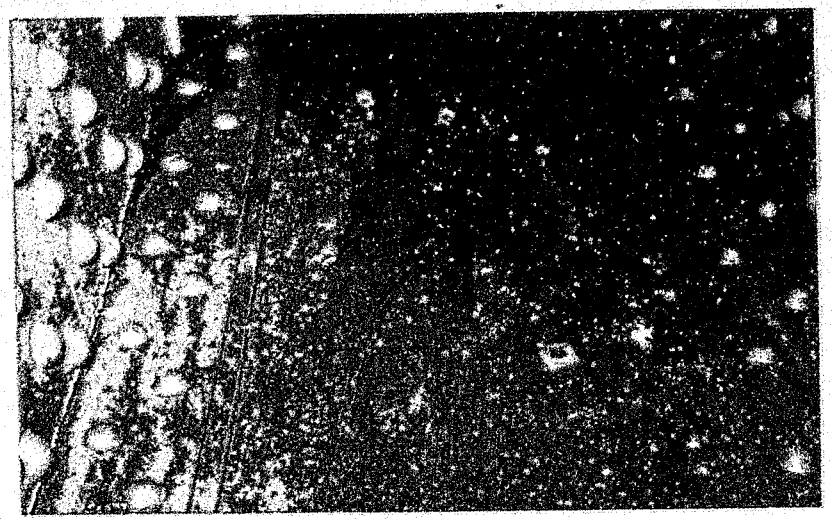
Span 19. North end west rib at anchorage, Pier 20. (10-10)



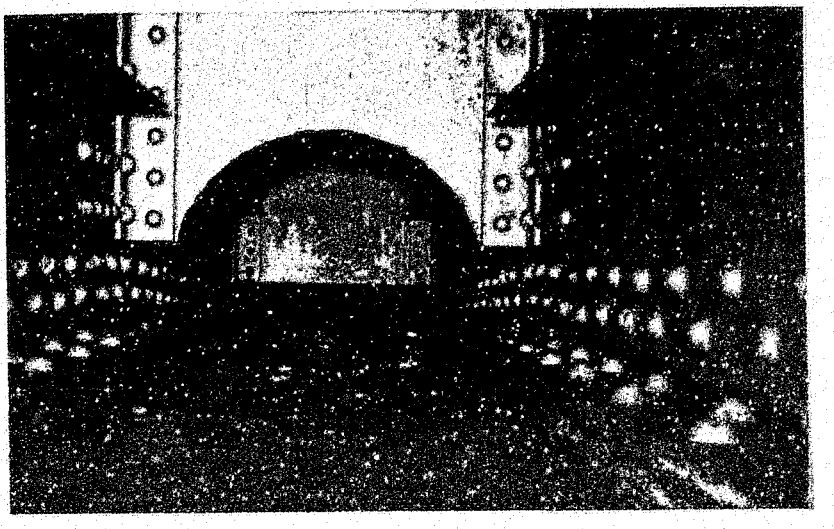
Span 19. West web at bottom flg. of east rib under shield, Pier 20. (10-13)



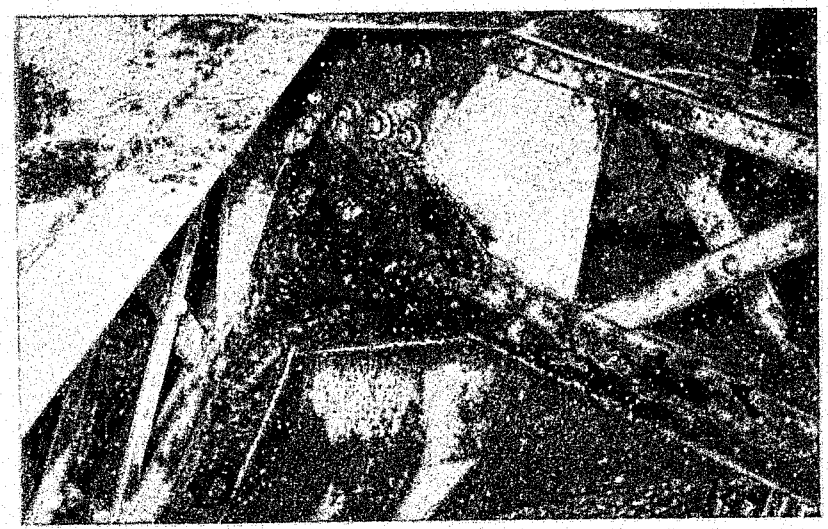
Span 18. Inspection man-hole at p.p. L1, east rib. (5-12)



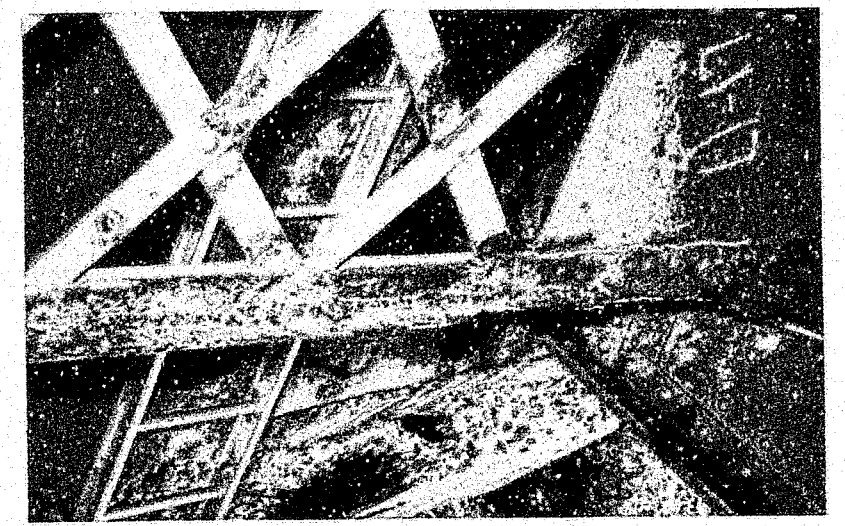
Span 18. Inside east rib bottom flg. at p.p. L1. (4-14)



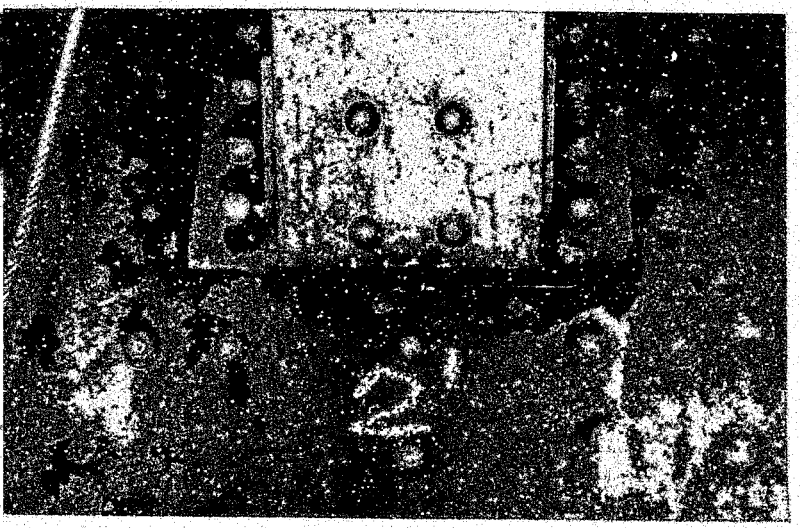
Span 18. Inside east rib, looking south to p.p. 10, along bottom flg. (4-16)



Span 17. Rib bracing diags. at shear lock, Pier 17. (1-4)



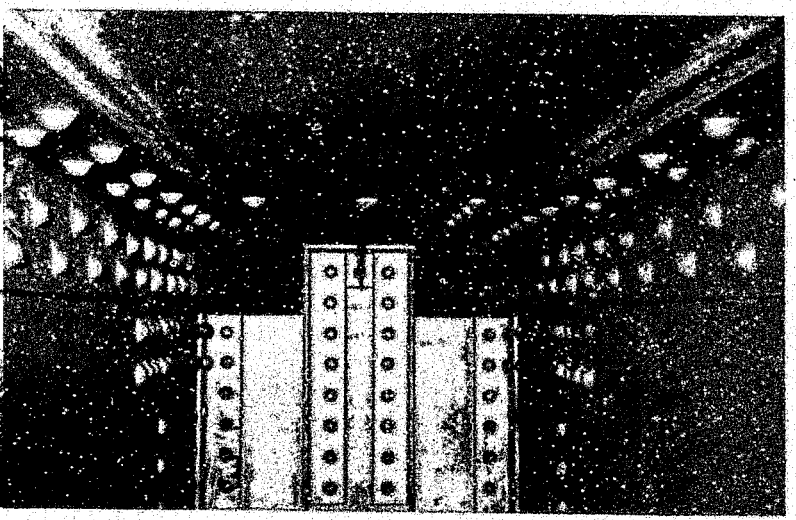
Span 17. Rib bracing, bottom flg. of west strut near west rib. (1-5)



pan 18. Missing rivet at north side Col. 'E. (8-19)



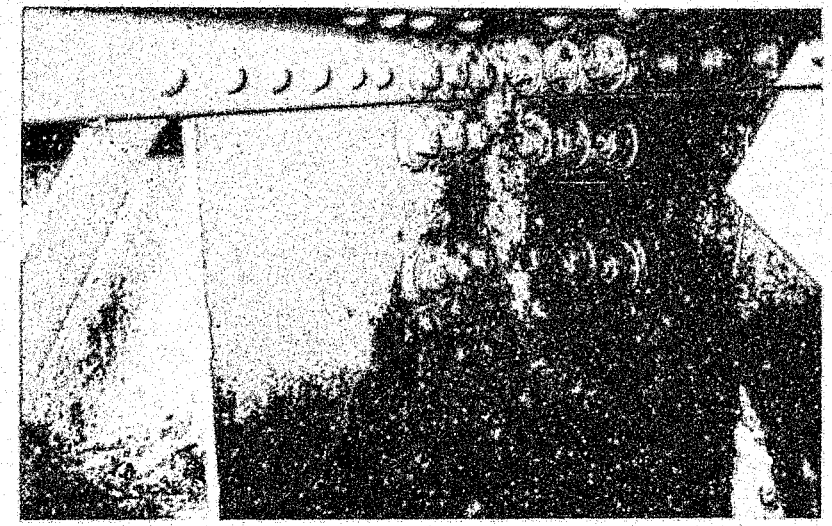
Span 18. Water collected inside north end east rib adjacent to pin casting. (8-11)



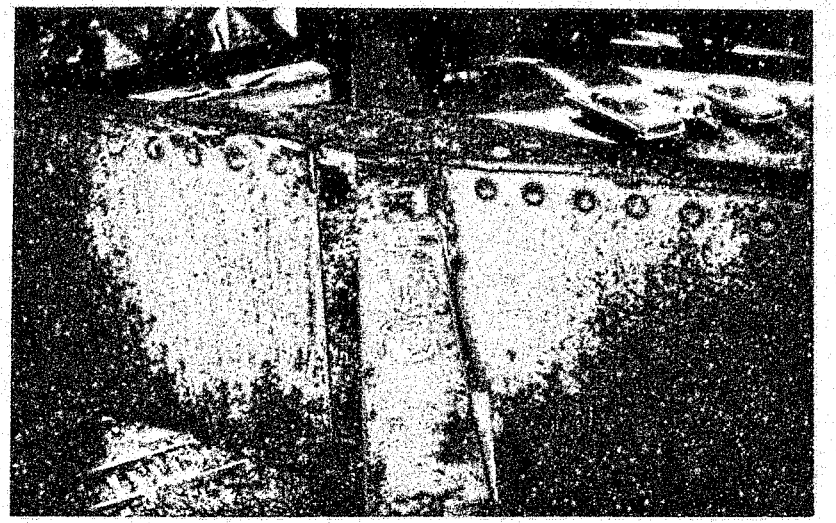
pan 18. Spud wrench in hole of top flg. at .p. 2'E. (8-16)



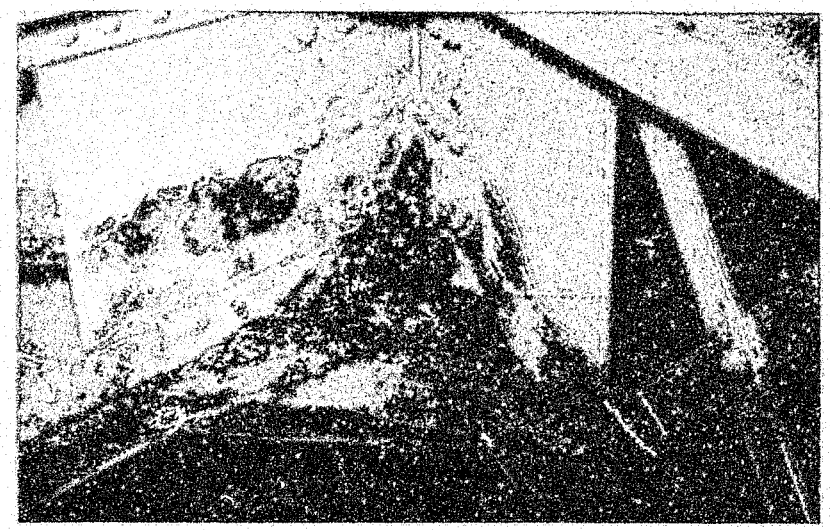
Span 18. Water removed from rib. See above. (9-0)



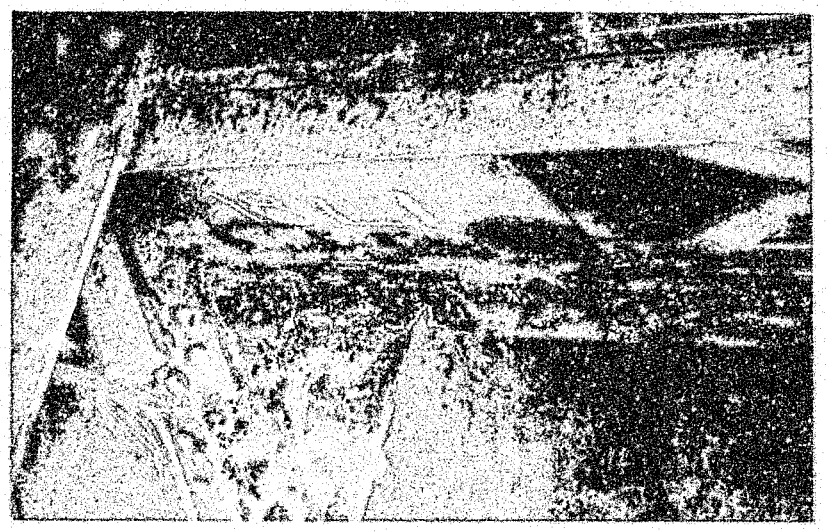
Span 17. Rib bracing diags. at shear lock at Pier 18. (2-19A)



Span 17. Rib bracing intersection at p.p. 7-1/2, looking southwest. (2-12A)



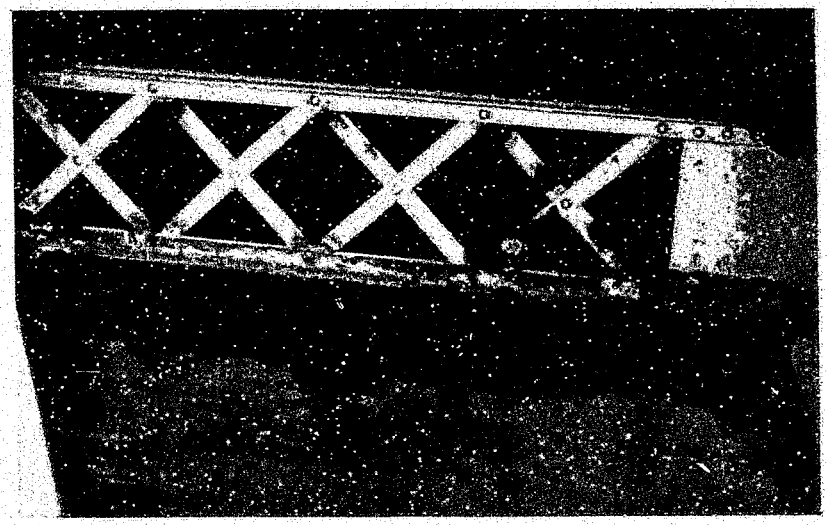
Span 18. Rib bracing diags. at shear lock at Pier 18. (3-12)



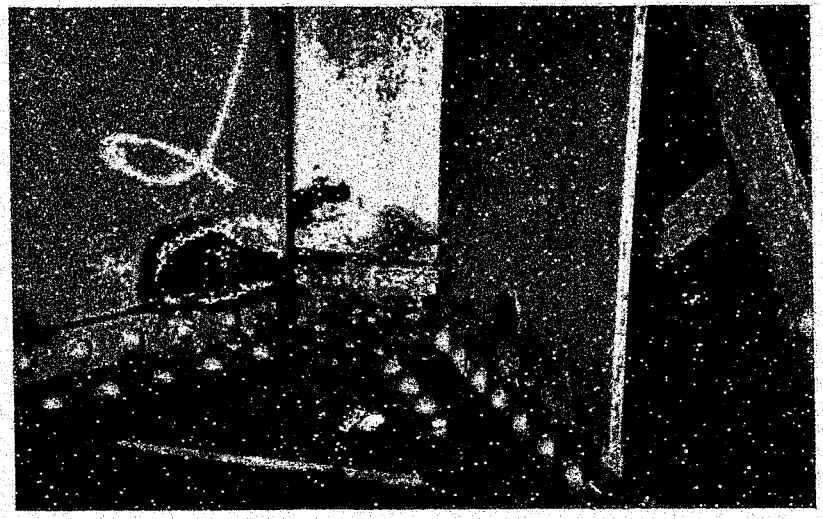
Span 18. Rib bracing at shear lock, p.p. 1, looking south. Intersection between west strut and west diag. (3-17)



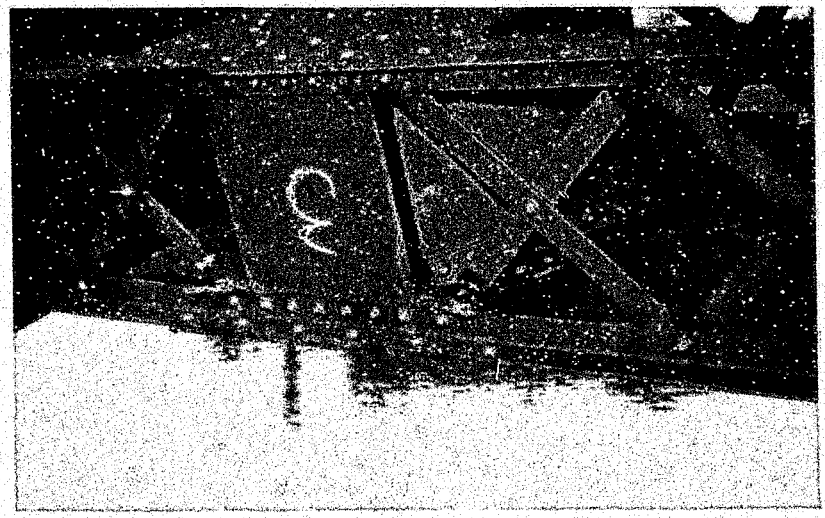
Span 18. Rib bracing strut at p.p. 2, south elevation. (5-9)



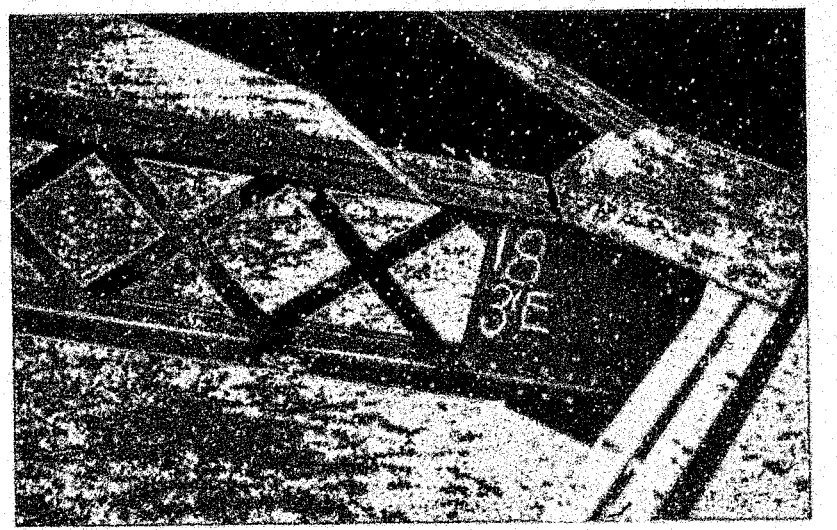
Span 18. Rib bracing, north elevation of strut 2W half. (5-10)



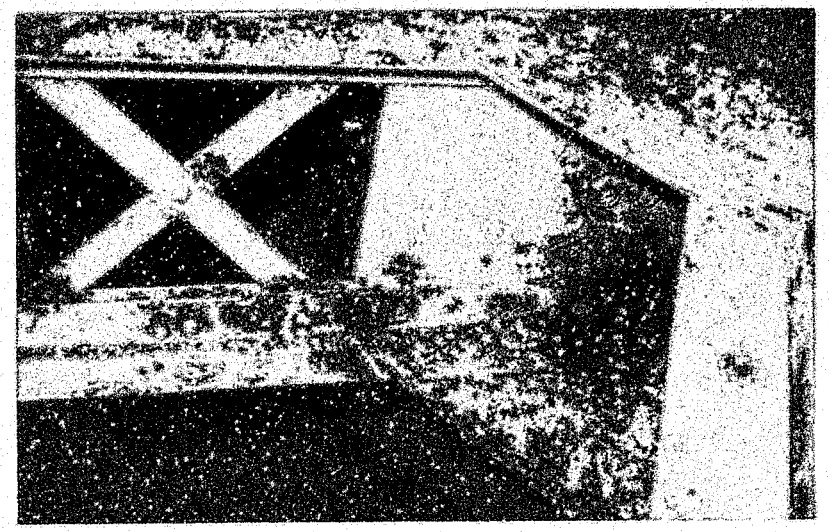
Span 18. Rib bracing, looking south into diags. intersection at mid-span strut, p.p. 2. (5-11)



