

91-A

C O P Y

AGREEMENT, made this 15th day of May, 1917,  
by and between ARTHUR S. BENT and H. STANLEY  
BENT, doing business as a co-partnership under  
the firm name of BENT BROTHERS, hereinafter  
called the Contractor, First party, and the  
SAN DIEGUITO MUTUAL WATER COMPANY, a California  
corporation, hereinafter called the Water Company,  
Second party.

IN CONSIDERATION of the covenants on the part of  
the Water Company herein set forth and of the faithful keep-  
ing of them by it, the Contractor agrees:

1. To do all the work necessary to construct,  
erect and install the dam or dams, water conduits and appur-  
tenances specifically enumerated in the list hereto attached,  
marked Exhibit A, hereby referred to and made a part hereof.
2. To do said work and construct, erect and in-  
stall said dam or dams, water conduits and appurtenances in  
strict conformity with the plans identified by the signa-  
tures thereon of H. Stanley Bent and E. O. Faulkner, and  
specifications hereto attached marked Exhibit B, both hereby  
referred to and made a part hereof, under the direction and  
to the satisfaction of the Water Company or its representa-  
tives.
3. To commence said work within ten (10) days  
after the execution and delivery of this agreement and to

IN CONSIDERATION OF THE AGREEMENT ON THE PART OF

SECOND PARTY

COLLECTOR, HEREINAFTER CALLED THE FIRST PARTY,  
BY THE DEPARTMENT OF THE INTERIOR, IN CONNECTION  
WITH THE CONSTRUCTION OF THE DAM, AND THE  
THE TITLE HERE OF THE BUSINESS, HEREINAFTER  
THEY TO BE DONE AS A CO-OPERATIVE UNDER  
AND TO BE DONE UNDER THE NAME OF THE WATER  
COMPANY, HEREINAFTER CALLED THE WATER

C O N T

complete the same as aforesaid on or before January 1, 1918,  
so far as it relates to the Carroll Dam; and on or before  
March 1, 1918, so far as it relates to the remainder of said  
structures; and failure to complete said work and structures  
within said times, due to the fault of the Contractor, will  
subject the said Contractor to the penalty of paying to the  
Water Company \$100.00 per day for each of the first fifteen  
days of such delay, \$150.00 per day for each of the second  
fifteen days of such delay, and \$200.00 per day thereafter  
until the completion of said work and structures.

4. To furnish at the Contractor's own expense  
all teams, tools, superintendence, labor, machinery, equip-  
ment, materials and transportation necessary to do said work  
and to erect and install said structures except the mater-  
ials and transportation which in the specifications, Exhibit  
B, it is stated that the Water Company is to furnish.

5. That should any delay in the doing of said  
work be occasioned by failure on the part of the Water Com-  
pany to furnish material, the Water Company shall not be  
liable to the Contractor in damages on account thereof, ex-  
cept to the extent of any actual extra expense, to be det-  
ermined by the Company's representative, and such extension  
of time shall be granted to the Contractor for the comple-  
tion of said work as will be equivalent to the time consumed  
by such delay.

thirteen days of work... and \$200.00 per day...  
days of work... \$200.00 per day...  
after... \$200.00 per day...  
purpose of the said contract to the benefit of...  
within said times... due to the fault of the contractor...  
expenses... and... to complete said work and...  
... as it relates to the... of said...  
... as it relates to the... of...  
complete the same as... on or before... J. J. J.

6. That the Contractor shall not let or transfer this contract or any part thereof (except for the delivery of materials) without the consent in writing of the Water Company; but such consent will not release or relieve the Contractor from any obligations and liabilities under this contract.

7. To promptly pay all sub-contractors, materialmen, laborers, and other employes engaged in said work as often as payments are made to the Contractor by the Water Company; and to deliver said structures free from any claims or liens on account of such labor, materials, materialmen, or sub-contractors; and in event of the failure of the Contractor at any time to pay such claims, the Water Company may retain from all subsequent payments due the Contractor sufficient money to pay such claims and may itself pay and discharge the same.

8. To take out, before beginning the work hereunder, and thereafter to maintain the same in full force and effect at all times during the doing of said work, a policy of compensation insurance issued by a responsible insurance company, covering full liability for compensation to any person, including his dependents, injured in the progress of said work or in connection therewith, and the Water Company shall be held free and clear from any responsibility or liability to pay for any such injuries; and the Contractor shall

Contractor: and to deliver any and all notices here from and claims  
often as hereinafter set forth to the Contractor by the Water  
Company, hereinafter and other employees engaged in such work as

8. To indemnify and hold the Water Company, hereinafter  
Contractor.

Contractor from and all obligations and liabilities under this  
Contract: and any contract with or release or release the  
of hereinafter) without the consent in writing of the Water  
Company or any other person (except for the hereinafter

9. That the Contractor shall not let or transfer

before commencing work, furnish to the Water Company a cer-  
tificate of the insurance company to the effect that said  
insurance company has issued an unlimited compensation pol-  
icy covering the entire liability of said Contractor under  
the law of California, commonly known as the "Workmen's Com-  
pensation, Insurance and Safety Act", and that said insurance  
company will not cancel the said policy without notifying the  
Water Company in writing of its intention so to do at least  
five days prior to such cancellation.

9. That no claim for extra work shall be made by  
the Contractor or be paid or allowed by the Water Company un-  
less such work shall have been authorized in writing by the  
Water Company or its duly accredited or authorized represen-  
tative (which writing shall fix the rate of compensation  
therefor); and all claims for extra work must be presented  
to the Water Company or its duly authorized representative  
for allowance at the close of the calendar month in which the  
work was done, otherwise all claims therefor shall be deemed  
waived by the Contractor.

