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FIELD BOOK

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**KEUFFEL & ESSER CO.**

DRAWING MATERIALS

AND

SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO ST. LOUIS. SAN FRANCISCO. MONTREAL.

Tables for Excavations and Embankments.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.

FOR SINGLE TRACK EXCAVATION.

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MICROFILMED  
 JAN 7 1965

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0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
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36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

FOR KEITH'S RAILROAD CURVE TABLES SEE END OF BOOK

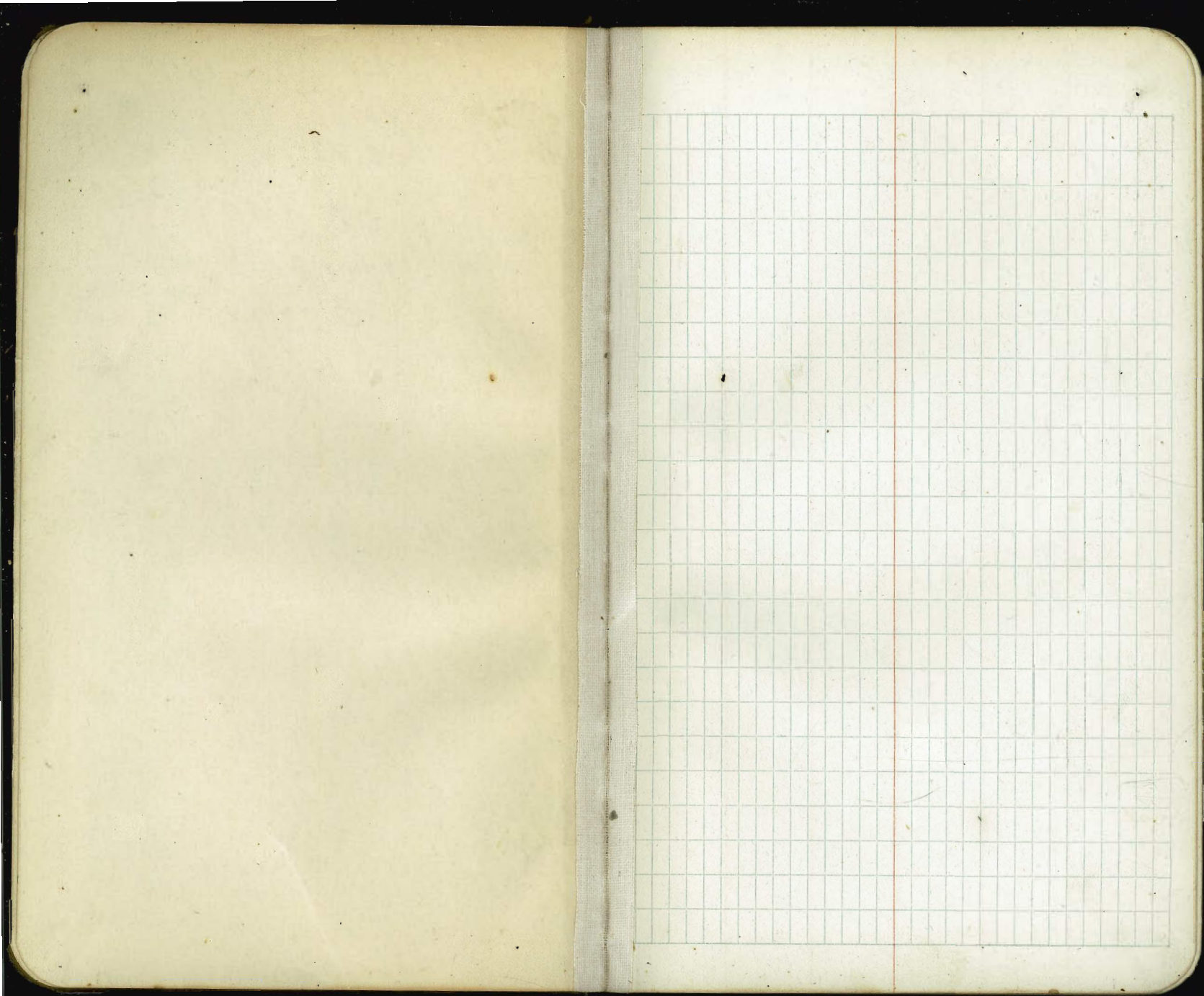
C. H. Bryson  
 Lowerotay Dam.

City of San Diego  
 Lowerotay Calif.

3/20/19.

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 25  
 440 base



MAR 20 1919

Night. Excavation - Progress made by Foreman & Crew of 6 men for 7 1/2 hrs. on right abt.

Sand hauling & Washing - Sand washing plant not operated during shift. No hauling done during shift.

Quarry - Driving Tunnel #3 progressed with usual crew during shift.

Mill Rock - Usual progress with full crew for 1/2 shift - for 1 1/2 hrs. of last half shift. only 6 men Bal. of shift rain no work.

Mass Rock - No production after supper rain.

Crushing Plant - Only operated 6 1/2 hrs. acct. rain.

Masonry Placing - Right abutment not ready to receive concrete acct. forms not up & to be cleaned up. Progress on back of right abt. Concreting Delayed 45 min. acct. rain. Work held up 40 min. acct.

Spilling skip of concrete from cableway & 20 min. cableway on other work. Concrete being mixed slightly too wet. Mass rock very small & few in number.

Excav.

Day - Rain in A.M. - Small crew on Excav. R. Abt. 1 Barley.

Sand Plant Op. Only in P.M. Rain in A.M.

Quarry Coyote #1/3 Good Progress. Entire Day

Quarry - No Mill Rock in A.M. Rain

" No Mass Rock in A.M. Rain.

Crusher - Repairs in A.M. OK in P.M. Bins well over 1/2 full.

Masonry - Placing - none in P.M. Rain & morning

Derrick #2 - In P.M. Placed Masonry about 2 hrs. - Consistency Good. - Time of mix good - Measuring good - Plums larger 9" more of them - No portance.

H.K. - Haines Conc bucket should be moved up hill from bottom of canyon.

Grouting - Upon U.S. face. Upon D.S. face on Divide wall upper half inside not up - none on ~~the~~ outside. on D.S. face of left abt.

MAR 21 1919

Night-Excavation progress made on cut off trench right abt foreman & 5 men.

Sand Hauling & Washing - Plenty sand in bin - no washing or hauling.

Quarry - Progress on Coyote #3 - Mass Rock except small sizes very scarce except 8 or 10 carloads near Guy.

Derrick (M44D) & not possible to load on #2 track unless handled twice.

Mill Rock scarce except by sending men to tap to bar down.

Crushing Plant - Shut down for replacing buckets on ~~50~~ tower elevator.

Rock bins well filled.

Masonry Placing - Proportions O.K.

Duration O.K.

Netness - very we

Day Excavation - SYMONS & crew progressing cut off trench in right abt.

Sand hauling & washing - Progressing bin full.

Quarry - Moring S.L D#4 about 20' nearer face of quarry - Coyote #3

good progress Griffith - quarry foreman says about 40% better results are obtained with Hercules 40% than with Trojan 40%. Mass Rock very scarce & small in size.

MAR 22 1919

Night Excavation right abutment good progress.

Grouting O.K.

Sand Washing & Transportation.

Progress to meet requirements

Quarry Mass Rock - O.K.

Mill Rock O.K.

Overburden O.K.

Coyote #3 Good progress.

Mixing - Duration good.

Measuring - Poor - Much aggregate

staying in chutes making 1 batch larger

Concrete - Very wet.

Lattence - Some - none near forms.

Mass Rock O.K.

Day - Excavation very little progress with Barley drill. + 2 men. In P.M.

Derrick out of commission - dismantled & boom taken to quarry.

Grouting good.

Sand Washing plant out of order all day. Sand hauled to meet requirements from sand originally hauled from S.S.D.

