DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

GHQ/SCAP Records (RG 331, National Archives and Records Service)

Description of contents

(1) Box no. 2938

(2) Folder title/number: (15)
Toyo Rayon Co. - Sulphuric Acid Plant

(3) Date: July 1950 - Apr. 1951

(4) Subject:

Classification	Type of record
9230, 9621	a, c, r

(5) Item description and comment:
Shiga

(6) Reproduction: (Yes) No

(7) Film no. Sheet no.

(Compiled by *National Diet Library*)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

KINKI INFORMATION O.D. APR 19 1951 CAS

O MH-1d 35-14

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Economic and Scientific Section
APO 500

MWH/WT/ao

387.6(7 Apr 51)ESS/IND

7 April 1951

MEMORANDUM FOR: Reparations Agency, Tokyo

SUBJECT: Transmittal of Reconversion Permit

1. Reference is R.A.R. No. 397 (MS), 26 February 1951, subject: Application for Reconversion of Monsanto System Contact Process Sulphuric Acid Plant, Shiga Factory (Code No. 35-14), Toyo Rayon Co., Ltd.

2. The attached Reconversion Permit for the Toyo Rayon Co., Ltd. is transmitted for your action.

3. This permit is issued subject to any and all directives affecting reparations plants which have been issued or may hereafter be issued by the Supreme Commander for the Allied Powers. Reports will be rendered as required by current directives and instructions.

FOR THE CHIEF, ECONOMIC AND SCIENTIFIC SECTION:

MAURICE M. CLASS
Chief, Industry Division

1 Incl
Reconversion Permit.
(dup)

Cys furnished:
CA Sec (dup)
CHS
G-2 Capt, Head, Targets Branch (Recon Perm only)
CPC (Recon Perm only) (dup)

MEMO FOR RECORD:

The above ltr is self-explanatory.

W. A. Thurman, 26-8485 M. M. C.

1-2236 No information copy of application was received

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Economic and Scientific Section

7 April 1951
Date

SUBJECT: Reconversion Permit for Reparations Plant RAR No. 397 (MS)

TO: Toyo Rayon Co., Ltd. Shiga Factory (35-14)

1. In accordance with Memorandum from the Supreme Commander for the Allied Powers to the Japanese Government, dated 22 November 1946 (SCAPIN-1355), the Toyo Rayon Co., Ltd. is permitted to produce at their Monsanto System Contact Process Sulphuric Acid Factory located at 46-4, Ishiyama, Kitaoji-cho, Otsu City Shiga Pref. the following additional items:

Item	Maximum Quantity
Sulphuric Acid	Unlimited

- nothing follows -

2. The temporary use of the following additional reparations machinery is authorized:

See attached list of 118 items.

- nothing follows -

3. A program will be immediately initiated to substitute non-reparations machinery for reparations machinery in temporary use.

4. The acquisition of material, parts and sub-assemblies as well as the disposition of finished products and the establishment of sales prices will be in accordance with the regulations of the Japanese Government.

5. This permit is issued subject to any and all directives affecting reparations plants which have been issued or may hereafter be issued by the Supreme Commander for the Allied Powers. Reports will be rendered as required by current directives and instructions.

FOR THE CHIEF, ECONOMIC AND SCIENTIFIC SECTION:

MAURICE M. CLASS
Chief, Industry Division

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

LIST OF THE DESIRE
DESIGNATED MACHINERY

Item No.	Section	Inventory No.	Item	Weight	Size & Capacity		
35-14-1	Roaster	IA1-1	Mechanical furnace	118,740	4,800 m.m.ϕ ; 10 tons ore/D. Combustion area 8280 m^2		St 11
" 2	"	IA1-2	"	"	"		
" 3	"	IA1-3	"	"	"		
" 4	"	IA1-4	"	"	"		
" 5	"	IA1-5	"	"	"		
" 6	"	IA1-1	Fan for furnace	350	850 x 990 x 950	51 m^3/min.	St
" 7	"	IA1-2	"	"	"		
" 8	"	IA1-3	"	"	"		
" 9	"	IA1-4	"	"	"		
" 10	"	IA1-5	"	"	"		
" 11	"	IA1-1	Elevator	1,700	Height ≒ 13,300	1.3 tons ore/hr.	St
" 12	"	IA1-3	"	"	"		
" 13	"	IA1-5	"	"	"		
" 14	"	IA1-1	Reducer	1,300	1,200 x 1,290 x 950		St
" 15	"	IA1-2	"	"	"		
" 16	"	IA1-3	"	"	"		
" 17	"	IA1-4	"	"	"		
" 18	"	IA1-5	"	"	"		
" 19	"	IA1-1	Motor for reducer	100	0.57 x 0.45 x 0.4 m.	3 HP.	MK 12
" 20	"	IA1-2	"	"	"		
" 21	"	IA1-3	"	"	"		
" 22	"	IA1-4	"	"	"		
" 23	"	IA1-5	"	"	"		
" 24	"	IA1-1	Motor for fan	"	0.56 x 0.39 x 0.36 m.	3 HP.	
" 25	"	IA1-2	"	"	"		
" 26	"	IA1-3	"	"	"		
" 27	"	IA1-4	"	"	"		

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

LIST OF THE DESIRED REPARATION DESIGNATED MACHINERY AND EQUIPMENT

Weight	Size & Capacity	Type	Name of Mfg.
118,740	4,800 m.m.ϕ ; 10 tons ore/D. Combustion area 8280 m^2	Steel shell, cast iron shaft, fire brick lining. Herreshoff Mechanical Furnace	Osame Ryusan Kogyo K.K.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
350	850 x 990 x 950 51 m^3/min.	Steel plate	Nakashima Seisakusho
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
1,700	Height ≒ 13,300 1.3 tons ore/hr.	Steel plate vertical, bucket type	Osame Ryusan Kogyo K.K.
"	"	"	"
"	"	"	"
1,300	1,200 x 1,290 x 950	Steel, cast iron	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
100	0.57 x 0.45 x 0.4 m. 3 HP.	MK. 3 phase, 220 V. 8.4 amp., 1200 rpm. 60 ~	Mitsubishi
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	0.56 x 0.39 x 0.36 m. 3 HP.	"	"
"	"	"	"
"	"	"	"
"	"	"	"

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

EPARATION
D EQUIPMENT

Type	Name of Mfg.	Operating or Idle	No. of Items	Remarks
shell, cast iron shaft, fire brick g. Herreshoff Mechanical Furnace	Osame Ryusan Kogyo K.K.	Lie idle	1	List No. of Evaluation 19 - 1
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
plate	Nakashima Seisakusho	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
plate vertical, bucket type	Osame Ryusan Kogyo K.K.	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
, cast iron	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
3 phase, 220 V. 8.4 amp., rpm. 60 ~	Mitsubishi	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Section	Inventory No.	Item	Weight	Size & Capacity	
35-44-28	Roaster	IA1-5	Motor for fan	100	0.56 x 0.39 x 0.36 m. 3 HP.	MK. 1200
" 29	"	IA1-1	Motor for elevator	75	0.72 x 0.32 x 0.42 m. 3 HP.	MK. 1800
" 30	"	IA1-3	"	"	"	
" 31	"	IA1-5	"	"	"	
" 32	Gas Cleaning Equipment	IA2-1	Hot cottrell	531,300	0.2 m. dia., 5 m. height, for 30 tons/day plant	Hita steel
" 33	"	"	Cooling tower	53,210	3 m. dia., 6.1 m. height, 43.1 m^3 volume	Tow
" 34	"	"	Washing tower	49,200	"	
" 35	"	"	Mist cottrell	21,840	For 30 tons/day plant	Hita vert
" 36	"	"	"	"	"	
" 37	"	"	Cokes filter	100,000	130 m^3 cokes filled up, 9 x 12 x 2.5 m.	Lead
" 38	"	"	Acid cooler	26,000	42 coils immersed, cooling surface 198 m^2	Lead
" 39	"	"	"	"	"	
" 40	"	"	Pump tank	3,630	2.44 m. dia., 2.13 m. height	Ste
" 41	"	"	"	"	"	
" 42	"	"	Drip tank	1,400	1.6 x 2.5 x 1.5	Con lin
" 43	"	"	Drain tank	2,500	3.0 x 3.0 x 2.0	Con
" 44	"	"	Cooling water vat	690	1.5 x 2.0 x 1.0	Woo
" 45	"	"	Lead piping	15,015		Lea
" 46	"	"	Acid pump	170	65 m/m ϕ calibre, head 2 cap. 20 m^3/hr. 10 HP.0.63x0.53x0.52m.	Hor
" 47	"	"	"	"	"	
" 48	"	"	"	"	"	
" 49	"	"	"	"	"	
" 50	"	"	Hard lead pump	"	50 m/m calibre 0.63x0.53x0.52m.	Har
" 51	"	"	"	"	"	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Item	Weight	Size & Capacity	Type	Name of Mf
for fan	100	0.56 x 0.39 x 0.36 m. 3 HP.	MK. 3 phase, 220 V. 8.4 amp., 1200 rpm. 60 ∿	Mitsub
for tor	75	0.72 x 0.32 x 0.42 m. 3 HP.	MK. 3 phase, 220 V. 8.2 amp., 1800 rpm. 60 ∿	"
"	"	"	"	
"	"	"	"	
ottrell	531,300	0.2 m. dia., 5 m. height, for 30 tons/day plant	Hitachi Iron Work's type fire brick, steel & lead, acid brick	Osame Kogyo
ng tower	53,210	3 m. dia., 6.1 m. height, 43.1 m^3 volume	Tower type, with packing	
ng tower	49,200	"	"	
ottrell	21,840	For 30 tons/day plant	Hitachi Iron Work's tube type vertical lead, steel, wood.	
"	"	"	"	
filter	100,000	130 m^3 cokes filled up, 9 x 12 x 2.5 m.	Lead chamber, cokes filled	
ooler	26,000	42 coils immersed, cooling surface 198 m^2	Lead coil type	
"	"	"	"	
nk	3,630	2.44 m. dia., 2.13 m. height	Steel sheil, Lead lining	
"	"	"	"	
nk	1,400	1.6 x 2.5 x 1.5	Concreate, lead & acid proof brick lining	
ank	2,500	3.0 x 3.0 x 2.0	Concreate, lead lining	
water vat	690	1.5 x 2.0 x 1.0	Wooden vat, with lead lining	
ping	15,015		Lead	
mp	170	65 m/m ϕ calibre, head 2 cap. 20 m^3/hr. 10 HP.0.63x0.53x0.52m.	Horizontal, centrifugal type, supiron	Shim Seis
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
ad pump	"	50 m/m calibre 0.63x0.53x0.52m.	Hard lead	
"	"	"	"	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Type	Name of Mfg.	Operating or Idle	No. of Items	Remarks
3 phase, 220 V. 8.4 amp., rpm. 60 ∿	Mitsubishi	Lie idle	1	List No. of Evaluation 19 - 1
3 phase, 220 V. 8.2 amp., rpm. 60 ∿	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
chi Iron Work's type fire brick, l & lead, acid brick	Osame Ryusan Kogyo K.K.	"	1	19 - 2
r type, with packing	"	"	1	"
"	"	"	1	"
chi Iron Work's tube type ical lead, steel, wood.	"	"	1	"
"	"	"	1	"
chamber, cokes filled	"	"	1	"
coil type	"	"	1	"
"	"	"	1	"
l shell, Lead lining	"	"	1	"
"	"	"	1	"
reate, lead & acid proof brick ing	"	"	1	"
reate, lead lining	"	"	1	"
en vat, with lead lining	"	"	1	"
	"	"	1	"
zontal, centrifugal type, supiron	Shimazu Seisakusho	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
"	"	"	1	"
lead	"	"	1	"
"	"	"	1	"

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Section	Inventory No.	Item	Weight	Size & Capacity	
35-14-52	Gas Cleaning Equipment	IA2-1	Iron pump	150	75 m/m calibre 0.63x0.53x0.52 m.	Cast
" 53	"	"	Motor for automatic hammer	50	0.38 x 0.32 x 0.26 m. 1 HP.	MK. 1800
" 54	"	"	Motor for rectifier	100	0.56 x 0.49 x 0.55 m. 2 HP.	Sol. 1800
" 55	"	"	"	"	"	
" 56	"	"	"	"	"	
" 57	"	"	10 HP. motor for acid pump	155	0.53 x 0.42 x 0.39 m. 10 HP.	MK. 1800
" 58	"	"	"	"	"	
" 59	"	"	"	"	"	
" 60	"	"	"	"	"	
" 61	"	"	5 HP. motor for drain pump	120	0.55 x 0.41 x 0.37 m. 5 HP.	3 ph 1800
" 62	"	"	"	"	"	
" 63	"	"	7.5 HP. motor for iron pump	130	0.51 x 0.45 x 0.46 m. 7.5 HP.	CG. 1800
" 64	"	"	Drying tower	87,401	3 m. dia., 6.1 m. height 43.1 m^3 volume	Ste
" 65	"	"	Pump tank	8,200	2.44 m. dia., 2.13 m. height	Por aci
" 66	"	"	Irrigation cooler	12,000	150 mm. dia. x 200 m. length cooling surface = 584 m^2	Irr
" 67	"	"	Dilution boot	300	0.4 dia. x 1.33 m. length	Cas
" 68	"	"	Gauge box	150	0.6 dia. x 0.5 height	
" 69	"	"	Vertical pump	800	100 m/m calibre 30 HP., head 20m. Cap. 45 m^3/hr.	Ver spe
" 70	"	"	"	"	"	
" 71	"	"	30 HP. motor for vertical pump	450	0.8 x 0.67 x 0.7 m. 30 HP.	SOR 73.
" 72	"	"	"	450	"	
" 73	Contact Equipment	IA3-1	Large heat exchanger	23,710	2 m. dia., 6 m. height heating surface 584 m^2	Ste