10. That before final payment is made to the Con-  
tractor by the Water Company, the Contractor shall furnish  
evidence satisfactory to the Water Company or its duly author-  
ized representative that all pay rolls, material bills, and  
outstanding indebtedness of the Contractor in connection with  
said work have been paid.

THESE TERMS BEING TO BE OBSERVED BY THE CONTRACTOR.

WHEREAS THE CONTRACTOR IN ACCEPTING OF THE CONTRACTION SO TO DO UP THE WORK  
CONTRACTED WITH THE WATER COMPANY THE CONTRACTOR KNOWS FULLY WELL THAT THE  
BENEFIT OF THE CONTRACTION AND THE WORK THEREON IS TO BE FOR THE BENEFIT OF THE  
CITY OF WASHINGTON, COMMONLY KNOWN AS THE "NATIONAL CITY", AND THAT THE CONTRACTOR  
IS TO BE RESPONSIBLE FOR THE ENTIRE LIABILITY OF THE CONTRACTOR UNDER  
THE CONTRACTION AND THAT THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE ENTIRE  
LIABILITY OF THE CONTRACTION TO THE EFFECT THAT THE CONTRACTOR IS TO BE  
RESPONSIBLE FOR THE ENTIRE LIABILITY OF THE CONTRACTOR TO THE WATER COMPANY & CON-

11. To furnish and deliver to the Water Company at the time of the execution and delivery of this agreement, a good and sufficient bond of indemnity to the amount of one hundred and twenty five thousand dollars (\$125,000.00), as security for the faithful performance by the Contractor of all covenants and agreements herein contained on the part of the Contractor.

IN CONSIDERATION of the covenants herein on the part of the Contractor and of the faithful keeping of them, the Water Company agrees:

1. To pay to the Contractor as and for full compensation for all things done by the Contractor in constructing, erecting and installing the structures hereinbefore mentioned, in accordance with the schedule of prices for said work hereto attached marked Exhibit D, hereby referred to and made a part hereof, at the times and in the manner herein specified.

2. That at the end of each calendar month during the time the work of erecting, constructing and installing said structures shall be in progress, the Water Company or its duly authorized representative, shall make approximate estimates of the amount of work done by the Contractor under this contract and of the value thereof according to said schedule (Exhibit D); and on or before the 10th day of the next ensuing calendar month the Water Company will pay to

best of the Contractor and of the faithful keeping of them.

IN CONSIDERATION of the covenants herein on the part of the Contractor.

ALL covenants and agreements herein contained on the part of the Contractor for the faithful performance by the Contractor of the work and service hereinafter provided for in the sum of one thousand and no hundred and no dollars (\$1000.00) as a good and sufficient bond of indemnity to the amount of one at the time of the execution and delivery of this agreement.

IT IS HEREBY AGREED AND DELIVERED to the Water Company

the Contractor 85% of such estimate and retain the remaining 15% thereof until the completion of said work and structures in accordance with the terms of this agreement.

3. That when the work of installing, erecting and constructing said structures has been completed as aforesaid, and the duly authorized engineer of the Water Company has certified to the same in writing, and the Contractor has submitted satisfactory evidence to the Water Company that all payrolls, material bills and other outstanding indebtedness of the Contractor incurred in connection with the doing of said work have been paid, and no liens therefor are outstanding, the Water Company will pay to the Contractor the balance of the money due for the work of erecting, constructing and installing said structures under the terms of this agreement; said final payment to be made within thirty five (35) days after such completion, certification and showing of the non-existence of liens.

FOR THE CONSIDERATIONS stated, it is mutually agreed:

1. That the Contractor shall not be liable for delays or disasters caused by conditions of war, public enemies, acts of God, strikes, or any other causes over which the Contractor has no control.

2. That if at any time during the progress of said work the Contractor shall neglect to remedy any imperfections, therein, requested in writing by the Water Company, or its duly authorized representative, or if from causes not here-

By reason of the fact that the work of installing the water mains and other underground pipes and conduits for the water company has been completed and the work of installing the water mains and other underground pipes and conduits for the water company has been completed and the work of installing the water mains and other underground pipes and conduits for the water company has been completed.

3. That when the work of installing, erecting and in accordance with the terms of this agreement.

It is the intent of the parties to the completion of this work and the contractor shall be held liable for the completion of this work and the contractor shall be held liable for the completion of this work and the contractor shall be held liable for the completion of this work.

inbefore excepted it shall appear that said work will not be completed within the time above specified, or if <sup>in</sup> any other manner the covenants herein on the part of the Contractor are being violated, then the Water Company shall have the right to elect either (a) to declare this contract at an end and pay the Contractor the balance due for work then done under the terms hereof, in accordance with said schedule (Exhibit D), or (b) to employ such force and means as in the judgment of the Water Company or its duly authorized representative shall be necessary to complete said work within the times above stated, at the expense of the Contractor, using for that purpose the men, teams, machinery, material and plant provided by the Contractor for that purpose, as well as such additions thereto as may be deemed necessary (but in such event the Contractor shall be allowed by the Water Company the contract price therefor); or (c) to allow the Contractor to proceed with said work and collect the penalties for delay above mentioned.

3. This agreement shall apply, bind and inure to the benefit of the heirs, personal representatives, successors and assigns, as the case may be, of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement the day and year first above written.

(Signed) Bent Brothers  
By H. Stanley Bent  
SAN DIEGUITO MUTUAL WATER COMPANY  
By Ed Fletcher  
Its president

Attest: E. O. Faulkner  
Its secretary

(SEAL)

EXHIBIT "D"

To be attached to contract dated May, 1917, by  
and between Bent Brothers and the San Dieguito Mutual Water  
Company, for the building of the Carroll Dam, and Carroll  
Conduit in San Diego County.