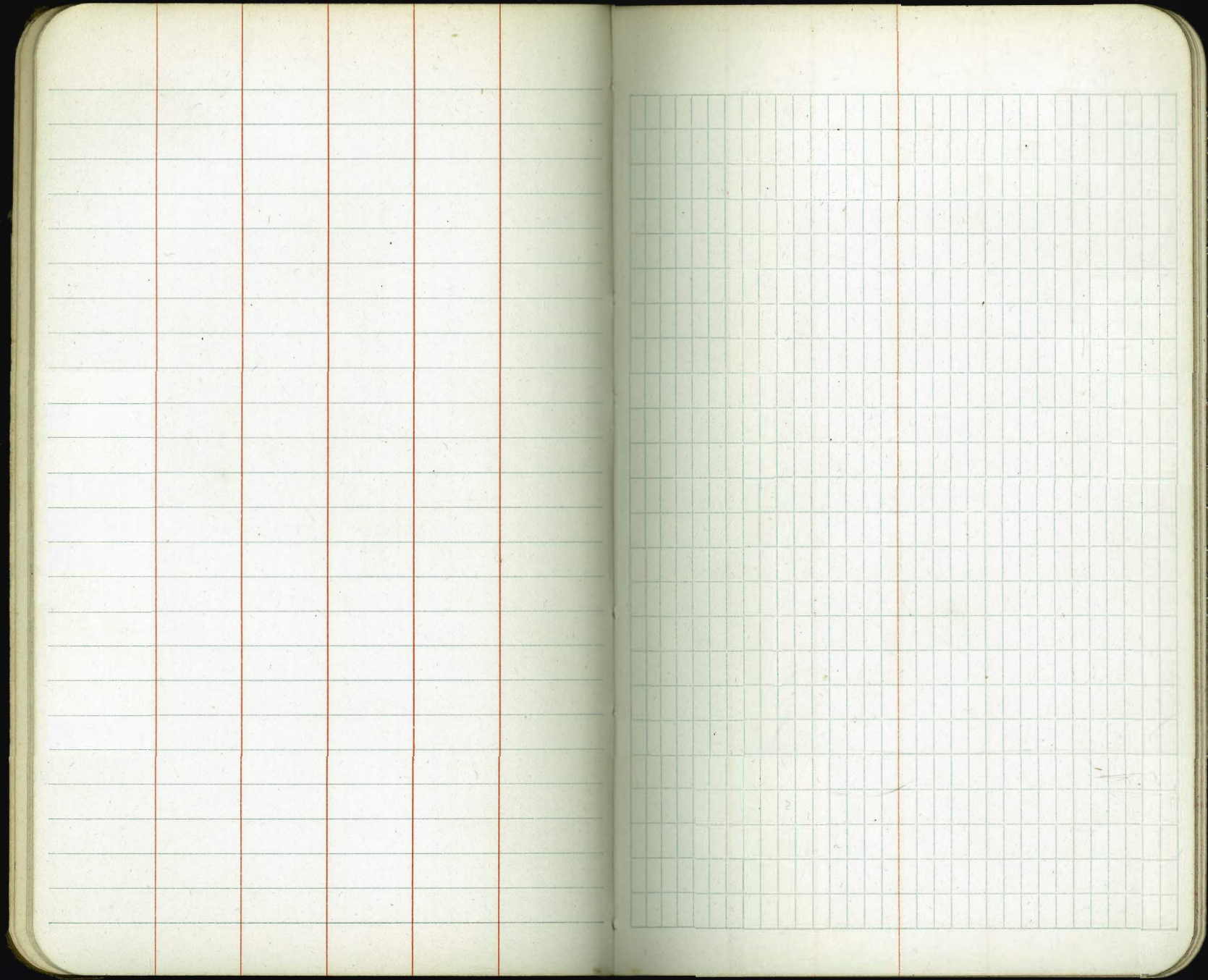
Quarry - Mill Rock ok but small crew to get to mill. Mass Rock O.K. but S.L.D. out of commission in P.M. hampered production. Shot at noon broke boom on S.L.D. #4

Masonry Placing - Mass Rock few size O.K.

Wetness O.K.

Measuring - Same as last night - wet aggregate.

Time O.K.



March 24

Night - Excavation some progress on right abt.

Sand hauled to meet requirements

Quarry - Small crew. Mill rock scarce. Overburden O.K.

Mass Rock small & scarce

Tunnel only 1 crew working.

Crusher - Down 1 1/2 hrs. repairs to #8 Spider Bushing.

Placing - Mix. a little too wet.

Mass Rock small in size, & some poorly shaped.

Duration O.K.

Proportions O.K.

Day

Excavation Abutments - some progress on right abt. by small crew.

Grooving (Pressure) Holes in both right & left abts. ready to grout.

Sand Washing & Transportation - progress to meet requirements.

Quarry - Mill rock progress to meet req. small crew.

Mass Rock - Small & shy.

Tunnel - good progress

Crusher - good progress.

Mixing - Proportions good, time good, Duration good.

Placing - Mixture too wet. Mass rock small and poorly shaped, brought to dam in skips & dumped out of skips by derrick. Not sufficient care taken in placing at uniform dist.

Grout washing. behind on divide wall.

Lattice - none near forms.

Housekeeping - good



(Night) March 25

Excavation - good progress  
on right abt.

Sand Washing - Plant operated  
to fill bin.

Quarry -

Mill rock to meet requirements

Mass Rock - Small

Overburden OK.

Tunnel - 2 drilling crews

Crusher OK.

Mixing - Time OK

Proportions -

Placing - Wetness - a little too  
wet.

Mass Rock small

Latence - None.

(Day)

Excavation - good progress on  
right abt.

Sand Washing + hauling OK.  
Progress to meet requirements.

Quarry -

Mill rock OK.

Tunnel OK.

Overburden OK.

Crusher OK.

Mixing Time

Proportions OK.

Placing - Wetness.

Mass Rock

March 27.

Excavation - Progress both abts.  
6 men Derrick & foreman on right  
abt. same on left.

Quarry Mill Rock scarce, Skips  
being loaded very light  
Overburden bad but little of it  
going to mill  
Mass Rock Small & Scarce few  
large rock.

Concrete Proportions good  
Duration - Some batches short

Placing.

Night, MAR 28 1919

Excavation - progress both left & right abutments.

Quarry - Mill rock scarce but better. Skips well filled.

Overburden - Very clean rock going to quarry mill.

Mass Rock - Scarce but better sizes.

Tunnel - Progress with powder wells.

Concrete

Proportions good

Mixing - some batches short time

Placing - Mass Rock small

Latence - not objectionable

Wetness - Too wet.

Delay 1hr 30 min no rock in bin

Excavation - progress both abts.

Quarry - Mill rock scarce.

Mass Rock - Scarce

Overburden OK.

Mass Rock - Scarce.

Tunnel - Progress

Sand Washing - Progress to meet Masonry requirements.

Proportions Good.

Mixing - OK.

Placing - Mass Rock good better sizes.

Latence - Objectionable.

Wetness - Too Wet.

House Keeping

MAR 29 1919

Excavation - Progress on Class 3 material left abt. Progress Class 4 right abt.

Mill Rock Scarce.

Mass Rock - Small & Scarce.

Tunnel O.K.

Overburden - good

Sand Washing Plant - Operated to meet masonry requirements.

Sand hauling - Progress to meet masonry requirements.

Concrete

Proportions - bad out of small rock & deficiency, tried to be made up out of large rock.

Time - Several batches 10-15 sec under min. time.

Placing - Wetness - Very wet  
Laitence - Objectionable  
Mass Rock - shy

Day

Excavation - Progress by small crew both abts.

Quarry - Mill Rock Scarce. ~~Gr~~

Mass Rock - Fair.

Tunnel - Completed except a little mucking out.

Overburden - Very little going to mill except from upper quarry - Upper quarry rock very dirty.

Mixing Time - Good

Proportions bad - shy small sizes & batches running light.

Wetness - Good

Laitence - Not objectionable

Mass Rock fair quantity larger in size.

night MAR 30 1919

Excavation - no progress

Sand Washing - Washing & hauling  
to meet masonry requirements

Quarry - Mill Rock Scarce 1 crew  
working in old quarry. - Short crew.

Mass Rock small - Short crew

Tunnel - One Concreting  
crew & part of quarry crew  
loading.

Overburden - None going to mill  
except from upper quarry.

Crushing - Short of rock

Mixing - Proportions bad.

Impossible to see division nails  
in boxes (small mixer being used)  
in poor light on meas. platform.

Time O.K.

Mass Rock o/a Small

MAR 31 1919

Night APRIL 2

Excavation - Good progress both concreting crews both abutments.

Sand - Washing plant not operated nor any hauled bin full.

Crusher - no work.

Quarry entire crew removing overburden from top of quarry.

Day

APR 2 1919

Excavation -

Progress both abts.

Grouting OK.

Sand washing - Hauling started at noon also washing Bin full in morning.

Quarry - Started loading concrete tunnel after dinner.

Progress in getting out mill rock + mass rock

Overburden - quite a little ~~to~~ overburden + seam material going to mill with rock.

Mill rock scarce

Mass Rock small + scarce

Mixing - Time OK

Proportions - not good acct. of using small mixer.

Placing - wetness OK

Settence - not obj.

Mass Rock % small in size

Grout washing - progress

Night APR 3 1919

Excavation - no progress.

Sand Washing - Washing & hauling to meet Masonry requirements

Quarry - Mill Rock - Scarce 1 crew working in old quarry - Short crew.

Mass Rock Small Short crew

Tunnel - One Concreting crew & 1 concrete crew loading.

Overburden - Very clean rock going to Mill except from upper quarry.

Crushing - Short of work.

Mixing - Proportions bad - Impossible in bad light to see division nails in boxes. (Small Mixer)

Time O.K.

Mass Rock - Small Scarce

Wetness - Slightly wet

Laitence - Not objectionable

Crew went off to supper leaving 2 skips conc.

Day APR 3 1919

Excavation - No progress - 1 Jackhammer drill working right abt.

Sand Washing & hauling to meet masonry requirements.

Quarry Tunnel - Loading & mucking up

Mill Rock - Scarce.

Mass Rock Scarce.

Overburden - fairly clean rock going to Mill.

Taking down guy derrick in upper quarry

Mixing - Time O.K.