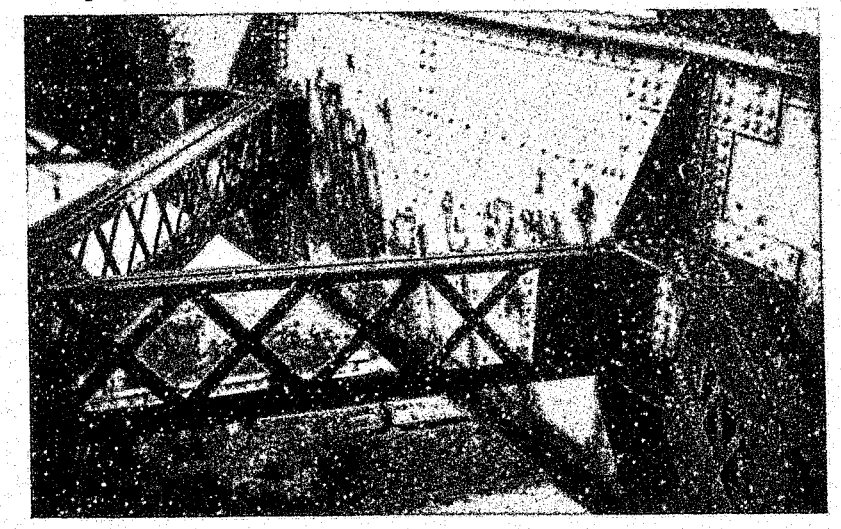
Span 18. Rib bracing strut at p.p. 3, south elevation. (5-7)



Span 18. Looking west at rib bracing at p.p. 3'. Note hole in bottom flg. O.S.L. of east diag. (7-20)



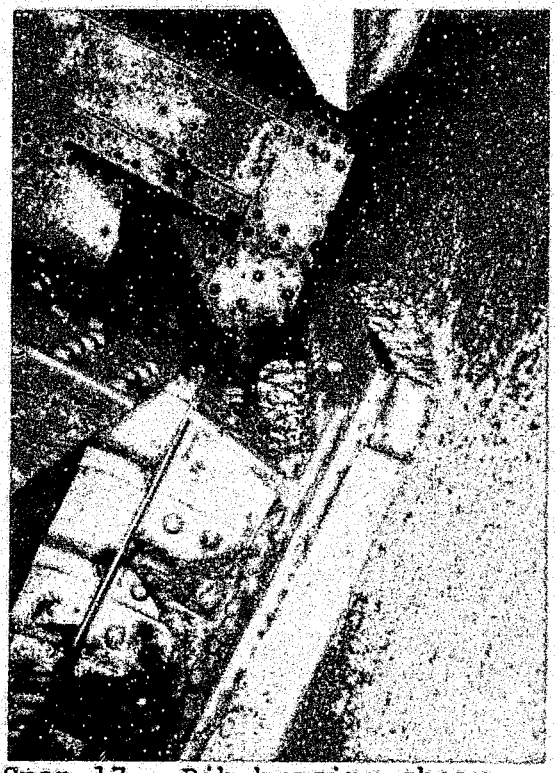
Span 18. Intersection of diags. at shear lock, Pier 19. (8-0)



Span 18. General corrosion of east rib, p.p. 2 to p.p. 4. (3-18A)



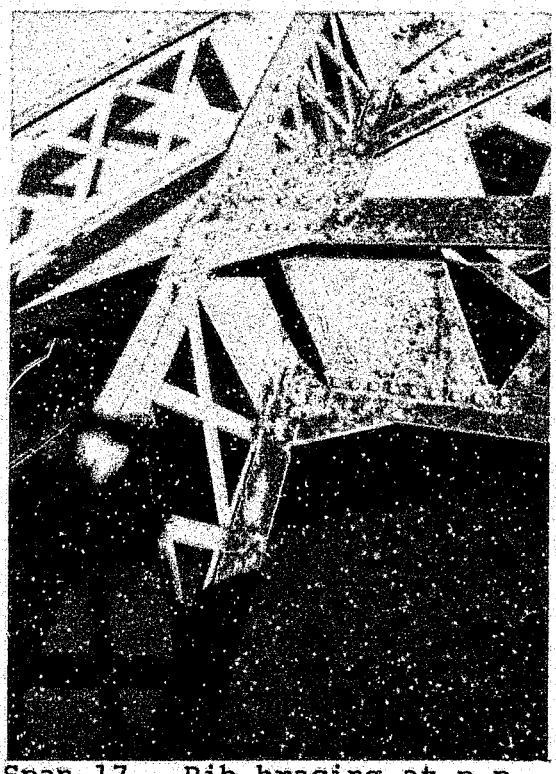
Span 18. General corrosion of west rib, p.p. 1. (3-11)



Span 17. Rib bracing shear lock, west elevation, at Pier 17. (1-8)



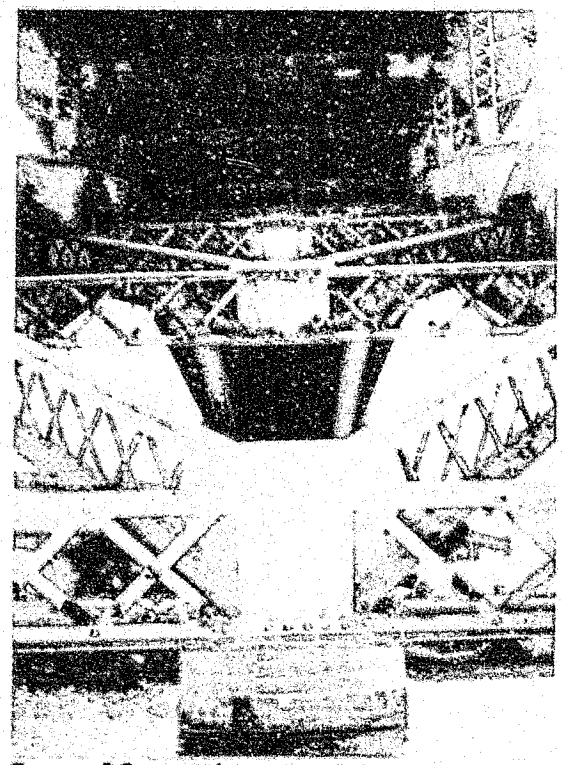
Span 18. Rib bracing shear lock, west elevation, at Pi 18. (3-16)



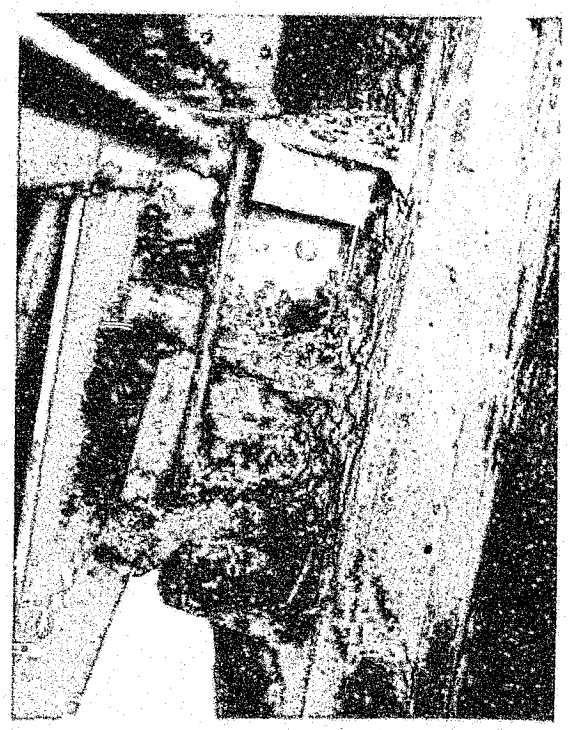
Span 17. Rib bracing at p.p. 13, looking east. (2-17A)



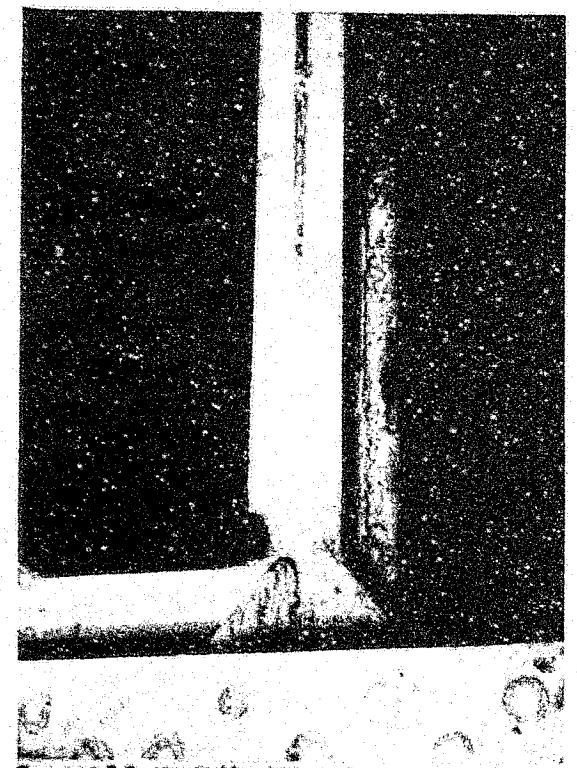
Span 17. Rib bracing at p. 2, strut W. half. (2-3)



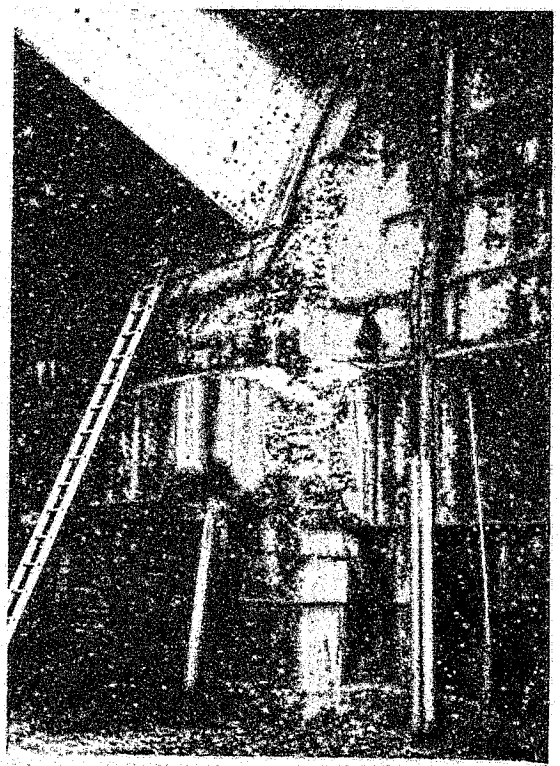
Span 18. View looking south from p.p. L1'. (8-1)



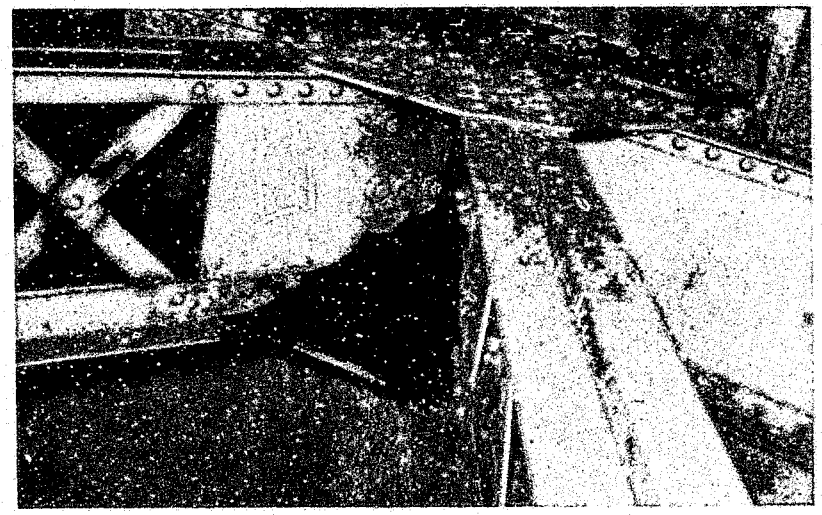
Span 18. Rib bracing shear lock, east elevation, at Pier 19. (8-20+)



Span 19. Rib bracing strut at p.p. 12, west conn. to rib. (9-19)



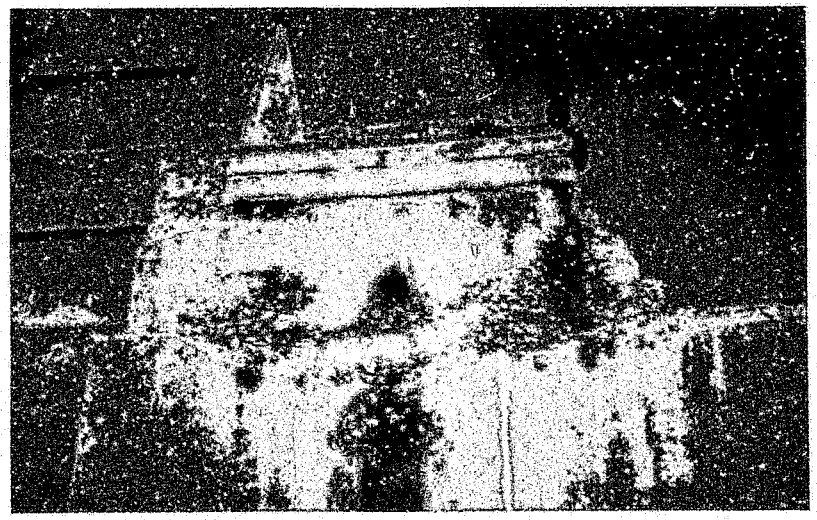
Pier 20. Spalling under Span 19 east rib. (10-1)



Span 19. Rib bracing diags. at shear lock, Pier 19. Ice on bottom gusset. (8-2)



Span 19. Rib bracing, west diag. at p.p. 5 to 6. (9-1)



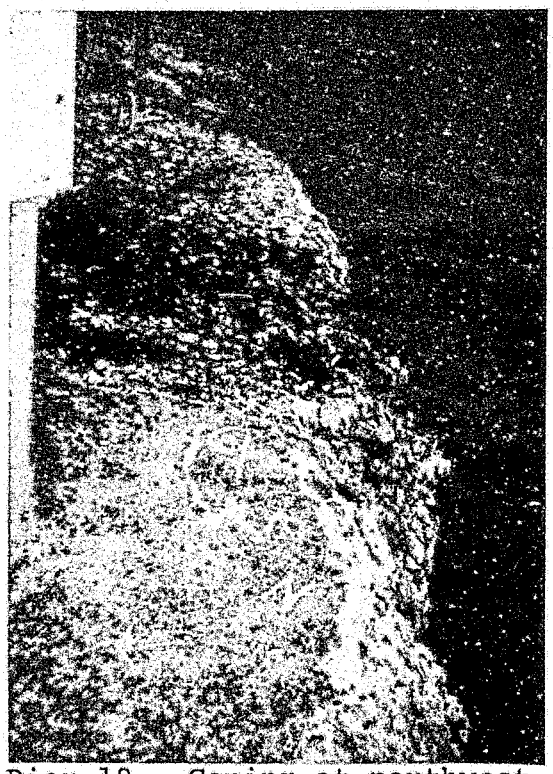
Pier 17. North elevation under east rib. (K-20A)



Pier 20. South elevation under west rib. (10-2)



Pier 17. North elevation at west rib. (K-19A)



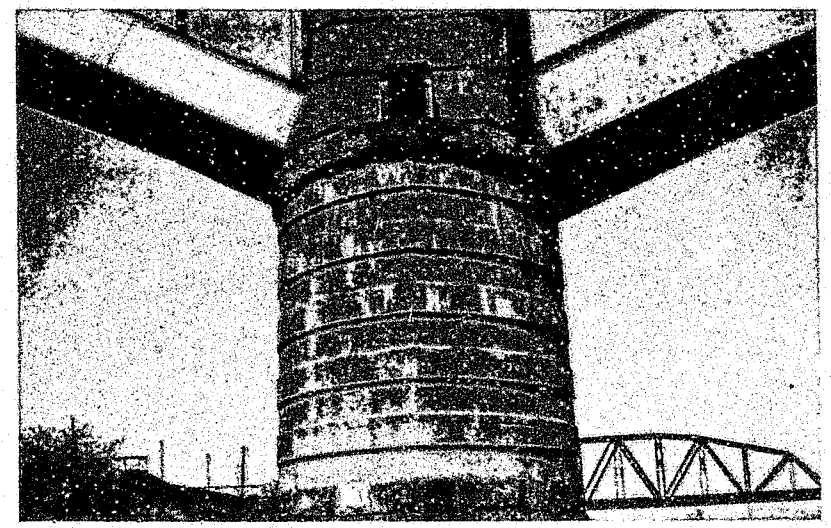
Pier 19. Coping at northwest corner of pier fender top, El.746.5. (7-6)



Pier 19. Coping at southwest corner, El.746.5. (7-5)



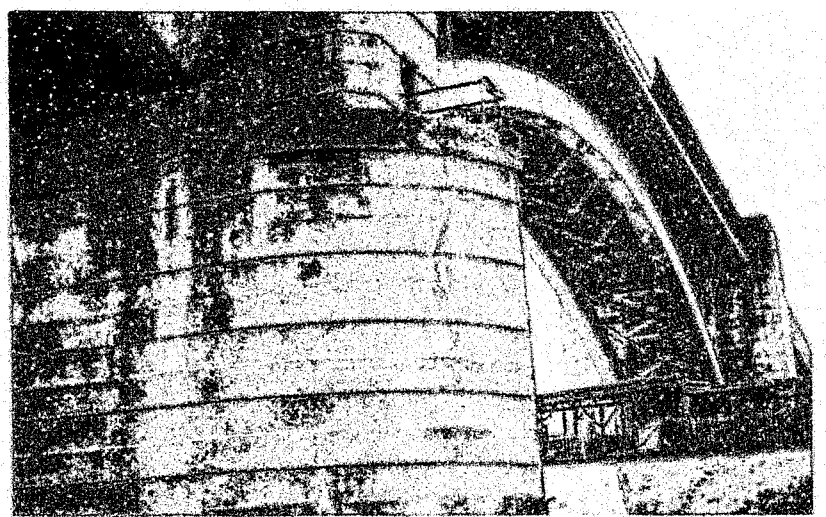
Pier 19. Fender top at southeast portion. (7-4)



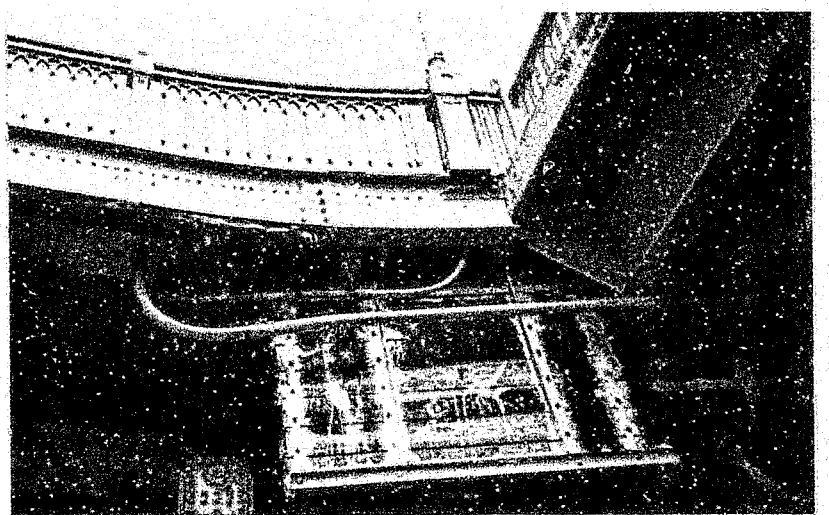
Pier 19. West nose. (14-18)



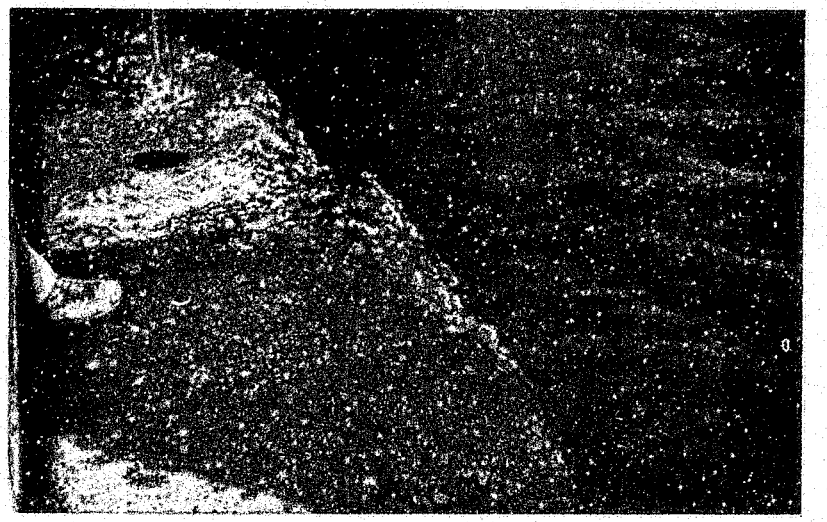
Pier 19. South elevation. (14-19)



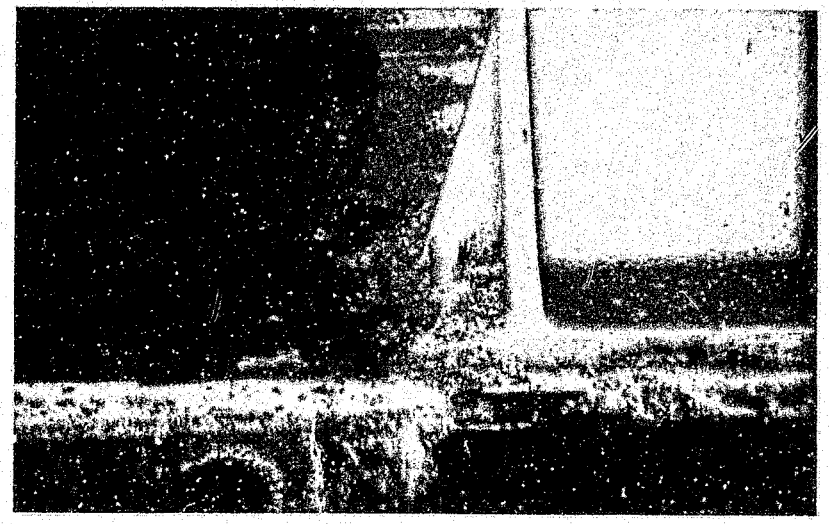
Pier 19. East nose from south side. (14-20)