The schedule of prices for said work is agreed to  
be as follows:

FOR CARROLL DAM, MULTIPLE ARCH TYPE

Excavation - Earth	\$0.40	cents per cubic yard.
" - Loose Rock	\$1.00	" " "
" - Solid Rock	\$3.00	" " "
Plain Concrete 1:2½:5	\$7.36	" " "
Reinforced Concrete 1:2:4	\$11.27	" " "

CARROLL CONDUIT

Excavation - Earth	\$0.40	cents per cubic yard
" - Loose Rock	\$1.00	" " "
" - Solid Rock	\$2.00	" " "
Steel Flume, Concrete Trestle	\$5.75	per lin. ft.
Reinforced Concrete flume includ- ing supports	\$6.00	" " "
42" Reinforced Concrete pipe	\$5.00	" " "
Concrete Lining 1:2:4-maximum size ¾" open conduit 3" thick	\$13.50	per cubic yard
Cement Plaster 1:3-not to exceed 1" in thickness	\$ 0.30	cents per square yard
Reinforced Concrete 1:2:4 with not over 1% steel	\$22.50	per cubic yard

If road is built adjacent to canal before Sept. 1, 1917  
our price for open conduit will be \$12.50 per cu.yd.



NOTICE TO CONTRACTORS

Sealed bids for the construction of the Carroll Dam, San Dieguito Dam and Carroll Conduit will be received by the San Dieguito Mutual Water Company, at the Office of its President, 920 Eighth St., San Diego, California, until 10 o'clock A.M., April 24, 1917.

Each bid must be accompanied by a certified check in the sum of Five Thousand (\$5,000.00) Dollars, payable to the San Dieguito Mutual Water Company. The check of each bidder to be retained until final award of the Contract and the execution and delivery of the latter. Failure of the bidder whose bid is accepted to execute and deliver construction contract within four days after notice of the acceptance of bid will entitle the Water Company to retain the check as liquidated damages for such failure.

A bond in the sum of fifty percent of the estimated cost will be required for the faithful performance of the contract, such bond to be satisfactory to the officers of the Company.

The work is to be commenced within 10 days of the signing of the contract, and continue with diligence until its completion. Carroll Dam is to be completed by January 1, 1918; San Dieguito Dam and Carroll Conduit is to be completed by March 1, 1918.

Monthly Estimates will be made of amount of work, and contractor will be paid 75% of said estimate on the 10th of month following that in which the work is done. Balance will be paid 35 days after final acceptance of the work.

Bids must be made upon blanks to be furnished by the Company. Bidders will state unit prices for each item of the work, by which the bids will be compared. These unit prices shall include the cost of setting gates and iron work furnished by the Company.

The bids to be compared on the basis of the Engineer's estimate of quantities which is as follows:

Carroll Dam - 3 Alternatives

A. Multiple Arch Type - Specification No. 2.

Excavation - Earth	-----	300 cu.yds.
Loose Rock	-----	300 cu.yds.
Solid Rock	-----	400 cu.yds.
Plain Concrete 1:2 $\frac{1}{2}$ :5 in cutoff trench and buttresses	-----	10,700 cu.yds.
Reinforced Concrete 1:2:4, in arches, Rollerway, deck and struts, containing 190 tons of reinforcing steel	-----	5,400 cu.yds.

B. Single Arch Type - Specifications No. 3.

Excavation - Earth	-----	500 cu.yds.
" - Loose Rock	-----	500 cu.yds.
" - Solid Rock	-----	400 cu.yds.
Plain Cyclopean concrete 1:2 $\frac{1}{2}$ :5 with 20% Rock Plums including the furnishing and placing of 20 tons of old steel rails and furnishing and placing 1 ton of steel reinforcement in the coping	-----	30,000 cu.yds.
Building 8 contraction joints including grout pipes	- lump sum.	
Reinforced Concrete 1:2:4 in outlet tower including 3 $\frac{1}{2}$ tons of steel re- inforcement	-----	180 cu.yds.

EXCAVATION - SOFT ROCK - - - - - 700 cu.yds.  
 " - LOOSE ROCK - - - - - 800 cu.yds.  
 " - SOLID ROCK - - - - - 800 cu.yds.

B. REINFORCED CONCRETE - SPECIFICATION NO. 5.

REINFORCED CONCRETE 1:2:4 - - - - - 2,000 cu.yds.  
 REINFORCED CONCRETE 1:2:4 IN SPILLWAY  
 AND PARAPET - - - - - TO ADD QUANTITY  
 EXCAVATION - SOFT ROCK - - - - - 700 cu.yds.  
 " - LOOSE ROCK - - - - - 800 cu.yds.  
 " - SOLID ROCK - - - - - 800 cu.yds.

V. ROCK FILL TYPE - SPECIFICATION NO. 4.

REQUIREMENTS

CONCRETE OF SPECIFICATION NO. 5 TO BE USED:  
 AND THIS IS TO BE COMPLETED ON THE BASIS OF THE QUANTITIES

C. Rock Fill Type - Specification No. 4.

Excavation - Earth	- - - - -	500 cu.yds
" - Loose Rock	- - - - -	500 cu.yds
" - Solid Rock	- - - - -	500 cu.yds
Plain Concrete 1:2:4 - Cutoff wall	- - - - -	700 cu.yds
Plain Concrete 1:2½:5 in outlet channels	- - - - -	1,550 cu.yds
Reinforced Concrete 1:2:4 in outlet towers	- - - - -	1,200 cu.yds
Plain Concrete 1:2½:5 in spillway crest	- - - - -	125 cu.yds
Rubble Masonry	- - - - -	4,500 cu.yds
Plain Concrete 1:2½:5 in parapet and pavement	- - - - -	500 cu.yds
Rockfill	- - - - -	175,500 cu.yds