Proportions - Fair - pretty much of a guess when little mixer is being used unless boxes have taps put on.

Placing - Wetness - Too wet.

Laitence - Objectionable.

Mass Rock  $\frac{1}{2}$  Small n size

Grout Washing OK except inside of divide wall.



APR 4 1919

Night

Excavation - no progress either  
abutment.

Grouting - no progress.

Sand Washing - 1 bin of sand  
washed. No sand hauled.

Quarry - Mill rock scarce small  
crew.

Mass Rock - Scarce & small.

Tunnel - Mucking up lateral #1  
& lateral #2.

Overburden - fairly clean rock  
going to mill.

Crushing plant - shy of rock

Mixing - Proportions bad  
small mixer being used.

Time - OK.

Placing - Wetness - slightly wet

Mass Rock - Small - 248%

APR 4 1919

Day.

Excavation - Some progress left  
abutment.

Sand Washing - Plant not operated  
Teams freshening material nearer  
trap.

Quarry - Mucking up & loading tunnel  
taking down guy derricks &  
taking up mill track & mass rock  
track preparatory to shooting  
tunnel.

No Concrete being placed.  
Housekeeping.

Crushing Plant - Changing concaves  
on #8 Crusher.

APRIL 5

Excavation - Progress both  
abutments.

Balance of night crew loading  
corate tunnel in quarry, and  
tearing up mass rock track.

Day.

Excavation - Progress both  
abts.

No Concreting

Quarry - Mucking up tunnel - Moving  
Derrick 51 #4 out of danger,  
tearing up Mass Rock track  
Tearing down & moving crusher  
#5 Elevator.

APR 9 1919

Ex

Day. Excavation - Progress both abts,  
Grouting (Pressure)

Sand Washing - 4-4up fresnos  
getting material from stock pile  
nearer to boat. No sand washed or hauled.

Crusher started 8.45 a.m. ran  
intermittently all day. Stopped several  
times for quarry. Sent first car of  
new material to mill @ 8.30. Rock hard  
to get at. One Derrick only in Com. Over burden bad.

Started pouring Concrete 12.30 P.M.  
Poured 50 batches into expansion  
box left abt.

Proportions OK

Time OK

Wetness OK.

Facience OK.

APR 10 1919

Excavation - Progress 9 men for 6 hrs left abt. no progress right abt.

Sand Washing - No Sand washed or hauled.

Quarry - Mill Rock - O.K. but unhandy to get at until face is worked into quarry.

Mass Rock - Plenty.

Overburden - Bad - Dirty rock going to mill.

Mixing - Proportions - Running 5-6' spx of  $2\frac{1}{2} \times 1\frac{1}{2}$ " rock until corrected by inspector.

Time O.K.

Placing - Wetness - Slightly wet

Laitence Not obj

Groat Washing - None

Mass Rock - Small percentage  $16\frac{1}{2}\%$

Excavation - Good progress both aboutments.

Grouting (Pressure) O.K.

Sand Washing - Washing & hauling to meet requirements.

Mill Rock - Hard to get to until toe & face are worked into quarry.

Mass Rock - Plenty.

Overburden - Bad - Too much dirt going to mill.

Crushing O.K.

Mixing - Proportions - Each Batch of  $1\frac{1}{2}$  rock - from 1-2 cu. ft. short acct. laborers not filling up boxes.

Time - Good.

Placing - O.K.

Wetness O.K. Slightly wet.

Mass Rock O.K.

Laitence - Not objectionable

Housekeeping - Const. good.

Camp -

Corral -

Unfilled skips being sent to mill by day shift

APR 11 1919

NIGHT.

Excavation - Progress by small crew both abutments.

Sand Washing - 1 Bin sand hauled & 1 washed.

Quarry - Mill Rock - Hard to get to.

Mass Rock - Plenty of good sizes.

Overburden - Very bad until quarry foreman instructed by Mr. Sarago to send no more dirt to mill.

Crusher - Shot down 1 hr. changing oil. 1 hr. mill rock car belt off 1 hr. lights off.

Mixing - Time OK.

Mass Rock - Good sizes 21.2%  
Not enough care taken by firemen in bedding or joggling into place by bars & the 6" space between.

Wetness - Good.

Laitence very little.

Proportions bad - 2 1/2" rock & 1 1/2" rock bins practically empty & deficiency tried to be made up by excess of 3/4"

APR 11

Day

Good progress both abutments.  
Pressure Grouting - Progress on right abt.

Sand Washing & hauling - Washing & hauling to meet requirements.

Quarry - Mill rock better.

Mass Rock OK.

Overburden - Bad. Rock going to mill fairly clean. much better than yesterday.

Crusher - #4 Overworked so bad board was put in oversize chute deflecting <sup>about 1/3</sup> rock into 2 1/2" bin.

Mixing - Proportions - Only Approx shx - 1 1/2" & 2 1/2" rock deficiency tried to be made up with 3/4"

Size of Rock in Aggregate - About 1/3 of oversize rock going into 2 1/2" bin - Some rocks measured 7x11x1 1/2" - 3x3 1/2x7, 7x9x2 - 6x6x3 1/2.

Time - Good  
placing - Mass Rock OK, Laitence bad, Wetness good, Grout washing - progress in tunnel.

Housekeeping -

Night

APR 12 1919

Excavation - Progress by small crew both abts

Sand Washing - 1 bin sand hauled none washed.

Quarry - Mill rock better.

Mass Rock - O.K.

Overburden - Bad - Rock going to Mill all hand picked or forked & reasonably clean.

Mixing - Time - some batches turned out in 30-50 sec.

Proportions - Shy  $2\frac{1}{2}$  &  $1\frac{1}{2}$  & over on  $\frac{3}{4}$ . About  $\frac{1}{3}$  of oversize rock being put into  $2\frac{1}{2}$ " bin until ~~at~~ 6.30 when Supt. Paddock removed board letting all oversize go into chute.

Placing - Wetness - Too wet.

Mass Rock - Quite a few mass rock noticed not having 6" spacing between. 2 rock only 2" apart - 3 not over 3" & several not over 4"

Laitence - Bad.

Day -

Excavation - Progress by small crew left abt. Crew on right about washing off rock surfaces preparatory to pouring conc. Good foundation rock surface exposed.

Pressure grouting - Progress on grout hole - right abt.

Sand Washing & Hauling - Progress to meet masonry requirements -

Quarry - Mill rock scarce & hard to get Mass Rock O.K.

Shovels being used by several laborers but care seemingly taken to not pick up any dirt. Reasonably clean rock going to mill. Practically all mill rock covered with thin film of dirt.

Mixing - Some batches less than minute Wetness - Good.

Proportions - Better - Shy  $2\frac{1}{2}$  &  $1\frac{1}{2}$ " rocks over on  $\frac{3}{4}$

Laitence - Same but not objectionable Grout Washing - Progress in plastering left abt. steps. Outside divide wall behind.

APR 13 1919

Excavation - Progress on class 344  
left abt. Progress right abt. drifting  
out undesirable

Day.

Excavation - Progress on class 344  
left abt. Progress right abt. drifting  
out undesirable material.

Pressure grouting - progress on hole  
right abt.

Sand Washing OK Quality - good

Quarry - Mill rock - Scarce

Mass Rock OK

Overburden OK except film of  
dirt which cowers practically every  
rock.

No Conc. placed crews moving SLD  
#1.

APR 14 1919

Night -

Excavation - Progress by small crew left abutment.

Sand Washing O.K.

Quarry - Mill rock - scarce

Mass Rock - O.K.

Overburden O.K. Reasonably clean rock going to mill.

Crushing O.K.

Mixing - Proportions - Shy on  $2\frac{1}{2} \times 1\frac{1}{2}$  rock. Long on  $\frac{3}{4}$ "

Duration - O.K.

Placing - Wetness - good.

Laitence - not objectionable.

Mass Rock - Shy

Day

Excavation - Progress left abt drifting out undesirable material right abt.

Sand Washing & Hauling - O.K. To meet masonry requirements. Quality good.

Quarry Mill rock - scarce until toe is worked farther into quarry.

Overburden - Being wasted - Satisfactorily clean rock going to mill.

Crushing O.K.

Mixing - Proportions - Approx. 6<sup>to 10</sup> cu. ft.  $2\frac{1}{2}$ " rock ordered cut out while shortage of this size rock lasts. Deficiency not made up by other sizes. Bal. at measuring bins good.

Duration - good.

Laitence. Some.

Wetness - Slightly wet

Mass-Rock - Quite a few mass rock noticed less than min. requirement of 6" separation. Some not bedded best side down.



APR 15 1919

Night-

Excavation - Progress left abutment.

Sand - 1 Bin sand washed & 1 hauled. Quality good.

Quarry - Mill rock scarce

Mass Rock - Good

Overburden - Bad - Being shoveled into skips & wasted. Satisfactorily clean rock going to mill.

Mixing - Wetness - Slightly wet.

Proportions - Good except from 6-10 c.f.  $2\frac{1}{2}$ " material shy each batch

Placing - Mass Rock OK.