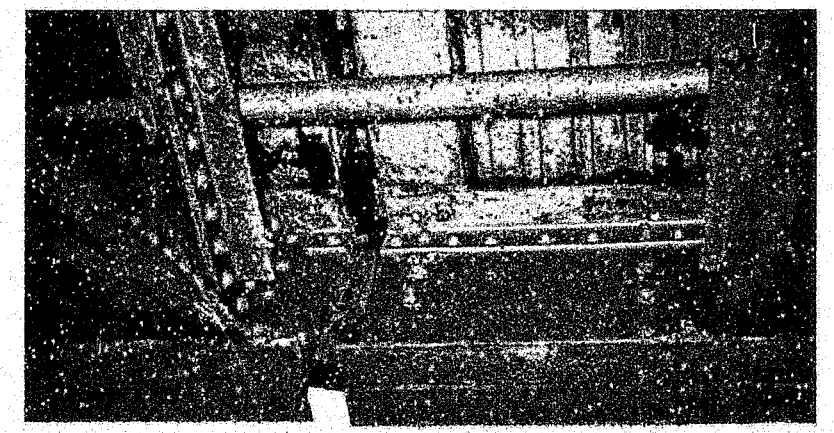
Broken conduit west of Pier 26. (14-2)



Pier 19. Coping at southeast corner, El. 746.5. (7-3)



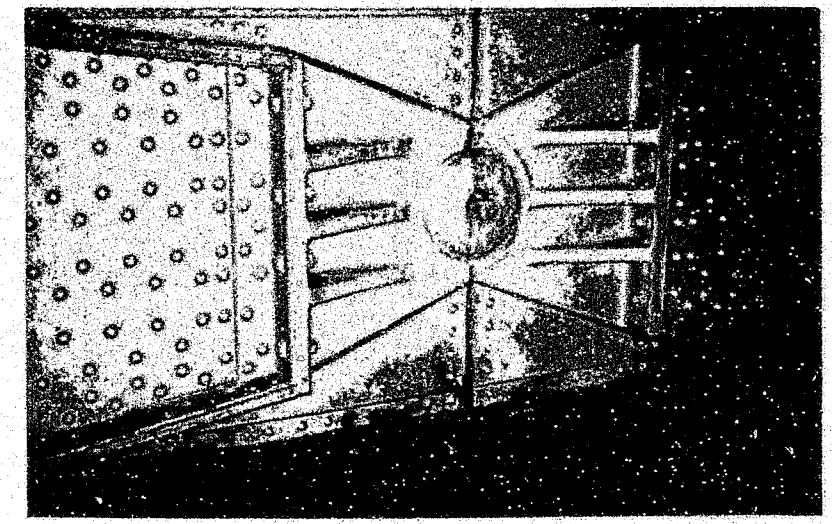
Pier 20. Top pilaster for west girder, Span 20. (10-15)



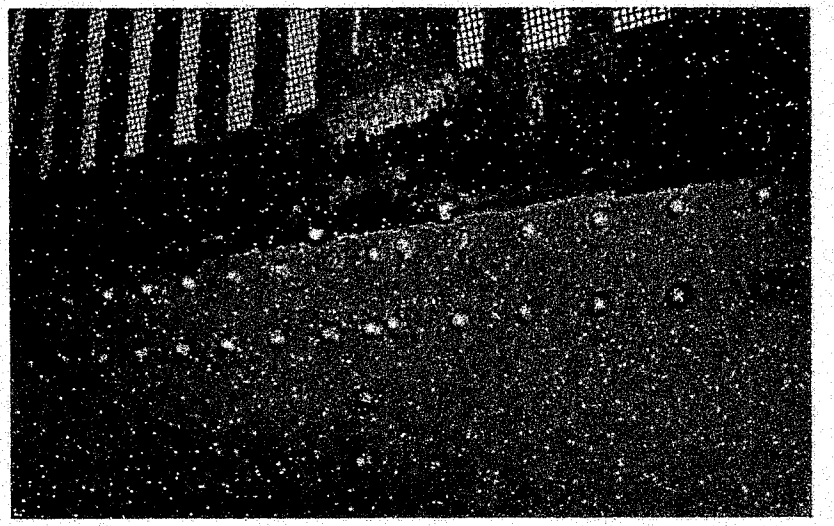
Inside east facia at Pier 23. (11-3A)



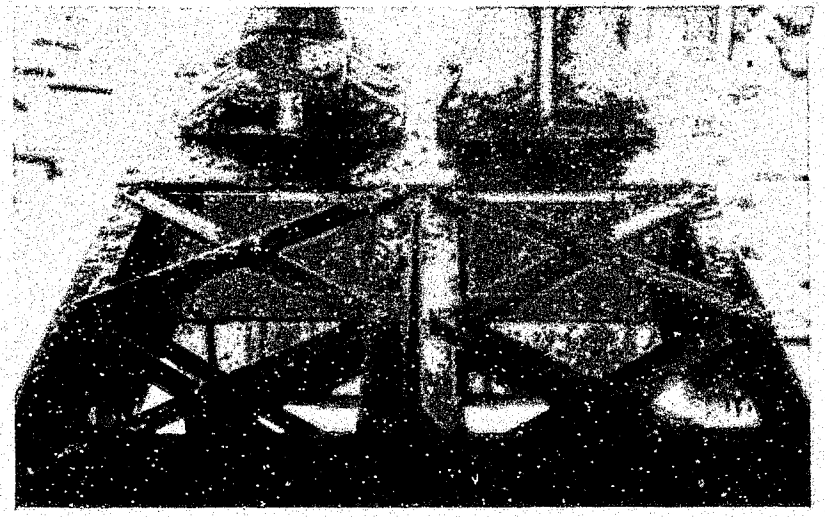
Top of Pier 26, looking east at east half. (13-8)



Span 18. West elevation of center pin, east rib. (6-4)



Typical corrosion of facia top flg. and fire screen, Span 23. (11-2A)



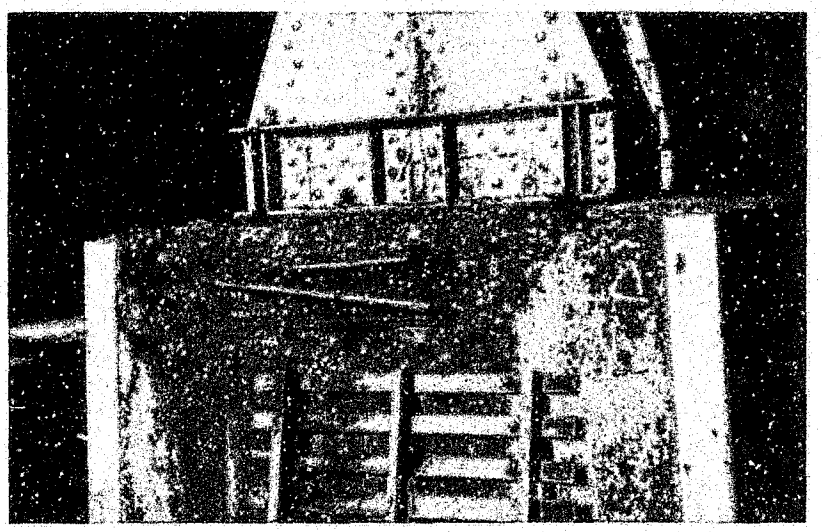
Top of steel bent C21, looking west at west end. Note wet condition. (10-18A)



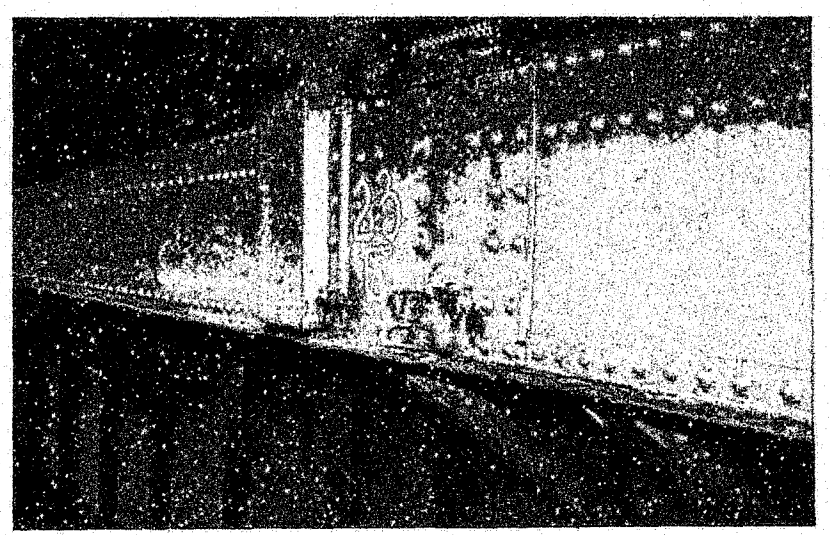
North elevation pedestals of Bent C22. (13-19)



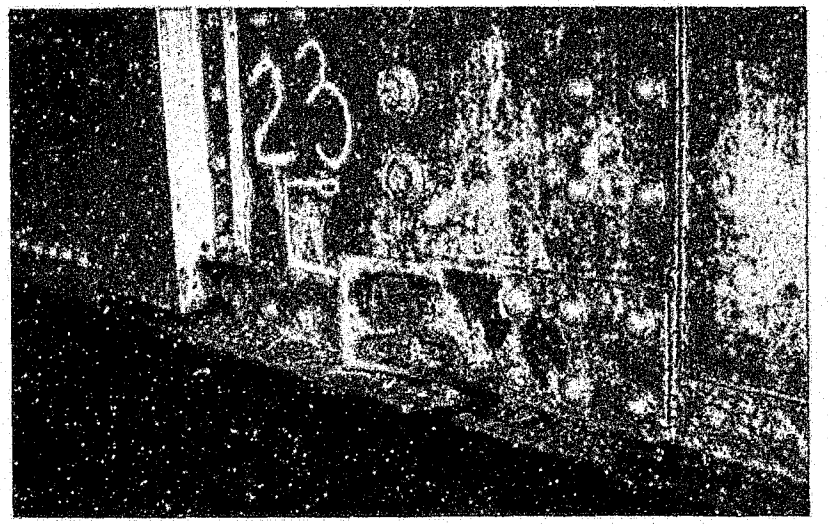
West elevation of west pedestal, Bent C21. (10-19)



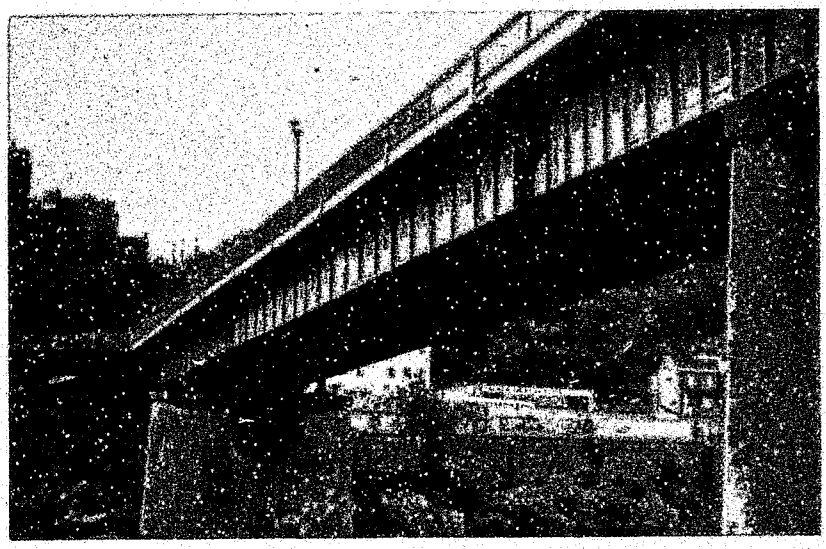
West elevation of west pedestal, Bent C22. (10-20A)



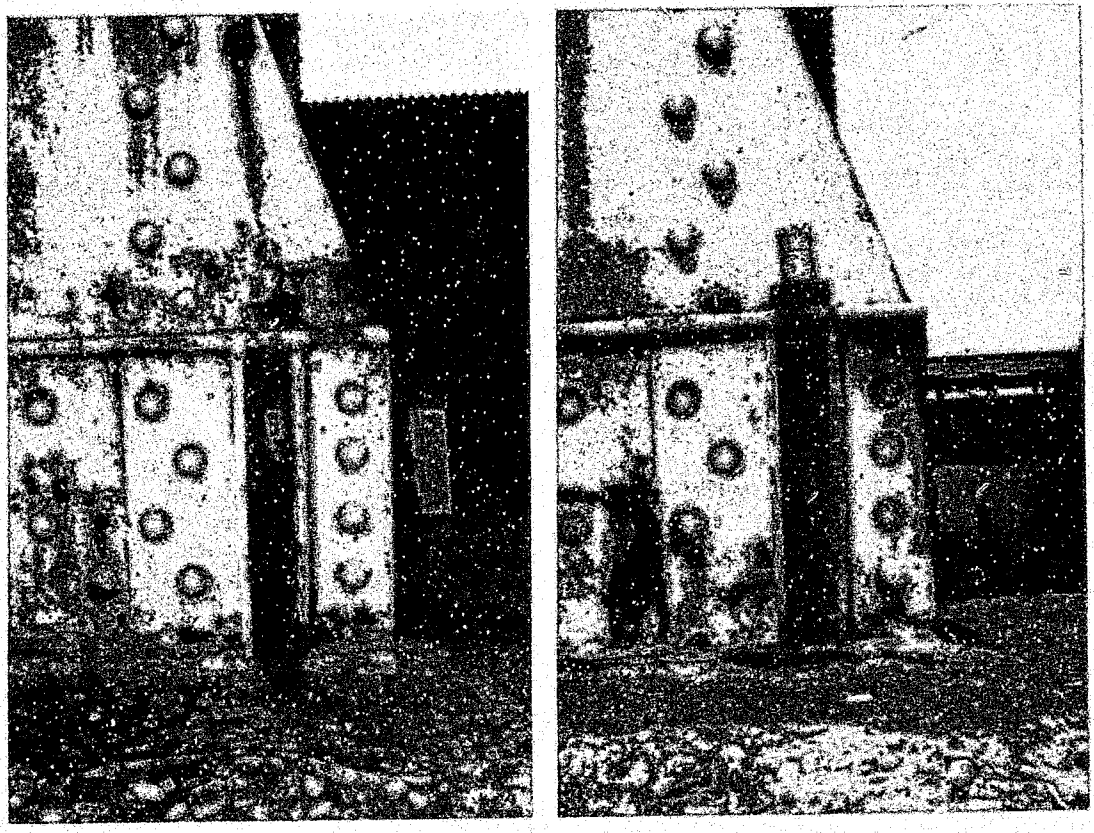
General corrosion of east facia and fire screen at Pier 23. (11-0)



East facia expansion joint at Pier 23. (11-0A)



W. elev. of Spans 24, 25 and 26 over Back Channel. (15-5A)



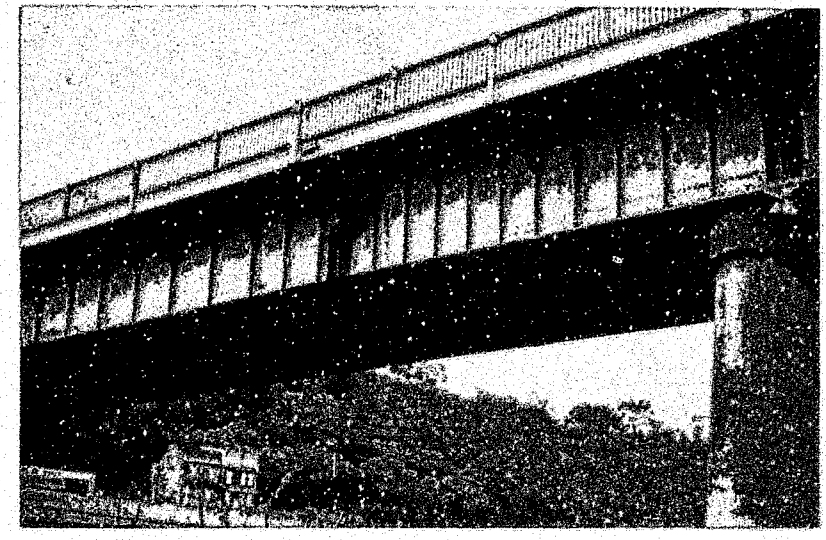
Typ. packout of anchor bolts at stiffeners on pedestals of Bents C21 and C22. (15-9 and 15-10A).



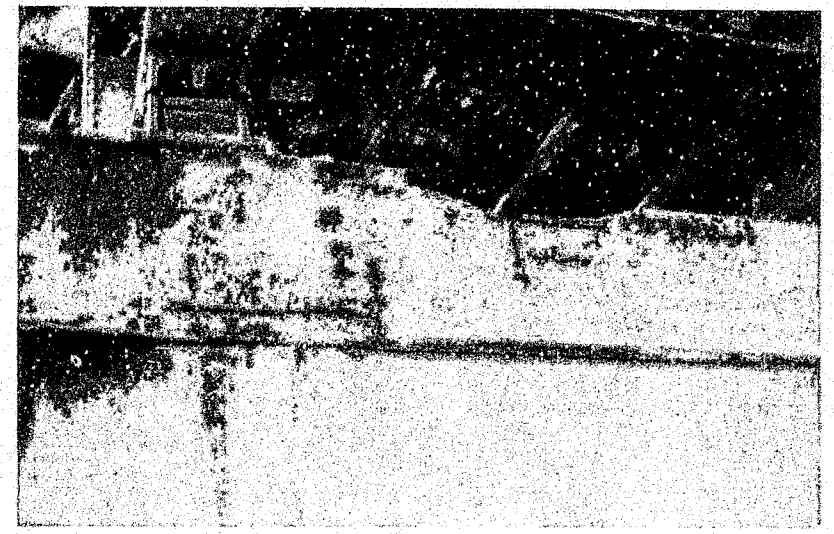
W. elev. Span 23. Storage buildings under span. (14-0)



Boiler house under mid-span of Span 23. (15-3A) (See photo 15-6A)



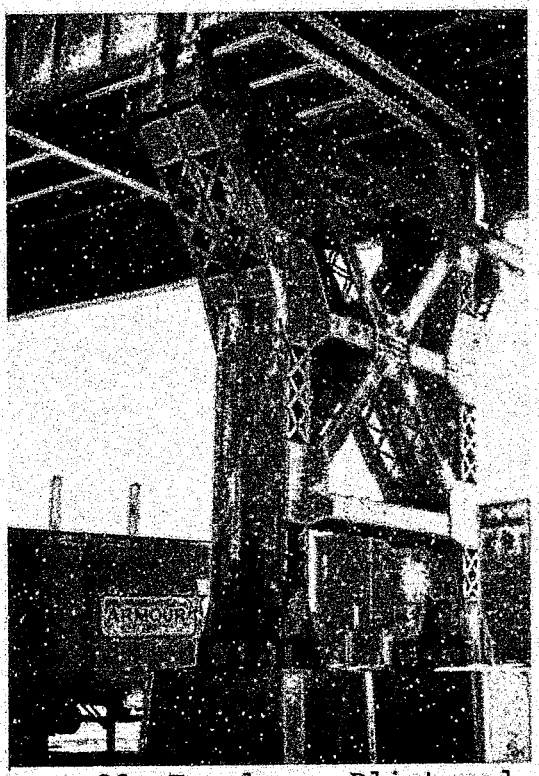
W. elev. S. hinge of Spans 24, 25. (15-4A)



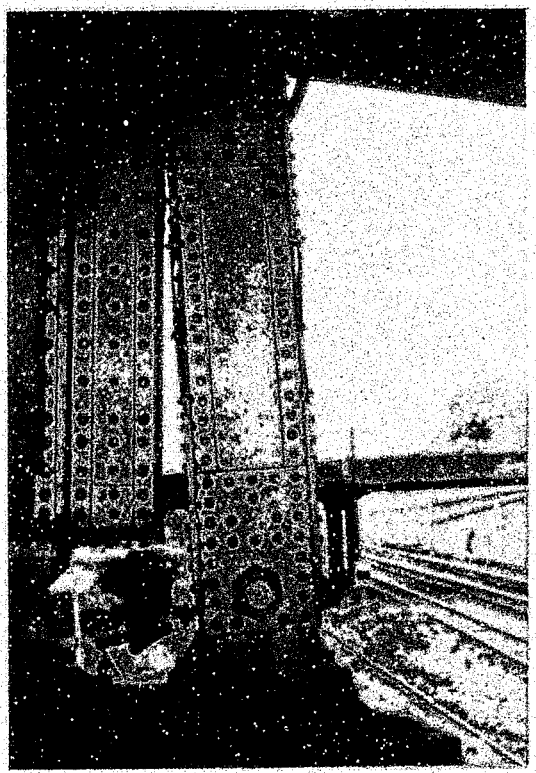
S. elev. Pier 26. W. half. (15-12A)



Bent 9 . Looking up between F.B.'s at exp. dam. (14-7)



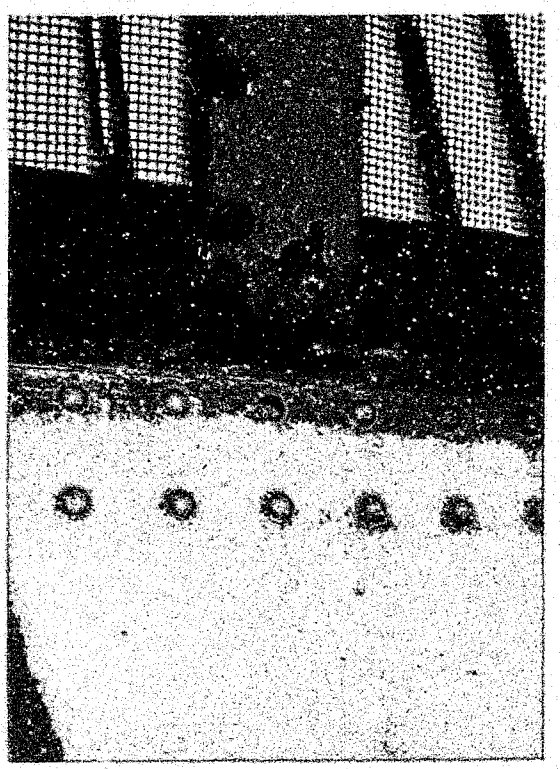
Bent 22, E. elev. Blistered paint condition. (14-9A)



E. elev. of W. rocker column for S. brg. of Span 28 on Pier 26. Note plumb of column. (15-14)



Boiler house under Span 23. Looking S. (15-6A)



Corrosion of east facia top flg. and fire screen near Pier 23. (11-1A)



Leaching out of west half of Pier 26. (13-6)