БОЖИТИ	- - - - -	1200 куб. футов
БЕТОН СООЛОГО ТИПА В ТИ ДИШЕР ИЛИ ДИШЕРИ	- - - - -	800 куб. футов
КАРТО ПИЛОМА	- - - - -	400 куб. футов
БЕТОН СООЛОГО ТИПА В ТИ БИТИМА СЛОД	- - - - -	100 куб. футов
БОЖИТИ СООЛОГО ТИПА В ТИ СЕРТО ДИШЕР	- - - - -	1000 куб. футов
БЕТОН СООЛОГО ТИПА В ТИ СЕРТО СРЕМНОГО	- - - - -	1000 куб. футов
БЕТОН СООЛОГО ТИПА В ТИ СЕРТО СЕРТО	- - - - -	400 куб. футов
"	- БОЖИТИ СЕРТО	200 куб. футов
"	- СЕРТО СЕРТО	200 куб. футов
ДИШЕРИ	- БОЖИТИ	200 куб. футов

а. БОЖИТИ СЕРТО - ДИШЕРИ СЕРТО НО. 2.

### San Dieguito Dam - 2 Alternatives

#### D. Multiple Arch - Plans No. 2-A

Specifications - Same as No. 2.

Excavation - Earth	- - - - -	1,000 cu.yds.
"	- Loose Rock	400 cu.yds.
"	- Solid Rock	400 cu.yds.
Plain Concrete 1:2½:5 in buttresses	- - - - -	1,000 cu.yds.
Reinforced Concrete 1:2:4 in Arches, etc., including 28 tons of Reinforcement	- - - - -	1,100 cu.yds.

#### E. Multiple Arch - Specifications No. 3-A

Excavation - Earth	- - - - -	1,000 cu.yd.
"	- Loose Rock	400 cu.yd.
"	- Solid Rock	400 cu.yd.
Reinforced Concrete 1:2½:5 in buttresses	- - - - -	1,000 cu.yd.
Reinforced Concrete 1:2:4 in Arches and struts	- - - - -	1,800 cu.yd.

(The unit prices of both of the above classes of concrete to include furnishing and placing 48 tons of Reinforcing Steel )

Plastering of upstream face of dam using a cement gun - lump sum.

"	- Loose Rock	- - - - -	500 cu.yd.
EXCAVATION	- Earth	- - - - -	700 cu.yd.
			1,000 cu.yd.

N. REINFORCED CONCRETE - SPECIFICATION NO. 5

REINFORCED CONCRETE	- 12" x 12" IN SQUARE	- - - - -	1,700 cu.yd.
REINFORCED CONCRETE	- 12" x 12" IN SQUARE	- - - - -	1,000 cu.yd.
"	- 12" x 12" IN SQUARE	- - - - -	700 cu.yd.
EXCAVATION	- Earth	- - - - -	700 cu.yd.
			1,000 cu.yd.

REINFORCED CONCRETE - SPECIFICATION NO. 5

D. REINFORCED CONCRETE - SPECIFICATION NO. 5

REINFORCED CONCRETE - SPECIFICATION NO. 5

**F. Carroll Conduit - Specification No. 5**

Total Length 24,700 ft.

Excavation - Earth	- - - - -	5,100 cu.yd.
" - Loose Rock	- - - - -	5,100 cu.yd.
" - Solid Rock	- - - - -	6,700 cu.yd.
Steel Flume - No. 18 Gage - including concrete supporting structure (requiring 130 cu.yds. Reinforced concrete)	- - - - -	1,450 lin.ft.
Reinforced Concrete Flume (Total 60 cu.yds.)	- - - - -	313 lin.ft.
42 Inch Reinforced Concrete Pipe	- - - - -	1,890 lin.ft.
Lining open conduit (Total 975 cu.yds.)	- - - - -	9,000 lin.ft.
Lining Conduit - including cover - (Total 650 cu.yds.)	- - - - -	3,520 lin.ft.
Lining Deep Conduit (Total 1,950 cu.yds.)	- - - - -	8,515 lin.ft.

On account of the character of the work to be done, quantities given above can not be estimated with accuracy; therefore, all bidders are required to submit their bids upon the following expressed conditions, viz: that they have satisfied themselves by personal examination of the location of the proposed work; and by such other means as they may elect as to the degree of accuracy of the foregoing estimates.

The Company reserves the right to increase or diminish the amount of the different classes of work as may be deemed necessary by its Engineer, to reject any or all bids; or to accept any bid should it be deemed to the interest of the Company so to do.

ON ACCOUNT OF THE QUANTITY OF WORK TO BE DONE

REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE - TYPICAL COLOR (ESTIMATED QUANTITY) - - - - -	2'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	4'000 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
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REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
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REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
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REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>
REINFORCING CONCRETE (ESTIMATED QUANTITY) - - - - -	1'250 YDS. <sup>3</sup>

TOTAL QUANTITY OF WORK TO BE DONE - - - - -

Cement will be furnished by the Company to the Contractor under the conditions provided in Paragraph 17 of the General Specifications.

The penalty for failure to complete Carroll Dam by January 1, 1918, will be One Hundred Dollars per day for the first fifteen days, One Hundred Fifty Dollars per day for the next fifteen days, and Two Hundred Dollars per day thereafter until the work is completed.

Penalty in like amounts will follow failure to complete San Dieguito Dam and/or Carroll Conduit, by March 1, 1918.

Upon notice to the Engineer (W. S. Post, 924 Eighth Street, San Diego, California, Telephone Pacific Main 2746) a representative will be available to conduct prospective bidders offer the work. The points of access are San Diego and Escondido, thence by automobile to the site.