Leitence - Not objectionable

Night crew left conc. within 6" of top of form <sup>front face</sup>. Day crew concreted the 6" to top of form making a 6" layer of concrete. That on bottom being put in 6 hrs previous & on top 5 hrs later.

Day

Excavation, Progress small crew in A.M. left abt. Progress large crew in P.M. left abt.

Grouting (Pressure) Progress on hole right abt.

Sand Washing & hauling progress to meet masonry requirements. Quality good.

Quarry - Mill rock scarce - Mass Rock O.K. Overburden bad, being shoveled into skips & wasted. Clean rock going to mill.

Mixing - Proportions - Bad - Out of  $2\frac{1}{2}$  &  $1\frac{1}{2}$  rock practically all day. All batches going in deficient of  $2\frac{1}{2}$ " & some without any  $1\frac{1}{2}$ " - Over in  $\frac{3}{4}$ "

Duration OK.

Time OK.

Leitence OK.

Wetness - OK.

Night crew not tamping concrete against back form. Showing many honey comb places.

APR 16 1919

Excavation - Progress left abt.

Sand - Washed & hauled one bin of sand - quality good.

Quarry - Millrock scarce

Mass rock OK.

Overburden - bad, being shoveled into skips & wasted - satisfactorily clean rock going to mill.

Mixing - Time OK.

Proportions - Bad - Bins practically empty of  $2\frac{1}{2} \times 1\frac{1}{2}$ " rock all night.

All batches 6'-10' short of  $2\frac{1}{2}$ " + many short of  $1\frac{1}{2}$ ". Practically all batches over on  $\frac{3}{4}$ "

Duration OK.

Placing - Wetness OK.

Mass Rock - Good except on right abt where small in size.

Latence Not objectionable

APR 16 1919

Excavation - Progress left abt small crew - 2 drillers 2 muckers Right abt. 2 men drifting out undesirable material.

Sand - Washing & hauling. Progress to meet masonry requirements. Quality good.

Quarry - Millrock - scarce.

Mass rock - OK.

Overburden - bad, being shoveled into skips & wasted - fairly clean. rock being sent to mill.

Mixing - Time OK.

Proportions - OK except about 6' shy of  $2\frac{1}{2}$ " + 2' over on  $\frac{3}{4}$ " + 2' over on  $\frac{3}{4}$ ".

Duration - OK.

Placing - Wetness OK.

Mass Rock OK.

Latence - Not objectionable.

Concreted only left end of spillway section.

APR 17 1919

Night

Excavation - Good progress left abt.

Sand - Bins full - no washing or hauling.

Quarry - Mill rock - Scarce but better  
Mass Rock OK.

Overburden - Bad - Being shoveled into skips & wasted. Clean rock going to mill.

Mixing - Proportions good except shy on  $2\frac{1}{2}$ " & over on  $\frac{3}{4}$ "

Time OK.

Placing - Wetness OK  
Laitence OK.

Mass Rock - OK except small in size right abt.

APR 17 1919

Day

Excavation - Progress small crew left abt. right abt. barring out undesirable material.

Pressure Grouting - OK.

Quarry - Quantity getting better.  
Mass Rock OK.

Overburden - Bad - Being shoveled into skips & wasted - Not as clean rock going to mill. Some skips quite dirty. Men loading skips in old quarry with shovels. Also some men in new quarry using shovels. Some skips being sent to mill  $\frac{1}{2}$  -  $\frac{2}{3}$  full.

Crusher OK.

Mixing - Proportions - good except slightly short on  $2\frac{1}{2}$ " & over on  $\frac{3}{4}$  x  $1\frac{1}{2}$ "

Time OK.

Placing - Wetness - OK.

Mass Rock - OK. but very much too close together right abt.

Laitence - Not obj.

Grout Washing - Progress on front face behind on back wall.

APR 18 1919

Night

Progress left abt. by crew of 9 men.

Right abutment 1 man cleaning up.

Sand - Washed & hauled one bin.

Quarry - Mill rock still scarce.

Mass Rock - O.K.

Overburden - Bad - Shoreling into skips & wasting. Very clean rock going to mill.

Crusher O.K.

Mixing - Proportions O.K.

Duration O.K.

Placing - Wetness Very wet

Laitence - Objectionable

Mass Rock - Good.

APR 18 1919

Day - Excavation - Progress by small crew left abt.

Sand Washing - Washing & Hauling to meet masonry requirements - Sand now in exceptionally clean before going through plant. Coarse & seemingly lacking in fines.

Quarry - Mill rock scarce

Mass Rock - O.K.

Overburden - Bad - 5 men shoreling into skips & wasting - Satisfactorily clean rock going to mill.

Crusher - Not enough rock to keep crusher busy.

Mixing - Proportions - O.K. except some batches shy on dust.

Duration - Good.

Placing - Wetness - Some batches slightly wet.

Laitence - Some <sup>bad streaks</sup> in low spots.

Mass Rock - Some poorly shaped rock being sent to dam.

Groot washing - Progress on back wall.

Housekeeping - O.K.

APR 19 1919

Excavation - Progress by 1 driller & small crew left abt.

Sand Washing Washed & hauled 1 bin of sand. Sand coarse but clean.

Quarry - Mill Rock better.

Mass Rock - O.K.

Overburden - Better - Very clean rock going to mill.

Crushing - Plenty of rock from mill.

Mixing - Proportions - Good.

Duration - from 1 min - 10 sec to 1 min - 50 sec.

Placing - Too wet during first part of evening.

Mass Rock - Very few. Not enough left <sup>section</sup> in center <sup>for good bond</sup>.

Laitence - Objectionable in low spots where water settled.

APR 19 1919

Day

Excavation - Good Progress left abt.

Sand Washing & Hauling - Progress.

Quarry - Mill rock - getting better night crew last night shot when going off shift.

Mass Rock - O.K.

Overburden - Not so bad - Good clean rock going to mill.

Crusher O.K.

Mixing & Placing - Only 3 batches

O.K. Masonry placing crew on excavation & assisting in moving

Derrick # 2.

Laitence from last night's crew shows up bad.

Housekeeping - Camp - fair.

Corral - Good

Job - "

APR 20 1919

APR 20 1919

APR 21 1919

APR 21 1919

Day

Excavation - Progress by very small crew left aboutment - Pressure grouting O.K.

Sand Washing & Hauling - Progress to meet masonry requirements. Quality good.

Quarry \* Mill rock - getting better.

Mass Rock - O.K.

Overburden - Getting better. Very clean rock going to mill.

Crusher - O.K.

Mixing - Proportions - fair using small mixer - each batch over on dust.

Other sizes fair.

Duration - O.K.

Placing - Wetness - Too Wet.

Laitence - Bad.

Mass Rock - Some placed too close together.

Stream of cement water pouring through <sup>hole</sup> front form.

Housekeeping.

\* Some skips in quarry B.O. should be repaired.

APR 22 1919

Excavation - Slight progress left abt. by small crew (3 men).

Sand Washing - Washed & hauled 1 bin sand. Sand running finer than last few days.

Quarry - Mill rock OK

Mass Rock "

Overburden - Better - Very clean rock going to mill.

Crushing - Plenty of rock

Mixing - Proportions - Not good  
Impossible to see divisions in measuring boxes owing to bad light on platform.

Duration - OK.

Placing - Wetness - Too wet.

Latence - Bad on right abt.

Mass Rock OK.

APR 22 1919

Excavation - Progress left abtment by small crew.

Sand Washing & hauling - Progress to meet masonry requirements.

Quality good.

Quarry - Mill rock getting scarce.

Mass Rock - OK.

Overburden - Bad.

Clean rock going to mill.

Crusher - Plenty of rock.

Mixing - <sup>Proportions</sup> Fair - Slight excess of dust.

Duration - Good.

Placing - Mass Rock - OK.

Wetness - Slightly wet.

Latence - Not objectionable.

Grout washing - Progress on upstream face.

Housekeeping - L.O.D. part of camp. B.O.

Corral - Fair except hog pens.

Hog pens should be dried up.

Construction - Fair.



APR 23 1919

APR 23 1919

APR 24 1919

Excavation - Progress left abt. small crew  
Sand washing & hauling - Not

Operated - bin full

Crusher - Plenty of rock.

Quarry - Mill rock - Scarce

Mass Rock OK.

Overburden - Bad - Satisfactorily  
clean rock going to mill.

Mixing - Proportions - Using  $\frac{3}{4}$ " rock  
only every other batch acct.

shortage of this size.  $\frac{1}{2}$  boxes  
(approx) of  $\frac{1}{2}$ " used when not  
using  $\frac{3}{4}$ "

Duration - OK.

Placing - Wetness - Slightly wet

Settence - Not obj.

Mass Rock OK.

APR 24 1919

Excavation - Progress small crew  
left abt.

Sand Washing & Hauling To meet  
masonry requirements Quality -  
Sand very coarse, deficient in  
fines.

Quarry - Mill rock Scarce only oper-  
ating 1 Derrick - Moring SLD #4

Mass Rock - None sent out acct.  
moring Derrick.

Overburden - Clean rock sent to  
mill.