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Item	Weight	Size & Capacity	Type
ron pump	150	75 m/m calibre 0.63x0.53x0.52 m.	Cast iron
otor for auto-atic hammer	50	0.38 x 0.32 x 0.26 m. 1 HP.	MK. 3 phase, 220 V. 3.1 amp., 1800 rpm. 60 ~
otor for ectifier	100	0.56 x 0.49 x 0.55 m. 2 HP.	Sol. 3 phase, 220 V. 11.5 amp., 1800 rpm. 60 ~
"	"	"	"
"	"	"	"
0 HP. motor for eid pump	155	0.53 x 0.42 x 0.39 m. 10 HP.	MK. 3 phase, 220 V. 1800 rpm. 60 ~
"	"	"	"
"	"	"	"
"	"	"	"
HP. motor r drain pump	120	0.55 x 0.41 x 0.37 m. 5 HP.	3 phase, 220 V. 8 amp., 1800 rpm. 60 ~
"	"	"	"
.5 HP. motor r iron pump	130	0.51 x 0.45 x 0.46 m. 7.5 HP.	CG. 3 phase, 220 V. 19.5 amp., 1800 rpm. 60 ~
rying tower	87,401	3 m. dia., 6.1 m. height 43.1 m^3 volume	Steel shell, acid proof brick lining
mp tank	8,200	2.44 m. dia., 2.13 m. height	Porcelain packing, steel shell, acid proof brick lining
rrigation ooler	12,000	150 mm. dia. x 200 m. length cooling surface = 584 m^2	Irrigation type , cast iron
ilution boot	300	0.4 dia. x 1.33 m. length	Cast iron
auge box	150	0.6 dia. x 0.5 height	"
ertical pump	800	100 m/m calibre 30 HP., head 20m. Cap. 45 m^3/hr.	Vertical, centrifugal olemon type special acid proof iron
0 HP motor for ertical pump	450	0.8 x 0.67 x 0.7 m. 30 HP.	SORR, 3 phase, 220 V. vertical, 73.5 amp. 1800 rpm. 60 ~
"	450	"	"
arge heat exchanger	23,710	2 m. dia., 6 m. height heating surface 584 m^2	Steel shell & tube type

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Type	Name of Mfg.	Operating or Idle	No. of Items	Remarks
	ron	Shimazu Seisakusho	Lie idle	1	List No. of Evaluation 19 - 2
	phase, 220 V. 3.1 amp., pm. 60 ~	Mitsubishi	"	1	"
	phase, 220 V. 11.5 amp., pm. 60 ~	Hitachi	"	1	"
	"	"	"	1	"
	"	"	"	1	"
	phase, 220 V. pm. 60 ~	"	"	1	"
		"	"	1	"
		"	"	1	"
		"	"	1	"
		"	"	1	"
	, 220 V. 8 amp., m. 60 ~	Yasukawa	"	1	19 - 3
	"	Shibaura	"	1	"
	hase, 220 V. 19.5 amp., m. 60 ~	Toba	"	1	"
	hell, acid proof brick lining	Osaka Seizoki K.K.	"	1	"
	ain packing, steel shell, roof brick lining	"	"	1	"
	tion type , cast iron	Kubota Tekkosho	"	1	"
	ron	"	"	1	"
		"	"	1	"
	l, centrifugal olemon type acid proof iron	"	"	1	"
	"	"	"	1	"
	phase, 220 V. vertical, p. 1800 rpm. 60 ~	Fuji Denki	"	1	"
	"	"	"	1	"
	hell & tube type	Osaka Seizoki K.K.	"	1	19 - 4

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Section	Inventory No.	Item	Weight	Size & Capacity	
35-14-74	Contact Equipment	IA3-1	Small heat exchanger	14,030	1.75 m. dia., 5.25 m. height, heating surface 333 m^2	Steel
" 75	"	"	Large Converter	14,690	2.88 m. dia., 4.031 m. height, contact mass 6 m^3	Steel
" 76	"	"	Small Converter	10,070	2.88 m. dia., 2.837 m. height, contact mass 3 m^3	
" 77	"	"	SO_3 gas cooler	15,000	0.55 m. dia., 120 m. length, cooling surface 207 m^2	Steel
" 78	"	"	Preheating apparatus	78,500	Furnace 2.640 x 2.750 x 5.720 m. Preheater 2.5 m.dia.x4.0m.height	Fire
" 79	"	"	Fan for Preheater	350	100 m^3/min. 0.95x0.92x1.15 m.	
" 80	"	"	Preheater body	13,000	2.5 m. dia., 4.0 m. height, heating surface 423 m^3	Tube
" 81	"	IA5-1	Absorber	87,433	3 m. dia., 6.1 m. height, 43.1 m^3 volume	Verti acid
" 82	"	"	Pump tank	10,500	2.44 m. dia., 2.13 m. depth	Steel
" 83	"	"	Surge tank	8,200	"	
" 84	"	"	Dilution boot	300	0.4 m. dia., 1.33 m. length	Cast
" 85	"	"	Gauge box	150	0.6 m. dia., 0.5 m. height	
" 86	"	"	Gauge tank	8,200	2.44 m. dia., 2.13 m. depth	Steel
" 87	"	"	"	"	"	
" 88	"	"	Gauge box	150	0.6 m. dia., 0.5 m. height	
" 89	"	"	Gauge box	"	"	
" 90	"	"	Irrigation cooler	10,000	150 mm. dia., 110 m. cooling surface 48 m^2	Irrig
" 91	"	"	"	6,000	150 mm. dia., 46 m.	
" 92	"	"	30 HP. vertical pump	800	100 m/m calibre, 30 HP. head 20m. capacity 45 m^3/hr.	Centr
" 93	"	"	"	"	"	Centr
" 94	"	"	15 HP. vertical pump	600	65 m/m calibre, 15 HP. head 20m. capacity 20 m^3/hr.	
" 95	"	"	"	"	"	
" 96	"	"	"	"	"	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Size & Capacity	Type	Name of Mfg.	Operating or Idle	No. of Items
m. dia., 5.25 m. height, ing surface 333 m^2	Steel shell & tube type	Osaka Seizoki K.K.	Lie idle	1
m. dia., 4.031 m. height, act mass 6 m^3	Steel shell & cover cast iron grid	"	"	1
m. dia., 2.837 m. height, act mass 3 m^3	"	"	"	1
m. dia., 120 m. length, ing surface 207 m^2	Steel pipe, air cooling	"	"	1
nce 2.640 x 2.750 x 5.720 m. eater 2.5 m.dia.x4.0m.height	Fire brick, steel shell & tube	"	"	1
m^3/min. 0.95x0.92x1.15 m.		Nakashima Seisakusho	"	1
m. dia., 4.0 m. height, ing surface 423 m^3	Tube type	Matsushima gumi	"	1
dia., 6.1 m. height, m^3 volume	Vertical steel shell type, acid proof brick lining	Osaka Seizoki K.K.	"	1
m. dia., 2.13 m. depth	Steel tank, acid proof brick lining	"	"	1
"	"	"	"	1
m. dia., 1.33 m. length	Cast iron	"	"	1
m. dia., 0.5 m. height	"	"	"	1
m. dia., 2.13 m. depth	Steel tank, acid proof brick lining	"	"	1
"	"	"	"	1
m. dia., 0.5 m. height	Cast iron	Kubota Tekkosho Osaka Seizoki K.K.	"	1
"				
m. dia., 110 m. ing surface 48 m^2	Irrigation type, cast iron	"	"	1
m. dia., 46 m.	"	"	"	1
m/m calibre, 30 HP. head 20m. ity 45 m^3/hr.	Centrifugal, vertical Olemon type	Shimazu Seisakusho	"	1
"	Centrifugal, special acid proof iron	"	"	1
m calibre, 15 HP. head 20m. ity 20 m^3/hr.	"	"	"	1
"	"	"	"	1
"	"	"	"	1

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Name of Mfg.	Operating or Idle	No. of Items	Remarks
	Osaka Seizoki K.K.	Lie idle	1	List No. of Evaluation 19 - 4
t iron grid	"	"	1	"
	"	"	1	"
	"	"	1	"
& tube	"	"	1	"
	Nakashima Seisakusho	"	1	"
	Matsushima gumi	"	1	"
e,	Osaka Seizoki K.K.	"	1	"
rick lining	"	"	1	"
	"	"	1	"
	"	"	1	"
	"	"	1	"
	"	"	1	"
rick lining	"	"	1	"
	"	"	1	"
	"	"	1	"
	Kubota Tekkosho Osaka Seizoki KK.	"	1	"
n	"	"	1	"
	"	"	1	"
mon type	Shimazu Seisakusho	"	1	"
proof iron	"	"	1	"
	"	"	1	"
	"	"	1	"
	"	"	1	"

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

	Section	Inventory No.	Item	Weight	Size & Capacity	
35-14-97	Contact Equipment	IA5-1	Reaction tower	9,500	1.35 m. dia., 6.65 m. height Earthen-ware tower	Ston
" 98	"	"	Circulating vat	2,500	2.5 x 3.0 x 1.2 m.	Wood
" 99	"	"	Alkali tank	1,000	1.0 x 1.5 x 1.0 m.	
" 100	"	"	Supiron pump	150	50 m/m calibre 0.47 x 0.38 x 0.63 m.	Cent
" 101	"	"	"	"	"	
" 102	"	"	Exhaust fan	450	150 m^3/min. capacity 1.25 x 1.30 x 1.58 m.	Steel
" 103	"	"	30 HP motor for vertical pump	"	0.8 x 0.67 x 0.7 m. 30 HP.	SORR. 73.5
" 104	"	"	"	"	"	
" 105	"	"	15 HP. motor for vertical pump	200	0.53 x 0.42 x 0.39 m. 15 HP.	SORR. 26 a
" 106	"	"	"	"	"	
" 107	"	"	"	"	"	
" 108	"	"	7.5 HP. motor for supiron pump	130	0.51 x 0.45 x 0.46 m. 7.5 HP.	CG-0 19.5
" 109	"	"	"	"	0.65 x 0.46 x 0.39 m.	
" 110	"	"	5 HP. motor for exhaust	120	0.55 x 0.41 x 0.37 m.	CB, 5.6
" 111	"	"	Storage tank	20,000	7 m.ϕ x 7 m. height 450 T capacity	Stee IKA
" 112	"	"	motor	75	0.25x 0.32 x 6.19 m. 2HP	1.22
" 113	Blower	IA4-1	Blower	650	170 m^3/min. max. gas press 92 m/m Hg. column, 75 HP. 3490 rpm. 3300 V.	Turb stee
" 114	"	IA4-2	"	"	"	
" 115	"	IA4-1	Motor	850	75 HP.	EFU 12.2
" 116	"	IA4-2	"	"	"	
" 117	All other chem. mfg. equipment		Electric equipment			Cop
" 118	"		Iron piping	44,546		Ste
	TOTAL					

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Weight	Size & Capacity	Type	Name of Mfg.
9,500	1.35 m. dia., 6.65 m. height Earthen-ware tower	Stone ware packed tower type	Takayama Kosan K.K.
2,500	2.5 x 3.0 x 1.2 m.	Wooden vat, with lead lining	Toyo Rayon K.K.
1,000	1.0 x 1.5 x 1.0 m.	"	"
150	50 m/m calibre 0.47 x 0.38 x 0.63 m.	Centrifugal horizontal type supiron	Takayama Kozan K.K.
"	"	"	"
450	150 m^3/min. capacity 1.25 x 1.30 x 1.58 m.	Steel plate	Rikagaku Kogyo K.K.
"	0.8 x 0.67 x 0.7 m. 30 HP.	SORR. 3 phase, 220 V. vertical, 73.5 amp. 1800 rpm. 60 ∿	Fuji Denki
"	"	"	"
200	0.53 x 0.42 x 0.39 m. 15 HP.	SORR. 3 phase, 220 V. vertical, 26 amp. 1400 rpm. 60 ∿	"
"	"	"	"
"	"	"	"
130	0.51 x 0.45 x 0.46 m. 7.5 HP.	CG-G-300, 3 phase, 220 V. 19.5 amp. 1800 rpm. 60 ∿	Toba Denki
"	0.65 x 0.46 x 0.39 m.	"	Shibaura Denki
120	0.55 x 0.41 x 0.37 m.	CB, A-105, 3 phase 220 V. 5.6 amp. 1200 rpm. 60 ∿	Toba Denki
20,000	7 m.ϕ x 7 m. height 450 ℬ capacity	Steel tank	Fujinagata Zosen K.K.
75	0.25 x 0.32 x 6.19 m. 2HP	IKAB, 3-phase, 220V 8-amp. 1.220 rpm 60 ∿	Shibaura Den
650	170 m^3/min. max. gas press 92 m/m Hg. column, 75 HP. 3490 rpm. 3300 V.	Turbo, special cast iron, stainless steel, impellor	Hitachi Seisakusho
"	"	"	"
850	75 HP.	MFU-KKL., 3 phase 3300 V. 12.2 amp. 3600 rpm. 60 ∿	"
"	"	"	"
		Copper, iron	Toyo Rayon K.K.
44,546		Steel, cast iron	"

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Type	Name of Mfg.	Operating or Idle	No. of Items	Remarks
e ware packed tower type	Takayama Kozan K.K.	Lie idle	1	List No. of Evaluation 19 - 5
en vat, with lead lining	Toyo Rayon K.K.	"	1	"
"	"	"	1	"
rifugal horizontal type supiron	Takayama Kozan K.K.	"	1	"
"	"	"	1	"
l plate	Rikagaku Kogyo K.K.	"	1	"
3 phase, 220 V. vertical, amp. 1800 rpm. 60 ~	Fuji Denki	"	1	"
"	"	"	1	"
3 phase, 220 V. vertical, p. 1400 rpm. 60 ~	"	"	1	"
"	"	"	1	"
"	"	"	1	"
300, 3 phase, 220 V. amp. 1800 rpm. 60 ~	Toba Denki	"	1	"
"	Shibaura Denki	"	1	"
-105, 3 phase 220 V. mp. 1200 rpm. 60 ~	Toba Denki	"	1	"
tank , 3- phase, 220V 8-amp. rpm 60 ~	Fujinagata Zosen K.K.	"	1	"
special cast iron, stainless impellor	Shibaura Denki KK. Hitachi Seisakusho	" "	1 1	19 - 6 19 -,6
"	"	"	1	"
L., 3 phase 3300 V. mp. 3600 rpm. 60 ~	"	"	1	"
"	"	"	1	"
iron	Toyo Rayon K.K.	"	1	19 - 7
cast iron	"	"	1	"

~~116~~ 118

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Shiga
M11-18
35-14

REPORT OF REPAIR WORKS FOR DESIGNATED REPARATION PLANT

Date: Nov.25,1950

TO: Kinki Civil Affairs Region

FROM: Toyo Rayon Co., Ltd., Shiga Factory

ADDRESS: No. 46, Ishiyama Kitaoji-cho,
Otsu-shi, Shiga-ken.