SAN DIEGUITO MUTUAL WATER COMPANY,  
By Ed Fletcher  
President  
WSP

San Diego, California  
April 10, 1917.

80-A

C O P Y

SUPPLEMENTAL AGREEMENT, Made and entered into this 11th day of July, 1917, by and between ARTHUR S. BENT and H. STANLEY BENT, doing business as a co-partnership under the firm name of BENT BROTHERS, hereinafter called the Contractor, first party, and the SAN DIEGUITO MUTUAL WATER COMPANY, a California corporation, hereinafter called the Water Company, second party.

RECITALS:

The parties hereto made and entered into a contract dated May 15th, 1917, covering construction of dam and other works for collecting and distributing water by the Water Company. Since said contract was executed, some changes have been made in the design of the dam mentioned therein in order to obtain the approval of the Engineer of the State of California. Said change requires a greater amount of earth and rock excavation than was contemplated at the time the contract dated May 15, 1917, was entered into and also requires a substitution of blue print plans. Wherefore this supplemental.

AGREEMENT:

FOR VALUABLE CONSIDERATIONS moving from the one party to the other, the parties hereto mutually agree:

CONTRACT NUMBER 11111  
STATE ENGINEER  
AND THE SAN DIEGO COUNTY  
ENGINEER  
THE TITLE OF THE PROJECT IS  
KNOWN AS A CONCRETE DAM  
ON THE RIVER AND THE  
DAM IS TO BE BUILT  
AND THE CONTRACTOR IS TO  
BE RESPONSIBLE FOR THE  
CONSTRUCTION OF THE DAM

C O B A

1. That there be and is hereby inserted after that portion of "Exhibit D", attached to said contract dated May 15, 1917, and made a part thereof, which reads:

"Excavation - earth,	\$0.40 cents per cubic yard.
" - loose rock,	\$1.00 " " "
" - solid "	\$3.00 " " "

the words and figures following:

"For spillway required by State Engineer:

Excavation - earth	50 cents per cubic yard
" - rock (loose and solid)	\$1.50 " " "

On rock taken from spillway, the Contractor will allow the Water Company a credit of 50 cents per cubic yard for every yard of rock which the Contractor crushes and uses for concrete in the dam."

2. That the blue line print plans mentioned in Paragraph 2 of said contract dated May 15, 1917, and identified by the signatures thereon of H. Stanley Bent and E. O. Faulkner be and the same are hereby cancelled, abrogated and set aside, and blue line print plans identified in the same way and approved by said State Engineer are hereby substituted therefor as the plans according to which said work is to be done.

3. That except as hereby specifically and expressly modified and changed, said contract dated May 15, 1917, is to remain in full force and effect as written and executed and the changes hereinabove specified be regarded as having been originally written in said contract.



ΕΠΙΣΗΜΟΝ Σ ΟΙ ΕΝΤΕΙΧΟΝΤΕΣ ΕΠΙΣΤΕΥΟΝΤΕΣ ΤΩΝ ΤΩΝ ΕΤΩΝ

Σ. ΕΝΤΕΙΧΟΝΤΕΣ ΤΗΝ ΕΝΤΕΙΧΟΝΤΕΣ ΕΝΤΕΙΧΟΝΤΕΣ ΤΗ

ΤΟΙΣ ΕΝΤΕΙΧΟΝΤΕΣ ΤΗΝ ΕΝΤΕΙΧΟΝΤΕΣ  
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IN WITNESS WHEREOF, the parties hereto have  
duly executed this supplemental agreement in duplicate  
the day and year first above written.

BENT BROTHERS,  
BY (Sgd.) H. Stanley Bent.

SAN DIEGUITO MUTUAL WATER COMPANY,  
BY (Sgd) Ed Fletcher

ATTEST: ITS President  
(Sgd) Ed Faulkner  
Its Secretary.

(SEAL)

SECRETARY'S CONTRACT NO. \_\_\_\_\_

\_\_\_\_\_  
AGREEMENT

between

BENT BROTHERS

and

SAN DIEGUITO MUTUAL WATER COMPANY.

\_\_\_\_\_  
Covering construction  
of distribution lines  
for the Water Company.

Dated, October 31st 1917.

AGREEMENT, Made and entered into this 31st day of October, 1917, by and between ARTHUR S. BENT and H. STANLEY BENT, doing business as a co-partnership under the firm name of BENT BROTHERS, hereinafter called the Contractor, first party, and SAN DIEGUITO MUTUAL WATER COMPANY, a California corporation, hereinafter called the Water Company, second party.

IN CONSIDERATION of the covenants on the part of the Water Company herein set forth, and of the faithful keeping of them by it, the Contractor agrees:

1. To do all the work necessary to construct, place and install those certain water conduits and appurtenances specifically enumerated in the specifications hereto attached marked "Exhibit A", hereby referred to and made a part hereof.
2. To do said work and to place and install said water conduits and appurtenances strictly in accordance with said specifications, under the direction and to the satisfaction of the Water Company or its representatives.
3. To commence said work within \_\_\_\_\_ days from and after the execution and delivery of this agreement, and to complete the same as aforesaid on or before the

LET RECEIVED BY THE CONTRACTOR BELOW:  
OF THE WATER COMPANY HEREIN SET FORTH AND OF THE TIME  
IN CONNECTION OF THE WORKS ON THE BELT  
THAT THE WATER COMPANY SHOULD BE  
WITHIN THE TIME OF THE CONTRACTOR'S  
PLACEMENT OF THE BELT UNDER THE  
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15th day of May, 1918; and failure to complete said work and to place and install said conduits within said time, due to the fault of the Contractor, will subject the Contractor to the penalty of paying the Water Company the sum of fifty ( \$50.00 ) dollars for each and every day after the said 15th day of May 1918, until the completion of said work and the placing and installing of said conduits.