Mixing - Proportions - Bins practically  
all afternoon (Crusher down renew  
ing dust screen) 2 men cleaning bins  
rock in bottom of bins very  
dirty. Last several batches deficient  
in all sizes but dust.

Duration - OK.

Placing - Wetness OK.

Mass Rock - None placed.

Settence - Not obj.

APR 25 1919

Excavation - Progress left abt. by small crew.

Sand Washing & Hauling - Plant not operated & no sand hauled bin full at concreting plant.

Quarry - Mill rock OK.

Mass Rock O.K.

Overburden - Covered up at toe by rock rolled <sup>or barred</sup> down by day crew.

Clean rock going to mill.

Mixing - Proportions - Most batches shy on  $\frac{3}{4}$  &  $1\frac{1}{2}$ " acct. shy on these sizes in bins.

Duration - OK.

Placing - Wetness - Good.

Laitence - None.

Mass Rock - Some placed closer than 6". Some objectionable mass rock sent up by quarry.

APR 25 1919

Excavation - Progress left abt. by small crew.

Sand Washing & Hauling - Plant operated & sand hauled to meet masonry requirements. Sand still coarse & seemingly <sup>shy</sup> coarse in fines.

Quarry - Mill rock scarce.

Mass Rock - OK

Overburden - Bad. Being shoveled into skips & wasted. Clean rock going to mill.

Mixing - Proportions - Good.

Duration - OK.

Placing - Wetness - Some batches slightly wet.

Laitence - Not objectionable.

Mass Rock - Some rock slightly closer than minimum of 6". Generally good.

Rock Shapes & sizes better.

Grout washing - Progress on D.S. face.

Placing - Some wood borings & sawdust next U.S. face not removed.

APR 26 1919

Excavation - Left abt. Progress by crew of 8 men & foreman.

Sand Washing & Hauling - Bin practically full - No sand washed or hauled.

Quarry - Mill rock - Scarce at toe of quarry - Part of crew barring down from above.

Mass Rock OK.

Oreburden - Bad - Very clean rock going to mill.

Crusher - Plenty of rock

Mixing - Proportions - Good.

Duration - Good.

Placing - Mass Rock OK.

Wetness - Slightly wet

Laitence - Not objectionable.

APR 26 1919

Excavation - Progress left abt.

Sand washing & hauling - Progress to meet masonry requirements.

Quality - good.

Quarry - Mill Rock OK. (Scarce)

Mass Rock OK.

Oreburden - Bad - Clean rock going to mill.

Crusher - Plenty of rock from quarry.

Mixing - Proportions - Good

Duration - "

Placing - Mass Rock - Good.

Wetness - OK.

Laitence - OK.

Grouting - Progress U.S. face

APR 27 1919

Crew only worked  $\frac{1}{2}$  shift  
acct. rain.

APR 27 1919

Excavation - Progress left abt.

Sand Washing - Washed & hauled 1  
bin of sand. Quality - good.

Quarry - Mill Rock OK

Mass - OK.

Overburden - Bad - Satisfact -  
only clean rock going to mill.

Crusher - Plenty of rock.

Mixing - Duration - OK. Proportions OK.

Placing - Wetness OK.

Latence - OK.

Miss Rock - OK.

Groat Washing - Progress P.S. face.

Concrete - OK.

APR 28 1919

Excavation - Progress left  
abt.

Sand Washing - No sand washed  
or hauled - 2 men had to be  
kept in sand bin to keep sand  
shored down.

Quarry - Mill Rock - Scarce unless  
kept barred down  
Mass Rock - OK

Overburden - Bad - Satisfactorily  
clean rock going to mill.

Mixing - Proportions - Slightly  
shy on 2 1/2" until corrected.  
Duration OK.

Placing - Wetness Too wet  
Too much waste water. Supt.  
informed of excessive water.

Mass Rock - Some too close  
together.  
Laitence OK.

APR 28 1919

Excavation - Progress left. abt.  
Sand Washing & Hauling - Progress to  
meet masonry requirements. Quality  
good. Grading good.

Quarry - Mill Rock - OK

Mass Rock - Some illy shaped  
rock going to dam. Supt. notified to  
instruct quarry foreman the kind of  
mass rock wanted.

Overburden - Bad. Satisfactorily  
clean rock going to mill.

Crusher - Plenty of rock - Bins except  
dust, full & running over all afternoon.

Mixing - Proportions - Slightly shy  
on 3/4" - Supt. notified. Duration  
some batches turned out in less  
than 1 minute. Supt. notified.

Placing - Wetness OK.

Laitence OK.

Mass Rock OK.

Grout washing - Progress

Housekeeping - Camp - OK

Corral - OK

Const - OK

APR 29 1919

Excavation - Progress left abt.

Sand Washing & Hauling - No sand washed or hauled, Bin full.

Quarry - Mill rock OK

Mass Rock - OK

Overburden - Bad. Approx.

50 c.y. sent to dump. Clean rock going to mill.

Crusher - Plenty of rock. Bins full.

Mixing - Proportions OK

Duration OK.

Placing - Wetness OK

Latence - OK.

Mass Rock - OK.

APR 29 1919

Excavation - Progress left abt.

Sand Washing & Hauling - Progress to fill bin at plant.

Quarry - Bins full - mill shut down entire crew wasting overburden from quarry.

Concreting - No concrete placed Moving Derrick #1 to top of hill left abt.

Grout Washing - Progress D.S. face left abt.

APR 30 1919

Excavation - No progress.

Sand Washing & Hauling - No sand washed or hauled, bins full.

Quarry - Mill Rock better.

Mass Rock OK.

Overburden - Better. Clean rock being sent to mill.

Mixing - Proportions OK.

Duration - OK.

Placing - Wetness, slightly wet. Superintendent instructed to notify mixer man to dry up mix.

Mass Rock - Superintendent instructed to have foreman clean old concrete off mass rock & wet them before concreting around them.

Laitence - OK

APR 30 1919

Excavation - Progress left abt  
Sand Washing - ~~No~~ Sand Washed & Hauled to meet masonry requirements. Several loads of sand noticed very dirty. These were last loads in bin & should not be hauled to bin at dam.

Quarry - Mill rock better.

Mass Rock - Some badly shaped & very small mass rock being sent to dam. (Supt. notified)

Overburden - Better. Very clean rock being sent to mill.

Mixing - Proportions - Good.

Duration OK

Placing - Wetness OK

Laitence OK

Mass Rock - Mass Rock skips being dumped on dam some containing several galls of <sup>water</sup> sandy mud. Supt. notified to stop this.

Grout washing - Progress on front face.



MAY 1 1919

Excavation - No progress.

Quarry - Mill Rock - Good  
Mass " "

Oserbarden - Better - 6 c. y

Sent to dump.

Crushers - Plenty of rock bins  
full.

Mixing - Proportions - Good  
Duration - Good.

Placing - Wetness - OK  
Laitence - OK.  
Mass Rock - Shy

MAY 1 1919

Excavation - Progress left. a bt.

Pressure Grouting OK

Sand Washing & Hauling - Progress to meet  
masonry requirements. Inspected sand  
washing plant with resident engr &  
ordered Supt. to haul last load from  
bin (each bin full) to dump.

Quarry - Mill Rock - Good

Mass Rock - Discussed relative  
costs of "dabbing" rock & block boring  
with Supt. & Supt. ordered 2 large  
rock which were to be dabbed, to  
be drilled.

Crushing Plant - Plenty of rock  
Bins practically full all day.

Mixing - Proportions - Good

Duration - "

Placing - Instructed Supt. to more  
thoroughly clean & remove old laitence  
from masonry where about to place  
masonry. Cleaned up O.K.

Mass Rock - OK.

Wetness - Slightly too wet. Supt.  
instructed to dry up mix.

Laitence - Not objectionable

MAY 2 1919

Excavation - No progress.

Sand Washing - 1-Bin Sand hauled & washed - Quality - good

Quarry - Mill Rock OK.

Mass Rock - OK.

Overburden - Better - Very good clean rock going to mill.

Crushers - Plenty of rock - Bins

full in early part of evening

Mixing - Proportions - Good

Duration - "

Placing - Wetness OK.

Latence OK

Mass Rock - OK

MAY 2 1919

Excavation - Progress by small crew left abt.

Sand Washing & Hauling - 2 bin sand hauled & washed. Quality - good.

Quarry - Mill Rock OK

Mass " OK

Overburden - Better. Clean rock going to mill.

Crushers - Plenty of Rock

Mixing - Proportions - Good.

Duration - "

Placing - Wetness - Good

Latence - "

Mass Rock "

Grout Washing - Progress on left abt.

MAY 3 1919

Excavation - No progress  
Sand Washing & Hauling - None  
Bin at Mixer full.

Quarry - Mill Rock - Good only  
- 12 muckers in quarry.

Mass Rock - Good.

Overburden - Better. Rock  
going to mill good & clean.

Crushers - No rock for 1 1/2 hrs  
acct. Small crew in quarry.

Mixing - Proportions - OK.

Duration - OK

Placing - Wetness - Mixture too wet  
& Supt. instructed to dry up mix  
which he did.