CODE NO.: 35 - 14

The sulphuric acid are getting stringent, therefor the Monsanto system contact process sulphuric acid plant, which is the designated reparation plant of our company, is quite necessary to go on operate for the increase production of rayon yarn, which is the main product of our company.

We already submitted an application dated on Nov. 7th 1950, for authorized use of this plant. But prior to the permission we would like to get it repaired good enough to be used at our expence.

It would be appreciated if the above-mentioned report be accepted.

Respectfully yours,

T. Kimata

TOMOYOSHI KIMATA

Factory Manager
Toyo Rayon Co., Ltd.,
Shiga Factory

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

M1-18 Shiga
35-14

HEADQUARTERS
KINKI CIVIL AFFAIRS REGION
APO 15 (Osaka, Honshu)

RAS/mm

29 September 1950

SUBJECT: Applications for Maintenance Work at the Toyo Rayon Company, 35-14

THRU: Kinki Liaison and Coordination Office

TO: Governor
Shiga Prefecture
ATTN: Chief, Industry Section
Commerce & Industry Department

1. The inclosed applications, which propose use of reparations funds to repair the mist cottrell of the reparations contact sulfuric acid set at subject plant, and to reimburse the Toyo Rayon Company for the cost of repairing a broken water line in the vicinity of the set, are not favorably considered.

2. Inspection revealed that the present status of maintenance of the mist cottrell is satisfactory. Replacement or repair of deteriorated wood scaffolding is not considered necessary as the scaffolding is not essential to the maintenance of the unit. Although the inlet and outlet ducts have sagged, further sagging or even collapse of the ducts will not effect appreciable damage to unit as a whole.

3. Although repair of the broken water line prevented inundation of the contact sulfuric acid set, the repairs would have been necessary in any event to prevent loss of water supply to the operating non-reparations portion of the plant. Use of reparations funds to reimburse the Toyo Rayon Company for the repair work is therefore not justifiable.

FOR THE CHIEF:

STERLIN C. MOORE
Major Infantry
Deputy Chief

2 Incls:
1. Application for Repair of mist cottrell
2. Application for Repair of water line

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

13 Sept 1950

Toyo Rayon K.K., Shiga Factory 35-14

Repairs of Mist Corttrell in the Acid Plant.

1. Subject installation was surveyed on 8 Sept. The lead gas inlet duct was damaged, the outlet duct has sagged and wooden supports for both have rotted. Although corttrell tubes are bent at several places, the corttrell proper seems to be in good shape. The wooden structure bracing the corttrell together with the stairways, cat-walk and tube spacers have deteriorated and requires immediate replacements. Wooden supporting structure below the bottom of the corttrell is in good condition. Structural steel framing supporter which is rusted requires cleaning and a coat of paint. Concrete has deteriorated in places but this in no way hinders the maintenance of the equipment.

2. The bill of materials required for the repairs submitted by the plant was checked and found to be correct. Estimate of labor cost seemed reasonable. Furthermore the cost of repairs as submitted by the plant to bring this equipment up to operable condition is within reason. The writer however is of the opinion that present repairs should be limited to the extent to keep the corttrell from overturning and damaging other adjacent equipment.

3. Recommendation: It is suggested that the work on lead inlet and outlet ducts be limited to replacing of the supports and incidental lead work, but no replacements or repairs of the ducts. This will reduce the labor cost by approximately ¥62,000, lead sheets by $3\frac{1}{2}$ tons or ¥227,500, a total of ¥289,500. The balance of the work is to be executed as stipulated in the petition. It is estimated that through this modification, the cost of repairs to safeguard this equipment can be reduced to approximately ¥750,000.

Morimoto

Incl #1

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Toyo Rayon, Shiga Plant 35-14

Mist Cottrell.

1. Subject Mist Cottrell is approximately 20 ft wide, 30 ft long and 31 ft high built of lead pipes and ducts. The outside frame is of structural steel with inner frames of wooden structure to keep upright lead tubings from twisting and bending. All supporting and spacer timber frame work together with ladders and gang ways have deteriorated.

2. It was estimated that repairs to bring the Cottrell to safe and operable condition will cost approximately ¥1,000,000. In order to minimize cost, the following recommendations are submitted

a. Inlet duct is of lead plate construction standing 30 ft vertically with 5 tons of lead. Supporting frames has deteriorated and the duct has sagged and is badly damaged. It is proposed that this duct be dismantled.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

b. Outlet duct is also of lead construction similar to the inlet duct. Supporting frame is deteriorated but duct proper is not damaged. It is recommended that the deteriorated work wood be replaced.

c. Wooden ladders and gangways around the Cottrell has rotted and is about to fall. It is recommended that these be removed to protect adjacent installations from being damaged by falling timbers.

d. Structural steel frame has rusted. Good coats of acid proof paint is recommended.

3. Cost of executing works recommended in 2 a, b, c and d is estimated to be approximately ₹240,000.

4. Above works are suggested to remove and protect damaged portions from falling. No work in connection with maintenance of Cottrell itself has been included.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Toyo Rayon, Shiga Plant 35-14
Repairs of Mist Controll.
Dismantle Inlet Duct.

Plumbers	24 @ 461.	11,064
Helpers.	17 @ 316.	3,792
Carpenters	4 @ 525	2,100.
Helpers	2 @ 316	632
Scaffold workers.	6 @ 450	2,700
Scaffold logs.	50 pcs/m. @ 45	2,250.
		22,538

Replace frames for Outlet duct.

Carpenters	48 man days @ 525	25,200
Scaffold workers.	24 " " @ 450	10,800
Helpers.	11 " " @ 316.	3,476
Lumber	13 tons @ 1900	24,700
Nails + bolts.		1,200
Preservative	60 kg @ 164.	9,840
Scaffold logs.	100 pcs/m @ 45.	4,500.
		79,716

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Remove deteriorated ladders & gangways.

Carpenters.	14 man days	@ $5.25	7,350.
Helpers	7 " "	@ 3.16	2,212
Scaffold workers.	53 " "	@ 4.50.	23,850.
Scaffold materials.	187 fe/m	@ 45.	8,415.
			41,827

Summary

Dismantling outlet duct	22,538
Replacing frames for outlet duct	79,716.
Removing deteriorated ladders & gangways	41.827
Transportation	7,000.
Cleaning site & disposing debris	10,000
	161,081
Supervision & miscellaneous expenses.	24,162.
Total of above work.	185,243.
Painting of structural frames, Add	53,650
	£ 238,893

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Painting structural steel.

Cleaning rust.	11 mandays.	@ 450	4950
Painting 3 coats.	46 "	" @ 450	20,700.
Paint.	100 kg.	@ 195.	19,500
Suspending scaffolds.			15,000.
			46,650.
Supervision & miscellaneous expenses.			7,000
			53,650

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

KINKI
~~OSAKA~~ LIAISON & COORDINATION OFFICE TS/ai

Prefectural Building
OSAKA

30 August 1950

KKLCO No. 515 ER

TO : Chief, Kinki Civil Affairs Region
(ATTN: Commerce & Industry, Economic Section)

SUBJECT: Application for Maintenance Work (Gas Tube)

1. For your consideration.

2. This is checked and endorsed by Shiga Prefectural Government and Osaka Bureau, Ministry of International Trade and Industry.

S. Shima
Director

Incl: Application from Toyo Rayon Co., Ltd., Shiga Factory, Monsanto System Contact Sulphuric Acid Plant, dated 31 July 1950, subject as above.

1-1199

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Application for Maintenance Work

Kind of work Repairing Work

Project number : Non

Plant number : ~~IA~~ 35-14

Plant name : Toyo Rayon Co., Ltd., Shiga Factory, Monsanto System Contact Sulphuric Acid Plant.

Plant address : No. 46 Ishiyama Kitaoji-cho, Otsu, Shiga-ken

Description of work for which funds are requested:

(a) Repair of leaden gas tube inlet of Mist Cottrell.

To remove the broken part of leaden gas tube (50cm x 50cm x 1,700cm) inlet of Mist Cottrell and to reconstruct it with leaden plate to be in the good condition.

(b) Repair of wooden props which sustain gas tube inlet of Mist Cottrell.

(c) Repair of wooden props which sustain gas tube outlet of Mist Cottrell.

Above mentioned (b) and (c) both gas tubes are necessary to set up strong scaffolds around them, in order to construct temporary props for the purpose of preventing them from destruction, and then the old deteriorated props and frames will be replaced with new props, fixed with bolts, etc.

(d) Repair of steps and walk-way of Mist Cottrell.

To construct a temporary scaffold and to remove the deteriorated wooden steps and walk-way and to reconstruct them with new lumber.

(e) Repainting of wooden and iron frames supporting leaden tubes and also repair of groundwork.

To set up a strong scaffold and carefully remove the rotted wooden frames, and will replace them new materials, which will be fixed to the iron frames by bolts.
To clean the iron frames and to paint them thrice, because the iron frames have considerably corroded.
Besides these repairs; it is also necessary to repair the foundations of frames, by lowering the ground level about 15 centimeters to keep the iron and wooden structures from coming in direct contact with the ground.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Justification for request :

Since the contact-process sulphuric acid plant in Shiga Factory was designated for reparations plant on 24 Aug., 1946, we have made our utmost efforts to maintain and control this plant.
At the equipment of sulphuric acid plant is very corrosive owing to its acid as well known, we have taken temporary or permanent maintenance measures.
On 30 Oct., 1949, however, the wooden props which sustained the up-right part of leaden gas tube inlet of Mist Cottrell corroded at a point 80 centimeters below the top of the props and dropped about 70 centimeters, damaging the lower part of Mist Cottrell and Dampsr Box. The wooden props sustaining the gas tube outlet of Mist Cottrell have rotted endangering the leaden gas tube outlet unless immediate replacement of props is made.
At the same time, the wooden steps and walk-way of Mist Cottrell have so much rotted that we feel the eminent danger when we are engaging in custody and control of them.
The wooden and iron frames of leaden tubes which sustain Mist Cottrell, have considerably deteriorated owing to its acid, and this equipment is going to fall down.
Under the present condition, serious accident may occur in near future, and become an obstacle to the custody and control of reparations equipment.
Therefore, we wish to ask your approval on above repairing work with your kind consideration.

Cost estimate :

	Custodian	District Office	Bureau of MITI
Materials cost	¥ 510,275.25	¥ 510.275	¥ 510.275.00
Labor cost	¥ 320,233.50	¥ 320,233	¥ 320.233.00
Transportation cost	¥ 17,406.00	¥ 17.406	¥ 17.406.00
Miscellaneous expenses	¥ 127,187.22	¥ 127,187	¥ 127.187.00
Total	¥ 975,101.97	¥ 975,101	¥ 975,101.00

Estimated by (Custodian) [signature] dated 31 July 50
Checked by (District Office) [signature] dated 2 Aug. 50
Checked by Bureau of MITI T. Arikimoto dated 25 Aug. 50

77 5013

COST ESTIMATE OF REPAIRING MIST COTTORELL OF SULPHURIC ACID PLANT

Name of work	Quantity	Cost Estimate	Labor	Men needed to repair one part (gas tube)	Total men	Laborer cost per day	Total	Remarks
Repair broken part of gas tube in mist Cottorell Inlet	1 part	¥ 88,680.20	Plumber	169	169	¥ 461.00	¥ 77,909.00	
			Laborer	34	34	¥ 316.80	¥ 10,771.20	

Details of above labor list

a. Plumber

(1) Dissection existing gas tube — 4.6 tons x 4.4 men/ton = 20.24 men

(2) Make & install gas tube — 4.6 tons x 27.5 men/ton = 126.50 men

Total : 146.74 men

(3) Special work be increase 15% on wage — 146.74 men x 1.15 = 168.75 men → 169 men

Make a lead plate hook on each support frame at gas tube lead plate.

b. Laborer

(1) Dissection existing gas tube — 4.6 tons x 2.2 men/ton = 10.12 men

(2) Make & install gas tube — 4.6 tons x 4.2 men/ton = 19.32 men

Total : 29.44 men

(3) Special work be increase 15% on wage — 29.44 men x 1.15 = 33.85 men → 34 men

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

2.