4. To furnish at the Contractor's own expense all teams, tools, superintendence, labor, machinery, equipment, materials and transportation necessary to do said work and to erect and install said conduits, except the material and transportation which, according to said specifications, the Water Company is to furnish.

5. That should any delay in the doing of said work of the placing and installing of said conduits be occasioned by failure on the part of the Water Company to furnish material, the Water Company shall not be liable to the Contractor for damages on account thereof, except to the extent of any actual extra expense caused thereby, to be determined by the Water Company's representative, and such extension of time shall be granted to the Contractor for the completion of said work as will be equivalent to the time consumed by such delay.

6. That the Contractor shall not let or transfer

Contractor, the Water Company is to supply  
materials and transportation under contract to the extent  
work is to be done and shall not be liable for any  
work, materials and transportation necessary to do work  
under contract. The Contractor shall be responsible for  
the cost of the materials and transportation of the  
contract.

of work and the Contractor shall be liable for the cost  
of the materials and transportation of the work under  
the contract. The Contractor shall be responsible for  
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contract. The Contractor shall be responsible for  
the cost of the materials and transportation of the  
contract. The Contractor shall be responsible for  
the cost of the materials and transportation of the  
contract.

this contract or any part thereof (except for the delivery  
of materials), without the consent in writing of the Water  
Company; but such consent will not release or relieve the  
Contractor from any obligations and liabilities under this  
contract.

7. To promptly pay all sub-contractors, material  
men, laborers and other employees engaged in said work as  
often as payments are made to the Contractor by the Water  
Company and to deliver said conduits free from any  
claims or liens on account of such laborers, material men,  
or sub-contractors; and, in the event of the failure of  
the Contractor at any time to pay such claims, the Water  
Company may retain from all subsequent payments due the  
Contractor sufficient money to pay such claims, and may  
itself pay and discharge the same.

8. To take out, before beginning the work hereunder,  
and thereafter to maintain the same in full force and ef-  
fect at all times during the doing of said work, a policy  
of compensation insurance issued by a responsible insurance  
company, covering full liability for compensation to any  
person, including his dependents, injured in the progress  
of said work or in connection therewith, and the Water  
Company shall be held free and clear from any responsibility  
or liability to pay for any such injuries; and the Con-  
tractor shall, before commencing work, furnish to the Water

the contractor at any time to be a contractor. The contractor  
of the contractor; and in the event of the failure of  
contract of the contractor to the contractor, the contractor  
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Company a certificate of the insurance company to the effect that said insurance company has issued an unlimited compensation policy covering the entire liability of said Contractor under the law of California, commonly known as the "Workmen's Compensation, Insurance and Safety Act",

and that said insurance company will not cancel the said policy without notifying the Water Company in writing of its intention so to do at least five days prior to such cancellation.

9. That no claim for extra work shall be made by the Contractor or be paid or allowed by the Water Company unless such work shall have been authorized in writing by the Water Company, or its duly accredited or authorized representative (which writing shall fix the rate of compensation therefor); and all claims for extra work must be presented to the Water Company or to its duly authorized representative for allowance at the close of the calendar month in which the work was done, otherwise all claims therefor shall be deemed waived by the Contractor.

10. That before final payment is made to the Contractor by the Water Company, the Contractor shall furnish evidence satisfactory to the Water Company, or its duly authorized representative, that all payrolls, material bills, and outstanding indebtedness of the Contractor in

the contractor or his agent or attorney or the Water Company  
and the contractor shall be held liable for the same.  
The contractor shall be held liable for the same.  
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The contractor shall be held liable for the same.  
The contractor shall be held liable for the same.

connection with said work have been paid.

11. To furnish and deliver to the Water Company at the time of the execution and delivery of this agreement, a good and sufficient bond of indemnity to the amount of Sixty Thousand Dollars (\$60,000.00), as security for the faithful performance by the Contractor of all covenants and agreements herein contained on the part of the Contractor.

12. To make, at Contractor's own expense, any repairs to or changes in any part of said conduits to prevent leakage therefrom at a greater rate than one cubic foot per twenty-four hours for each three hundred feet of pipe, provided such leakage shall be due to faulty workmanship or material used in the construction of the pipe; and, provided further, that this obligation shall be at an end after the expiration of one year from and after the date of the completion of the work mentioned in this agreement.

IN CONSIDERATION of the covenants herein on the part of the Contractor, and of the faithful keeping of them, the Water Company agrees:

1. To pay to the Contractor as and for full compensation for all things done by the Contractor in constructing, placing and installing the conduits hereinbe-

In the event of any change in the price of any material or labor, the Contractor shall be bound to accept the price of such material or labor as it may be determined by the Engineer at the time of the change. The Contractor shall be responsible for the cost of any material or labor which is not included in the Bill of Materials. The Contractor shall be responsible for the cost of any material or labor which is not included in the Bill of Materials. The Contractor shall be responsible for the cost of any material or labor which is not included in the Bill of Materials.

fore mentioned, at the price following:

Earth Excavated,.....	1	\$ 0.50	per cu. yd.
Other than Earth,.....		1.00	" " "
Back-fill, .....		0.25	" " "
20" Gravity Concrete Pipe,.....		1.05	" lin.ft.
22" " " " .....		1.15	" " "
24" " " " .....		1.32	" " "
26" " " " .....		1.40	" " "
28" " " " .....		1.60	" " "
27" Machine Tamped Concrete Pipe,..		1.60	" " "
20" Reinforced Concrete Pipe, ....		2.10	" " "
22" " " " .....		2.25	" " "
24" " " " .....		2.25	" " "
27" " " " .....		2.75	" " "
Tunnels #1 and #2,.....			Cost plus 10%.