Latence - Not obj.

Mass Rock - Good.

One skip of conc came to dam  
shy any cement. Supt. instructed  
to shovel it up & waste over front  
face which he did.

Grout Washing - Progress by  
O.T. crew on right abt. U.S. face.

MAY 3 1919 AM

Excavation - Progress left abt.  
Sand Washing & Hauling - Progress to  
fill sand bin at mixer. Quality  
good.

Quarry - Mill rock OK.

Mass Rock - O.K.

Overburden - Approx 65 c.y  
overburden wasted. Satisfactorily  
clean rock going to mill.

Crushers - Plenty of rock bins  
full after 1.30 P.M.

Mixing - Only concreted for 1 hr.  
acct. cableway tied up on  
morning S.L.D. #3

Everything OK.

Grout washing - Progress.

MAY 4 1919

MAY 4 1919

MAY 5 1919

MAY 5 1919

Day - Progress by small crew both abutments. (Excavation)

Sand Washing & Hauling - No sand washed or hauled, bin full from Sunday's hauling.

Quarry - Mill rock plenty but very small crew.

Mass Rock - None sent to dam.

No masonry placed acct. not enough men & Cable way busy on making S.L.D #3.

MAY 6 1919

(Night)

Excavation - No Progress.

Sand Washing & Hauling - None  
bins practically full.

Quarry - Mill Rock - Good

Mass Rock - Very scarce  
unless pulled out from face of  
quarry.

Overburden - OK. Very clean  
rock going to mill.

Mixing - Proportions. Shy on  
 $2\frac{1}{2}$  &  $\frac{3}{4}$ " until corrected.

Duration - Good.

Placing - Wetness. OK.

Latence - Not objectionable.

Mass Rock - Several rock not  
complying with specifications loaded  
into skips in quarry. These rock  
called to Supts. attention who  
ordered them out. Other rock small.

Masonry placing crew, mostly green  
men & care not taken in

Placing conc. against forms. i.e.  
spading & keeping coarse rock away. This  
called to Supt. & foreman's attention.

MAY 6 1919

At Barrett Dam all day

MAY 7 1919

A. T. Barrett Dam

Day

MAY 7 1919

Excavation - Slight progress by very small crew left. abt

Sand Washing & Hauling - Washed & hauled 2 bins - sand. Quality good.

Quarry - Mill rock - good

Mass Rock - Shy & small in size.

Overburden - Bad - Fairly clean rock going to mill.

Crushers - Plenty of rock

Mixing - Proportions - Good

Duration - "

Placing - La. fence - Not objectionable.

Wetness - OK

Mass Rock - Good.

Grout Washing - Progress on

Down Stream face.

Housekeeping - Camp - Good

Corral - Good

Construction - "

Night.

MAY 8 1919

Excavation - No progress

Sand Washing & Hauling - No sand washed or hauled, bins full.

Quarry - Mill rock - O.K. Very small crew.

Mass Rock - Scarce & Small.

Overburden - Bad - Satisfactorily clean rock going to mill.

Crushers - Not enough production in quarry to keep mill busy.

Mixing - Proportions - Running about 2' shy on  $\frac{3}{4}$ " & same over on  $\frac{1}{2}$ " to make up shortage of small rock.

Duration - Good.

Placing - Wetness - O.K.

Latence - O.K.

Mass Rock - O.K.

Day

MAY 8 1919

Excavation - Progress by small crew in cleaning to bed rock left abutment.

Sand - Washing & Hauling to meet masonry requirements.

Quarry - Mill rock O.K.

Mass Rock - Scarce

Overburden - Bad - Satisfactorily clean rock going to mill.

Crushers - O.K.

Mixing - Slightly shy on  $\frac{3}{4}$ " until corrected.

Duration in mixer - good.

Placing - Wetness O.K.

Latence - Not objectionable.

Mass Rock - Small.

Grout Washing - Progress on Up Stream face.

Housekeeping - Corral - good

Camp - good

Const - good.



Night

MAY 9 1919

Excavation - No Progress  
Sand Washing & Hauling - Hauled  
1 Bin Sand to fill bin at  
concreting plant.

Quarry - Mill Rock - OK

Mass Rock - Shy

Overburden - Bad - Good

clean rock going to mill.

Crushers - Plenty of rock

Mixing - Proportions Good

Duration in mixer - Good

Placing - Wetness - OK

Latence - OK

Mass Rock - Fair

MAY 9 1919

Excavation - Some progress by small  
crew cleaning exposed rock surfaces  
left abt.

Sand Washing & Hauling - Progress to  
meet masonry requirements.

Quality - Good

Quarry -

Mill Rock - Scarce unless  
barred down from above. Suggest  
that barring down be done as  
much as possible between shifts.  
as much time is wasted by other  
members of quarry crew when  
barring down.

Mass Rock - Scarce.

Overburden - Bad, Quite a lot being  
shreled into skips & wasted. Good  
clean rock going to mill.

Mixing - Proportions - Good.

Duration - In Mixer Good.

Placing - Wetness slightly too wet

Latence - Not objectionable.

Mass Rock - Good.

Grout Washing - OK

MAY 10 1919

Night

Excavation - No progress  
Sand Washing - One bin sand  
washed & hauled. Bin filled at  
concreting plant

Quarry - Mill Rock - Not enough  
to keep mill going unless  
barred down.

Mass Rock - Scarce

Overburden - Bad - Approx  
24 c.y. loaded into skips &  
wasted. Satisfactorily clean  
rock going to mill.

Mixing - Proportions - Good.

Vibration in mixer - Good.

Placing - Wetness - O.K.

Latence - O.K.

Mass Rock - Good - Several  
rock spaced closer than 6" until  
corrected.

MAY 10 1919

MAY 11 1919

MAY 11 1919

MAY 12 1919

Day

MAY 12 1919

Excavation - Progress Class 3

Excav. right abt. by foreman & crew of 7 men. Right Left abt. progress cleaning exposed rock surfaces by small crew.

Pressure Grouting - Progress drilling hole left abt.

Quarry. Mill rock - Good.

Mass Rock "

Overburden - better - Very clean rock going to mill.

No Concreting by day crew - No place ready.

MAY 13 1919

Excavation - Progress by small crew on class 3 right abt.

Pressure Grouting - Progress on grout hole left abt.

Quarry - Mill rock O.K.

Mass Rock - Quarry scale bad on some rock, Supt. instructed to watch.

Overburden - Better - Clean rock going to mill.

Mixing - Proportions - Over on  $\frac{3}{4}$ " until corrected

Duration - OK

Wetness - OK.

Latence - OK.

Mass Rock - Some rock too close until corrected.

MAY 13 1919

Excavation - Progress by small crew on Class 3 Ex. right abt. & small crew left abt. washing down rock surfaces.

Pressure Grouting - completed a <sup>drilling</sup> grout hole left abt.

Quarry - Guy Derrick #1 being mored & tied up all day.

Mill rock - O.K.

Mass " - "

Overburden - Better - Clean rock being sent to mill.

Mixing - Proportions - Good

Duration in mixer - Good.

Placing - Wetness - Good.

Mass Rock - Several mass rock spaced closer than 6" until corrected.

Latence - OK.

Grout Washing - OK - Prog. U.S. face.

Housekeeping - OK.

applied  
concreted  
plans

MAY 14 1919

Excavation - Progress by small crew on class 3 Excav. right abt.

Sand Hauling & Washing - Sand bin at mixer full no sand hauled.

Quarry -

Mill Rock - OK.

Mass " - OK.

Overburden - Better. Satisfactorily clean rock being sent to mill.

Mixing - Proportions - Good

Duration in mixer - Good.

Placing - Concreting started in 2 sections on cold joints - these thoroughly inspected as to old laitence & cleanliness. Supt. inst. to sprinkle neat cement over old concrete & broom in just before plac. conc.

Wetness - OK.

Laitence - OK.

Mass. Rock - Good.

MAY 14 1919

Excavation - Progress on class 3 Excavation right abt.

Sand Hauling & Washing - Hauling to meet masonry requirements.

Quality - good -

Quarry - Mill rock - Shy.

Mass. Rock - OK.

Overburden - Better - Satisfactorily clean rock going to mill.

Mill - Proportions - Good.

Duration in mixer - Good.

Placing - Wetness OK.

Laitence - OK.

Mass. Rock - Shy. Supts. notice called to fact but nothing done.

Grout Washing - Progress to meet stripping of forms.

Housekeeping - Good.

MAY-16

Excavation - Progress class 3

Excav. right abt.

Sand Washing & Hauling - 1 Bin of Sand Washed & Hauled to keep bin full @ plant. Quality good.

Quarry - Mill rock - Some better Mass Rock - Good.

Overburden - Better.

Concrete.

Mixing - Proportions - Running  $\frac{1}{2}$  batch of ~~over~~  $2\frac{1}{2}$ " rock shy & about  $1\frac{1}{2}$  cf. over on  $\frac{3}{8}$  acct. shortage of  $2\frac{1}{2}$ .

Duration - Good.

Wetness - Slightly wet Supt. instructed to dry up mix.