Name of work	Quantity	Cost Estimate	Labor	Men needed to repair one part	Total men	Laborer cost per day	Total	Remarks
Replace wooden support of gas tube of mist cottorell inlet	1 part	¥ 21,308.40	Carpenter	24	24	¥ 522.50	¥ 12,540.00	
			Scaffolder	14	14	433.40	6,067.60	
			Laborer	6	6	316.80	1,900.80	
			Painter	2	2	450.00	900.00	

Deatils of above labor list

a. Carpenter

(1) Dissection existing support	9.0 m x 0.3 man/m.	= 2.7 men
(2) Fix support & support frame	9.0 m x 0.6 man/m	= 5.4 men
(3) Structure support & support frame	9.0 m x 1.4 man/m	= 12.6 men
Total		20.7 men
(4) Special work be increase 15% on wage	20.7 men x 1.15	= 23.805 men
		24 men

Remarks :

Make special temporary support to prevent from falling down; dismantle rotten old support frame by each layer and construct new steady one by reinforcement material.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77 5013

b. Scaffolder

(1)	Build & remove scaffolding	50 pcs. x 0.12 man/pc. = 6.0 men
(2)	Remove existing support	9.0 m x 0.3 man/m = 2.7 men
(3)	Build support & support frame	9.0 m x 0.3 man/m = 2.7 men
		Total : 11.4 men
(4)	Special work be increase 15% of wage	11.4 men x 1.15 = 13.11 men 14 men

c. Labor

(1)	Carpenter's help	24 men x 0.25 man/man = 6 men

d. Painter

(1)	Antiseptic worker	6.03 koku x 0.3 man/koku = 1.809 men 2 men

3,

Name of work	Quantity	Estimate cost	Labor	Necessary men for 1 support	Total men	Wages per day	Total	Remarks
Replace work of wooden support of mist cottorell outlet	2 parts	¥38,748.90	Carpenter	225	45	¥ 522.50	¥ 23,512.50	
			Scaffolder	12	24	¥ 433.40	¥ 10,401.60	
			Laborer	55	11	¥ 316.80	¥ 3,484.80	
			Carpenter	15	3	¥ 450.00	¥ 1,350.00	

77 5013

Details of above labor list

a. Carpenter

(1)	Installing temporary material	9.0 m x 0.2 man/m x 2 = 5.6 men
(2)	Fix support & support frame	9.0 m x 0.6 man/m x 2 = 10.8 men
(3)	Construct support & support frame	9.0 m x 1.35 man/m x 2 = 24.3 men
		Total : 38.7 men
(4)	Special work be increase 15% on wage	38.7 men x 1.15 = 44.505 men
		45 men

Remarks :

To prevent from falling down made special temporary support and replace existing rotten support and support frame by each larger and construct it steady by using reinforcement material.

b. Scaffolder

(1)	Built and dismantle scaffolding	50 pcs x 0.10 man/pc. x 2 = 10.0 men
(2)	Dissection existing support	9.0 m x 0.3 man/m x 2 = 5.4 men
(3)	Structure support, support frame	9.0 m x 0.3 man/m x 2 = 5.4 men
		Total 20.8 men
(4)	Special work be increase 15% on wage	20.8 men x 1.15 = 23.92 men
		24 men

c. Labor

(1)	Carpenter's help	45 men x 0.24 man/man = 1.08 man
		1.1 man

d. Painter

(1)	Antiseptic worker	12.15 koku x 0.2 man/koku = 2.43 men
		3 men

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77 5013

4.

Name of work	Quantity	Cost estimate	Labor	Men need for gangway and ladder	Total	Wages per day	Total
Replace wooden ladder and gangway mist cottorell	26 tsubo and 3 parts	¥ 113,497.00	Carpenter	127	127	¥ 475.00	¥ 60,325.00
			Scaffolder	81	81	¥ 394.00	¥ 31,914.00
			Laborer	41	41	¥ 288.00	¥ 11,808.00
			Painter	21	21	450.00	9,450.00

Details of above labor list

a. Carpenter

(1) Dismantle existing ladder (with bottom support) — 3 parts x 1.0 man/part = 3 men
(2) Built ladder (with bottom support) — 3 parts x 11 men/part = 33 men
(3) Remove existing gangway & handrail — 26.0 tubo x 0.3 man/tsubo = 7.8 men
(4) Construct gangway — 26.0 tsubo x 1.7 man/tsubo = 44.2 men
(5) Construct handrail — 27.0 ken x 0.8 man/ken = 21.6 men
Total 109.6 men
(6) Special work be increase 15% on wage — 109.6 men x 1.15 = 126.04 men
127.0 men

b. Scaffolder

(1) Built and remove scaffolding — 187 pcs x 0.12 man/pcs = 22.4 men
(2) Remove existing ladder and gangway — 26.0 tsubo x 0.9 man/tsubo = 23.4 men
(3) Built ladder — 3 x 3.0 men = 9.0 men
(4) Built gangway and handrail — 26.0 tsubo x 0.6 man/tsubo = 15.6 men
Total 70.4 men

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

(5) Special work be increase 15% on wage — 70.4 men x 1.15 = 80.96 men
81 men

c. Laborer
(1) Carpenters help — 12.7 men x 0.32 man/man = 40.64 men
41 men

d. Painter
(1) Antiseptic worker — 33.2 koku x 0.63 man/koku = 20.916 men
21 men

5.

Name of work	Quantity	Cost estimate	Labor	Necessary men for work	Total	Wages per day	Total	Remarks
Replace wooden stationary frame paint, iron frame & repair foundation of mist [illegible]ttor[illegible]ell	8 tsubo of stationary frame	¥ 57,899.00	Carpenter	27	27	¥ 475.00	¥ 12,825.00	
			Scaffolder	8	8	¥ 394.00	¥ 3,152.00	
			Laborer	69	69	¥ 288.00	¥ 19,872.00	
			Painter	3	3	¥ 450.00	¥ 1,350.00	
			Painter	46	46	¥ 450.00	¥ 20,700.00	

Detail of above labor list

a. Carpenter
(1) Fix columnstationary frame — 8.0 tsubo x 0.4 man/tsubo = 3.2 men
(2) Construct column stationary frame — 8.0 tsubo x 2.9 men/tsubo = 23.2 men
Total 26.4 men
27 men

Remarks:
Existing stationary frame is complicated, for it is made of square lumber and board, and it is hard to work. Carefully not to damage the lead column and remove the rotten material and alternately insert stationary from both side and structure stationary with reinforcement material.

b. Scaffolder

(1) Built and remove scaffolding — 51 pcs. x 0.15 man/pc. = 7.65 men
8 men

c. Labor

(1) Carpenter's help — 27.0 men x 0.3 man/man = 8.1 men
(2) Dismantle column stationary frame — 8.0 tsubo x 4 men/tsubo = 32.0 men
(3) Ground leveling — 30.0 tsubo x 0.3 man/tsubo = 9.0 men
(4) File — 3.8 ryutsubo x 4 men/ryutsubo = 15.2 men
(5) Repair concret foundation — 0.45 ryutsubo x 10 men/ryutsubo = 4.5 men

Total 68.8 men
69 men

d. Painter

(1) Antiseptic worker — 11.9 koku x 0.25 man/koku = 2.975 men
3 men

e. Painter

(1) File rust off of iron stationary frame — 44.0 men tsubo x 0.2 man/men tsubo = 8.8 men
(2) Paint 3 coat on iron stationary frame — 44.0 men tsubo x 0.7 man/men tsubo = 30.8 men

Total 39.6 men

Remarks:

Paint work on the frame is hard under present state of affairs.

(3) Special work be increased 15% on wage — 39.6 men x 1.15 = 45.54 men
46 men

Remarks:

The above cost estimate is calculate by the past repair work done for our sulphuric acid plant.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

COST ESTIMATE OF MATERIAL FOR REPAIRING MIST COTTORELL OF SULPHURIC ACID PLANT

1.

Name of work	Material	Type & size	Unit	Quantity	Unit price	Total price	Remarks
Repair work of lead gas tube at mist cottorell inlet	Lead plate	9 m/m thick.	ton	4.600	₩ 65,000.00	₩ 299,000.00	
					Total :	₩ 299,000.00	

Detail of above materials list

a. Lead plate

(1) Gas tube 4 sides x 0.500 m x 17.000 m x 0.009 m x 11.4 tons/m^3 = 3.4884 tons

(2) Support frame hook on 128 parts x 0.500 m x 0.200m x 0.006m x 11.4 tons/m^3 = 0.87552 ton

Total = 4.36392 tons

(3) Manufacturing loss 5% 4.36392 x 1.05 = 4.582116 tons

≒ 4.6 tons

2.

Name of work	Material	Type & size	Unit	Quantity	Unit Price	Total price	Remarks
Replace work of wooden support of mist cottorell inlet gas tube	Lumber	18 shaku leng.	koku	6.03	₩1,850.00	₩ 11,155.50	Cypress
	Bolt	16 m/m - 750 m/m	pcs.	28	₩ 45.00	₩ 1,260.00	
	Nail	2" - 3"	kg.	12	₩ 26.00	₩ 312.00	
	Anti-septic		kg.	29	₩ 164.00	₩ 4,756.00	Stearic acid
	Scaffolding		pcs.	50	₩ 45.00	₩ 2,250.00	Loss & grass rope
					Total :	19,733.50	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Details of above materials list

a. Lumber

(1)	Temporary material	4 pcs x 0.40 shaku x 0.40 shaku x 18.0 shaku	= 1.152 koku
	Temporary material	4 pcs x 0.40 shaku x 0.40 shaku x 13.2 shaku	= 0.8448 koku
	Temporary material	12 pcs x 0.20 shaku x 0.20 shaku x 13.2 shaku	= 0.6336 koku
(2)	Support	4 pcs x 0.45 shaku x 0.45 shaku x 18.0 shaku	= 1.458 koku
	Support	4 pcs x 0.45 shaku x 0.45 shaku x 13.2 shaku	= 1.0692 koku
(3)	Support frame	11 ea. x 0.20 shaku x 0.30 shaku x 13.2 shaku	= 0.8712 koku
		Total	= 6.0288 koku
			≒ 6.03 koku

b. Bolt

(1) For support reinforcement 4 ea. x 7 parts = 28 ea.

c. Nail

(1) For temporary support 3" - 4 ea. x 9.0 m x 0.2 kg/m = 7.20 kgs.

(2) For support & support frame 3" - 4 ea. x 9.0 m x 0.13 kg/m = 4.68 kgs.

Total = 11.88 kgs.

≒ 12 kgs.

d. Antiseptic

(1) Inject stearic acid in lumber 6.03 koku x 4.7 kgs/koku = 28.341 kgs.

≒ 29 kgs.

e. Scaffolding pole

(1) For scaffolding to replace support 4 x 9.0 m x 1.3 pc/m = 46.8 pcs

3 pcs

(2) For other use

Total = 49.8 pcs

≒ 50 pcs.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

3

Name of work	Material	Type & size	Unit	Quantity	Unit price	Total Price	Remarks
Replace work of wooden support of mist cottorell outlet gas tube	Lumber	18 shaku	koku	12.15	¥1,850.00	¥22,477.50	Cypress
	Nail	2" - 3"	kg.	24	¥ 26.00	¥ 624.00	
	Bolt	⌀16 m/m - 750 m/m	ea.	17	¥ 45.00	¥ 765.00	
	Antiseptic		kg.	57	¥ 164.00	¥ 9,348.00	Stearic acid
	Scaffolding		pc.	100	¥ 45.00	¥ 4,500.00	Loss & grass rope
					Total :	¥37,714.50	

Details of above materials list

a. Lumber

(1) Temporary material 4 pcs x 0.40 shaku x 0.40 shaku x 18.0 shaku x 2 = 2.304 koku
Temporary material 4 pcs x 0.40 shaku x 0.40 shaku x 13.2 shaku x 2 = 1.6896 koku
Temporary material 12.5 pcs x 0.20 shaku x 0.20 shaku x 13.2 shaku x 2 = 1.3200 koku
4 pcs x 0.45 shaku x 0.45 shaku x 18.0 shaku x 2 = 2.916 koku
4 pcs x 0.45 shaku x 0.45 shaku x 13.2 shaku x 2 = 2.1384 koku
11 ea. x 0.20 shaku x 0.30 shaku x 13.2 shaku x 2 = 1.7424 koku

Total = 12.1104 koku
≒ 12.15 koku

b. Nail

(1) For temporary support 3" - 4 ea. x 9.0 m x 0.2 kg/m x 2 parts = 14.4 kgs.

(2) For support & support frame 3" - 4 ea. x 9.0 m x 0.13 kg/m x 2 parts = 9.36 kgs.

Total 23.76 kgs.
≒ 24 kgs.

c. Bolt

(1) For support reinforcement 2 ea. x 4 parts x 2 ea. + 1 = 17 ea.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

d. Antiseptic
(1) Inject stearic acid in lumber 12.15 koku x 4.65 kgs/koku = 56.4975 kgs.
≒ 57 kgs.

e. Scaffolding pole
(1) For scaffolding to replace support 4 x 9.0 m x 1.3 pc/m x 2 = 93.6 pcs.
(2) For other use 6 pcs.
Total 99.6 pcs.
≒ 100 pcs.

4.

