No. , 1888 Term, 1888

Kaltkaus Bridge

~~COMMONWEALTH~~

~~VERSUS~~

Pier under Bridge

Contents:

Specifications
Plan of Pier
Bids for "
Bond "
Bills for work
Engineers bills

Bridge at Karthaus.

Specifications for Masonry

The masonry will be second class Bridge masonry, laid in irregular courses, and will consist of stones containing generally about five cubic feet; and no stone shall contain less than two cubic feet, except for filling up the interstices in the heart of the wall.

At least one fifth of the faces and backs of walls shall consist of headers, and these to extend full size at least three and a half feet into the walls. No stone shall have less bed than face, and face stones to hold their breadth from face to back; to be neatly dressed with horizontal beds and vertical joints; brought to a perfect bearing so as to form a true bond throughout the wall.

The interior stones shall be large, well bedded, free from spawls and bonding with the other work, and so set as to carry through the range evenly. Angles and coping must be neatly dressed and squared, with good beds and joints. Coping on parapets to be dressed smooth on top. The corner stones to be secured together with iron clamps of ¾ inch iron sunk at least three inches into the stones about five inches from the joint, on each side of joint.

The walls to be laid in good cement mortar, or thoroughly grouted with cement, as may be directed by the engineer.

The faces of walls to be neatly pointed with good cement mortar when completed. Dimensions of walls as shown on plans.

The walls as shown on plans are intended to be built on the old foundations, and started about one foot below low water on abutments, and two feet on the pier, if the old foundations are found to be in good condition and suitable to build on. Any that are not in good condition must be taken out and the walls started from the bottom, which will add about four feet on abutments, and about six feet on the pier, to the height of

Contract

R. C. Leathers

Commissioners

Centre & Clearfield Cos.

Karthaus

Masonry

This Article of Agreement, made and concluded this thirtieth day of July, A.D. 1889, by and between P.K. C. Leathers, of Centre County, Pa., party of the first part and the Commissioners of the counties of Centre & Clearfield, Pa. parties of the second part,

Witnesseth, That the said party of the first part for and in consideration of the sum of Three Thousand, Three Hundred, Seventy five and $^{90}/_{100}$ ($3375 $^{90}/_{100}$) Dollars, lawful money of the United States of America, to be well and truly paid to him by the said parties of the second part in the manner and at the time herein after provided, hereby agrees to build, erect and construct in a good and workmanlike manner, and in strict accordance with the plans and specifications hereto attached, under which bids were received, and which are hereby made a part of this Article of Agreement, all the stone-work and masonry in

second part may designate

It is also further agreed and understood that the contract price above mentioned shall include all costs of furnishing materials, excavations Coffer dams, risks from floods for otherwise, and that no other or greater compensation shall be demanded or allowed for the completion of the ~~bridge~~ contract according to Specifications

It is further agreed that work shall be done under the supervision and instruction of Mr. Saml. Brugger or such other engineer or Engineers as the said parties of the second part may designate

In consideration whereof, the said parties of the second part agree to pay to the said party of the first part the sum first mentioned, payments to be made at various times from estimates of such engineer as the said party of the second part may designate, and not more than Eighty per cent of

OFFICE OF

THE ✻ LEONARD ✻ HOUSE,

CLEARFIELD, PA.

R. NEWTON SHAW, Proprietor.

House newly RE-FITTED and RE-FURNISHED.
Heated by STEAM, and supplied with
GAS and WATER throughout.
TELEPHONE connection with all parts of the
county and surrounding country.
DuBois and Penfield STAGES leave twice a day.
Karthaus Stage, Monday, Wednesday & Friday.

Next to Penn'a R. R. Depot,
and one square
from B. C. R. R. Depot.

Clearfield, Pa., Jan 28th 1889

J. Lenning P.O.

Commissioners of
Centre & Clearfield Counties } To Saml Brugger Dr.

Aug 21st 88 to Jan 28th 89, For 14 days services as Engineer, examining
bridge and making plans and specifications, and super-
intending construction of Crib Pier under Bridge
at Karthaus Pa. @ $5— $70.00

For expenses paid 36.00

Total amount— $106.00

Paid by Order # 1344
For $106 XX

Estimate No. 1.

Crib Pier under Bridge at Karthaus Pa.