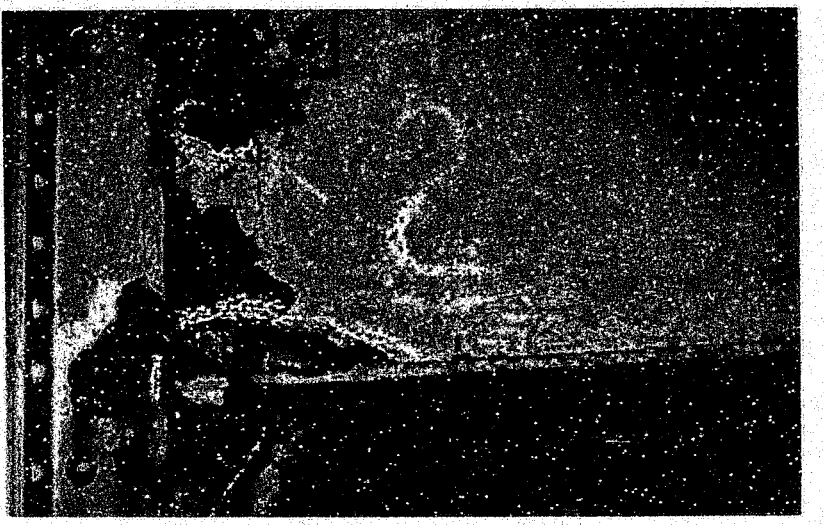
Stgr. 1 expansion seat at Bent 21, looking west. (10-17A)



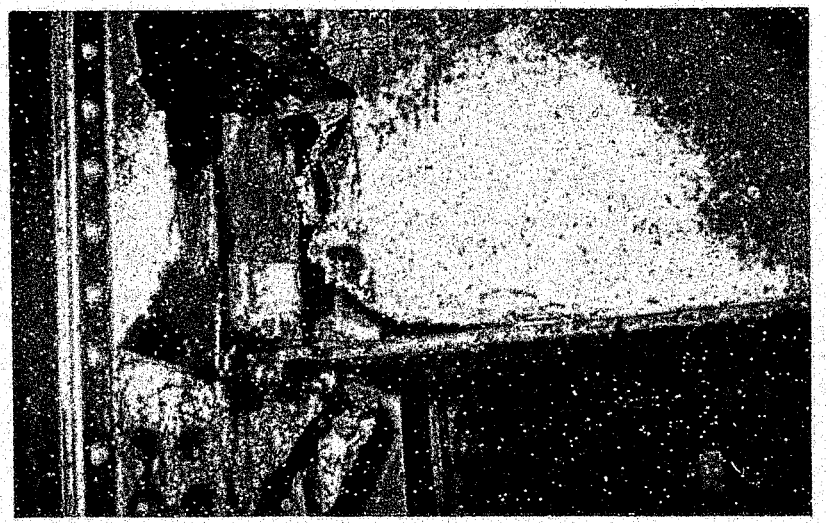
Stgr. 6 expansion seat at Bent 21, looking east. (10-16A)



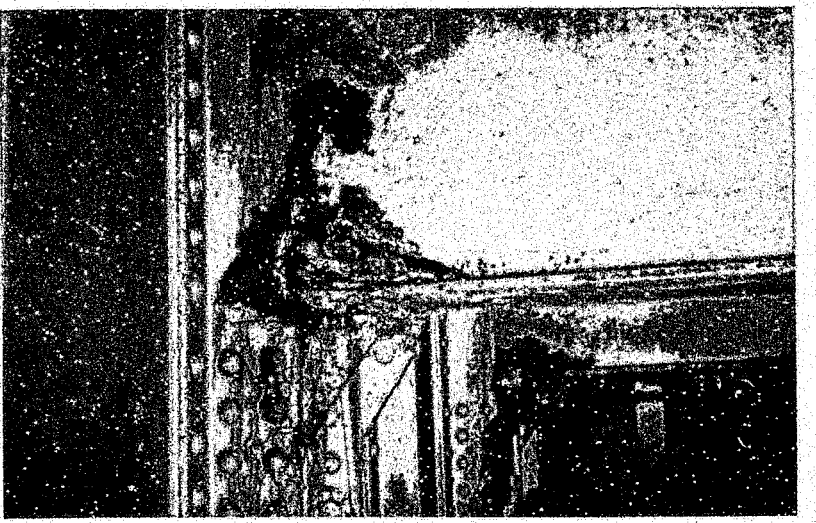
Span 25. Stgr. 1 at south hinge. (11-15)



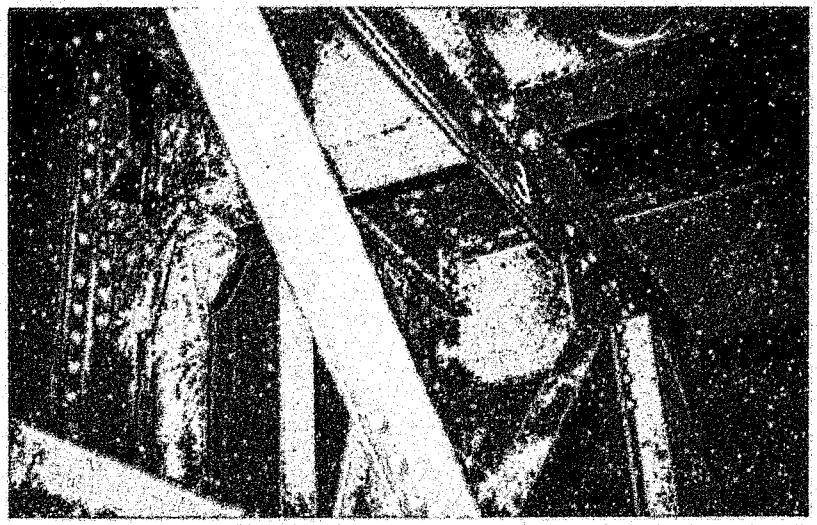
Span 25. Stgr. 2 at south hinge. (11-14)



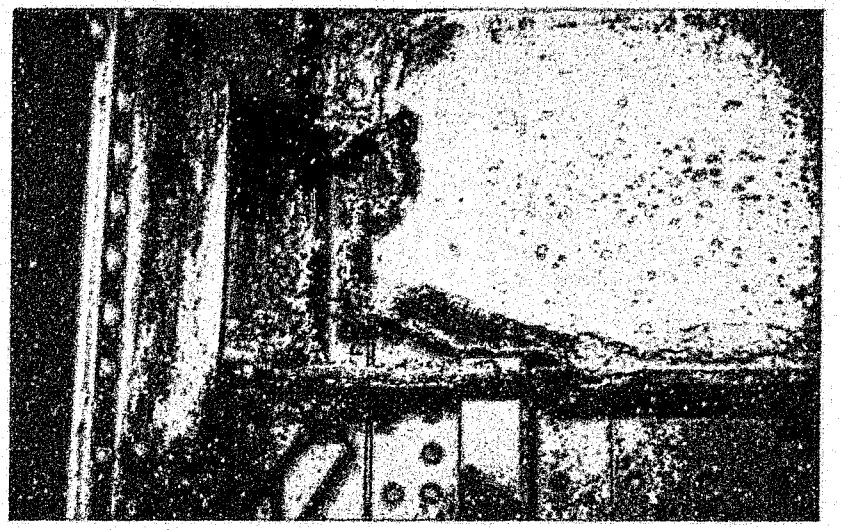
Span 25. Stgr. 3 at south hinge. (11-13)



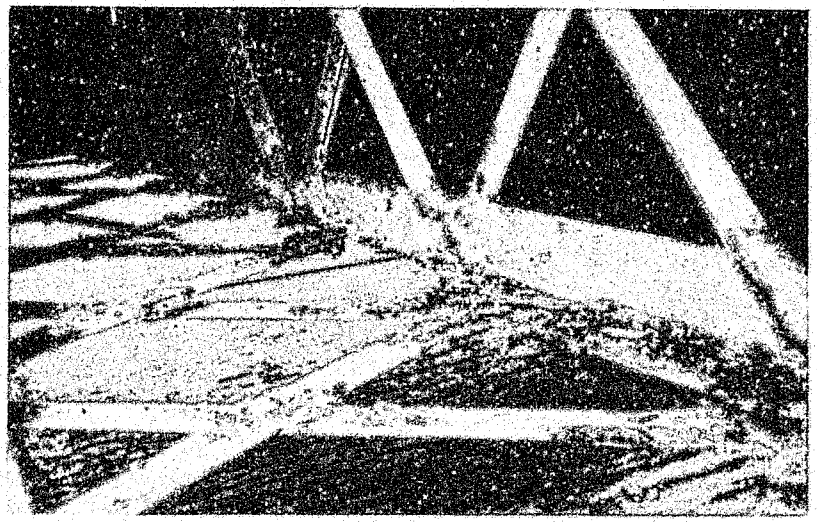
Span 25. Stgr. 4 at south hinge. (11-12)



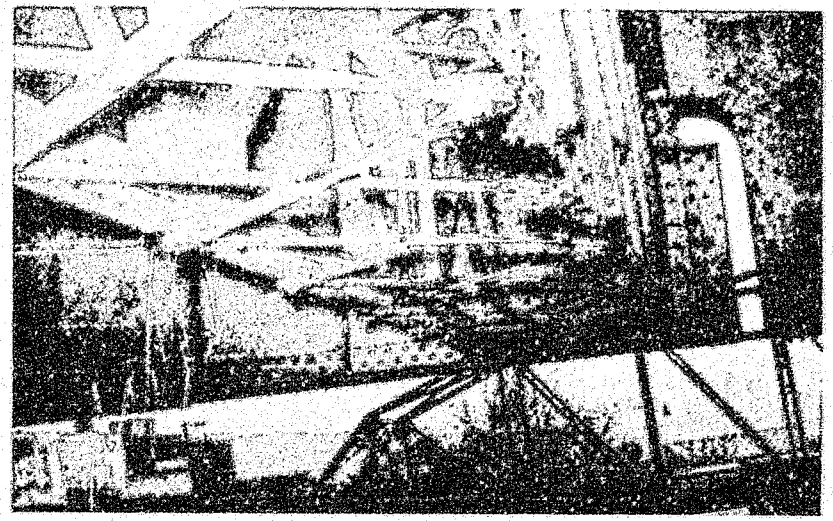
South elevation of truss strut at south hinge. (North end of Span 24.) (11-17)



Span 25. Stgr. 6 at south hinge. (11-10)



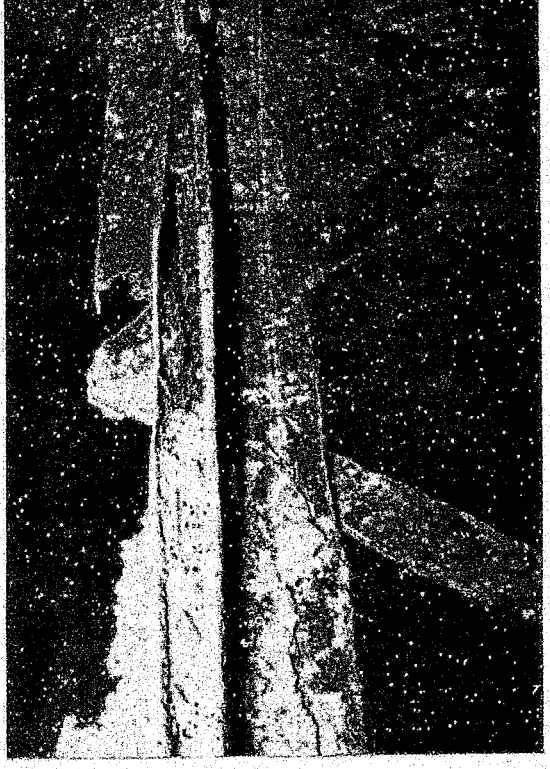
Looking west between trusses at south hinge. (North end of Span 24.) (11-5A)



Looking west at trusses at south hinge. (North end Span 24.) (12-3)



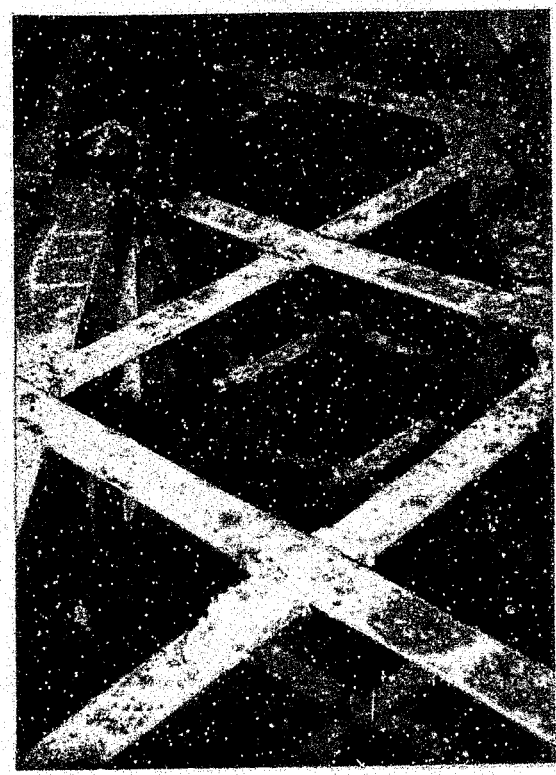
Span 25. Stgr. 5 at south hinge. (12-0)



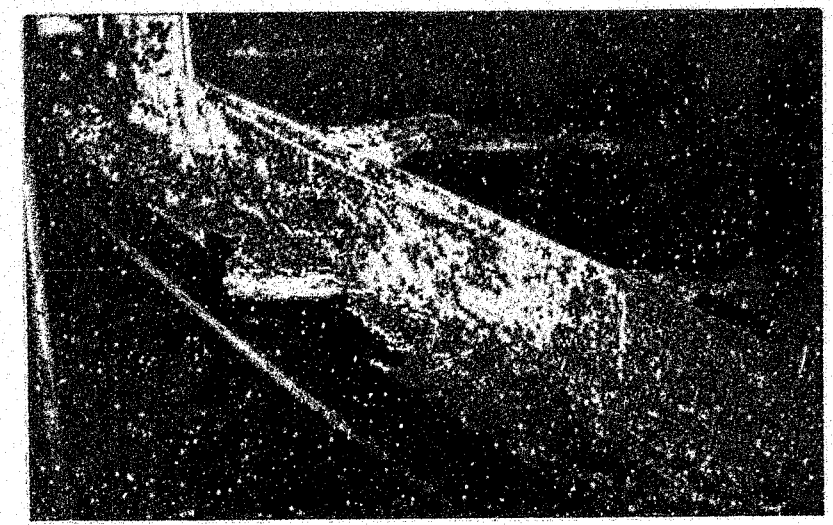
Bottom chord of truss strut, p.p. L1-L2, looking west. (North end Span 24.) (12-4)



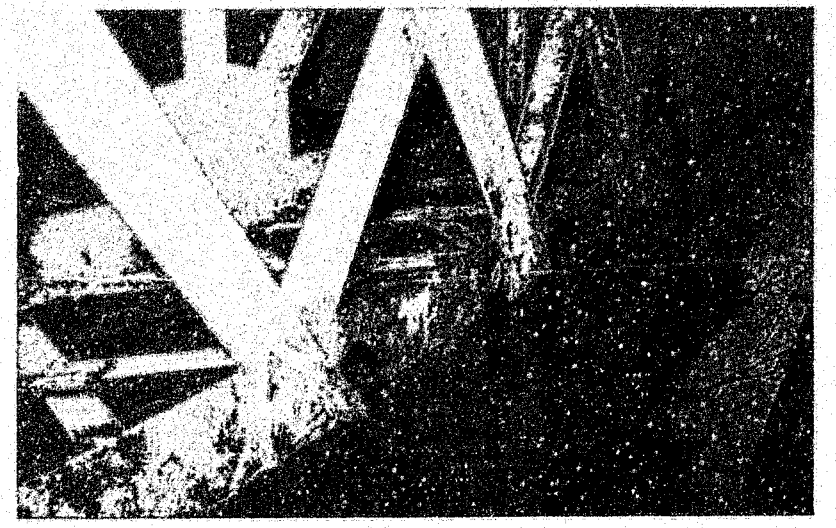
Looking down on top chord of truss under FB at south hinge, Span 25. (11-9)



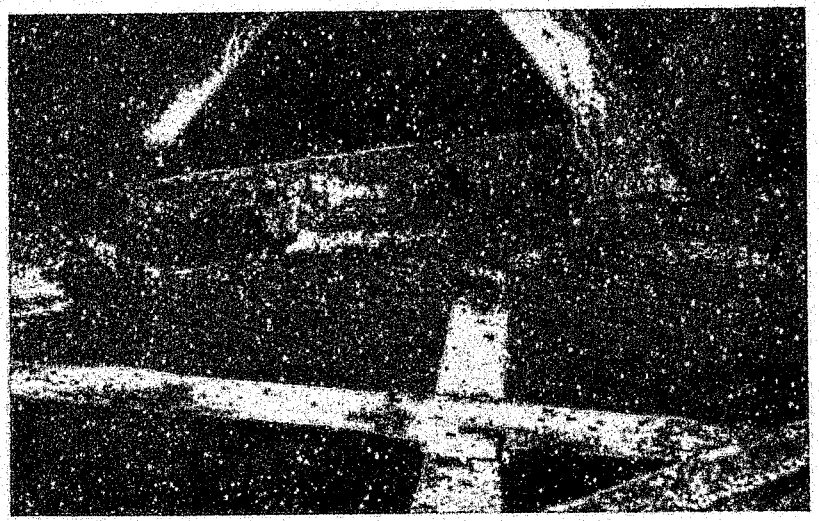
Looking east between FB and truss strut at south hinge. (11-16)



Bottom chord of truss strut, south elevation, p.p. L1-L2 at south hinge. (11-7)



North elevation, bottom chord of truss under FB at south hinge. (12-1)



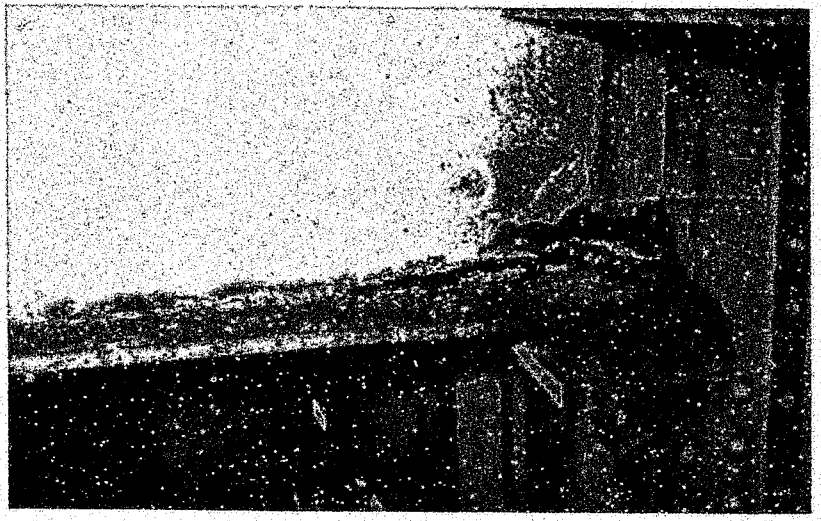
South elevation, bottom chord of truss under FB at south hinge. (11-8)



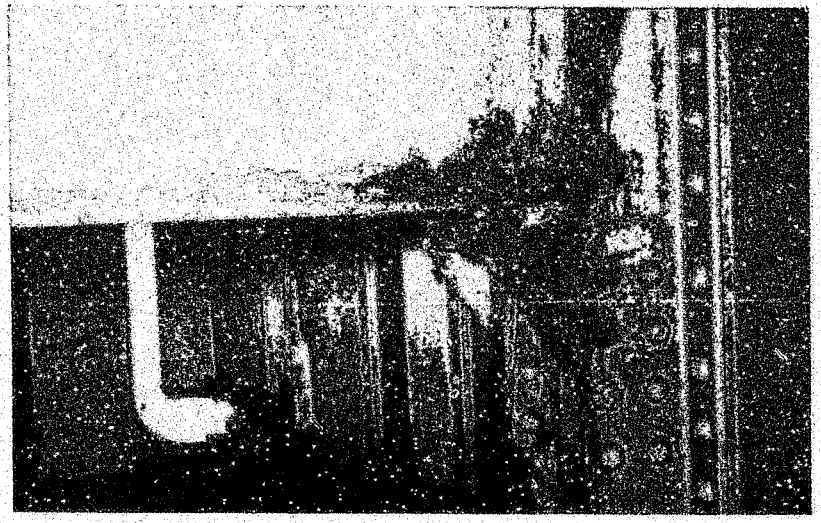
Span 25. Stgr. 1 at north hinge. (12-12)



Span 25. Stgr. 2 at north hinge. (12-11)



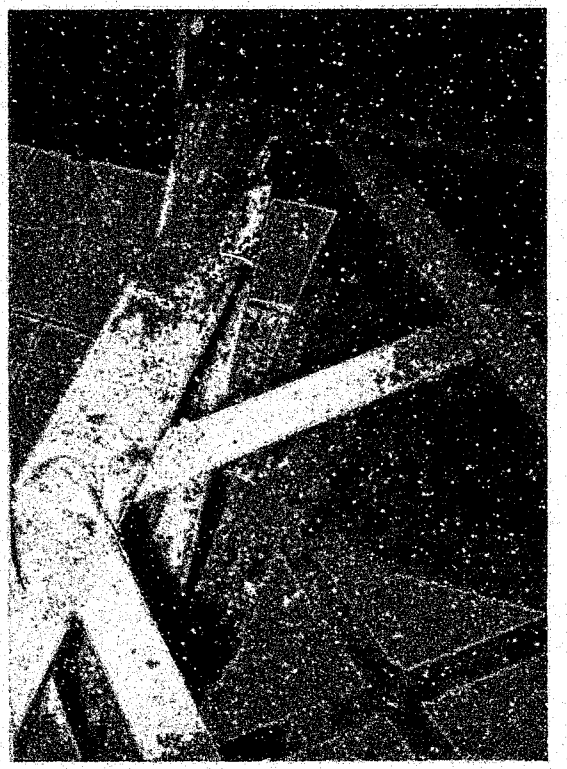
Span 25. Stgr. 3 at north hinge. (12-10)



Span 25. Stgr. 4 at north hinge. (12-13)