Laitence - Not bad. Excess of waste water & laitence left by day shift cleaned off ~~right~~ left abt. by night shift before placing new masonry.

Mass Rock - Shy acct. extending Mass Rock Track.

May-16-

Excavation - Progress on class 4

Ex. right abt.

Pressure Grouting - Progress on drilling hole left abt.

Sand Washing & Hauling - Progress to meet masonry requirements. Quality Good.

Quarry - Mill rock better - 1 Derrick out of commission  $\frac{1}{2}$  day acct. injury done by shot.

Mass Rock - OK.

Overburden - Better - Satisfactorily clean rock going to mill.

Proportions - All batches run approx. 10 c.f. shy on  $2\frac{1}{2}$ " acct. shortage this size rock. Deficiency not made up by other sizes.

Duration - Good.

Wetness - OK.

Laitence - OK.

Mass Rock - OK.

Groat Washing - OK.

Concreted only  $\frac{1}{2}$  day.

MAY-17

Excavation - Progress right abt. on class 4 excavation.

Sand Washing & Hauling - No sand washed or hauled bins full.

Quality - OK.

Quarry - Mill rock OK

Mass Rock - Some unsuitable

Mass Rock rejected in quarry

Not conforming to specifi.

Overburden - Being wasted. Clean rock going to mill.

Proportions - All batches run approx 10 c.f. shy on  $2\frac{1}{2}$ " balance of sizes OK.

Duration - OK.

Placing - Mass Rock - Shy - limited right abt. by height of forms. left abt. Supt. instructed to put more in.

Wetness - Slightly wet. Supt. inst. to dry up mix a little.

Bonding - Sawdust & dirt ordered cleaned off old concrete.

Laitence - Not obj.

Testing - 2 test cylinders made lat 6.00 P.M. Nos. 3 & 4

MAY-17-

Excavation - Good progress right abt. both class 3 & class 4 Excavation.

Sand Washing & Hauling - Progress 1 bin sand washed & hauled.

Quarry - Mill Rock - Good

"Mass" "

Overburden -

Satisfactorily clean rock going to mill.

Pressure Grouting - Grout hole left abt. completed.

No Masonry placed by day shift.

Grout washing - Progress to meet stripping of forms.



MAY 18

Excavation - Progress by small crew right abt, class 3 & 4.

Quarry - Mill Rock - OK.

Mass " "

Overburden - Bad in spots being shoveled into skips & wasted. Satisfactorily clean rock going to mill.

Sand - No sand washed or hauled.

Mixing - Proportions - Running approx 10 c.f. shy on 2 1/2 with all bins full. Supt. instructed to use correct amt. of 2 1/2".

Duration -

Wetness - OK.

Laitence - OK.

Mass Rock - OK left abt. shy right abt. account of inability to place acct. high forms.

MAY 18

Excavation - Progress both class 3 & 4 Excav. right abt.

Quarry - Mill rock OK.

Mass " - OK.

Overburden - Satisfactorily clean rock going to mill.

Sand - Prog. to meet masonry requirements. Quality good.

Mixing - Proportions - OK. in morning - in P.M. running about 10 c.f. shy on 2 1/2" acct. shortage of this size & other bins being full.

Duration - Good

Wetness - OK.

Laitence - OK.

Mass Rock - OK.

Grout washing - Progress to meet stripping of forms.

Testing - 2 Test cylinders of average run concrete made at 9.00 A.M.

$$2 \times 1.3 \times 2 = 5.2$$

$$2.4 \times 1.5 \times 2 = 7.2$$

$$4.4 \times 4 \times 2.25 = 39.6$$

$$4 \times 3.5 \times 2 = 28.0$$

---

80.0

AIR LINE LEAKS.  
4/29/19.

Valve in end of pipe in passage way under #8 Crusher, near motor.

1<sup>st</sup> Joint after turning down Mass rock track towards quarry. 2"

2<sup>nd</sup> Joint after turning down Mass rock track towards quarry, valve leaking around stem. 2"

2<sup>nd</sup> joint from valve towards quarry - union leaking 2" line

Reducer <sup>1 1/2"</sup> leaking at toe of quarry.

Union about 1/2 way up slope.

Valve at first take off about 1' from line.

Elbow at turn by big rock. 2<sup>nd</sup> take off - End of main line.

Tee at first take off left abt.

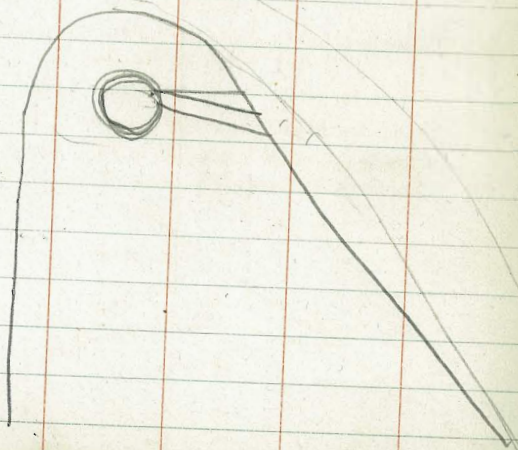
Split bushing under sand dumping platform.

2" Elbow at landing on stairway from Screen to crusher platform.

Drainage Tunnel about 20' from end of.

2 yd rock 25 str  
5/8

Have Coddock spruce road  
Have pipe gang into deep gallery  
changed  
Change cement on bulletin  
Ckt out price  
Look out + see that copper  
plate is up tight against  
forms.  
Have flagpole at left end  
of dam restored + flag put in it  
Set up 2 flag poles on  
right end down stream +  
upstream with flag on each.



## KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

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### HOW TO USE KEITH'S TABLES.

#### EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle  
of Intersection or I. P. =  $23^{\circ} 20'$  to the R. at Station  
542+72.

Ext. in Tab. IV opposite  $23^{\circ} 20' = 120.87$   
 $120.87 \div 12 = 10.07$ . Say a  $10^{\circ}$  Curve.

Tan. in Tab. IV opp.  $23^{\circ} 20' = 1183.1$   
 $1183.1 \div 10 = 118.31$ .

Tab. V correction for A.  $23^{\circ} 20'$  for a  $10^{\circ}$  Cur. = 0.16  
 $118.31 + 0.16 = 118.47 =$  corrected Tangent.

(If corrected Ext. is required find in same way)  
Ang.  $23^{\circ} 20' = 23.33^{\circ} \div 10 = 2.3333 =$  L. C.

$2^{\circ} 19\frac{1}{2}' =$ def. for sta.	542	I. P. = sta.	542+72
$4^{\circ} 49\frac{1}{2}' =$ " " "	+50	Tan. =	1.18.47
$7^{\circ} 19\frac{1}{2}' =$ " " "	543	B. C. = sta.	541+53.53
$9^{\circ} 49\frac{1}{2}' =$ " " "	+50	L. C. =	2.33.33
$11^{\circ} 40' =$ " " "	543+	E. C. = Sta.	543+86.86
	86.86		

$100 - 53.53 = 46.47 \times 3' (\text{def. for 1 ft. of } 10^{\circ} \text{ Cur.}) = 139.41' =$   
 $2^{\circ} 19\frac{1}{2}' =$  def. for sta. 542.

Def. for 50 ft. =  $2^{\circ} 30'$  for a  $10^{\circ}$  Curve.

Def. for 36.86 ft. =  $1^{\circ} 50\frac{1}{2}'$  for a  $10^{\circ}$  Curve.

(These tables are published in Field Books of  
KEUFFEL & ESSER Co., New York, N. Y.)

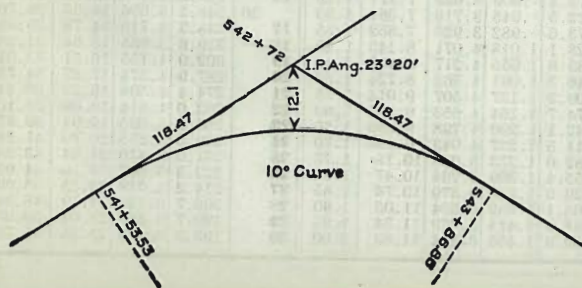


TABLE I. — Minutes in Decimals of a Degree.

Table with 11 columns representing minutes from 1' to 11' and 20 rows representing decimal values from .0167 to .1667.

TABLE II. — Inches in Decimals of a Foot.

Table with 11 columns representing inches from 1 to 11 and 5 rows representing decimal values from .0052 to .1917.

TABLE III. — Radii, Ordinates and Deflections.

Large table with 12 columns: Deg., Radius, Mid. Ord., Tan. Def., Chd. Def., Def. for 1 Foot, and corresponding values for angles 1 to 30 degrees.

TABLE IV. — Tangents and Externals to a 1° Curve.

Table with 9 columns: Angle, Tangent, External, Angle, Tangent, External, Angle, Tangent, External, covering angles from 1° to 30°.

Natural Tangents.