Name of work	Material	Type & size	Unit	Quantity	Unit price	Total price	Remarks
Repair & replace work of wooden ladder & gangway of mist cotterell	Lumber		koku	33.2	¥1,700.00	¥ 56,440.00	Cypress
	Nail	2" - 3"	kg.	99	¥ 26.00	¥ 2,574.00	
	Bolt	16 m/m ϕ - 8"	ea.	198	¥ 12.50	¥ 2,475.00	
	Antiseptic		kg.	168	¥ 164.00	¥ 27,552.00	Stearic acid
	Scaffolding		pc.	167	¥ 45.00	¥ 8,415.00	Loss & grass rope
					Total :	¥ 97,456.00	

Details of above materials list

a. Lumber
(1) Ladder Remodel

						parts	
Side girder	4 pcs.	x 18.0 shaku	x 0.90 shaku	x 0.15 shaku	x 3	= 2.916 koku
Step board	18 pcs	x 6.60 shaku	x 0.12 shaku	x 0.60 shaku	x 3parts	= 2.56608 koku
Handrail	4 pcs	x 18.0 shaku	x 0.20 shaku	x 0.30 shaku	x 3 parts	= 1.2960 koku
Baluster	6 pcs.	x 10.0 shaku	x 0.20 shaku	x 0.20 shaku	x 3 parts	= 0.72 koku
Newel post	1 pc	x 9.0 shaku	x 0.35 shaku	x 0.35 shaku	x 3 parts	= 0.33075 koku
					Total	= 7.82883 koku	

77 5013

(2) Landing (with support)

Post	4 pcs x 18.0 shaku x 0.40 shaku x 0.40 shaku x 3 parts	= 3.456 koku
Beam	2 pcs. x 6.60 shaku x 0.40 shaku x 0.50 shaku x 3 parts	= 0.792 koku
Brace	17 pcs x 9.00 shaku x 0.20 shaku x 0.40 shaku x 3 parts	= 0.3672 koku
Floor board	0.4 men tsubo (0.08 shaku) x 0.32 koku/men tsubo x 3 parts	= 0.384 koku
	Total	= 4.9992 koku

(3) Gangway & Handrail

Floor joists	36pcs. x 13.20 shakux 0.30 shaku x 0.40 shaku	= 5,7024 koku
Floor joists	24 pcs x 10.00 shaku x 0.30 shaku x 0.40 shaku	= 2.880 koku
Floor board	13 men tsubo (0.08 shaku) x 0.32 koku/men tsubo x 2	= 8.320 koku
Handrail	25 pcs x 13.20 shaku x 0.20 shaku x 0.30 shaku	= 1.980 koku
Baluster	28 pcs x 13.20 shaku x 0.20 shaku x 0.20 shaku	= 1.4784 koku
	Total	= 20.3608 koku

Grand Total 33.18883 koku
≒ 33.20 koku

b. Nail

(1) Stair & Landing (with support)

Stair	3" - 5" - 6 kgs x 3 parts	= 18 kgs.
Landing	3" - 5" - 8.4 kgs x 3 parts	= 25.2 kgs.
	Total	= 43.2 kgs.

(2) Gangway & handrail

Gangway	3" - 26 men tsubo x 1.1 kg/ men tsubo	= 28.6 kgs.
Handrail	3" - 27 ken x 1.0 kg/ken	= 27 kgs.
	Total	55.6 kgs.

Grand Total : 98.8 kgs.
≒ 99 kgs.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

c. Bolt

(1) Stair & Landing	16 m/m ϕ- 8"	3 parts x 22 ea./part = 66 ea.	
(2) Gangway	16 m/m ϕ- 8"	26 men tsubo x 3 ea./men tsubo = 78 ea.	
(3) Handrail	16 m/m ϕ- 8"	27 ken x 2 ea./ken = 54 ea.	
		Total 198 ea.	

d. Antiseptic

(1) Inject stearic acid in lumber	33.2 koku x 4.65 kgs/koku = 154.38 kgs.
(2) Increase 8.5% for board	154.38 x 1.085 = 167.5023 kgs.
	168 kgs.

e. Scaffolding

(1) Stair & landing	3 parts x 15 pcs/part = 45 pcs.
(2) Gangway & handrail	2 parts x 13 men tsubo x 5.0 pcs/men tsubo = 130 pcs.
(3) For other use	12 pcs.
	Total 187 pcs.

5.

Name of work	Material	Type & size	Unit	Quantity	Unit price	Total price	Remarks
Replace wooden stationary frame, paint iron stationary frame & repair work of foundation	Lumber		koku	11.90	¥1,700.00	¥20,230.00	Cypress
	Nail	2" - 3"	kg	6	¥ 26.00	¥ 156.00	
	Bolt	16 m/m ϕ - 8"	ea.	41	¥ 12.50	¥ 512.50	
	Antiseptic		kg.	57	¥ 164.00	¥ 9,348.00	Stearic acid
	Scaffolding		pcs.	51	¥ 45.00	¥ 2,295.00	Loss & grass rope
	Acid proof paint		kg.	92	¥ 195.00	¥17,940.00	Phenol resin
	Cement	Portland Cement	ton	0.75	¥4,357.00	¥ 3,267.75	
	Sand		ryutsubo	0.23	¥3,705.00	¥ 852.15	
	Gravel		ryutsubo	0.45	¥3,933.00	¥ 1,769.85	
				Total:		¥56,371.25	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Details of above materials list

a. Lumber

(1) Stationary frame of column 26 pcs. x 0.50 shaku x 0.55 shaku x 13.2 shaku = 9.438 koku
24 pcs. x 0.15 shaku x 0.50 shaku x 13.2 shaku = 2.376 koku

Total: 11.814 koku
11.90 koku

b. Nail

(1) Stationary frame of column 3" - 8 tsubo x 0.75 kg/tsubo = 60 kgs.

c. Bolt

(1) For stationary frame of column 16 m/m ϕ - 8" 9 parts 4 ea. = 36 ea.

(2) For other use 5 ea.

Total : 41 ea.

d. Antiseptic

(1) Inject stearic acid in lumber 11.9 koku x 4.75 kgs/koku = 56.525.kgs.

57 kgs.

e. Scaffolding

(1) Repair column stationary frame 7.6 ken x 3 pcs/ken = 21.0 pcs.

(2) Paint iron stationary frame 44 men tsubo x 0.5 pc/men tsubo = 22.0 pcs.

(3) For other use 8.0 pcs.

Total : 51 pcs

f. Acid proof paint

(1) Paint iron stationary frame (3 coat) 44 men tsubo x 1.8 kg/men tsubo = 79.2 kgs.

(2) Bad working condition so increase 15% 79.2 kgs. x 1.15 = 91.08 kgs.

Total 92 kgs.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

g. Cement

(1) Repair foundation of gas tube 0.45 ryutsubo x 0.15 ton/ryutsubo = 0.675 ton

(2) Transportation loss 10% 0.675 ton x 1.1 = 0.7525 ton

0.750 ton

h. Sand

(1) Repair foundation of gas tube 0.45 ryutsubo x 0.51 ryutsubo/ryutsubo = 0.2295 ryutsubo

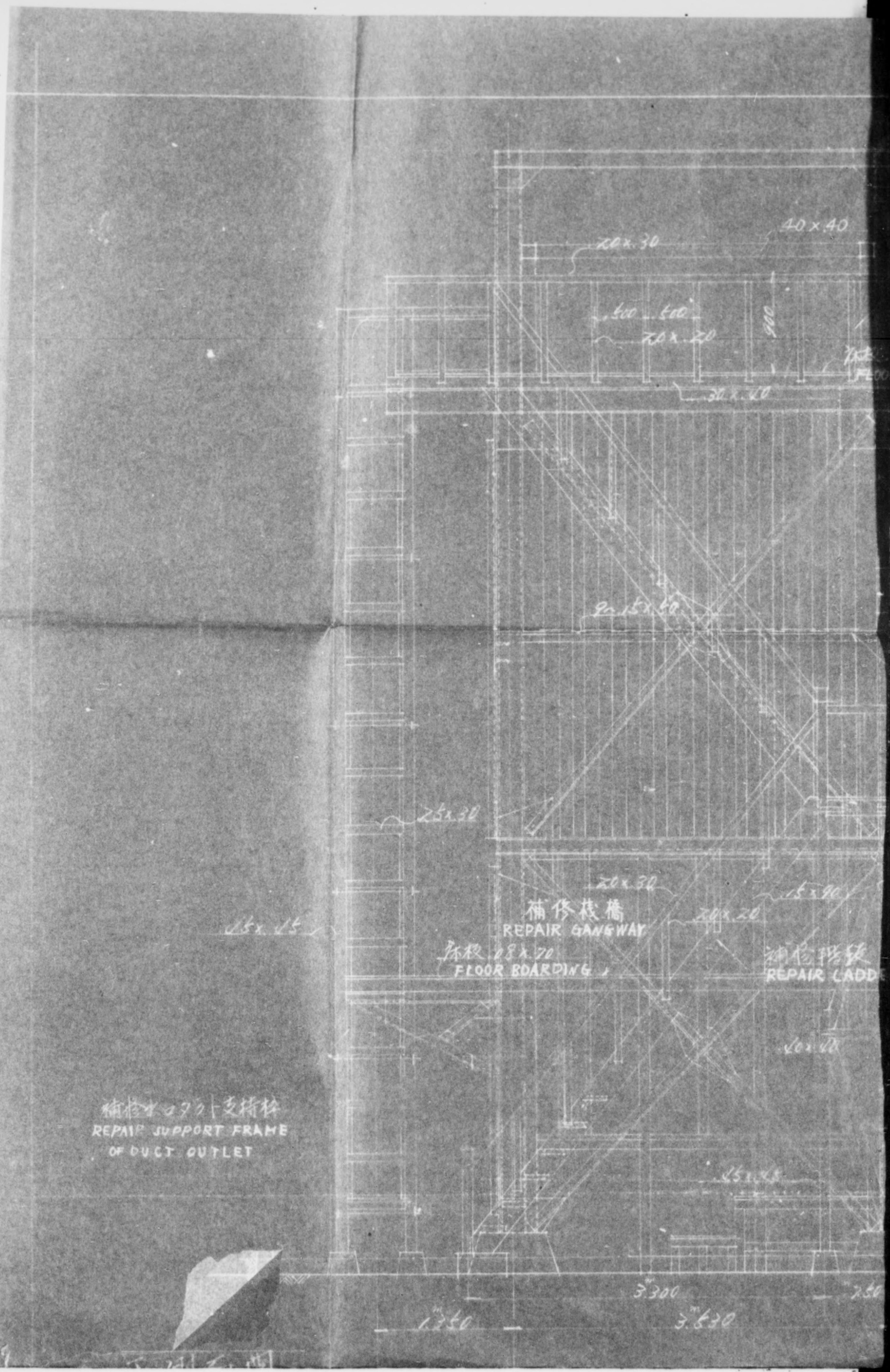
i. Gravel

Repair foundation of gas tube 0.45 ryutsubo x 1 ryutsubo/ryutsubo = 0.45 ryutsubo

Remarks :

The above cost estimate is calculate by the past repair work done for our sulphuric acid plant.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013



DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO. 775013

REPAIR GANG-WAY AND HAND RAIL
補修桟橋及手摺

FLOOR BOARDING

補修桟橋及手摺
REPAIR GANGWAY AND HAND RAIL

REPAIR COLUM STATIONARY FLAME

REPAIR LADDER

REPAIR STAIR

REPAIR DUCT INLET SUPPORT FRAME

LEVEL TO RACULAR G.L

G.L

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013

HAND RAIL

補修桟橋及手摺
REPAIR GANGWAY AND HAND RAIL

補修階段
REPAIR STAIR

REPAIR DUCT INLET SUPPORT FRAME

LEVEL TO RACULAR G.L

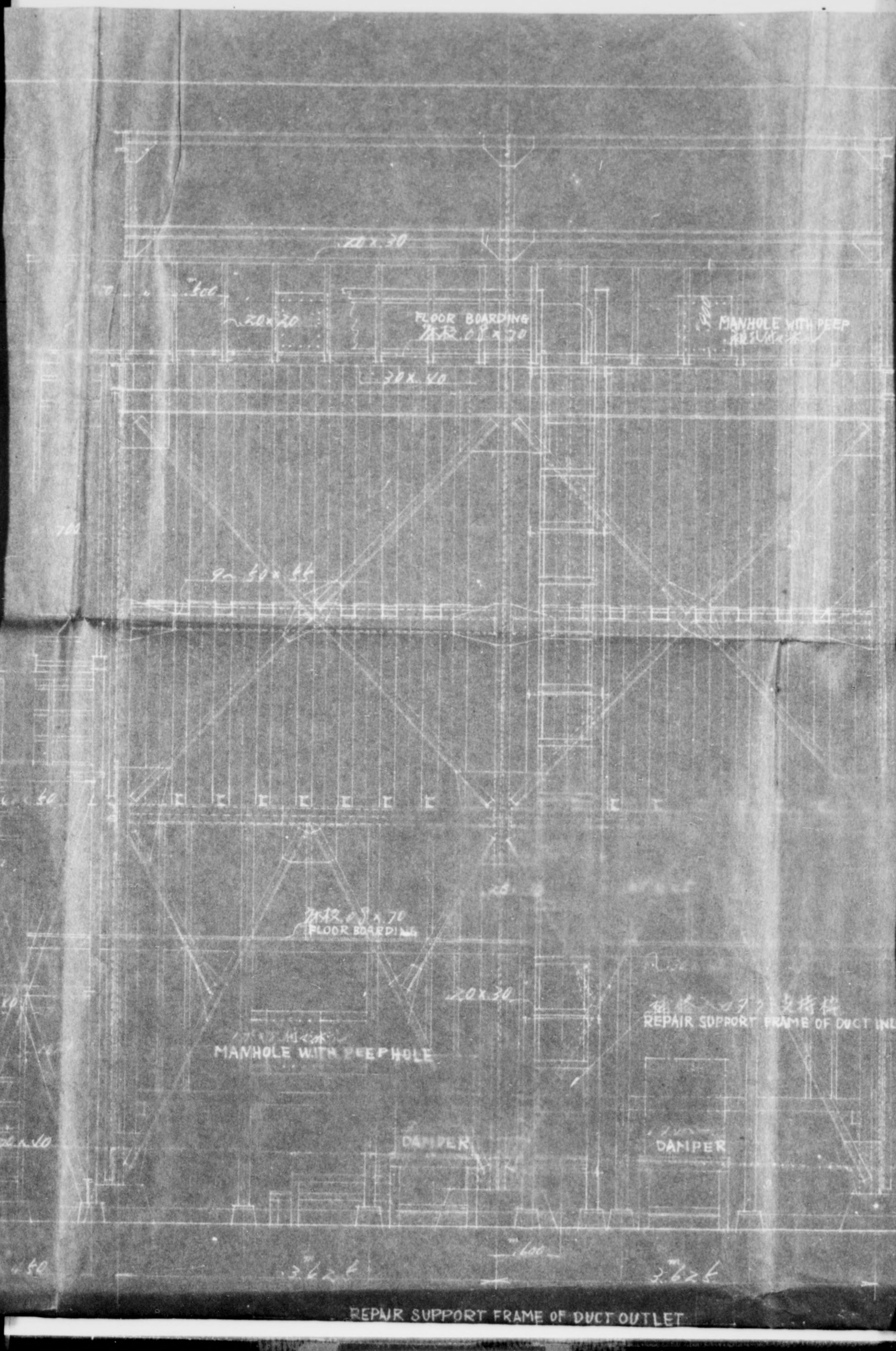
FLOOR BOARDING

MANHOLE WITH PEEPHOLE

DAMPER

REPAIR SUPPO

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO. 775013



DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013

BOARDING

MANHOLE WITH PEEP

補修円筒固定枠
REPAIR COLUM STATIONARY FRAME

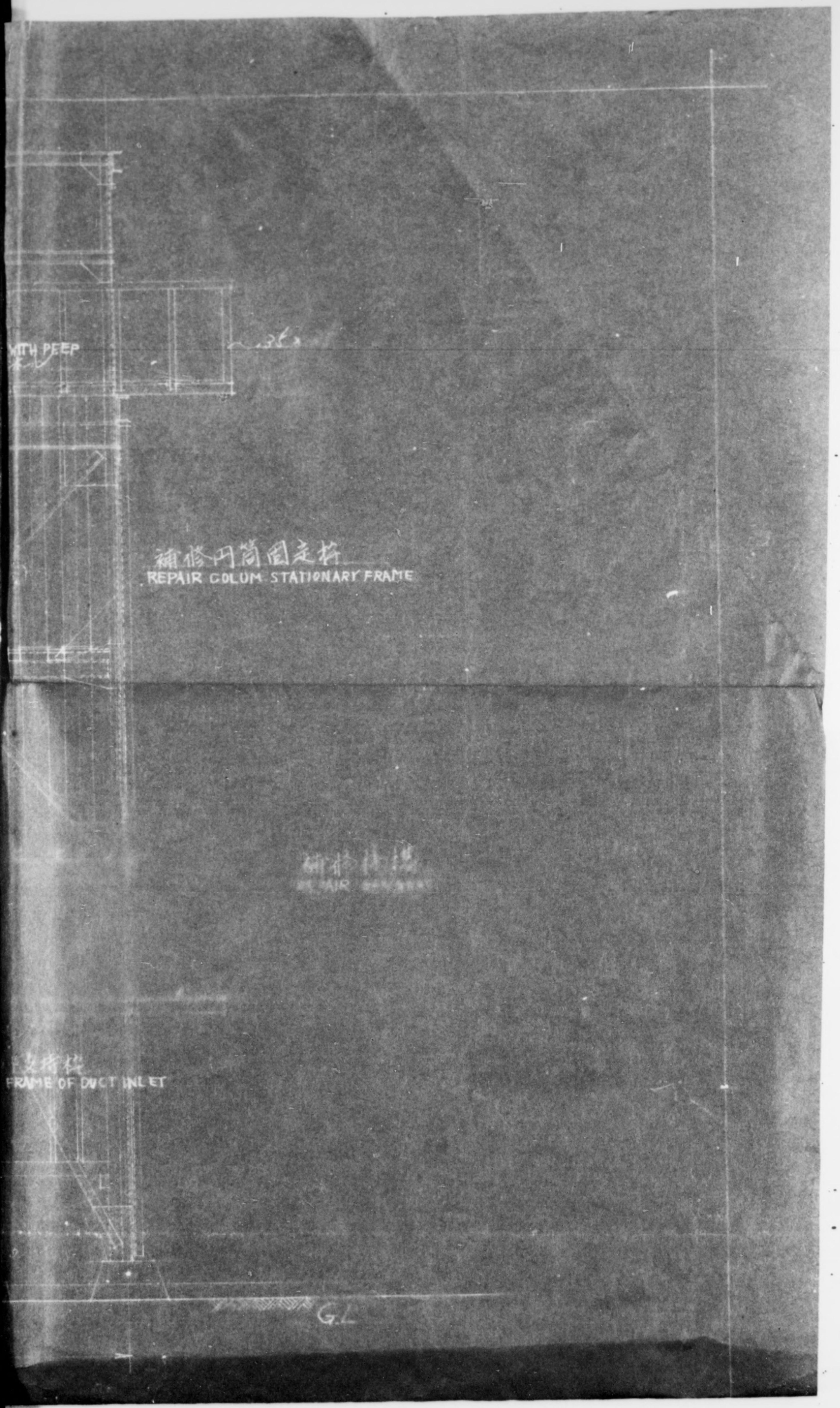
REPAIR SUPPORT FRAME OF DUCT INLET

DAMPER

G.L

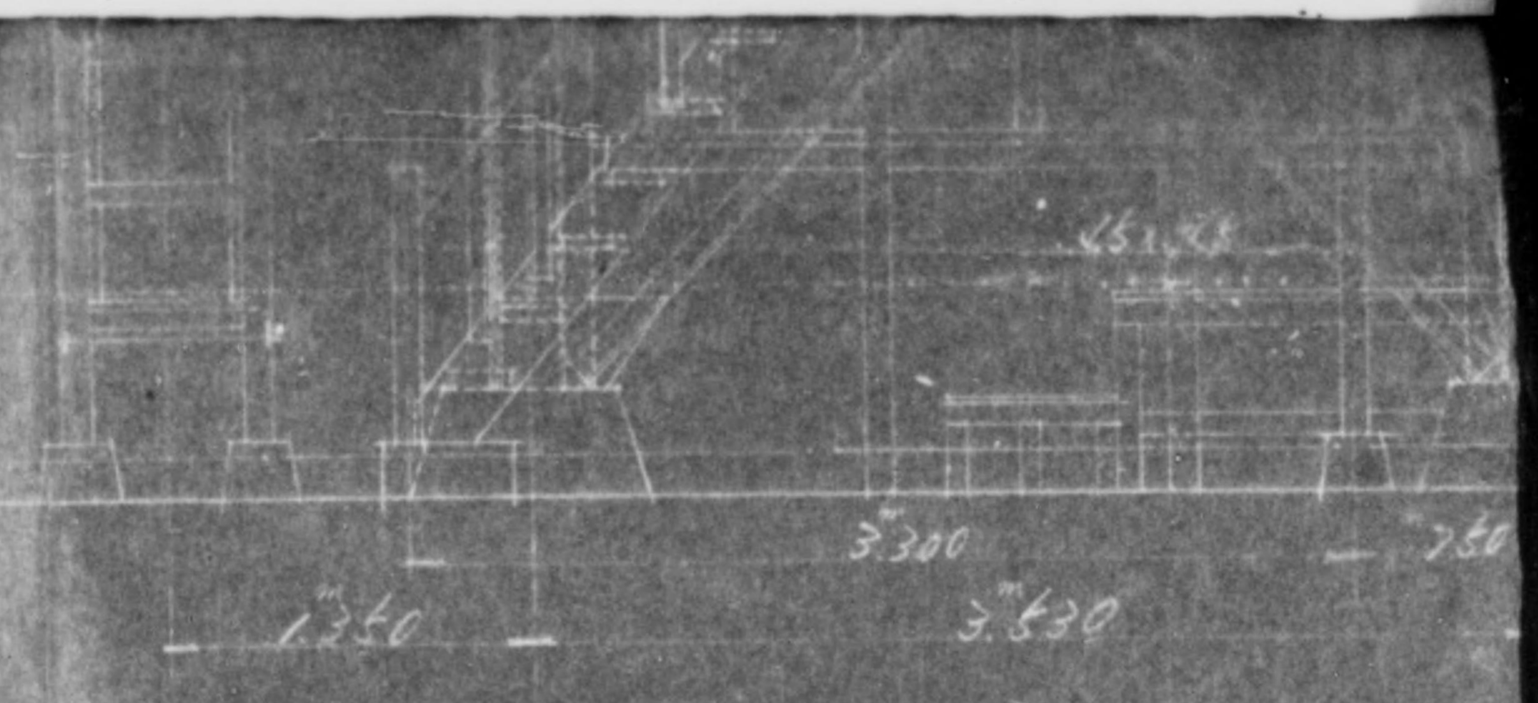
RT FRAME OF DUCT OUTLET

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

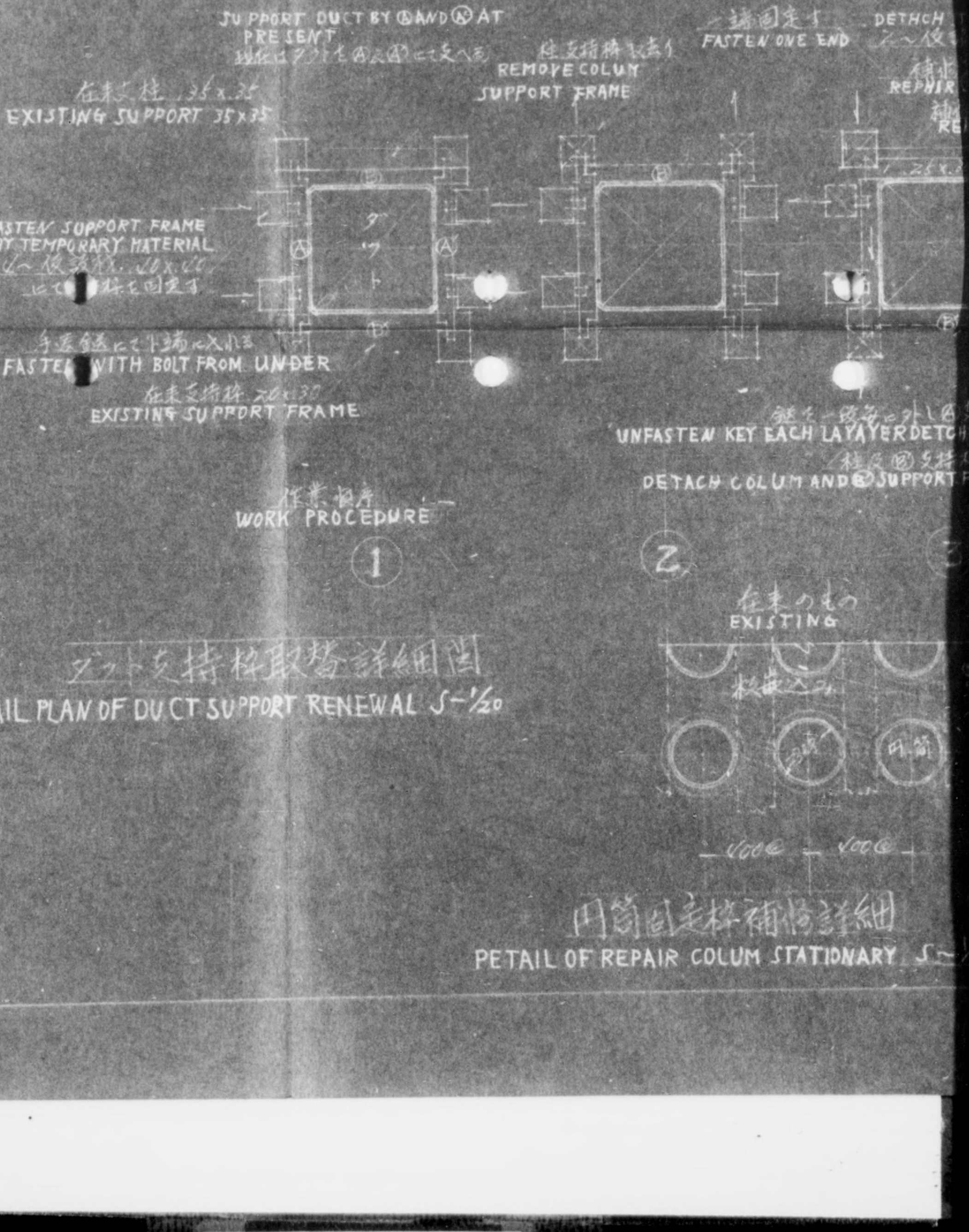


DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013

補修ダクト支持枠
REPAIR SUPPORT FRAME OF DUCT OUTLET



西側面図
WEST SIDE PLAN S=1/20



作業順序
WORK PROCEDURE

1

2

在来のもの
EXISTING

ダクト支持枠取替詳細図
DETAIL PLAN OF DUCT SUPPORT RENEWAL S=1/20

円筒固定枠補修詳細
PETAIL OF REPAIR COLUM STATIONARY S=

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO. 775013

南側面図
SOUTH SIDE PLAN S=1/

ダクト支持基礎コンクリート打ち補修
REPAIR FOUVDATION OF DUCT JUPPORT

LEVEL TO RACULAR G.L

G.L

3"300

3"630

1200

750

250

REPAIR SUPPORT 補修支柱

REPAIR FRAME 補修枠

DETHCH TEMPORARY MHTERIHL 仮設材を外す

FASTEN ONE END 一端固定す

FASTEN 2END 二端固定す

DETACH SUPPORT FRAME EACH LAYER 支柱枠を一段毎に外す

DETACH TEMPORARY MATERIAL 仮設材を外す

REPAIR LADDER 補修階段

階段

FASTEN KEY EACH LAYAYER DETCH SUPPORT FRAME 一段毎に外し支持枠を外す

DETACH COLUM AND SUPPORT FRAME 柱及び支持枠を外す

PUT REPAIR FRAME IN EACH LAYER 補修枠を一段毎に入れる

FASTEA REPAIR SUPPORT BY 16" BOLT 補修支柱ボルトにて締め

PLIT SUPPORT FRAME IN AT EACH LAYER 支柱枠を一段毎に入れる

FASTEN SUPPORT BY BOLT 支柱ボルトにて締める

北

2

3

4

5

在来のもの
EXISTING

補修
REPAIRED

9~50x55 CUT IN

INSERT 9~15x50 FROM SIDE

9~50x65

9~15x50

支持工材
SUPPORT MATERIAL

A-A SIDE V

補修柱詳細
PAIR COLUM STATIONARY S=1/20

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013

南側面図

SOUTH SIDE PLAN S=1/60

DAMPER

REPAIR SUPPORT FRAME OF D

補修ホロダクト支持

REPAIR COLUM SUPPORT FRAME

補修入口ダクト支持枠

REPAIR SUPPORT FRAME O

階段昇口

LADDER ENTRACE

補修階段

REPAIR LADDER

SUPPORT FRAME IN AT EACH LAYER

FASTEN SUPPORT BY BOLT

北

9~15×50 FROM SIDE

A~A SIDE VIEW

A.A 断面図

S=1/60

SUPPORT MATERIAL

ARK 30×60

COMMON BEAM

3,625

7250

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDB NO. 775013

DAMPER

DAMPER

600

3"6x6

3"6x6

REPAIR SUPPORT FRAME OF DUCT OUTLET
補修出口ダクト支持枠

1,900

1,900

REPAIR COLUM SUPPORT FRAME
補修柱支持枠

150x60

9x60x65

1200

FLOOR BOARDING
床板 60x10 通し打ち

補修入口ダクト支持枠
REPAIR SUPPORT FRAME OF DUCT INLET

COMMON BEAM
根太 30x10

600

REPAIR GANGWAY AND HAND RAIL
補修歩廊及手摺

20x30

20x30

3"6x5

3"6x5

7"250

1"050

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

DAMPER

G.L

3"625

TLET

3"430

NO.2 SUIPHEIC ACID PLANT ACID RECOVERY
REPAIR WORK PLAN

FLOOR BOARDING

INLET
REPAIR GANGWAY AND HAND RAIL

20×30

3"625

1"050

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

12 September 1950

Toyo Rayon K.K., Shiga Factory 35-14

Repair of leak on water main to sulfuric acid plant.

1. Subject repair work was surveyed by the writer on 8 Sept. This work was already completed. The superintendent of the acid plant stated that on 14 May water began to well out from the west side of the acid plant. Upon inspection it was found that the joints between the 16" main and the 8" lateral had sprung leak. Approximately 3 cubic meters per second sprouted and flooded the entire acid plant area. It was feared that foundations of the acid equipment were in danger and emergency work was started.

2. Informations gathered at plant indicated that the design of water mains was faulty, that there was no provision made to take care of the forces exerted at a bend and also at point where size of the pipe line was abruptly reduced. Usually at these points pipe lines are jacketed in concrete or clamp to heavy saddles to prevent movement of pipes.

3. Work done on pipe line included repairs of all joints, clamping pipes to concrete saddles, building concrete box around the tee branch and other incidental works. Survey of work was conducted. Quantities reported by plant checked within limitation of standard quantity survey practice. Estimate of cost submitted was checked and found reasonable.

4. This is a part of main water line supplying industrial water throughout the plant. Had this main merely supplied water to the idle acid plant, valves could have been closed to prevent flooding. Hence its maintenance should be borne by the plant.

Morimoto

Incl #2

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

KINKI
OSAKA LIAISON & COORDINATION OFFICE TS/ai

Prefectural Building
OSAKA

30 August 1950

KKLCO No. 514 ER

TO : Chief, Kinki Civil Affairs Region
(ATTN: Commerce & Industry, Economic Section)

SUBJECT: Application for Maintenance Work (Water Pipe)

1. For your consideration.

2. This is checked and endorsed by Shiga Prefectural Government and Osaka Bureau, Ministry of International Trade and Industry.

S. Shima
Director

Incl: Application from Toyo Rayon Co. Ltd., Shiga Factory, Monsanto System Contact Sulphuric Acid Plant, dated 31 July 1950, subject as above.

1-4208
4-19

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

APPLICATION FOR MAINTENANCE WORK

Kind of work Repairing work

Project number : Non Plant number : 35-14 ~~(Former NO. 1A)~~
Plant name : Toyo rayon Co., Ltd., Shiga Factory, Monsanto System Contact Sulphuric Acid Plant.
Plant address : NO. 46 Ishiyama Kitaoji-cho, Otsu, Shiga-ken
Description of work for which funds are requestd :

(1) The lead cock of the 8 inch cast iron pipe(water pipe) is leaking at the 45 degrees bend.
Two joints of lead cock have been also sprung leaks due to water pressure, and to prevent leakage belts were wrapped and reinforced with pipes on both sides over which concrete (1.5 m) was poured.