Commissioners of
Center & Clearfield Counties } To A. B. Whittaker

1889
Jan 21st For Cribbing put in, and filling with stones $200.00

Same Brugger
C. E.

Rec'd Order # 1333 in
Payment
A. B. Whittaker

Memorandum of Agreement made and concluded this 3rd day of October A.D. 1888 by and between A.B. Whittaker of Curwensville, Pa. of the first part and J.C. Henderson M.S. Fiedler & John D. Decker, County Commissioners of Center County and George L. Thompson, James Savage and Jacob Mock, County Commissioners of Clearfield County, parties of the second part:

Witnesseth: That the said A.B. Whittaker for and in consideration of the sum of Six hundred and seventy Dollars to be paid by the said parties of the second part hereby agrees to erect a pier under the right hand span of the Bridge across the Susquehanna River at Karthaus Pennsylvania at the particular location selected by the parties of the second part, and to complete the same in strict accordance with the following specifications which are hereby made a part of this contract within forty days from the date hereof unless work shall be suspended by legal process.

And to execute and file with the said parties of the second part a Bond in the sum of twelve hundred dollars with approved security conditioned for the faithful performance of this contract according to the following specifications to wit:

The southern span of the bridge to be supported but not raised from its present position by a crib. The crib to be ten feet wide on the outside and thirty feet long on the sides

which is hereto attached and made a part of this contract and as explanatory of these specifications; and the work to be done under the supervision of Samuel Bruggen the civil engineer who shall have full authority to examine the work at any time when he may be directed to do so by the parties of the second part.

It is also agreed that no greater or other compensation will be asked for or demanded by the party of the first part for the completion of said contract in a manner satisfactory to the parties of the second part and of their engineer by them selected.

In Consideration of which the said parties of the second part hereby agree to pay unto the said party of the first part the said sum of Six Hundred and Seventy dollars in manner following viz Two hundred Dollars thereof when the work is half done and the remaining sum of Four hundred & Seventy dollars when the work is completed & taken off the contractors hands by the parties of the second part.

It is expressly understood and agreed that if the said party of the first part shall fail to complete the said work in accordance with the plans and specifications herein then they, the parties of the second part shall

Estimate No. 2. Final
Crib under Bridge at Karthaus

Commissioners of
Centre & Clearfield Counties, } In A. B. Whittaker Dr.

1889
Jan 28 For building Crib pier under South Span
of Bridge at Karthaus & complete as per Contract $670,00
Deduct former Estimate 200,00
Balance due $470,00

Saml Brugger
" C.E.

Paid by
Order 1339.

Notice

Sealed proposals will be received at the Commissioners Office Clearfield Pa until 2 o'clock P. M. Saturday Sept 29. 1888. for construction and erection of a Pier under the Karthaus Bridge across the Susquehanna River. The above is jointly with Centre County.

Specifications can be seen at Commissioners Office Clearfield, or at Potters Store Karthaus

attest

W. V. Wright
Clk

Geo. D. Thompson
James Savage
Jacob Mock
Comrs

Comrs Office
Clearfield Pa.
Sept 17. 1888

Curwensville Sept 29/07

Commissioners of Clearfield Co Pa

Gentleman

I will build Pier under Court House Bridge as per Plans and Specifications at your office in for the Sum of Six hundred & Seventy Dollars

$670 xx

A B Chittester
Curwensville
Pa

OFFICE OF

COUNTY COMMISSIONERS

OF CLEARFIELD COUNTY.

JAMES SAVAGE,
CLARK BROWN,
C. K. McDONALD,
} Commissioners.

Postoffice Address: Clearfield, Pa.

Clearfield, Pa., Sep 29 1888.

To the Commissioners of Clearfield I hereby agree to build Butment at Karthaus Bridge as plans & Specifications for the sum of Eight Hundred & Seventy-five Dollars

Saml Ad Lewis

Karthaus Penna,
Sept 25th. 1888

To the Commissioner

Dear Sir.

Hear I give you another bid for the Crib in the Susky river at Karthaus. for Nine hundred, and fifty dollars.

Yours Truly
William Schultz

PS adress your letter to Karthaus P.O.

Karthaus P.O.
Clearfield Co
Penna

Row & Son, Printers.