NOTE:-Price for all pipe is, complete in place.

2. That at the end of each calendar month during the time said work is being done, the Water Company or its duly authorized representative shall make approximate estimates of the amount of work done by the Contractor under this contract, and of the value thereof according to the aforesaid prices; and on or before the 10th day of the next ensuing calendar month, the Water Company will pay to the Contractor 85% of such estimate and retain the remaining 15% thereof until the completion of said work in accordance with the terms of this agreement.

3. That when the work of installing, placing and constructing said conduits has been completed, as aforesaid, and the duly authorized engineer of the Water Company has certified to the same in writing, and the Contractor has submitted satisfactory evidence to the Water Company that all payrolls, material bills, and other outstanding indebtedness of the Contractor incurred in connection with



of the amount of work done by the contractor under this con-  
 tract and the amount of work done by the contractor under this con-  
 tract and the amount of work done by the contractor under this con-  
 tract and the amount of work done by the contractor under this con-

NOTE: - Prices for all items to be complete in place.

Quantity	Description	Unit	Price
100	CONCRETE	cu yd	8.00
100	CEMENT	bags	8.00
100	IRON	lb	8.00
100	STEEL	lb	8.00
100	WOOD	cu yd	8.00
100	PAINT	gal	8.00
100	LABOR	hr	8.00
100	ELECTRIC	hr	8.00
100	PLUMBING	hr	8.00
100	MECHANICAL	hr	8.00
100	TRUCK	hr	8.00
100	TOOLS	hr	8.00
100	WATER	hr	8.00
100	SEWER	hr	8.00
100	STORM	hr	8.00
100	CONCRETE	cu yd	8.00
100	CEMENT	bags	8.00
100	IRON	lb	8.00
100	STEEL	lb	8.00
100	WOOD	cu yd	8.00
100	PAINT	gal	8.00
100	LABOR	hr	8.00
100	ELECTRIC	hr	8.00
100	PLUMBING	hr	8.00
100	MECHANICAL	hr	8.00
100	TRUCK	hr	8.00
100	TOOLS	hr	8.00
100	WATER	hr	8.00
100	SEWER	hr	8.00
100	STORM	hr	8.00

the doing of said work and the installing of said conduits have been paid, and no liens therefor are outstanding the Water Company will pay to the Contractor the balance of the money due for the work of installing, placing and constructing said conduits under the terms of this agreement; said final payment to be made within thirty-five days after such completion and certification and showing of the non-existence of liens.

FOR THE CONSIDERATIONS stated, it is mutually agreed:

1. That the Contractor shall not be liable for delays or disasters caused by conditions of war, public enemies, acts of God, strikes or any other causes over which the Contractor has no control.

2. That if at any time during the progress of said work, the Contractor shall neglect to remedy any imperfections therein, requested in writing by the Water Company or its duly authorized representative, or if from causes not hereinbefore excepted, it shall appear that said work will not be completed within the time above specified, or if in any other manner the covenants herein on the part of the Contractor are being violated, then the Water Company shall have the right to elect either (a) to declare this contract at an end

details of construction shall be submitted to the  
I. That the Contractor shall not be liable for  
delay:

of the non-occurrence of these.  
The contractor shall be held liable for any delay  
caused by him in the execution of the work  
under the terms of the contract. The contractor  
shall be held liable for any delay caused by him  
in the execution of the work under the terms of  
the contract. The contractor shall be held liable  
for any delay caused by him in the execution of  
the work under the terms of the contract.

and pay the Contractor the balance due for work then  
done under the terms hereof, in accordance with the  
prices above stated, or (b) to employ such force and  
means as in the judgment of the Water Company, or its  
duly authorized representative, shall be necessary to  
complete said work within the time above stated, at  
the expense of the Contractor, using for that purpose  
the men, teams, machinery, material and plant provided  
by the Contractor for that purpose, as well as such  
additions thereto as may be deemed necessary (but in  
such event, the Contractor shall be allowed by the  
Water Company the contract price therefor); or (c)  
to allow the Contractor to proceed with said work and  
collect the penalties for delay above mentioned.

3. That the conduits in this agreement mentioned  
shall be constructed in the location shown upon blue-  
print hereto attached, marked "Exhibit B", and identi-  
fied by the signatures of W. Stanley Bent for the Con-  
tractor, and E. O. Faulkner, for the Water Company,  
hereby referred to and made a part hereof, the said  
location however, to be subject to such changes as  
may later be found necessary.

4. That this agreement shall apply, bind and  
inure to the benefit of the heirs, personal repre-  
sentatives, successors and assigns, as the case may be.

to the contractor... of (c)  
 under which the contractor...  
 upon which the contractor...  
 conditions...  
 the contractor...  
 the work...  
 the expense of the contractor...  
 complete...  
 work...  
 which...  
 under the terms...  
 and... the contractor...

of the parties hereto.

5. The Water Company further agrees that in making monthly progress estimates to arrive at the amount due the Contractor for material on hand, concrete pipe of each kind and size made in accordance with the specifications attached hereto, and in yards at locations approved by the Water Company near the site of the pipe line, shall be allowed for at the following prices; it being understood that as the said pipe is laid in place only the difference between such price and eighty five (85%) of the contract price per foot in place shall be included in any estimate prior to the final one; but advanced payments for no greater quantity of any size of each kind in yards at one time than seventy five (75%) per cent of the required length thereof, shall be made:

	Plain concrete pipe	Reinforced concrete pipe
20 in. diameter	70¢ per lin. ft.	\$1.40 per lin. ft.
24 " "	80¢ " " "	1.50 " " "
26 " "	90¢ " " "	- - -
27 " "	- - -	2.00 " " "

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement in duplicate the day and year first above written.