(2) Water from the leaking main has increased the underground water and during excavation the ground caved in on several occasions creating great difficulties. Sheet pilings and earth embankments were used to prevent further caving.
Moreover we had to use two pumps (16 inches 15 HP & 3 inches 5 HP) alternately to remove the water.

(3) Considering the operation and repairing to be easier for the two (16 inches) reducer valves which are located 4 meters from the leaking part, we built a pit as follows :
Inside measure 2.42 meters(E.W.) X 2.1 meters (N.S.)
X 2.85 meters (depth) X 0.44 meters (thickness).
Depth 2.85 meters, constructed 1.1 meters by concreate
1.75 meters by brick.
Inside walls of the pit water proofing compound was used.
Bottom

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

Justification for request :

Since our Monsanto system sulphuric acid plant of Shiga factory has been designated for reparation under the date of 24 August 1946, we have done our best with great carefulness to manage and take custody of it.

Regardless of all our efforts, around 16 : 00 hours on 14 May 1950 at the north east end of the area underground water stated to well out in a great quantities ($3m^3$/sec.) and the whole area has been flooded. Considering the damage it might cause in case we let it go we were afraid it might weaken the foundation of the buildings and equipments and in consequence the installations were liable to sink and fall or develop cracks, under such circumstance, we have carried out emergency measures and completed the reconstruction.

Under such circumstances, we would appreciate if we could have your approval for this work.

Cost estimate :	Custodian	District Office	Bureau of MITI
Materials cost	¥ 65,355.98	¥ 65355./	¥ 65,355.00
Labor cost	¥ 66,826.00	¥ 53920./	¥ 53,920.00
Transportation cost	¥ 23,880.48	¥ 20790./	¥ 20,790.00
Miscellaneous expenses	¥ 23,409.37	¥ 21010./	¥ 21,010.00
Total	¥ 179,471.83	¥ 161095./	¥ 161,095.00

Estimated by (Custodian) [signature] dated 31. July. 50

Checked by (District Office) [signature] dated 7. Aug. 50

Checked by Bureau of MITI [signature] dated 25. Aug. 50

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

ESTIMATE CALCULATION FOR RECONSTRUCTING SULPHURIC ACID PLANT UNDERGROUND WATER PIPE

A. LaborerCost Estimate

Cost estimate	Occupation	Necessary men	Wages per day	Total	Remarks
¥ 66,826.00	Laborer	185 men	¥ 288.00	¥ 53,280.00	Principal salary only no allowance include.
	Carpenter	4 men	475.00	1,900.00	
	Plumber	4.5 men	419.00	1,885.50	
	Blacksmith	5 men	419.00	2,095.00	
	Concrete-worker	2 men	450.00	900.00	
	Plasterer	6 men	513.00	3,078.00	
	Mechanic	4.5 men	450.00	2,025.00	
	Electrician	3.5 men	475.00	1,662.50	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

a. Laborer

(1)	Dig out the Leaking city water pipe		8 men x 15 days = 120 men
(2)	Install suction pump (15 HP)		2 men x 1 day = 2 men
	Install suction pump (5HP)		2 men x 1 day = 2 men
(3)	Pump operater		2 men x 15 days = 30 men
(4)	Mud frame. Drive pile.	Carpenter's help	2 men x 0.5day = 1 man
	Mud frame. Frame.	Carpenter's help	2 men x 0.5 day = 1 man
(5)	Reinforce cast iron bend pipe & build valve pit	Lay in gravel	1 man x 1 day = 1 man
(6)	Reinforce cast iron bend pipe & build valve pit	Install temporary frame	carpenter's help 1 man x 1 day = 1 man
(7)	Reinforce cast iron bend pipe & build valve pit	Dismantle temporary frame	1 man x 1 day = 1 man
(8)	Reinforce cast iron bend pipe & build valve pit	Pour concrete	10 men x 1 day = 10 men
		Concrete workers help	
(9)	Reinforce cast iron bend pipe & build valve pit	Brick work plaster's help	4 men x 2 days = 8 men
(10)	Reinforce cast iron bend pipe & build valve pit	Put on mortar	2 men x 1 day = 2 men
(11)	Clean up work		6 men x 1 day = 6 men

Total : 185 men

b. Carpenter

(1)	Mud frame. Drive pipe	0.5 man x 1 day = 0.5 man
(2)	Mud frame. Frame maker	0.5 man x 1 day = 0.5 man
(3)	Make temporary frame for valve pit	2 men x 1 day = 2 men
(4)	Put temporary frame together for valve pit	1 man x 1 day = 1 man

Total : 4 men

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

e. Plumber

(1)	Cocking 8" iron pipe	3 men x 1 day = 3 men
(2)	Make 8" socket band	1 man x 1 day = 1 man
(3)	Install 8" socket band	0.5 man x 1 day = 0.5 man
		Total : 4.5 men

d. Blacksmith

(1)	Manufacturing iron cover	2 men x 2 days = 4 men
(2)	Cutting channel	0.5 man x 1 day = 0.5 man
(3)	Fixing channel on iron cover	0.5 man x 1 day = 0.5 man
		Total : 5 men

e. Concrete Worker

(1)	Pour concrete	2 men x 1 day = 2 men

f. Plaster

(1)	Build brick wall of valve pit	2 men x 2 days = 4 men
(2)	Put on mortar	1 man x 2 days = 2 men
		Total : 6 men

g. Mechanic

(1)	Operate & check suction pump	0.3 man x 15 days = 4.5 men

h. Electrician

(1)	Wire power line of suction pump	1 man x 1 day = 1 man
(2)	Install lighting	1 man x 1 day = 1 man
(3)	Operate & check suction pump motor	0.1 man x 15 days = 1.5
		Total : 3.5 men

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

B. Detail of Materials Cost Estimate

Cost estimate	Material	Quantity		Unit Price	Amount	Remarks
	Lead	2.4	kgs.	¥ 75.00	¥ 180.00	✓
	Pine log	12	pcs.	40.00	480.00	Top end dia. 0.25 Shaku x 6 Shaku
	Lumber	6.15	koku	1,500.00	9,225.00	Pine ✓
	Nail	6	kgs.	32.52	195.12	2 inches ✓
	Nail	2	kgs.	25.58	51.16	4 inches ✓
¥ 65,355.98	Sand	1.06	ryutsubo	3,725.00	3,948.50	✓
	Gravel	1.2	ryutsubo	4,550.00	5,220.00	✓ ✓
	Cement	4	tons	4,500.00	18,000.00	✓
	Brick 1½ brick wall.	3,220	pcs.	5.50	17,710.00	✓
	Water glass	73	kgs.	15.00	1,095.00	✓
	Rag	2	kgs.	20.00	40.00	✓
	Steel	0.585	ton	7,000.00	4,095.00	Old material ✓
	Oxgen	2	tanks	303.60	607.20	
	Carbide	1	can	400.00	400.00	22.5 kgs. content
	Electricity	1,174	KWH	3.50	4,109.00	Average unit price of our own & bought electricity

Concrete 1.45 Cubic

a. Lead

(1) To joint 8" cooking — 3 parts x 0.8 kg/part = 2.4 kgs.

b. Pine log

(1) For mud frame — Top end 0.25 shaku x 6 shaku 8 pcs.

(2) To inforce iron pipe — Top end 0.25 shaku x 6 shaku 4 pcs.