OFFICE OF

COUNTY COMMISSIONERS

OF CLEARFIELD COUNTY. + Centre

JAMES SAVAGE, }
CLARK BROWN, } Commissioners.
C. K. McDONALD, }

Postoffice Address: Clearfield, Pa.

Clearfield, Pa., Sept 29th 1888.

Gentlemen

I wil agree to build the Crib + Fill the same with Stone, At Carthis Bridge. According to Plans + Specifications of Mr Samuel Brugan Co For Seven Hundred + Forty Dollars $740.00/100 — J. E Spurring Clearfield Co

Bridge at Karthaus

Specifications for a Crib Pier

The southern span of the bridge across the Susquehanna River at Karthaus is to be supported by a crib in the center. The crib to be ten (10) feet wide on the rock side, and thirty (30) feet long on the sides to the angles at the upper end, with a projecting point five (5) feet long at that end, making total length of crib thirty five (35) feet.

The timbers in the faces of the crib all around, to be at least twelve (12) inches thick, flattened on three sides and fitted closely together, and secured by intermediate cross ties about ten (10) inches thick, at intervals of about eight to ten feet apart, notched into the other timbers and bolted with iron bolts or spikes one inch square. The corners all to be notched and bolted the same as the intermediate ties.

At least one third of the timbers in the sides should be the full length of the sides of the crib, and in every third tier the cross ties to be dove tailed into the side timbers to prevent spreading. The height of the crib will be about twenty one (21) feet. The crib to be filled and packed solid with stones to the top as it is built up, and the timbers on top to be tight against the lower chords of the bridge, so as to bear its weight.

All timber in the crib to be of good sound oak, free from bark and rot.

The contract price to include the price of furnishing all materials, cost of scaffolding, coffer dams, excavation & and also all risks from floods or otherwise.

Flemington Pa
Aug 27/88

Saml Bruegger
" " C E

Bridge at Karthaus

Specifications for Iron Superstructure

The Bridge to be a wrought iron truss bridge, built in two Spans, one of one hundred and seventy (170) feet, and one of one hundred and eighty (180) feet in the clear between faces of masonry, to have one roadway eighteen (18) feet wide in the clear. The capacity of the bridge to be 1800 pounds per lineal foot exclusive of its own weight. The maximum strains due to specified load and bridge weight shall not strain the iron in tension more than 12,500 pounds per square inch of net section, and 10,000 pounds per square inch in compression on upper chords and end posts, and 9,000 pounds per square inch on intermediate posts. Joists and flooring for roadway to be of good White oak lumber. Wheel guards to be put on floor of roadway and side guards on trusses.

160'

Bidders must furnish full plans and detailed specifications and strain sheets, showing the maximum strains under the specified load, and the size and cross section of each principal part. Bids must be made per lineal foot of extreme length of Superstructure.

Fleming Pa.
June 29th/89

Saml E Briggs
C.E.

THE PITTSBURGH BRIDGE COMPANY

NELSON & BUCHANAN,

SPECIFICATIONS

For the Superstructure of a Wrought Iron Highway Bridge.

GENERAL DESCRIPTION.

The center line of the bridge will be at an angle of 90 degrees with the face of abutments.

The Superstructure to consist of one Spans, 172 feet, ____ inches long, c. to c. of end pins, and to have one Roadway, 18 feet wide in clear, between Trusses. The Trusses to be 26 feet high c. to c. of chords, and each Truss to be divided into 10 panels 17.2 feet ____ inches long.

Number of sidewalks, ____ Width of sidewalks, ____

PROPORTION OF PARTS.

The Bridge to be proportioned to carry a load of 100 pounds per sq. foot of floor surface

This load considered as a moving load, gradually covering the span, starting from either end; and the maximum strains caused by the above moving load and the WEIGHT of the structure, shall be taken to proportion all parts.

All parts shall be so proportioned, that the maximum load shall not cause a greater strain in tension than 12,500 per square inch, net section of the member strained. Nor in compression a greater strain than that determined by the following formulæ:

$$\frac{10{,}000}{1+\frac{l^2}{36{,}000\,r^2}}$$ for posts with square bearings.

$$\frac{10{,}000}{1+\frac{l^2}{24{,}000\,r^2}}$$ for posts with one pin and one square bearing.

$$\frac{10{,}000}{1+\frac{l^2}{18{,}000\,r^2}}$$ for posts with pin bearings.