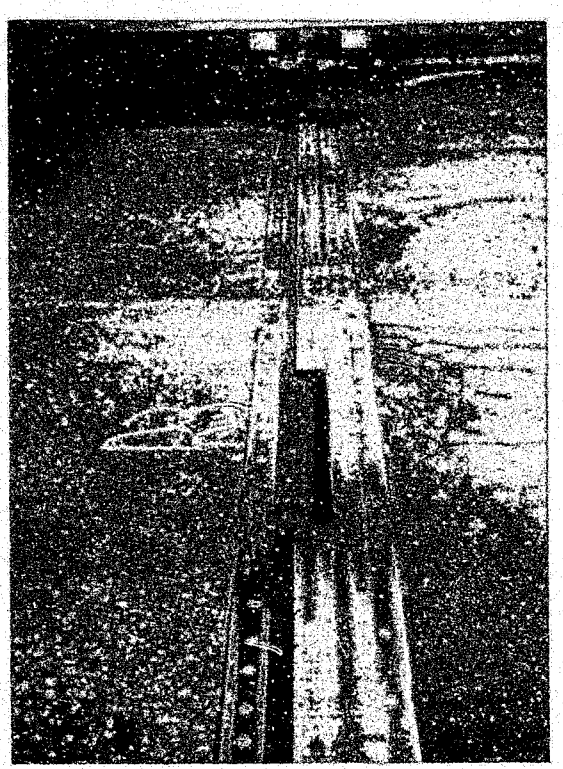
Span 25. Stgr. 5 at north hinge. (12-9)



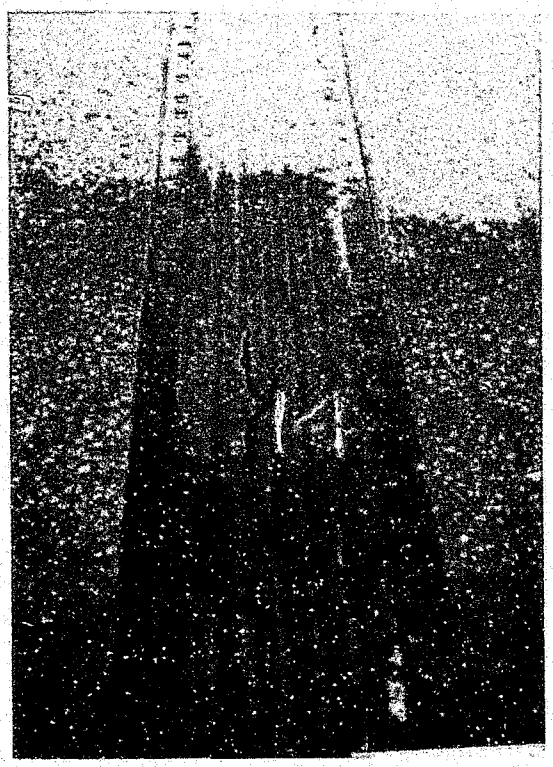
East end mid-chord of truss strut at north hinge, looking east. (12-8)



East end mid-chord of truss strut at north hinge, looking west. (12-14)



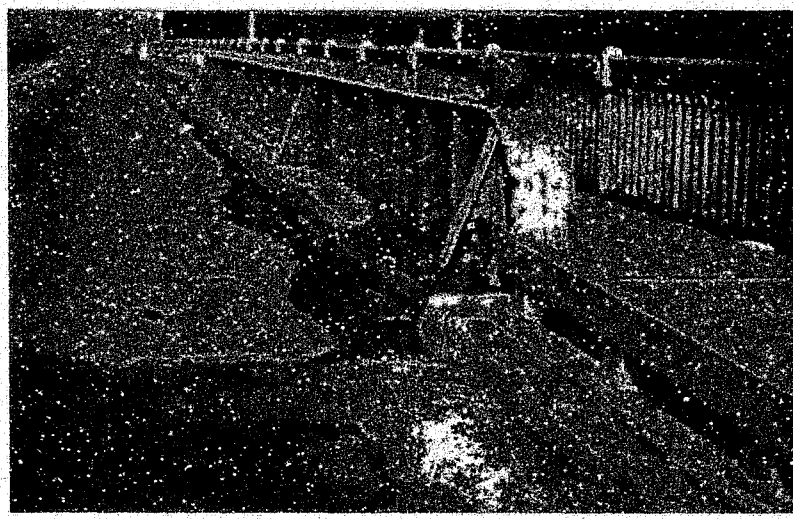
Expansion dam at Bent C22, looking east. (13-17)



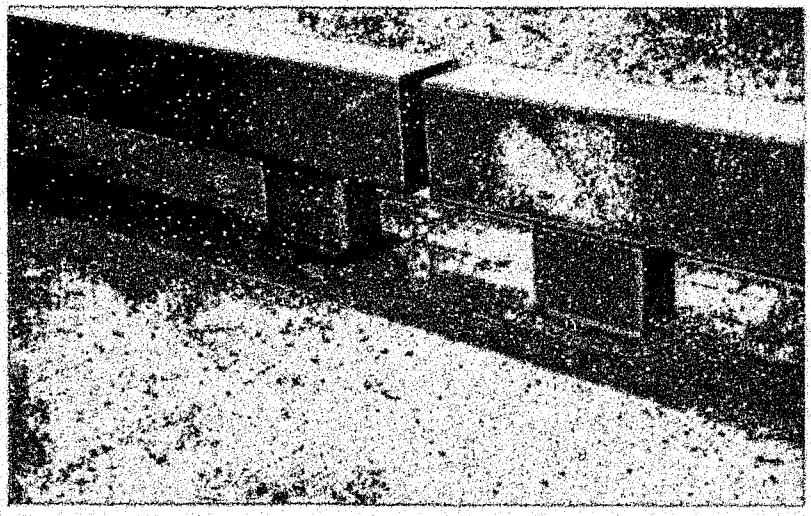
Expansion dam at Bent 14, looking west at east half. (2R-12)



Span 25. Stgr. 6 at north hinge. (12-6)



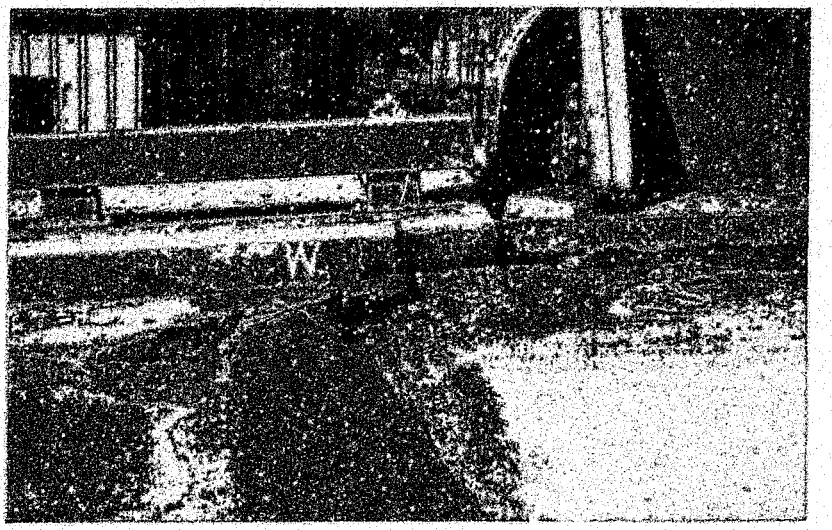
Span 1. East gutter at south abutment, looking north. (5-5)



Common condition at guard rail posts. (5-4)



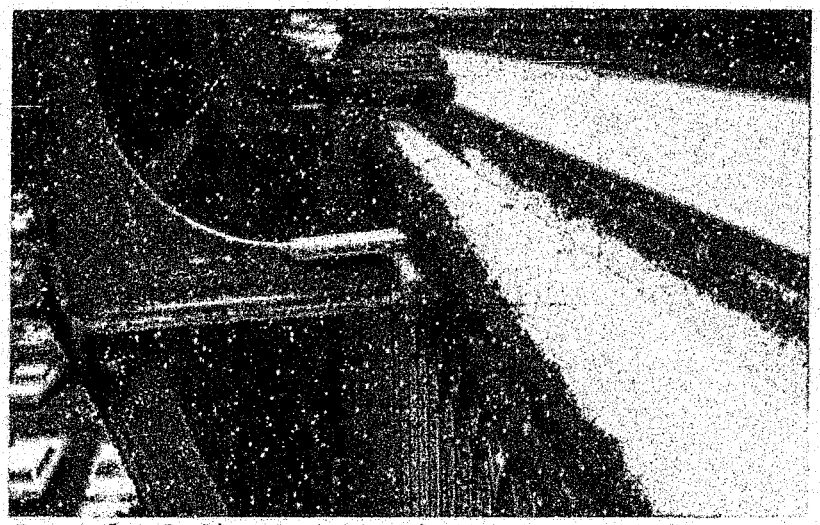
Looking north at Span 20 deck. (13-18)



South approach pavement at S. Abut., W. gutter. May 13, 1969 (14-3)



S. approach pavement at S. Abut., E. gutter. May 13, 1969. (144)



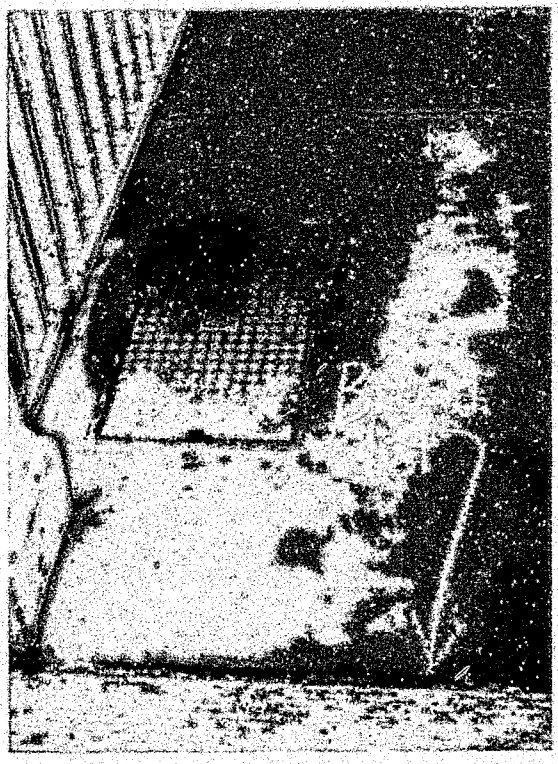
S. end of fire protection fence. Bolts broken at railing bracket. (14-6)



Broken screen hazard at west fascia, Span 21. (14-1)



Span 1. East sidewalk at south abutment, looking east. (5-6)



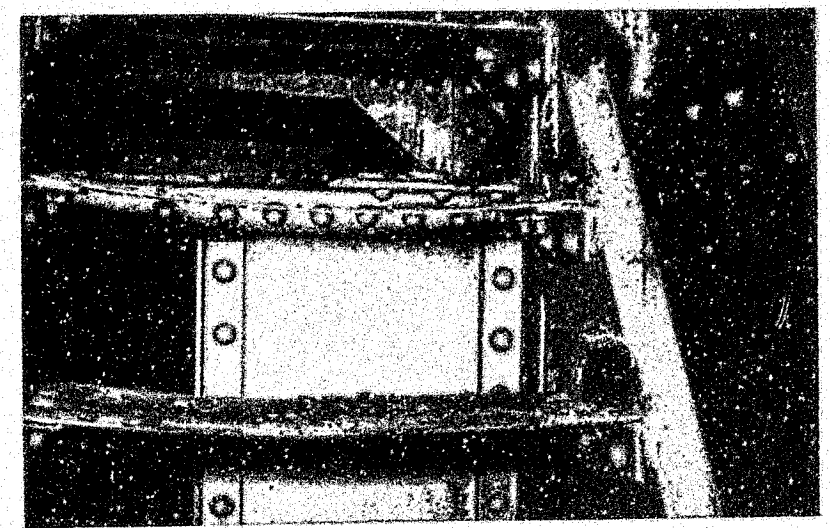
Water on junction box in east sidewalk near Bent 14. (8-6)



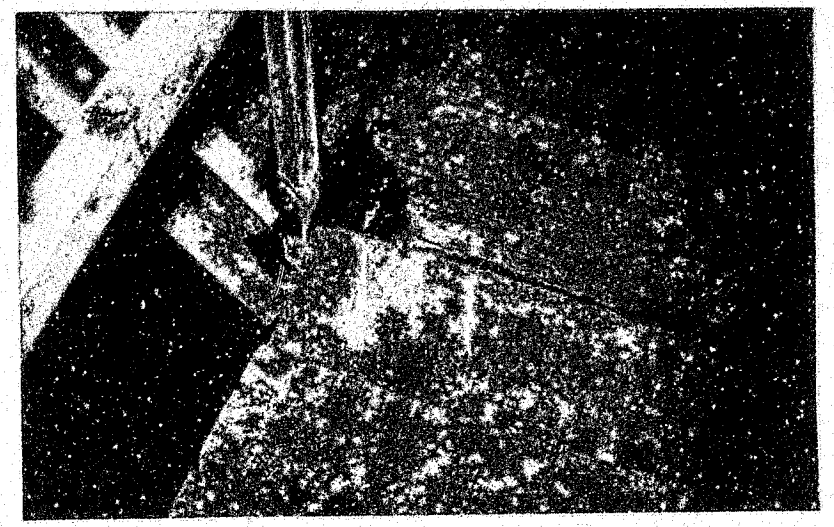
West edge of west sidewalk at Pier 19. (8-9)



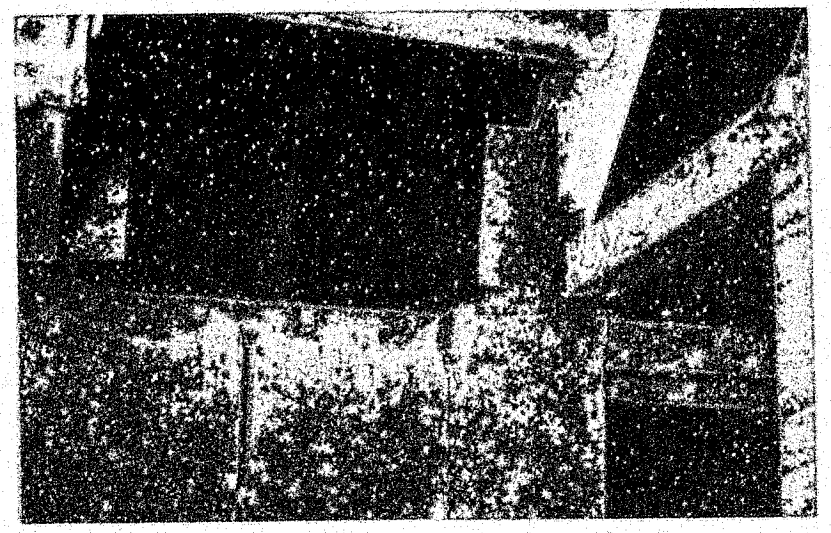
Stairs access door frame, Pier 19. (8-8)



Hole in stair stgr. web near top of first run, Pier 19. (6-19)



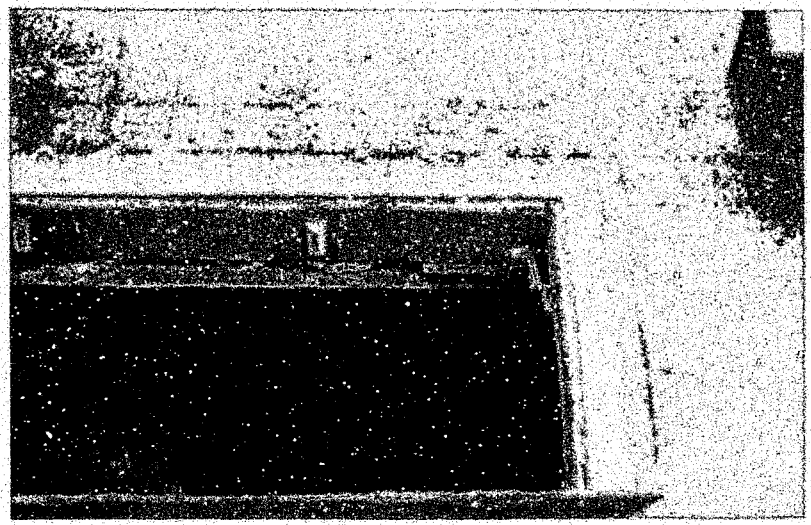
Stairs landing 1, Pier 19. (6-20A)



Stairs landing 3, Pier 19. (7-0)



Stairs landing 4, Pier 19. (7-0A)



Stairs access door frame, Pier 18. (9-4)



Stairs landing 1, Pier 18. (6-8)



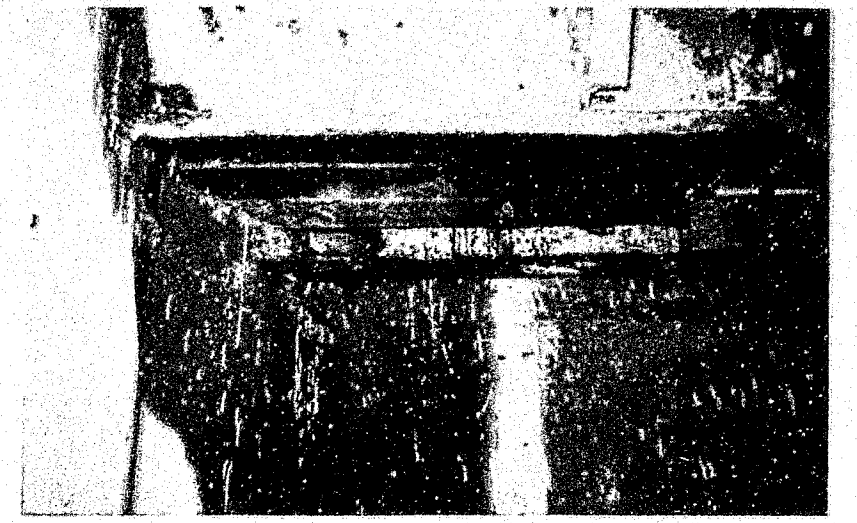
Stairs landing 1, Pier 18. (6-7)



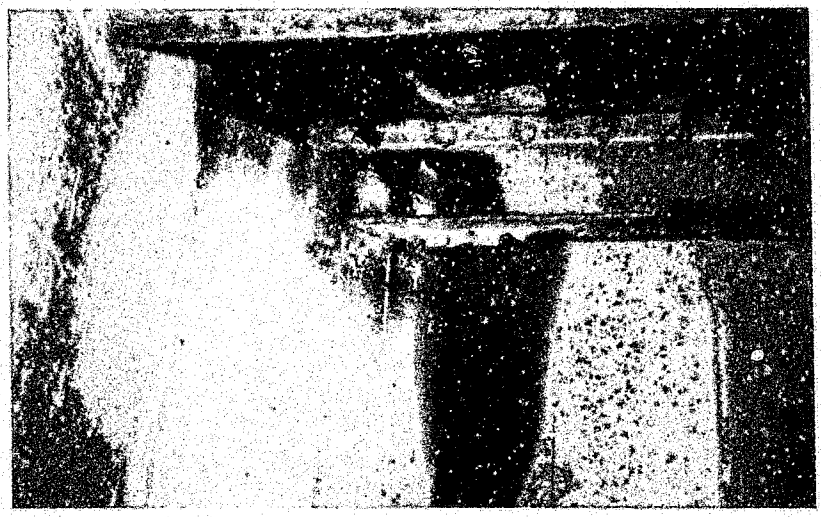
Stairs landing 1, Pier 18. (6-9)



Stairs landing 2, Pier 18. (6-10)



Stairs landing 2, Pier 18. (6-17)



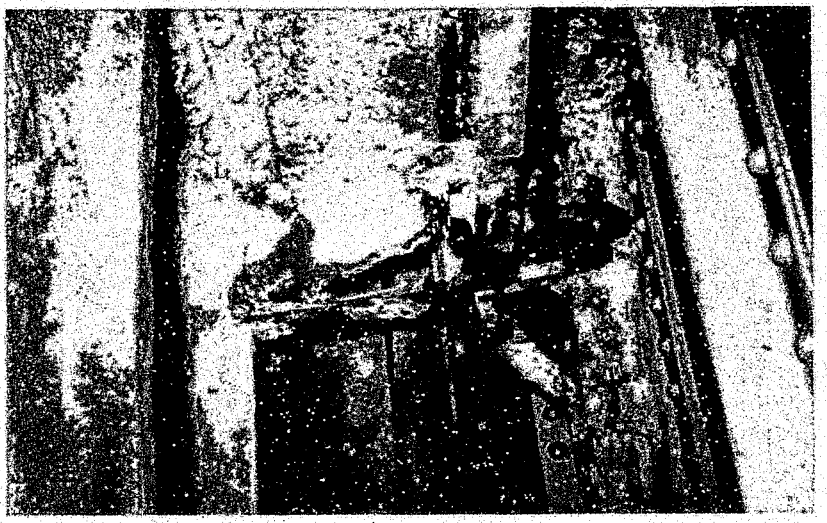
Stairs landing 4, Pier 18. (6-11)



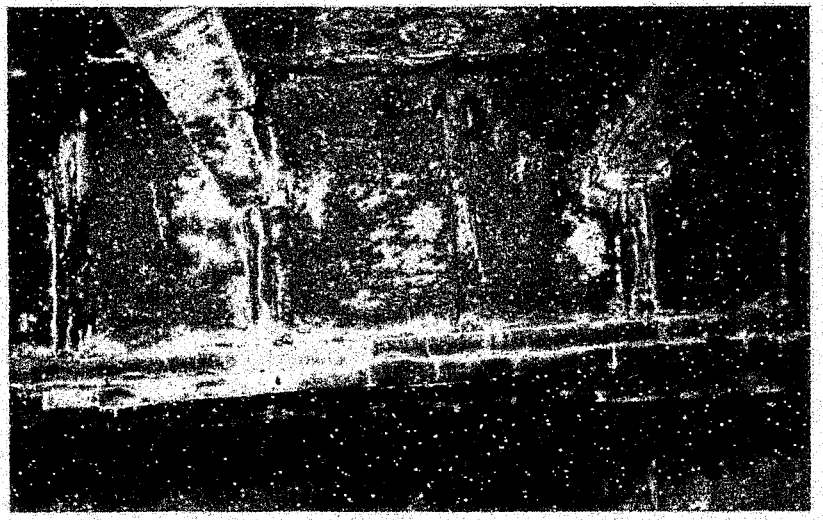
Stairs column under landing 5, Pier 18. (6-12)



Stgr. 1 expansion seat at Pier 26, looking west. (13-2)



Stgr. 6 expansion seat at Pier 26, looking east. (13-5)