Deg.	0'	10'	20'	30'	40'	50'	Deg.	0'	10'	20'	30'	40'	50'	Deg.	
0	0000	0029	0058	0087	0116	0145	89	40	8391	8441	8491	8541	8591	8642	49
1	0175	0204	0233	0262	0291	0320	88	41	8693	8744	8796	8847	8899	8952	48
2	0349	0378	0407	0437	0466	0495	87	42	9004	9057	9110	9163	9217	9271	47
3	0524	0553	0582	0612	0641	0670	86	43	9325	9380	9435	9490	9545	9601	46
4	0699	0729	0758	0787	0816	0846	85	44	9657	9713	9770	9827	9884	9942	45
5	0875	0904	0934	0963	0992	1022	84	45	1.0000	1.0058	1.0117	1.0176	1.0235	1.0295	44
6	1051	1080	1110	1139	1169	1198	83	46	1.0355	1.0416	1.0477	1.0533	1.0599	1.0661	43
7	1228	1257	1287	1317	1346	1376	82	47	1.0724	1.0786	1.0850	1.0913	1.0977	1.1041	42
8	1405	1435	1465	1495	1524	1554	81	48	1.1106	1.1171	1.1237	1.1303	1.1369	1.1436	41
9	1584	1614	1644	1673	1703	1733	80	49	1.1504	1.1571	1.1640	1.1708	1.1778	1.1847	40
10	1763	1793	1823	1853	1883	1914	79	50	1.1918	1.1988	1.2059	1.2131	1.2203	1.2276	39
11	1944	1974	2004	2035	2065	2095	78	51	1.2349	1.2423	1.2497	1.2572	1.2647	1.2723	38
12	2126	2156	2186	2217	2247	2278	77	52	1.2799	1.2876	1.2954	1.3032	1.3111	1.3190	37
13	2309	2339	2370	2401	2432	2462	76	53	1.3270	1.3351	1.3432	1.3514	1.3597	1.3680	36
14	2493	2524	2555	2586	2617	2648	75	54	1.3764	1.3848	1.3934	1.4019	1.4106	1.4193	35
15	2679	2711	2742	2773	2805	2836	74	55	1.4281	1.4370	1.4460	1.4550	1.4641	1.4733	34
16	2867	2899	2931	2962	2994	3026	73	56	1.4826	1.4919	1.5013	1.5108	1.5204	1.5301	33
17	3057	3089	3121	3153	3185	3217	72	57	1.5399	1.5497	1.5597	1.5697	1.5798	1.5900	32
18	3249	3281	3314	3346	3378	3411	71	58	1.6003	1.6107	1.6212	1.6319	1.6426	1.6534	31
19	3443	3476	3508	3541	3574	3607	70	59	1.6643	1.6753	1.6864	1.6977	1.7090	1.7205	30
20	3640	3673	3706	3739	3772	3805	69	60	1.7321	1.7437	1.7556	1.7675	1.7797	1.7917	29
21	3839	3872	3906	3939	3973	4006	68	61	1.8040	1.8165	1.8291	1.8418	1.8546	1.8676	28
22	4040	4074	4108	4142	4176	4210	67	62	1.8807	1.8940	1.9074	1.9210	1.9347	1.9486	27
23	4245	4279	4314	4348	4383	4417	66	63	1.9626	1.9768	1.9912	2.0057	2.0204	2.0353	26
24	4452	4487	4522	4557	4592	4628	65	64	2.0503	2.0655	2.0809	2.0965	2.1123	2.1283	25
25	4663	4699	4734	4770	4806	4841	64	65	2.1445	2.1609	2.1775	2.1943	2.2113	2.2286	24
26	4877	4913	4950	4986	5022	5059	63	66	2.2460	2.2637	2.2817	2.2998	2.3183	2.3369	23
27	5095	5132	5169	5206	5243	5280	62	67	2.3559	2.3750	2.3945	2.4142	2.4342	2.4545	22
28	5317	5354	5392	5430	5467	5505	61	68	2.4751	2.4960	2.5172	2.5386	2.5605	2.5826	21
29	5543	5581	5619	5658	5696	5735	60	69	2.6051	2.6279	2.6511	2.6746	2.6985	2.7228	20
30	5774	5812	5851	5890	5930	5969	59	70	2.7475	2.7725	2.7980	2.8239	2.8502	2.8770	19
31	6009	6048	6088	6128	6168	6208	58	71	2.9042	2.9319	2.9600	2.9887	3.0178	3.0475	18
32	6249	6289	6330	6371	6412	6453	57	72	3.0777	3.1084	3.1397	3.1716	3.2041	3.2371	17
33	6494	6536	6577	6619	6661	6703	56	73	3.2709	3.3052	3.3402	3.3759	3.4124	3.4495	16
34	6745	6787	6830	6873	6916	6959	55	74	3.4874	3.5261	3.5656	3.6059	3.6470	3.6891	15
35	7002	7046	7089	7133	7177	7221	54	75	3.7321	3.7760	3.8208	3.8657	3.9136	3.9617	14
36	7265	7310	7355	7400	7445	7490	53	76	4.0108	4.0611	4.1126	4.1653	4.2193	4.2747	13
37	7536	7581	7627	7673	7720	7766	52	77	4.3315	4.3897	4.4494	4.5107	4.5736	4.6382	12
38	7813	7860	7907	7954	8002	8050	51	78	4.7046	4.7729	4.8430	4.9152	4.9894	5.0658	11
39	8098	8146	8195	8243	8292	8342	50	79	5.1449	5.2257	5.3093	5.3955	5.4845	5.5764	10

Deg.	0'	10'	20'	30'	40'	50'	Deg.
80	5.6713	5.7694	5.8708	5.9758	6.0844	6.1970	9
81	6.3138	6.4348	6.5606	6.6912	6.8269	6.9682	8
82	7.1154	7.2687	7.4287	7.5958	7.7704	7.9530	7
83	8.1443	8.3450	8.5555	8.7769	9.0098	9.2553	6
84	9.5144	9.7882	10.078	10.385	10.711	11.059	5
85	11.430	11.826	12.250	12.706	13.197	13.727	4
86	14.300	14.924	15.605	16.350	17.169	18.075	3
87	19.081	20.206	21.470	22.903	24.542	26.432	2
88	28.636	31.242	34.368	38.189	42.964	49.104	1
89	57.290	68.750	85.940	114.588	171.885	343.77	0

Natural Cotangents.

Hair Nelson ask  
 Mr. Savage about  
 Force Dentist bill  
 make statement  
 16x32x11  
 32x6x17  
 Your attorney  
 3/18 241 40 105  
 3/19 265 33 83  
 3/20 439 ~~439~~ 61c 160f  
 945 ~~945~~ 134c 348f  
 32  
 16  
 192  
 32  
 512  
 11  
 512  
 5632  
 240# = 5670  
 134c = 348  
 32  
 6  
 6331  
 5632  
 3264  
 8896  
 9  
 80064  
 1344  
 192  
 3264

1050  
 Counsel 4.05  
 Walker 5.35  
 Truck 30.00  
 320, Stelmant 13.00  
 4 1/2 Skimmer 10.80  
 12.80      63.20  
                  5.00

2.72  
 2.5  
 11.0  
 24  
 5.50

(42) 3<sup>20</sup> (136) 70.00

538  
 12  
 1100  
 556

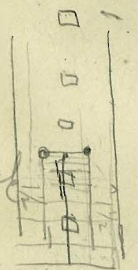
6 x 6 x 3 1/2  
 7 x 9 x 2  
 3 x 3 1/2 x 7      2625  
 7 x 11 x 1 1/2      27  
 18375  
 5230  
 70875



35

Ask helo to call SD  
 & see how many sheaves  
 are ready. Tell them truck  
 and Mr. Stommond

20  
 30  
 600  
 12  
 1200  
 600  
 1800  
 28 1/2  
 5 cu ft each  
 Cable 5/2  
 66 Skips  
 35 Plums  
 foreman  
 Ingr  
 4 men  
 35 min in am.  
 30 cable out  
 20 ~~in~~ in am. dined  
 on forms.  
 Cable 5/2/19  
 43 - Dunch # 2  
 15 cy  
 3  
 18 cy Plums  
 30 min. delay cable way  
 busy.  
 Cable 5/31 # 2324



6.5  
 7.2  
 7.0  
 9.0  
 18.0  
 47.7

3/20/19 (C.A.) Inspection Report

Excavation Obstructions. OK  
 Grouting Compressing etc

Sand Washing  
 Transporting

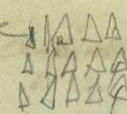
Onway Mill and Plaster  
 Miss. Small Shy  
 Mine. OK  
 Or broken

Blasting Plaster Rock

Mixing Operations OK  
 situations OK

Flooding Wetness. OK  
 Mass Rock % Shy small for  
 Lattice obstructions  
 Sand Washing Behind

Housekeeping OK

21.6  
 15.4  
 35.0  
 1 @ 50 sec  
 1 @ 45  
 7 @ 2'0"   
 1 @ 40 sec  
 1 @ 1'20"   
 15.6  
 2  
 3 1.2

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1 1/2 TO 1.

FOR SINGLE TRACK EMBANKMENT

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Jullen A. Hall, M. Am. Soc. C. E.