L representing the length of post in inches, and r the least radius of gyration of the section.

Rolling Load per Panel 19560 Bridge Weight per Panel 13720.

GENERAL DESCRIPTION.

Top Chord. Top chord to be made of two 12 channel bars ____ with plate 14 in width, riveted to top flanges with ____ rivets, spaced about 6" apart. Lower flanges of channels to be connected by two plates, spaced about 4' apart, or latticed. Pins and pin bearings to conform throughout with the requirements of strain sheet. The connection of top chord and end post shall be as shown on plan ____

End Posts. The end posts will be composed of two 12 inch channel bars constructed in the same manner as the top chords, ____

Lower Chords. Lower chords to be eye bars, having die forged heads bored to exact length in pairs. Eye bar heads to be so proportioned that if tested to breaking the bar will part in the body and not in the pin hole.

Pins. Upper and Lower Chord Pins to be accurately turned to size, to match the holes of the several parts of the Trusses through which they pass.

THE PITTSBURGH BRIDGE COMPANY

NELSON & BUCHANAN,

SPECIFICATIONS

For the Superstructure of a Wrought Iron Highway Bridge.

GENERAL DESCRIPTION.

The center line of the bridge will be at an angle of 90 degrees with the face of abutments.

The Superstructure to consist of one Spans, 182 feet, ____ inches long, c. to c. of end pins, and to have one Roadway, 18 feet wide in clear, between Trusses. The Trusses to be 26 feet high c. to c. of chords, and each Truss to be divided into 11 panels 16,6 feet ____ inches long.

Number of sidewalks, ____ Width of sidewalks, ____

PROPORTION OF PARTS.

The Bridge to be proportioned to carry a load of 100 pounds per sq foot of floor surface

This load considered as a moving load, gradually covering the span, starting from either end; and the maximum strains caused by the above moving load and the WEIGHT of the structure, shall be taken to proportion all parts.

All parts shall be so proportioned, that the maximum load shall not cause a greater strain in tension than 12500 lbs per square inch, net section of the member strained. Nor in compression a greater strain than that determined by the following formulæ: Int Posts 9000 Compression

$$\frac{10{,}000}{1+\frac{l^2}{36{,}000\,r^2}}$$ for posts with square bearings.

$$\frac{10{,}000}{1+\frac{l^2}{24{,}000\,r^2}}$$ for posts with one pin and one square bearing.

$$\frac{10{,}000}{1+\frac{l^2}{18{,}000\,r^2}}$$ for posts with pin bearings.

L representing the length of post in inches, and r the least radius of gyration of the section.

Rolling Load per Panel 29880 Bridge Weight per Panel 13464

GENERAL DESCRIPTION.

Top Chord. Top chord to be made of Two 12 channel bars ____ with plate 14" in width, riveted to top flanges with 7/8 rivets, spaced about 6" apart. Lower flanges of channels to be connected by Tie plates, spaced about 4' apart, or latticed. Pins and pin bearings to conform throughout with the requirements of strain sheet. The connection of top chord and end post shall be as shown on plan ____

End Posts. The end posts will be composed of Two 12" B inch channel bars constructed in the same manner as the top chords, ____

Lower Chords. Lower chords to be eye bars, having die forged heads bored to exact length in pairs. Eye bar heads to be so proportioned that if tested to breaking the bar will part in the body and not in the pin hole.

Pins. Upper and Lower Chord Pins to be accurately turned to size, to match the holes of the several parts of the Trusses through which they pass.

Clear Span between Faces of Masonry, 170'

Length of Span center to center of End Pins, 172'

Width of Roadway, 18'

Height of Truss, c. to c. of Pins, 26'

Portal Bracing, 4 – 3" X 3" angles latticed

THE

Pittsburgh Bridge Company.

NELSON & BUCHANAN, Agents, Chambersburg, Pa.

DIAGRAM OF STRAINS.