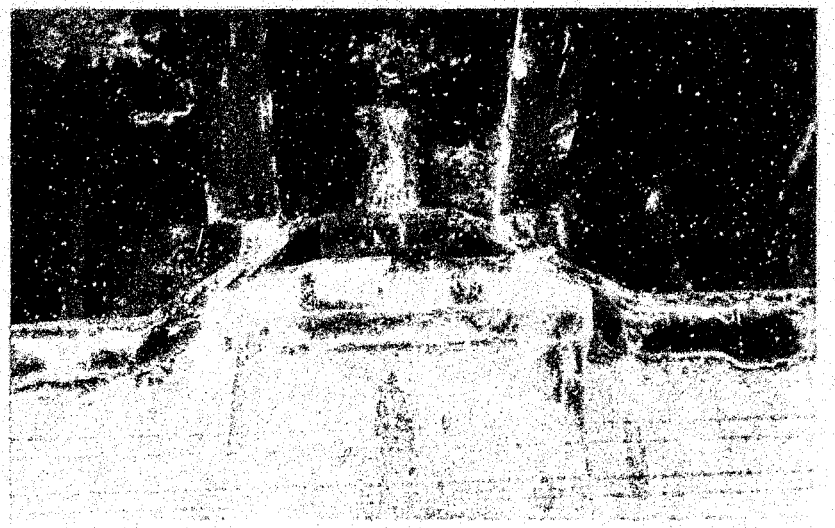
Span 28. Looking north at gunited floor system. (13-4)



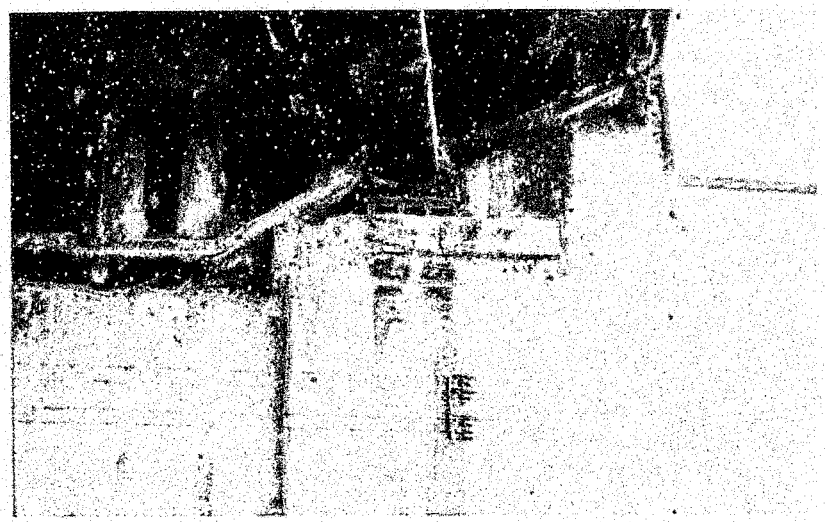
Span 28. Looking north at floor system. (13-0A)



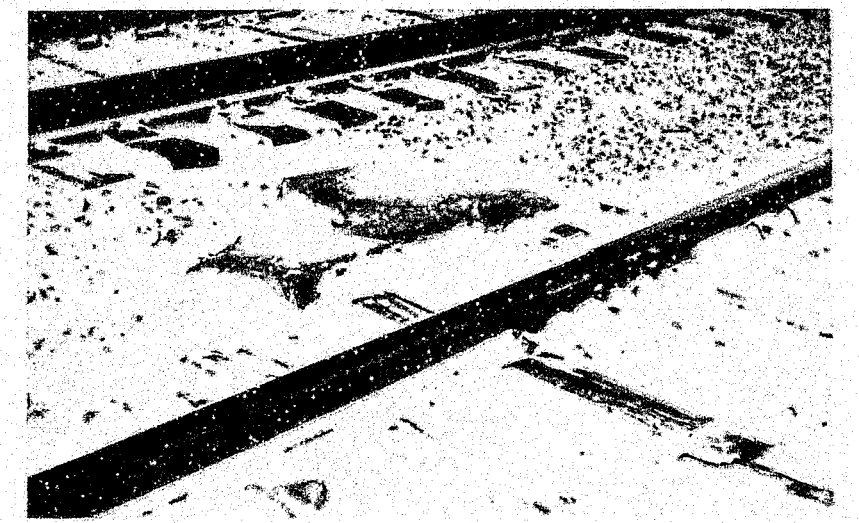
Span 28. North abutment, west pilaster. (13-11)



Span 28. North abutment, center pilaster. (13-13)



Span 28. North abutment, east pilaster. (13-15)



Gunite fallen from Span 28 FB. (13-9A)

Smallman St.

U.S. Gov't. Post Office Dept.

Eazor Express Inc.

℄ Bent 1 · ℄ Bent 2 · ℄ Bent 3 · ℄ Bent 4 · ℄ Bent 5 · ℄ Bent 6 · ℄ Bent 7 · P.R.R. · Railroad St. · ℄ Bent 8 · ℄ Bent 9 · ℄ Bent 10 · ℄ Bent 11 · ℄ Bent 12 · ℄ Col. 13 A · ℄ Col. 13 · ℄ Bent 14 · ℄ Bent 16

4-Pump Log Ducts ℄ Bell Tel Co.

Scupper

Duquesne Light Co. 4-4½"ϕ Transite Conduit

Ralph J. Meyer Co.

1-1½"ϕ Metal Conduit

Sidewalk · ℄ Curb · ℄ Curb · Sidewalk

28'-0 · 32'-0 · 2½ · 8½ · 2½ · 10'

West Facia · ℄ Girder · ℄ Bridge · ℄ Girder · East Facia

Universal Cyclops Corp

PLAN
Scale: 1" = 30'

Floor System, Field notes

Span 1. 69'-0 · Span 2 59'-0 · Span 3 31'-6 · Span 4 59'-0 · Span 5 64'-10 5/16 · Span 6 20'-3 31/32 · Span 7 20'-3 31/32 · Span 8 94'-0 · Span 9 85'-0 · Span 10 85'-0 · Span 11 85'-0 · Span 12 40'-9 31/32 · Span 13 98'-0 · Span 14A 48'-0 · Span 15 82'-0 · Span 16 64'±

Spans as shown on Design Dwgs.

West Side: Span 13A 48'-0 · Span 14 95'-0

Fix. Fix. Fix. Exp. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Fix. Exp. Fix. Fix. Fix. Fix.

EAST ELEVATION

Datum 710

℄ Pier 17 · ℄ Rib Pins · ℄ Exp. · ℄ Bent 17 · B. & O. R.R. · ℄ Shore Line · Bell Tel Co. ~ 4 Pump Log Ducts · ℄ Bent 14 · ℄ Exp. Pier 18 · ℄ Exp. · ℄ Bent 17 · ℄ Bent pt. 11 · ℄ Exp. · ℄ Rib Pins · Allegheny River · ℄ Bent 11' · ℄ Exp. Pier 19 · ℄ Exp. · ℄ Bent 17 · Match Line See Plate II

Sidewalk · ℄ Curb · ℄ Curb · Sidewalk

West Facia · ℄ Arch Rib · ℄ Arch Rib · East Facia

Scupper

24'-0 · 28'-0 · 10' · 2½ · 8½ · 2½

Duquesne Light Co. 6-4½"ϕ Transite Conduit

℄ Piers

PLAN
Scale: 1" = 30'

℄ Bridge · Shore Line

Span 17 · Span 18 · Span 19

229'-0 c/c Pins · 380'-6 c/c Pins · 229'-0 c/c Pins

Pool El 710.

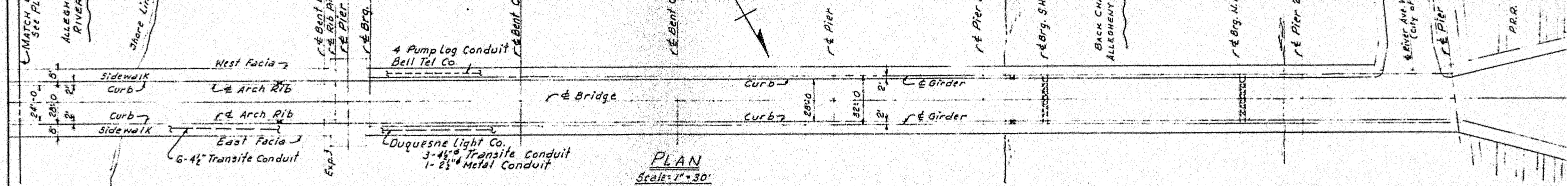
Commonwealth of Pennsylvania

DEPARTMENT OF HIGHWAYS
DIVISION OF BRIDGE ENGINEERING

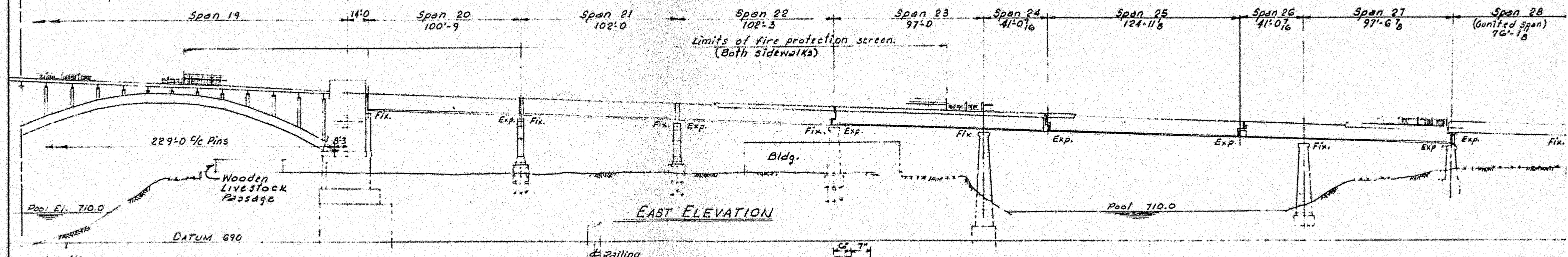
THIRTY-FIRST STREET BRI

L.R. 02260 STA. 17+4

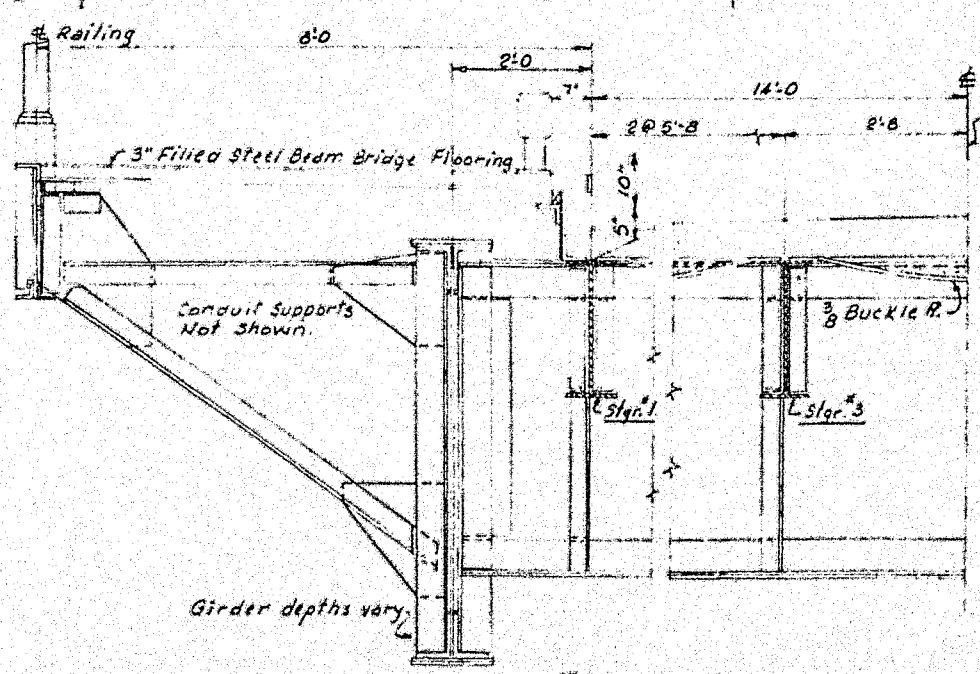
GENERAL PLAN AND



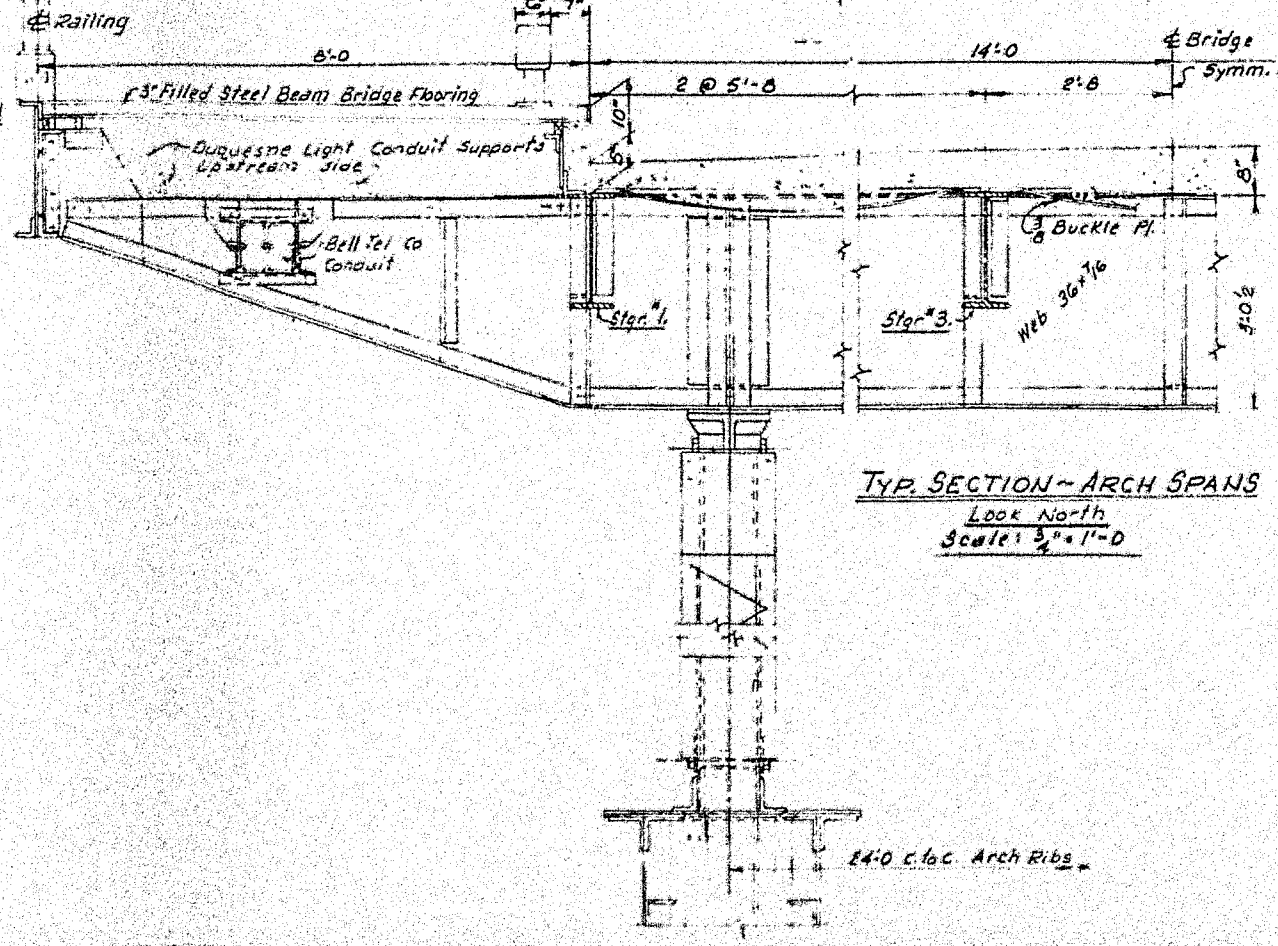
PLAN
Scale: 1" = 30'



EAST ELEVATION



TYPICAL SECTION
APPROACH SPANS
Look North
Scale: 3/4" = 1'-0



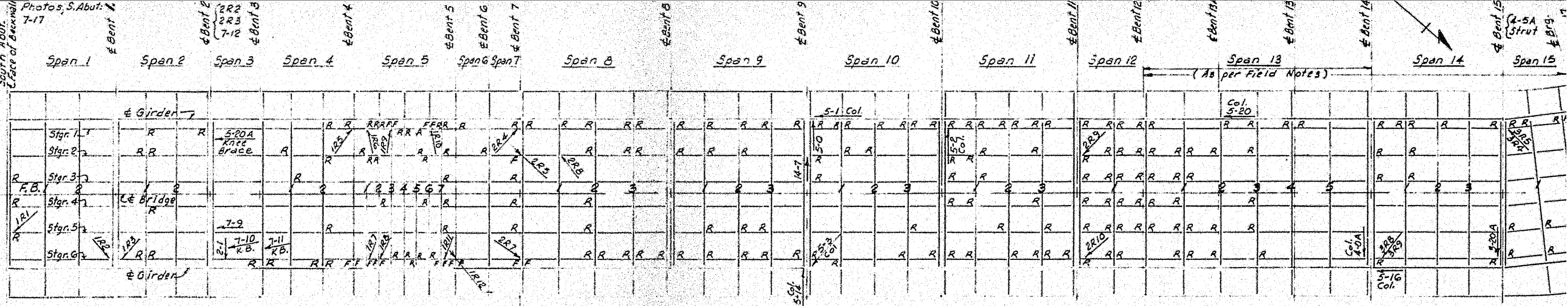
TYP. SECTION - ARCH SPANS
Look North
Scale: 3/4" = 1'-0

Commonwealth of Pennsylvania
DEPARTMENT OF HIGHWAYS
DIVISION OF BRIDGE ENGINEERING

THIRTY-FIRST STREET BRID
L.R. 02260 STA. 17+49

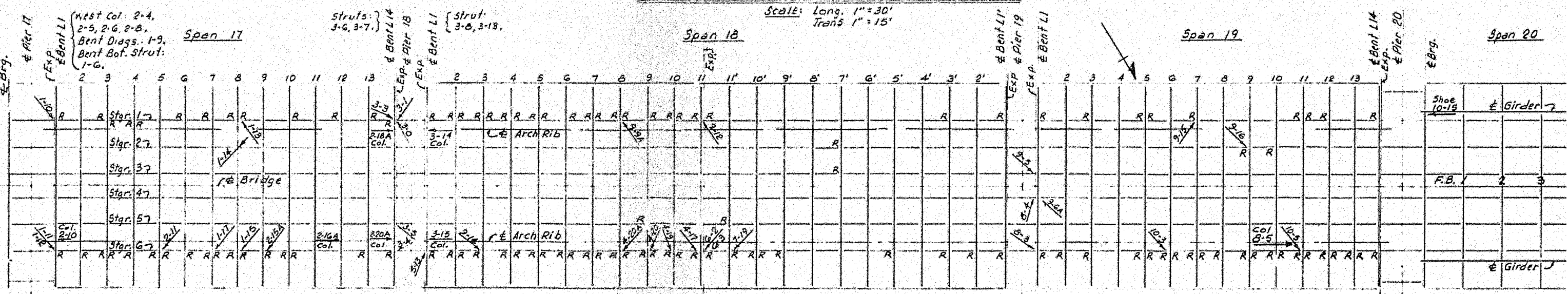
GENERAL PLAN, ELEVATION & SECTIONS

PLATE

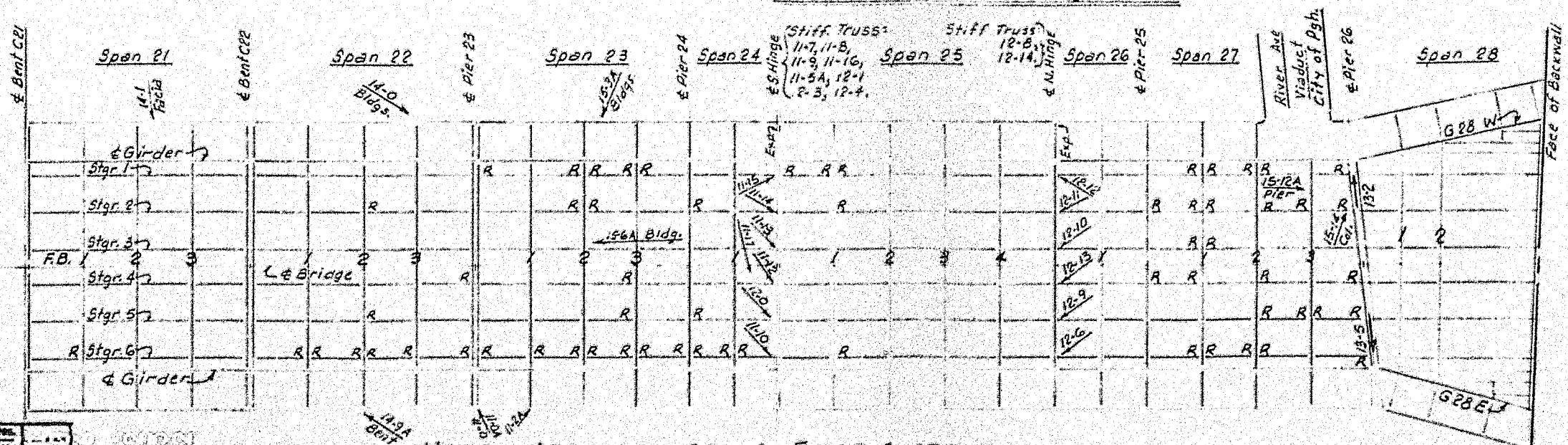


SOUTH APPROACH SPANS- FLOOR SYSTEM

Scale: Long. 1" = 30'
Trans 1" = 15'



ARCH SPANS- FLOOR SYSTEM



NORTH APPROACH SPANS- FLOOR SYSTEM

NOTE:
1. Photos are designated by directional arrow and photo number.
2. Detailed descriptions of Floor System, Bent Bracing, and Columns shown in the Field Notes.
F, designates stringers fixed by P.D.H., 1968-69.
R, designates stringer bad web at connection that should be fixed.