Total : 12 pcs.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

c. Lumber (Pine)

(1) For mud frame — Thick 1 su-n x 5 tsubo x 0.4 koku/tsubo = 2 koku

(2) For concrete frame — Thick 0.5 su-n x 8 tsubo x 0.2 koku/tsubo= 1.6 koku

(3) For concrete frame — 30 pcs x 0.15 shaku x 0.15 shaku x 13.2 shaku = 0.891 koku

(4) For concrete frame — 10 pcs x 0.35 shaku x 0.35 shaku x 13.2 shaku = 1.617 koku

Total : 6.108 koku

∴ 6.15 koku

d. Nail

(1) For concrete frame — 2" = 6 kgs.

(2) For concrete frame — 4" = 3 kgs.

e. Sand

(1) For bottom concrete of pit — 6.44 m^3 x 0.45 m^3 = 2.898 $m^3/6m^3$ = 0.483 ryutsubo

(2) For brick lay of pit — 3,200 pcs. x 0.5 m^3 x 1.01 = 1,616/$6m^3$ = 0.269 ryutsubo

(3) To plaster mortar inpit — 37.59 m^2 x 0.03 x 1.01 = 0.190 ryutsubo

(4) For iron pipe reinforcement — 1.5 m^3 x 0.46 = 0.69 $m^3/6m^3$ = 0.115 ryutsubo

Total : 1.057 ryutsubo

∴ 1.06 ryutsubo

f. Gravel

(1) For bottom concrete of pit — 6.44 m^3 x 0.9 m^3 = 5.796 $m^3/6m^3$ = 0.966 ryutsubo

(2) For iron pipe reinforcement — 1.5 m^3 x 0.92 m^3 = 1.38 $m^3/6$ m^3 = 0.230 ryutsubo

Total : 1.196 ryutsubo

∴ 1.2 ryutsubo

g. Cement

(1) For bottom concrete of pit 1:2:4 — 6.44 m^3 x 6.76 bags = 43.534 bags

(2) For brick lay of pit 1:3 — 1.62 m^3 x 10.66 bags = 17.269 bags

(3) To plaster mortar in pit 1:3 — 1.14 m^3 x 10.66 bags = 12.152 bags

(4) For iron pipe reinforcement 1:3:6 — 1.5 m^3 x 4.60 bags = 6.900 bags

Total : 79.855 bags

79.855 bags x 50 kgs/bag = 3,992.75 kgs.

∴ 4 tons

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

h. Brick

(1) For pit 1.5 layer 16.05 m^2 x 195 pcs/m^2 = 3,125.85 pcs.

(1) For suction pump 190 x 21 = 3990 bricks

5% loss 93.78 pcs.

Total: 3,219.63 pcs.

i. Water glass

(1) For bottom concrete of pit	Cement	45.534 bags
(2) To plaster mortar in pit	Cement	4.882 bags
	Total:	48.416 bags

48.416 bag x 50 kg/bag = 2,420.8 kgs.

3% has to be mixed in cement 2,420.8 kgs x 0.03 = 72.624 kgs.
∴ 73 kgs.

j. Rag

(1) To clean & wash 8" iron pipe 2 kgs.

k. Steel (Used)

(1) For foothold (bar)	∅ 19 m/m x 5.3 m x 2.47 kgs/m = 13.091 kgs.
(2) For pit cover (sheet)	Thick 9 m/m x 1 m x 2 m x 3.5 sh. x 141.3 kgs/sh. = 494.55 kgs.
(3) For pit cover brace (channel)	65 m/m x 125 m/m x 2.4 m x 2 pcs. x 13.4 kgs/m = 64.32 kgs.
(4) For 8" pipe band (angle)	50 m/m x 35 m/m x 0.4 m x 8 pcs. x 2.58 kgs/m = 8.256 kgs.
(5) For bolt of band (bar)	∅ 12 m/m x 0.15 leng m/m x 12 pcs. x 0.89 kg/m = 1.602 kg.
(6) For nuts	12 ea. x 2 parts x 0.072 kg/ea. = 1.728 kg.
Total :	583.547 kgs.
	∴ 0.585 ton

1 kg = 2.2 lbs
1200 lbs ÷ 2.2 = 540 kg

l. Oxygen

(1) To remodel & cut steel 0.01392 l. need to cut 1 kg of steel
0.01392 l. x 583.547 kgs = 81.2 l.
1 tank content 40.6 l. 2 tanks

m. Carbide

(1) To remodel & cut steel
Need ½ can (22.5 kgs) for 1 tank of oxygen
2 tanks x ½ can/tank = 1 can

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

n. Electricity

(1) For suction pump

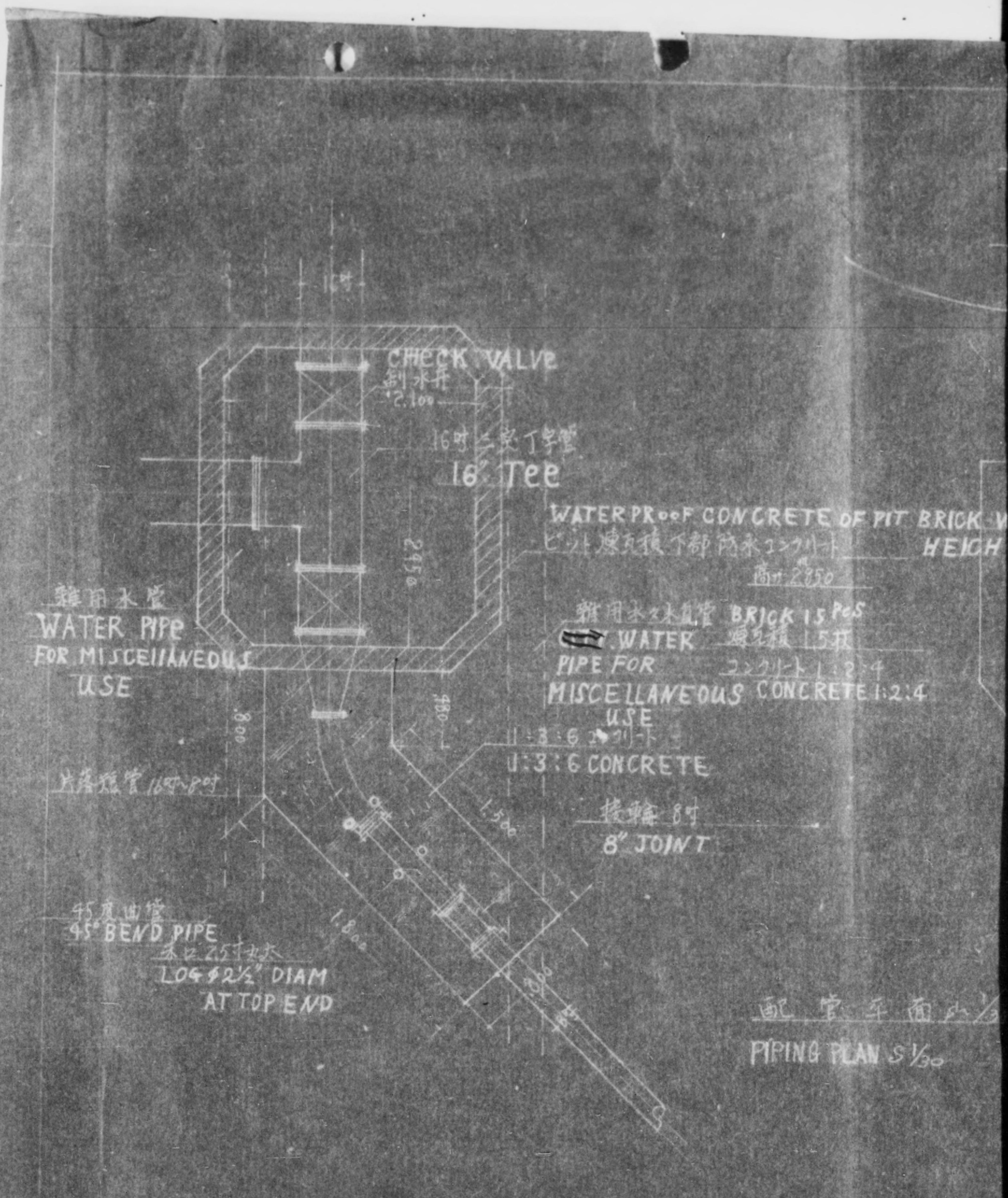
15 HP pump 1 set 8 hrs x 10 days x 12 KW = 960 KWH

5 HP pump 1 set 8 hrs x 5 days x 4 KW = 160 KWH

(2) For lighting 100 W 3 ea. x 12 hrs x 15 days x 0.1 KW = 54 KWH

Total : 1,174 KWH

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013



DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

ER PROOF CONCRETE OF PIT BRICK WALL
煉瓦積下部防水コンクリート HEIGHT 2.850
高サ 2850

使用水々水量 BRICK 15 PcS
T. WATER 煉瓦積 15枚
E FOR コンクリート 1:2:4
CELLANEOUS CONCRETE 1:2:4
USE
コンクリート
CONCRETE

接合 8吋
8" JOINT

配管平面図 1/30
PIPING PLAN S 1/30

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

EXISTING 16" WATER PIPE

REPAIR PART

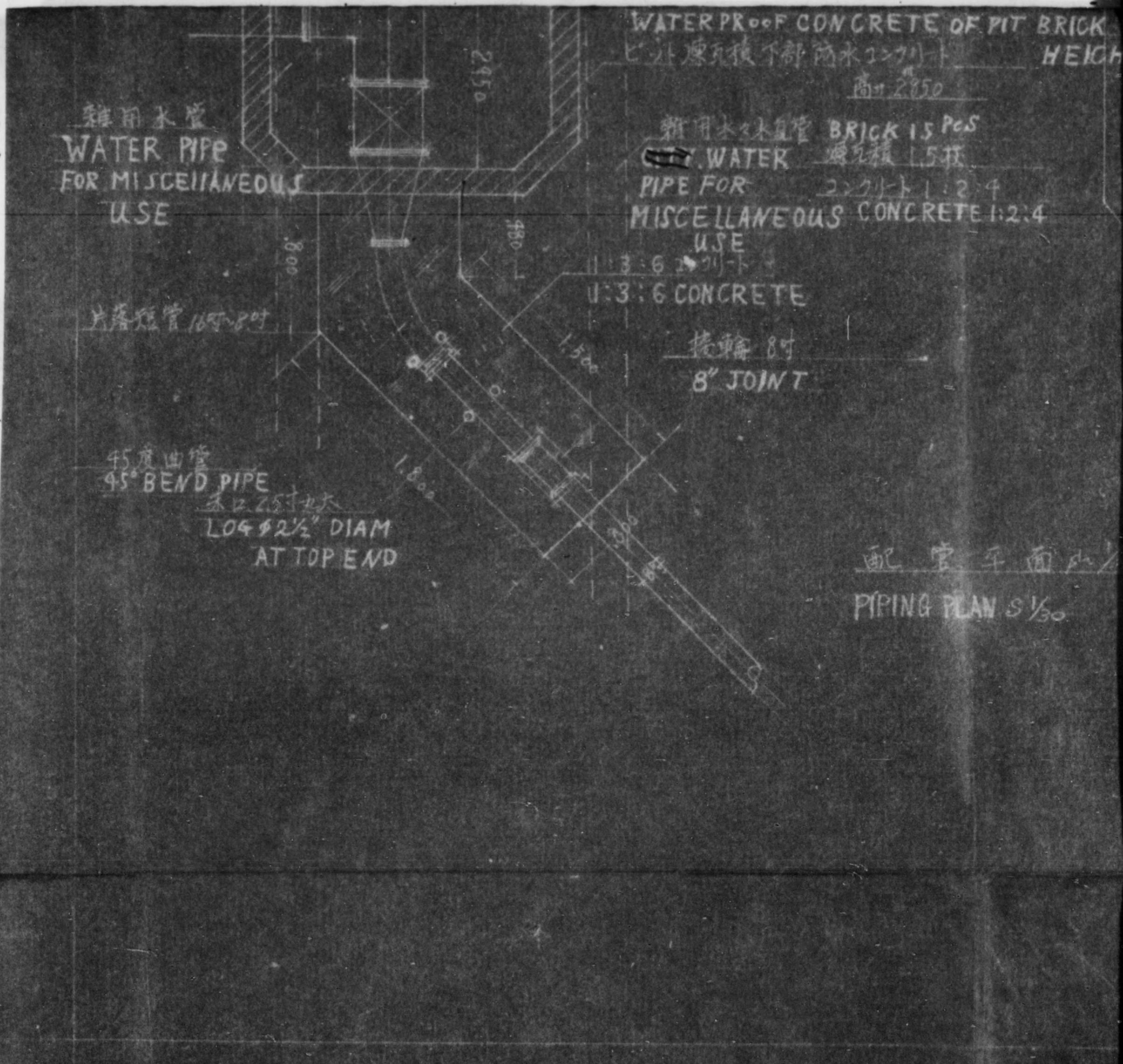
EXISTING WATER 8" PIPE

WATER PIPE FOR MISCELLANEOUS USE

STATION PLAN S~1/500

NO.2 SULPHRIC ACID PLANT RECONSTUCTION WORK OF UNDER-

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013



DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

PIT BRICK WALL
HEIGHT 2.850

WATER PI
FOR MISCELLA
USE

NO2 SULPHRIC ACI

RECONSTUCTION WORI
CROUND WATER

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

雜用水管
WATER PIPE
FOR MISCELLANEOUS
USE

配置図 S=1/300
STATION PLAN S=1/300

NO.2 SULPHRIC ACID PLANT
RECONSTUCTION WORK OF UNDER-
GROUND WATER

第二硫酸工場
地下湧水復旧工事
配置、平面、

S 1/300 1/30