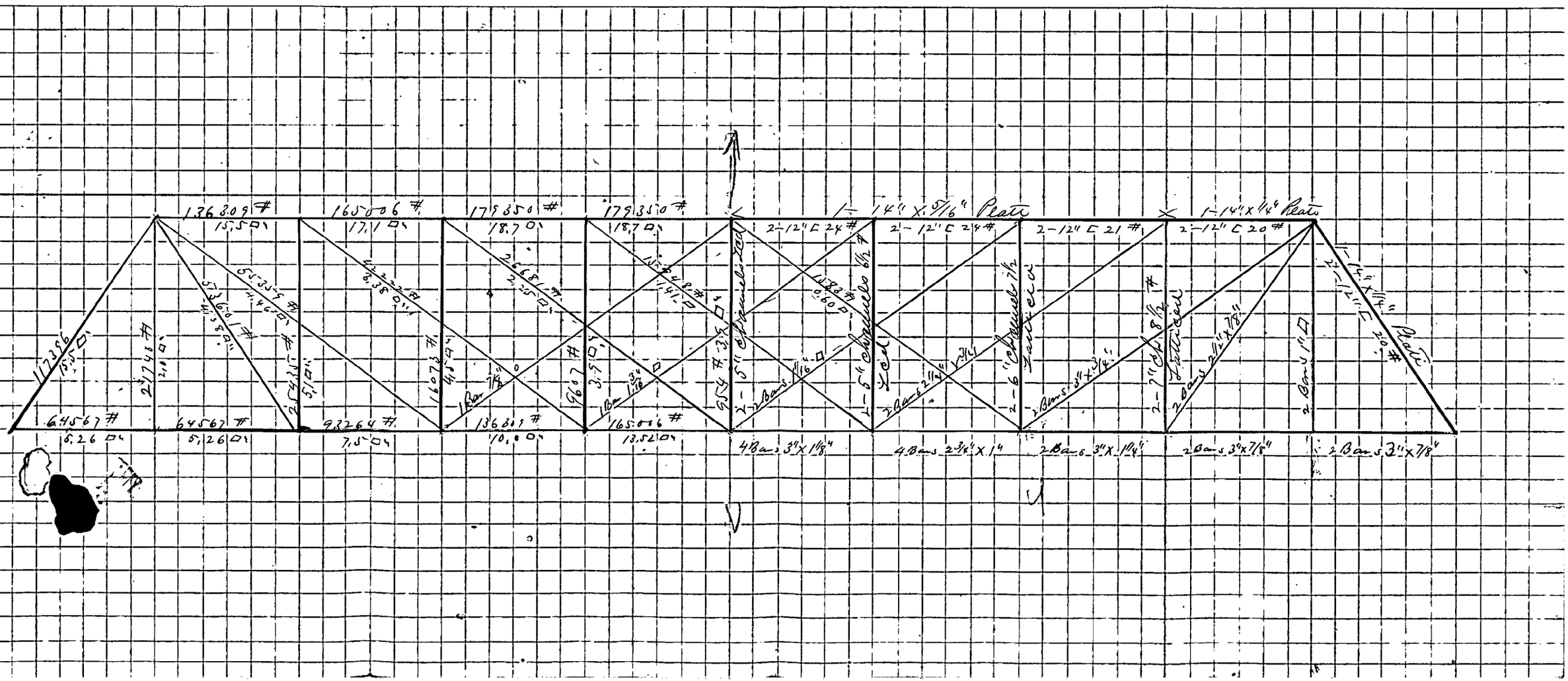
Top Lateral Struts, 2 – 5" channels latticed.

Top Lateral Ties, 1" to 7/8" ⌀ screw ends upset

Bottom Lateral Ties, 1 3/8" to 1" ⌀ " " "

Pins, as shown below

Floor Beams, Web 24" x 1/4" Flanges 4 – 3" x 3" ∠s 57 #



THE

Pittsburgh Bridge Company.

NELSON & BUCHANAN, Agents, Chambersburg, Pa.

DIAGRAM OF STRAINS.

Clear Span between Faces of Masonry, 180′

Length of Span center to center of End Pins, 182′

Width of Roadway, 18′

Height of Truss, c. to c. of Pins, 26′

Portal Bracing, 4 - 3″x3″ Ls latticed

Top Lateral Struts, 2 - 5″ Channels latticed

Top Lateral Ties, 1 1/8″ 0 - 1″ 0 - and 7/8″ 0 screw ends up set

Bottom Lateral Ties, 1 5/8″ 0 to 1″ 0

Pins, as shown below

Floor Beams, Web 24″x1/4″, Flanges 4 - 3″x5″ Ls 57#