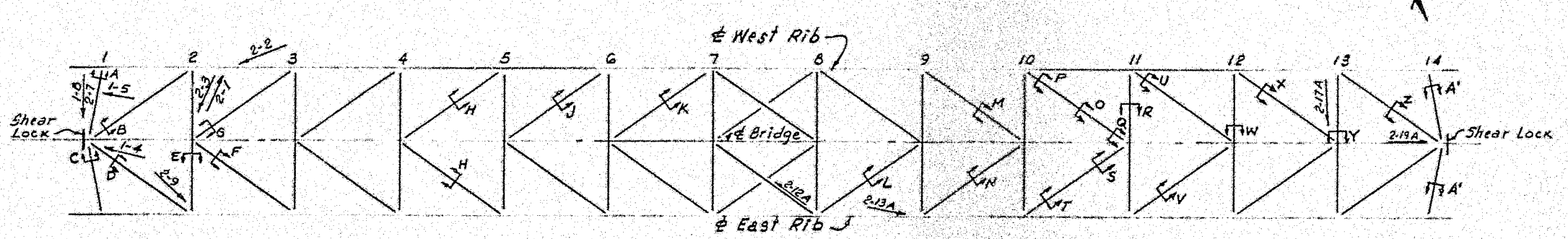
Commonwealth of Pennsylvania
DEPARTMENT OF HIGHWAYS
DIVISION OF BRIDGE ENGINEERING

THIRTY-FIRST STREET BRI

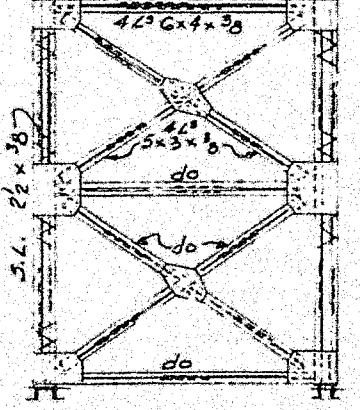
L.R. 02260 STA. 17+

FLOOR SYSTEM - STRINGER REPAIRS

PLATE

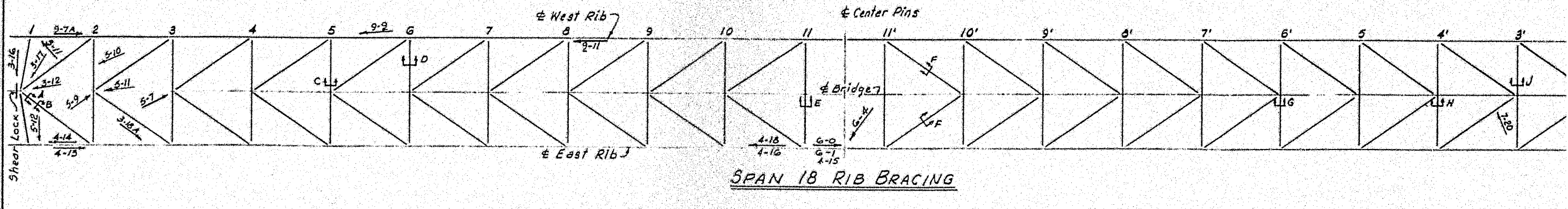


SPAN 17 RIB BRACING



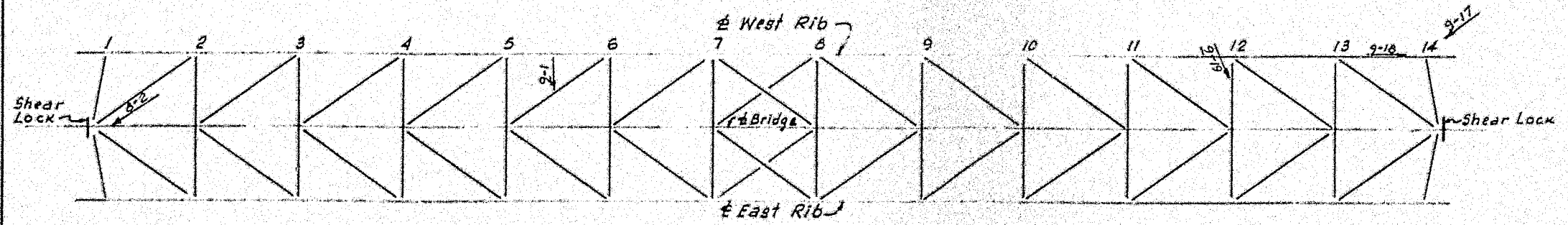
Col. Matl:
2 - 12 C 25
2 Pls 12 x ⅜

TYPICAL END BENT
Scale: ⅛" = 1'-0



SPAN 18 RIB BRACING

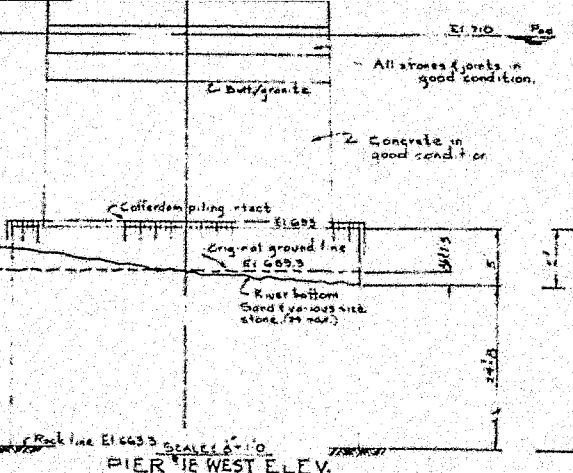
NOTES:
1. Photos are designated by directional arrow and pl
2. Additional description of bracing members and
shown on this plate are in the Field Notes.



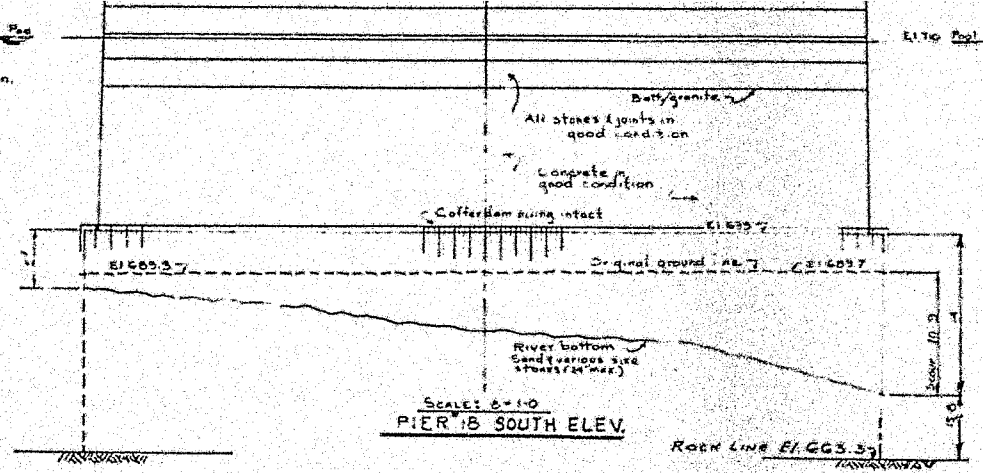
SPAN 19 RIB BRACING

Scale $\frac{3}{32}$ = 1'-0

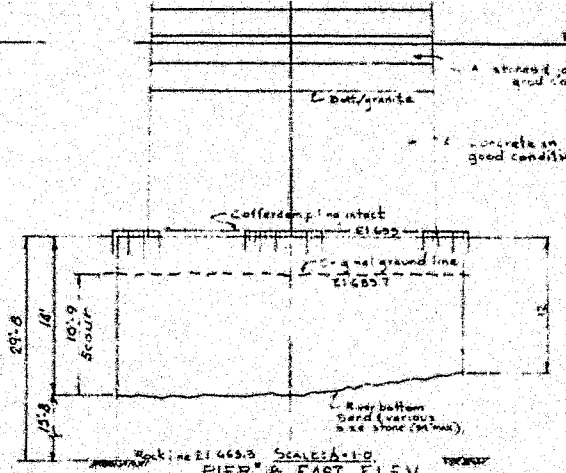
Commonwealth of Pennsylva
DEPARTMENT OF HIGHWA
DIVISION OF BRIDGE ENGINEERING
THIRTY-FIRST STREE
L.R. 02260 ST
RIB BRACI
SPANS 17, 18
PLA



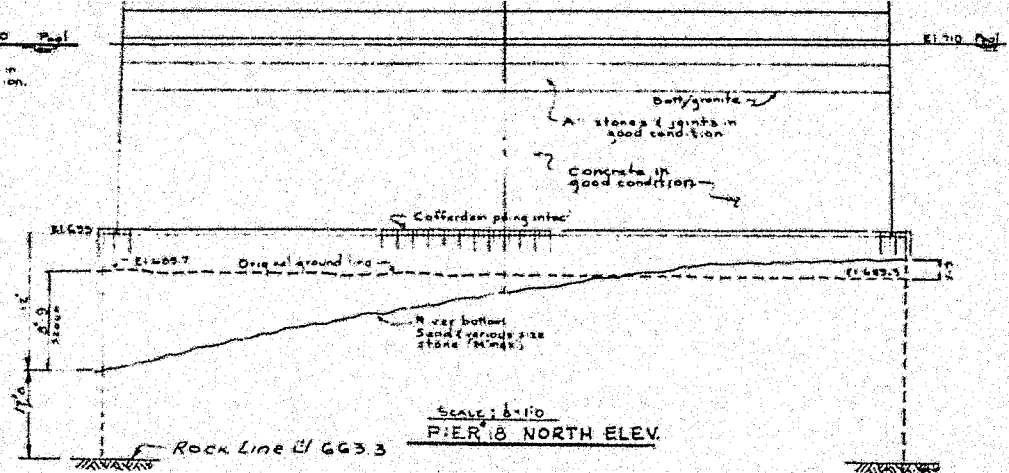
PIER #18 WEST ELEV.



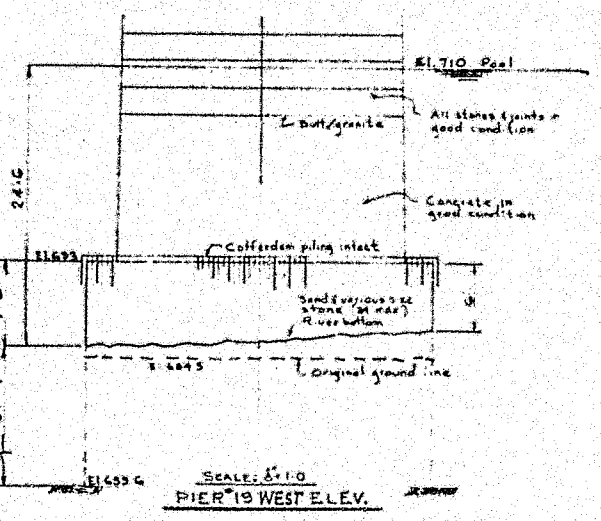
PIER #18 SOUTH ELEV.



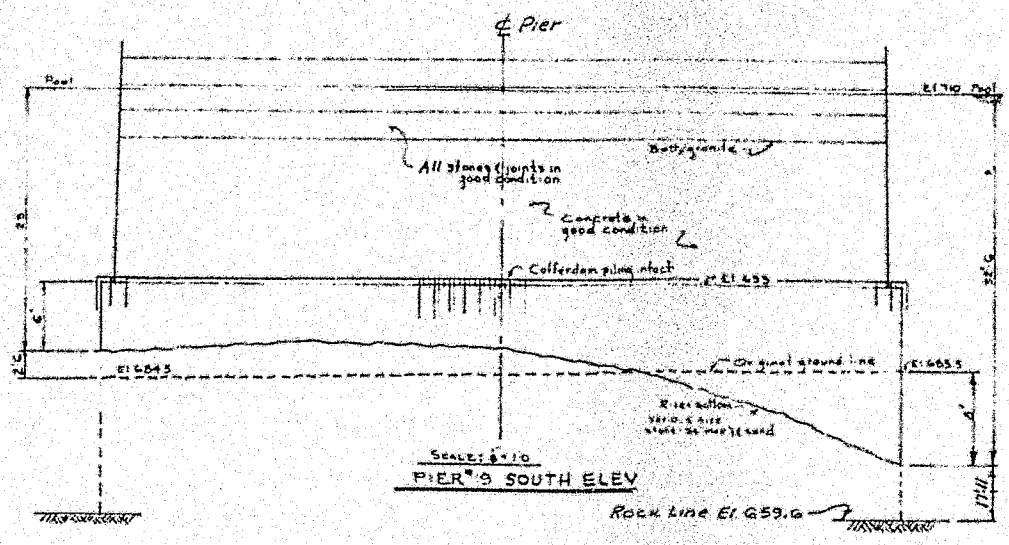
PIER #18 EAST ELEV.



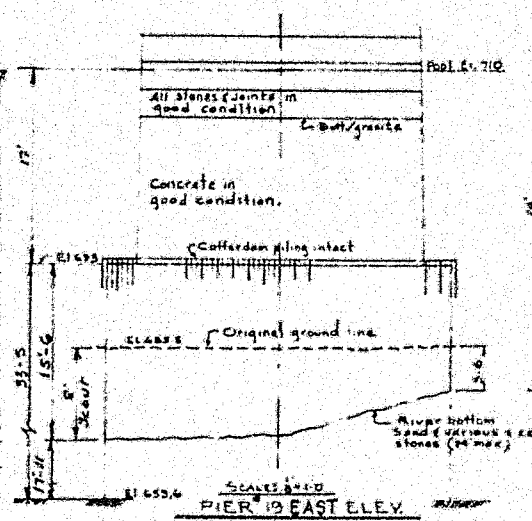
PIER #18 NORTH ELEV.



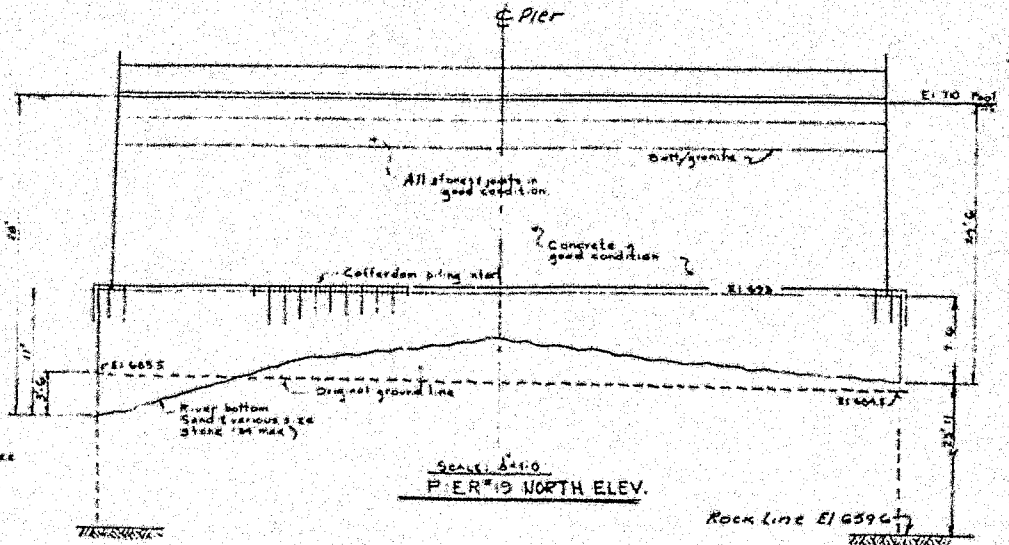
PIER #19 WEST ELEV.



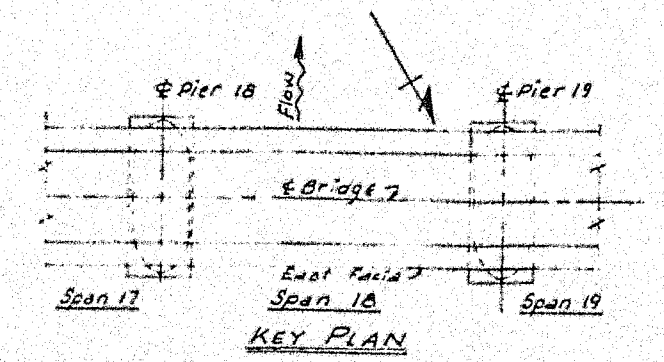
PIER #19 SOUTH ELEV.



PIER #19 EAST ELEV.



PIER #19 NORTH ELEV.



KEY PLAN

Commonwealth of Pennsylvania

DEPARTMENT OF HIGHWAYS

DIVISION OF BRIDGE ENGINEERING

THIRTY-FIRST STREET BRIDGE

L.R. 02260 STA. 17+49.5

PIERS 18 AND 19 UNDERWATER INSPECTION

PLATE V

SPAN	MEMBER	SECTION	SECTION MODULUS in^3	ALLOW. UNIT STRESS Ksi	TOTAL CAPACITY K-ft.	DEADLOAD STRESS K-ft.	SIDEWALK L.L. STRESS K-ft.	* CAPACITY LIVE LOAD + IMPACT K-ft.	A H L
1	Main Girder	4 PL 8 14×½, 4 L 5 8×6×¾, 1 PL 90×7/16 △	2967	16.5	4079	1818	194	2067	
	End Flr bms.	1 T. PL 18×⅜, 2 T. L 5 8×6×⅞, 1 W. PL 36×⅜, 2 B. L 5 8×6×⅞, 1 B. PL 14×⅝	840	16.5	1155	448	——	707	
	Int. Flrbm.	1 T. PL 12×⅜, 1 T. PL 18×⅝, 2 T. L 5 8×6×⅞, 1 W. PL 36×½, 2 B. L 5 8×6×⅞, 1 B. PL 14×⅝, 1 B. PL 14×½.	1075	16.5	1478	446	——	1032	
	Curb Stgr. 1, 6								
	Int. Stgr.								
2	Main Girder	4 PL 14×½, 4 L 3 8×6×¾, 1 W. PL 72×⅜.	2069	16.5	2845	1420	204	1221	
	End Flrbm. N.End								
	End Flrbm. S.End	1 T. PL 18×⅜, 2 T. L 3 6×6×⅜, 1 W. PL 54×⅜, 2 B. L 3 6×6×⅜, 1 B. PL 14×⅜.	793	16.5	1090	243		847	
	Int. Flrbm.								
	Curb Stgr. 1, 6.								
	Int. Stgr.								
3	Main Girder								
	End Flrbm. N.End	1 T. PL 18×⅜, 2 T. L 3 6×6×½, 1 W. PL 54×⅜, 2 B. L 3 6×6×½, 1 B. PL 14×½.	916	16.5	1260	501	——	759	
	End Flr bm. S.End	1 T. PL 18×⅜, 2 T. L 5 6×6×⅜, 1 W. PL 54×⅜, 2 B. L 3 8×6×¾ 1 B. PL 8×¾.	798	16.5	1097	348	——	749	
	Curb Stgr. 1, 6.	27 I 101	265	16.5	364	92	42	230	
	Int. Stgr.	27 I 112	293	16.5	403	108	——	295	
4	End Flrbm. S.End								
	End Flrbm. N.End								
	Other Members								

	Impact Stress K-ft.	Total L.L.+I * Stress K-ft.	HS Rating LL+I cap. x20 / LL+I stress		Remarks
	275	1328	31		
	145	629	22		
	155	673	31		
					See Span 15
					See Span 15
	245	1149	21		
					See Span 3, S. End
	135	584	29		
					See Span 7.
					See Span 7.
					See Span 15.
					Does not carry L.L.
	173	748	20		
	168	729	21		
	30	132	23		
	47	204	29		
					See Span 3, N. End.
					See Span 7
					Same as Span 2.

NOTES:

*, L.L.+I due to vehicular traffic on rdwy, after provision for D.L. & S.W.L.L.

△, Unless flange material is indicated as top or bottom by "T" or "B", the material is placed symmetrically.

THIRTY-FIRST STREET BRIDGE
L.R. 02260 STA. 17+49.5
PITTSBURGH, PENNA.

RATING TABLE

APPROACH SPANS
GIRDERS, STRINGERS, FLOORBEAMS

PLATE VI

MEMBER	SECTION	MODULUS in^3	UNIT STRESS KSI	CAPACITY K-ft.	STRESS K-ft.	L.L. STRESS K-ft.	LIVE LOAD +IMPACT K-ft.	HS 20 LIVE LOAD STRESS K-ft.	STRESS K-ft.	L.L.+I STRESS K-ft.
Main Girder	4 PLs 14×¾, 4 L⁵ 8×6×¾, 1 W.P. 72×½. △	2842	16.5	3907	2205	207	1495	1109	292	1401
Flrbm. 1-7.	4 PLs 18×¾, 4 L⁵ 8×6×1 1 W.P. 18×⅝	719	16.5	988	234		754	354	106	460
Stgr. 1-6	12 I 40	52	16.5	72	6	3	63	21	6	27
Main Girder Flrbm. @ Points 5,6,7	1 T.P. 18×⅜, 2 T. L⁵ 6×6×7/16 1 W.P. 54×⅜, 2 B. L⁵ 6×6×7/16 1 B.P. 14×⅜.	798	16.5	1097	412		685	499	150	650
Curb Stgr. 1,6 Int. Stgr.	21 I 60	124	16.5	170	39	19	112	55	16	71
Main Girder End Flrbm. S.End										
End Flrbm N.End										
Int. Flrbm										
Curb Stgr. 1,6 Int. Stgr.										
Main Girder	2 PLs 18×½, 2 PLs 18×¾, 4 L⁵ 8×8×1, 1 W.P. 96×7/16	4637	16.5	6376	3276	474	2625	1563	372	1935
End Flrbm. N.&S.										
Int. Flrbm.										
Curb Stgr. 1,6.										
Int. Stgr.										
Main Girder										
End Flrbm N.End										
End Flrbm. S.End										
Int. Flrbm.										
Curb Stgr. 1,6.										
Int. Stgr.										

H3 RATING L.L.+I CAP. x 20 L+I STRESS		REMARKS
21		
33		
29		
		Does not carry L.L.
21		
20		
		See Span 15
		See Spans 13, 95' Span
		See Span 7
		See Span 3, S. End
		See Span 3, N. End
		See Spans 13
		See Spans 13
27		
		See Span 3. S. End
		See Span 7.
		See Span 7.
		See Span 15.
		See Spans 13, 48' Span.
		See Span 1.
		See Span 3. S. End
		See Span 7.
		See Span 7.
		See Span 15.

NOTES:

*, L.L.+I due to vehicular traffic on roadway, after provision for D.L. & S.W.L.L.

△, Unless flange material is indicated by "T" or "B", the material is placed symmetrically.

THIRTY-FIRST STREET BRIDGE

L.R. 02260 STA. 17+49.5

PITTSBURGH, PENNA.

RATING TABLE

APPROACH SPANS

GIRDERS, STRINGERS, FLOORBEAMS

PLATE VI

MEMBER	SECTION	SECTION MODULUS in^3	ALLOW. UNIT STRESS KSI	TOTAL CAPACITY K-ft.	DEAD LOAD STRESS K-ft.	SIDEWALK L.L. STRESS K-ft.	*CAPACITY LIVE LOAD + IMPACT K-ft.	AASHO H S20 LIVE LOAD STRESS K-ft.	IMPACT STRESS K-ft.
Main Girder 95' Span	2 PLs 18×½, 2 PLs 18×⅝, 2 PLs 18×¾ 4 L's 8×8×1, 1 W. PL 96×7/16 △	5615	16.5	7721	4156	594	2971	1805	411
End Flr bm.	(@ Bent 12)								
End Flr bm.	(@ Bent 14)								
Int. Flr bm.									
Main Girder 48' Span	2 PLs 14×⅜, 4 L's 8×6×½, 1 W. PL 96×7/16	1982	16.5	2725	974	151	1600	726	210
Curb Stgr. 1,6	24 I 70	163	16.5	224	51	24	149	62	19
Int. Stgr.	24 I 76	175	16.5	241	60	—	181	99	30
Main Girder									
End Flr bm.	(N. & S. Ends)								
Int. Flr bm.									
Curb Stgr. 1,6									
Int. Stgr.									
Main Girder	4 PLs 14×½, 4 L's 8×6×¾, 1 W. PL 96×½	3118	16.5	4287	1784	273	2230	1090	282
End Flr bm. N. End									
End Flr bm. S. End									
Int. Flr bm.									
Curb Stgr. 1,6	24 I 70	163	16.5	224	45	22	157	58	18
Int. Stgr.	24 I 70	163	16.5	224	52	—	172	93	28

*, Span 13 includes floor system from Bent 12 to Bent 14, as per Field Notes for floor system only. See PLATE I.

△, As per Field Notes for floor system only. See PLATE I.

TRESS K-ft.	L.L.+I STRESS		
2216	27		
			See Span 1.
			See Span 3. S.End
			See Span 3. N.End
936	34		
81	23		
29	28		
			See Spans 9, 10, 11.
			See Span 3. S.End
			See Span 7.
			See Span 7.
			See Span 15
372	32		
			See Span 3. N.End
			See Span 3. S.End
			See Span 7.
76	26		
121	28		

△, Unless flange material is indicated by "T" or "B", the material is placed symmetrically.

THIRTY-FIRST STREET BRIDGE
L.R. 02260 STA. 17+49.5
PITTSBURGH, PENNA.

RATING TABLE

APPROACH SPANS
GIRDERS, STRINGERS, FLOORBEAMS

PLATE VIII

A N	MEMBER	SECTION	MODULUS in^3	UNIT STRESS KSI	CAPACITY K-ft.	STRESS K-ft.	L.L. STRESS K-ft.	LIVE LOAD + IMPACT K-ft.	AS 20 LIVE LOAD STRESS K-ft.
	Main Girder								
	Flr bm. S. End	1 T. PL 10 x 3/8, 1 T. PL 18 x 3/8, 2 T. L 6 x 6 x 1/2, 1 W. PL 54 x 3/8 2 B. L 6 x 6 x 1/2, 2 B. PL 14 x 3/8	877	16.5	1417	529	19	869	555
	Flr bm. (Int.)								
20	Flr bm. N. End	1 T. PL 15 x 3/8, 2 T. L 6 x 6 x 3/8, 1 W. PL 54 x 3/8, 2 B. L 6 x 6 x 3/8, 1 B. PL 14 x 3/8	647	16.5	890	255	9	626	490
	Stgr. (Over Pier 20)	27 I 101	265	16.5	364	90	36	238	139
	Curb & Int. Stgr. 1, 2 & 5, 6.								
	Int. Stgr. 3, 4.								
	Main Girder								
	Flr bm. (Int.)								
21	Flr bm. N. & S. Ends.	1 T. PL 18 x 3/8, 2 T. L 6 x 6 x 3/8, 1 W. PL 54 x 3/8, 2 B. L 6 x 6 x 3/8, 1 B. PL 14 x 3/8	675	16.5	928	255	9	664	490
	Stgr. 1, 2 & 5, 6								
	Int. Stgr. 3, 4.								
	Main Girder	6 PLs 18 x 1/2, 4 L 8 x 8 x 5/8, 1 W. PL 120 x 1/2. △	5008	16.5	6886	4235	299	2352	1710
	Flr bm. (Int.)								
22	Flr bm. N. End								
	Flr bm. S. End								
	Stgr. 1, 2 & 5, 6								
	Int. Stgr. 3, 4.								
	Main Girder	10 PLs 20 x 3/4, 4 L 8 x 8 x 3/4, 8 Side PLs 15 x 1/2, 4 Side PLs 8 x 3/4 1 W. PL 120 x 1/2. △	12 353	16.5	18095	12823	726	4546	3095
23	Flr bm. (Int.)	(Also at Pier 24)							
24									

IMPACT STRESS K-ft	TOTAL L.L.+I * STRESS K-ft.	AJ RATING $\frac{L.L.+I_{CAP}}{L.L.+I_{STRESS}} \times 20$		REMARKS
				See Span 23.
166	721	24		
				See Span 25.
147	637	20		
42	181	26		
				See Span 25.
				See Span 25.
				See Span 23
				See Span 25
147	637	20		
				See Span 25.
				See Span 25.
372	2082	23		
				See Span 25.
				See Span 21
				See Span 20, N.End
				See Span 25
				See Span 25
620	3715	24		
				See Span 25.
				See Span 25

NOTES:

*, L.L.+I due to vehicular traffic on rdwy, after provision for D.L. & S.W. L.L.

△, Unless flange material is indicated as top or bottom by "T" or "B", the material is placed symmetrically.

THIRTY-FIRST STREET BRIDGE
L.R. 02260 STA. 17+49.5
PITTSBURGH, PENNA.

RATING TABLE
APPROACH SPANS
GIRDERS, STRINGERS, FLOORBEAMS

PLATE IX

N			in^3	STRESS Ksi	K-ft.	K-ft.	K-ft.	+IMPACT K-ft.	LOAD STRESS K-ft.	K-ft.
26, 27	Main Girder Flrbm. (Int.) Stgrs. 1-6. Flrbm. (@ Pier 26)									
	Flrbm. @ Hinges	1 T. PL 15×⅜, 2 T. L⁵ 6×6×½, 1 W. PL 54×⅜, 2 B. L⁵ 6×6×½, 1 B. PL 14×½.	723	16.5	1170	449	16	705	491	148
	Main Girder	8 PLs 18×¾, 1 W. PL 120×½, 4 Ls 8×8×⅞. △	8315	16.5	11433	6834	382	4217	2040	407
25	Flrbm. (Int.)	1 T. PL 18×⅜, 2 T. L⁵ 6×6×½, 1 W. PL 54×⅜, 2 B. L⁵ 6×6×½, 1 B. PL 14×½	752	16.5	1211	489	17	705	528	158
	Curb & Rdwy Stgr. 1,2 & 5,6	24 I 70	163	16.5	224	59	27	138	108	32
	Int. Stgr. 3,4.	24 I 76	182	16.5	250	65		185	104	31
	Girder G 28 W.	8 PLs 20×⅞, W. PL 84×½, 4 L⁵ 8×8×1.	8567	16.5	11779	4370	146	7263	2125	522
	Girder G 28 E.	8 PLs 20×11/16, 4 L⁵ 8×8×1, W. PL 84×½, 4 side PLs 14×¾.	6442	16.5	8858	3634	124	5100	1704	434
	Flrbm. S. End									
	Flrbm. 1.	1 T. PL 10×½, 1 T. PL 18×½, 2 T. L⁵ 6×6×¾, 1 W. PL 54×7/16, 2 B. L⁵ 6×6×¾, 2 B. PLs 14×⅝.	1398	16.5	1920	617	11	1292	613	183
28	Flrbm. 2	1 T. PL 18×½, 3 T. PLs 18×¾, 1 T. PL 25×½, 2 T. L⁵ 8×8×1, 2 side PLs 14×½ T. & B. 2 side PLs 6×1 T. & B. 1 W. PL 46×¾, 2 B. L⁵ 8×8×1, 4 B. PLs 22×¾, 1 B. PL 22×½.	2804	16.5	3855	1835	9	2011	1109	316
	Flrbm. N. End	1 T. PL 8×½, 1 T. PL 14×½, 2 T. L⁵ 6×4×½, 1 W. PL 60×7/16, 2 B. L⁵ 6×6×½, 2 B. PLs. 13×7/16.	999	16.5	1373	575	7	791	451	135
	Stgr. (2 S. Bays)									
	Stgr. (N. Bay)	1 T. PL 13×½, 2 T. L⁵ 6×3½×¾,	327	16.5	548	186		362	238	71

AL +I * ESS -ft.	H5 RATING L.L+I CAP x 20 L.L+I STRESS		REMARKS
			See Span 23/24
			See Span 25
			See Span 25
			See Span 20, N. End
639	22		
47	34		
86	21		
40	20		
35	28		
47	55		
88	48		
			See Span 21
96	32		
25	28		
8G	27		
			See Span 25, 1.2456
09	23		

NOTES:

*, L.L.+I due to vehicular traffic on roadway, after provision for D.L. & S.W.L.L.

△, Unless flange material is indicated by "T" or "B", the material is placed symmetrically.

Considering gunite underneath span removed as per present contract nearing completion.

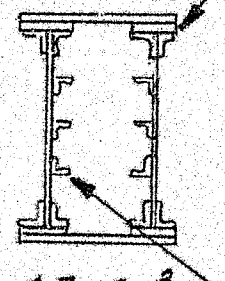
THIRTY-FIRST STREET BRIDGE
L.R. 02260 STA. 17+49.5
PITTSBURGH, PENNA.

RATING TABLE
APPROACH SPANS
GIRDERS, STRINGERS, FLOORBEAMS

PLATE X

MEMBER	SECTION		SECTION MODULUS	ALLOW. UNIT STRESS KSI	TOTAL CAPACITY	DEAD LOAD STRESS KSI	SIDEWALK L.L. STRESS KSI	CAPACITY LIVE LOAD + IMPACT KSI	AASHO H 20 LIVE LOAD STRESS KSI	IM ST
	2 Web Pls	2 Flg. Pls								
Panel Pt. 1	95 1/2 x 1/2	44 x 9/16		13.19		7.70	0.75	4.74	2.02	
2	95 1/2 x 1/2	44 x 9/16		13.14		7.61	1.20	4.33	3.18	
3	94 x 1/2	44 x 13/16		13.14		6.91	1.38	4.85	3.66	
4	92 1/2 x 1/2	44 x 1		13.14		6.44	1.53	5.17	3.83	
5	90 x 1/2	44 x 1 3/16		13.14		6.05	1.57	5.52	3.93	
6	86 1/2 x 1/2	44 x 1 3/16		13.14		6.05	1.64	5.45	4.11	
7	82 1/2 x 1/2	44 x 1 3/16		13.14		6.08	1.66	5.40	4.18	
8	78 x 1/2	44 x 1		13.15		6.46	1.66	5.03	4.19	
9	72 1/2 x 1/2	44 x 7/8		13.15		6.86	1.54	4.75	4.01	
10	66 1/2 x 1/2	44 x 5/8		13.15		7.71	1.37	4.07	3.52	
11	59 1/2 x 1/2	44 x 5/8		13.19		7.96	0.74	4.49	1.91	

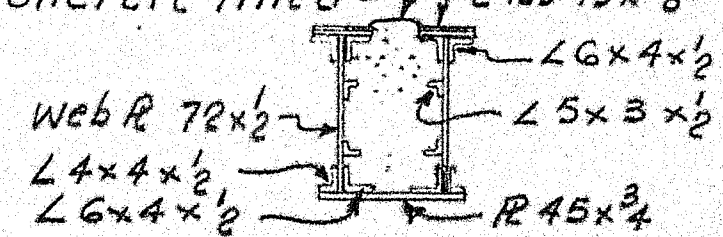
Typ. { PL 14 x 5/8 / L 6 x 6 x 1/2 }



Typ. L 5 x 3 x 3/8

Panel Pt. 1 2 3 4 5 6 7

Concrete filled — 2 Pls 13 x 5/8



			in³	KSI	K-ft	K-ft.		K-ft.	K-ft
Flr bm. (Int.)	1 T. PL 13 x 3/8, 2 T. L's 3 1/2 x 3 1/2 x 1/2, W. PL 36 x 7/16, 2 B. L's 5 x 3 1/2 x 9/16		323	16.5	444	86		358	282
Flr bm. (Exp)	1 T. PL 13 x 3/8, 2 T. L's 3 1/2 x 3 1/2 x 9/16, W. PL 42 x 7/16, 2 B. L's 5 x 3 1/2 x 5/8.		418	16.5	575	111		464	352
Flr bm. (Exp.)	1 T. PL 11 x 3/8, 2 T. L's 3 1/2 x 3 1/2 x 1/2, W. PL 36 x 7/16, 2 B. L's 5 x 3 1/2 x 9/16. 1 T. L 6 x 4 x 1/2 (top flg.)		323	16.5	444	108.		336	313
Stgr. 1-6	21 I 60		124	16.5	171	31		140	72
Exp. Span Stgr. (Over Piers 18 & 19)	21 I 70		145	16.5	200	53		147	86

IMPACT STRESS ksi	TOTAL L.L.+I * STRESS ksi	H5 RATING $\frac{\text{L.L.+I Cap.}}{\text{L.L.+I STRESS}} \times 20$		REMARKS
0.24	2.26	42		
0.40	3.58	24		
0.48	4.14	23		
0.68	4.51	23		
0.69	4.62	24		
0.72	4.83	23		
0.73	4.91	22		
0.71	4.90	21		
0.58	4.59	21		
0.54	4.06	20		
0.30	2.21	41		
0.89	4.91	15 •		Critical Section
K-ft.	K-ft.			
7	366	20		
6	458	20		@ Bent L1, Span 17 and Bent L14, Span 19.
1	406	18		@ Bent L14, Span 17; Bent L1, Bent L1', Span 18; Bent L1, Span 19.
1	93	30		
5	111	26		

NOTES:

*, L.L.+I due to vehicular traffic on roadway, after provision for D.L. & S.W.L.L.

•, Rating without sidewalk live load @ normal stress = 20.

THIRTY-FIRST STREET BRIDGE
L.R. 02260 STA. 17+49.5
PITTSBURGH, PENNA.

RATING TABLE

ARCH SPANS 17, 18 & 19
ARCH RIBS & FLOOR SYSTEM

PLATE XI

Company, marked "U-493," which plan is hereby approved, attached hereto and made part hereof.

IT IS FURTHER ORDERED: That so much of the Commission's report and order of March 15, 1927, as requires the construction of an approach to the existing Shermansville Station of the Bessemer and Lake Erie Railroad Company, from the crossing of the Espyville Road over the track of the Meadville and Linesville Branch of said company, and the construction of a stairway to the railroad from the side of the viaduct ordered constructed, be and is hereby rescinded.

COUNTY OF ALLEGHENY

vs.

BALTIMORE AND OHIO RAILROAD COMPANY, PENNSYLVANIA RAILROAD COMPANY, CITY OF PITTSBURGH, PITTSBURGH JOINT STOCK YARDS COMPANY, CRUCIBLE STEEL COMPANY OF AMERICA

COMPLAINT DOCKET NO. 6902

Grade crossings—Railroads—Allocation of costs.

The Commission altered certain grade crossings over the tracks of the respondent railroads by the construction of a bridge across a river and above the tracks of the said railroads, and assigned the work and allocated the cost among the respective parties.

Clark Miller of *Gordon, Smith, Buchanan & Scott* for The Baltimore & Ohio Railroad Company.

J. L. Aber and *A. M. Donnan* for The Pennsylvania Railroad Company.

B. B. McGinnis and *W. Heber Dithrick* for County of Allegheny.

Charles P. Lang for City of Pittsburgh.

Ewing Laporte for Pittsburgh Joint Stockyards Company.

REPORT BY THE COMMISSION, *March 15, 1927:*

The County of Allegheny has filed a complaint with this Commission alleging that certain crossings at grade over Thirtieth Street in the City of Pittsburgh are dangerous and should be eliminated. Thirtieth

Street extends northwardly from Penn Avenue, intersects Smallman and Railroad Streets, and terminates at the south bank of the Allegheny River. The Pennsylvania Railroad Company has three tracks in and along Railroad Street, and the Baltimore and Ohio Railroad Company has two tracks extending along the bank of the river, all crossing Thirtieth Street at grade.

A bridge extends from the foot of Thirtieth Street over the main river channel to Herr's Island, which formerly carried vehicular and pedestrian traffic. Two spans of the bridge were destroyed by fire in 1921 and subsequently the County of Allegheny constructed a suspension foot bridge to replace the spans destroyed. Its use is now confined to pedestrian traffic. There also exists a vehicular bridge over the back channel of the river, which extends from Herr's Island to East Ohio Street, a highway paralleling the north bank of the river. This bridge crosses above grade the facilities of the respondent railroads, lying between the river and East Ohio Street.

The County of Allegheny has submitted for the consideration of the Commission a plan for the alteration of the crossings complained of, together with an estimate of cost and descriptions of properties to be acquired, which have the approval of the parties to the proceeding.

In general the plan provides for the construction of a bridge which extends from Penn Avenue on the south side of the river along Thirty-first Street, above the grade of facilities of the respondent railroads, thence crossing the river and Herr's Island and terminating at East Ohio Street, a distance of approximately 3,000 feet. Beginning at Penn Avenue the bridge ascends on a 6.35% grade to Smallman Street on an earth filled retaining wall approach; thence from and above Smallman Street by steel viaduct construction; thence over the property of the Crucible Steel Company by a viaduct to Railroad Street on a 4.11% grade; thence over and above the tracks of The Pennsylvania Railroad Company at Railroad Street with deck plate girder construction; thence along Thirty-first Street by viaduct on a 3.48% grade to the bridge abutment on the south bank of the river; thence across the main channel of the river by steel arch construction to the abutment on the south bank of Herr's Island; thence over the island and the back river channel on a 3.48% descending grade by viaduct construction; thence over the tracks of respondent railroads with plate girder construction to East Ohio Street. The bridge proper has a clear roadway 28 feet in width and two 8-foot sidewalks extending the full length of the structure.

The arch construction over the river provides a minimum vertical clearance of fifty feet above Davis Island Pool Full at elevation 703, which meets all requirements of the War Department. The structure provides vertical clearances of at least 22 feet over the facilities of the respondent railroads, except over the tracks of The Pennsylvania Rail-

road Company on the north side of the river, where, according to the plan, a vertical clearance of 19 feet will be provided.

To secure the 19 foot clearance will necessitate elevating East Ohio Street and the tracks of the Pittsburgh Railways Company laid therein more than 4 feet. As the record discloses that no greater clearance at this point can be obtained without materially increasing construction cost and property damages, the Commission will approve of the 19 foot clearance. However, the Commission finds and will order that bridge warning obstruction indicators shall be erected over the tracks on each side of the bridge for the protection of trainmen.

The plan further provides for widening Thirty-first Street between Penn Avenue and Smallman Street a distance of approximately 175 feet so as to provide a roadway 18 feet in width and a 6-foot sidewalk on each side of the bridge approach.

The proposed plan contemplates the alteration of the two crossings of respondent railroads at Thirtieth Street by the removal of through traffic therefrom, but permitting both crossings to remain for traffic local in character and destined to and from certain industries in the vicinity.

The estimated cost of constructing and erecting the new bridge approximates $1,811,800, including property damages. The main items of the estimate are as follows:

Penn Avenue approach and abutment	$	76,000
Approach ramp		269,970
Bridge over main channel		874,570
Bridge over Herr's Island		142,020
Bridge over back channel		113,035
Span over B. & O. R. R. tracks		36,490
Span over Pennsylvania R. R. tracks		68,005
New work on East Ohio Street		67,000
New work on 31st St. between Penn Avenue and Smallman Avenue		20,700
		$1,667,790
Property damages		144,010
Total estimated cost		$1,811,800

From a consideration of the record and of the general plan submitted by the County of Allegheny and agreed upon by the parties the Commission makes the following findings, determinations and conclusions:

1. That the crossings at grade of Thirtieth Street over the tracks of The Pennsylvania Railroad Company, and over the tracks of The Baltimore and Ohio Railroad Company, are dangerous and should be altered for the safety, accommodation and convenience of the public, and that the alterations shall be accomplished by the construction of a new bridge in the City of Pittsburgh over the Allegheny River in accordance with the general plan submitted by the County of Allegheny, marked "Complainant's Exhibit No. 19,"

which said plan is hereby approved, attached hereto and made part hereof.

2. That the County of Allegheny on or before thirty (30) days from the date of the Commission's order shall prepare and submit to the parties of record for examination, and to this Commission for approval, detailed plans for the entire improvement.

3. That all property necessary for the improvement, together with all buildings and structures thereon, will be taken and appropriated for the purpose of the improvement; detailed descriptions thereof with the names and addresses of the reputed owners being recited at length in the order attached to and made part of this report.

4. That the County of Allegheny shall furnish all materials and do all work necessary to construct and complete the entire improvement in accordance with the approved plan; the cost of such work being estimated at $1,667,790; and, in addition thereto, shall pay all damages due for property taken, injured or destroyed excepting damages due to The Pennsylvania Railroad Company and The Baltimore and Ohio Railroad Company for any of their properties taken, injured or destroyed by the improvement.

5. That all of the work shall be fully completed by the County of Allegheny on or before December 31, 1928.

6. That the City of Pittsburgh shall pay to the County of Allegheny, when and as certified by The Public Service Commission, the sum of one hundred twenty-five thousand seven hundred and ten dollars ($125,710) to apply on the cost of materials to be furnished and work to be done by said County of Allegheny.

7. That The Baltimore and Ohio Railroad Company pay to the County of Allegheny, when and as certified by The Public Service Commission, the sum of Twenty-five thousand dollars ($25,000) to apply on the cost of materials to be furnished and work to be done by said County of Allegheny, and in addition shall pay any sum to which it may be entitled as compensation for damage to any of its property taken, injured or destroyed.

8. That The Pennsylvania Railroad Company shall pay to the County of Allegheny, when and as certified by The Public Service Commission, the sum of Fifty thousand dollars ($50,000) to apply on the cost of materials to be furnished and work to be done by the County of Allegheny, and, in addition, shall pay any sum to which it may be entitled as compensation for damage to any of its property taken, injured or destroyed.

9. That, upon completion of the portion of the bridge over the tracks of The Pennsylvania Railroad Company, on the north side of the Allegheny River, The Pennsylvania Railroad Company shall erect and thereafter maintain bridge warning obstruction indicators over its tracks on each side of the bridge.

10. Upon completion of the improvement, the City of Pittsburgh shall maintain in the south earth approach between Penn Avenue and Smallman Street and the widened portion of Thirty-first Street on each side of the south approach, and the County of Allegheny shall maintain the bridge and viaduct.

An order will issue in accordance with these findings.