BENT BROTHERS,  
 By W. Stanley Bent

AND  
 SAN DIEGO MUTUAL WATER CO.  
 By W. Fletcher

ATTEST:  
E. O. Faulkner  
 Its Secretary.

Its President.

S P E C I F I C A T I O N S  
DISTRIBUTION LINES - 1A, 2B, 2C, 2D & 2F  
NEAR DEL MAR, CALIFORNIA  
FOR  
SAN DIEGUITO MUTUAL WATER COMPANY

-ooOoo-

13-A

SPECIFICATIONS

DISTRIBUTION LINES - 1A, 2B, 2C, 2D, & 2F

NEAR DEL MAR, CALIFORNIA

FOR

SAN DIEGUITO MUTUAL WATER COMPANY.

-00000-

GENERAL

DESCRIPTION 1. The work to be done under these specifications consists of the construction of certain distribution lines of the works for the San Dieguito Mutual Water Company in the vicinity of Del Mar, California.

It is the object of these specifications to provide for all material (except air, stop and blow-off valves and tee connections and accessories as hereinafter specified) and all labor, plant and equipment necessary to build the pipe lines herein provided for.

2. Whenever the word "Company" or a pronoun in place of it is used, the same is understood to mean the San Dieguito Mutual Water Company. Whenever the word "Engineer" or a pronoun in place of it is used, the same is understood to mean the Chief Engineer of the said Company acting either directly or through his properly authorized agents. Such agents acting within the scope of the particular duties entrusted to them. Whenever the word "Contractor" or a pronoun in place of it is used, the same

is understood to mean the person or persons or co-partnership or corporation engaged in the construction of the work herein described as the party of the first part or his or their legal representative.

The contractor will commence the work herein required to be done within ten (10) days after the signing of the contract (unless the engineer shall authorize or direct a further delay) and at his own proper cost and expense and on or before May 15, 1918 shall complete all the work and furnish all the labor, machinery, tools and materials except as herein specified, to do everything required to build and put in complete working order the several distribution pipe lines and appurtenant structures herein described.

3. The plans and specifications are intended to be explanatory of each other; but should any discrepancy appear, or any misunderstanding arise as to the import of anything contained in either, the parties hereto further agree that the explanation and decision of the Engineer shall be final and binding on the Contractor; and all directions and explanations required, alluded to or necessary to complete any of the provisions of this contract and specifications, and give them due effect, shall be given by the Engineer. Correction of errors or omissions in drawings or specifications may be made by the Engineer when such correction is necessary for the proper fulfillment

of the intention of such drawings or specifications, the effect of such correction to date from the time that the Engineer gives due notice thereof to said Contractor.

4. To prevent all disputes and litigation, the Engineer shall be referee, in all cases, to decide upon the amount, quality, acceptableness and fitness of the several kinds of work and materials which are to be paid for under this contract, and upon all questions which may arise relative to the fulfillment of the contract on the part of the Contractor, and his estimates and decision shall be final and conclusive; and such estimate and decision, in case any question shall arise, shall be a condition precedent to the right of said Contractor to receive any money under this agreement; also that said Engineer, by himself or by assistants or inspectors acting for him, shall inspect the materials furnished and the work done under this agreement, to see that the same strictly correspond with the specifications hereinafter set forth. And the Contractor also agrees that he will at all times give to the Engineer, his assistants and inspectors, tools and labor, and all facilities necessary for inspecting the materials furnished and the work done under this agreement.

5. The methods throughout this work shall conform to what is recognized as good practice for the particular style of construction herein contemplated.

6. The quantities of work to be done and materials to be furnished, as given in the "Notice to Contractors", as for the purpose of comparing, on a uniform basis, the bids offered for the work under the contract.

7. If an emergency demands, or if the Engineer deems it desirable, he may make alterations in the line, grade, plan, form, position, dimensions or material of the work herein contemplated, or of any part thereof, either before or after the commencement of construction. If such alterations diminish the quantity of work to be done, they shall not constitute a claim for damages, or for anticipated profits on the work that may be dispensed with, if they increase the amount of work, such increase shall be paid for according to the quantity actually done and at the price established for such work under this contract; or, in case there is no price established, it shall be paid for at its actual reasonable cost, as determined by the Engineer, plus ten (10%) per cent of said cost.

8. All materials delivered at or near the site of the works are to be considered the property of the Company and cannot be removed without the Company's consent.

UNDESIRABLE EMPLOYEES. 9. Any incompetent, disorderly or otherwise undesirable employees shall on request of the Engineer be dismissed and not again employed on this work.

INSPECTION OF MATERIAL 10. All materials and supplies delivered at or near the site of the works are subject to inspection and if



... to be delivered as shown in the office to ...  
e. The description of work to be done and ...

condemned at any time by the Engineer, shall be so branded, and shall upon demand be removed at once to a satisfactory distance.

11. No inspection of any work or materials shall constitute an acceptance of same prior to the final acceptance of full completion of this contract, and all work or materials rejected by the Engineer at any time prior to final acceptance shall be at once made good by the Contractor.

**SUPERVISION OF WORK.** 12. The Contractor must give this work his personal attention and at all times have a competent foreman, experienced in this class of work, on the ground, authorized to accept orders from the Engineer.

**LOCATION.** 13. The accompanying profiles and maps, together with the stakes upon the ground, show the nearest approximation of the work in advance of actual construction. The Contractor should make a personal examination of the lines for the general character of the work, keeping in view the right of the Company to deviate from the exact position as shown.

**WORK TO CONFORM TO LINES, GRADES, ETC.** 14. All work, during its progress and on its completion shall conform to the lines and levels given by the Engineer, and shall be built in accordance with the contract plan and directions given from time to time by him, subject to such modifications and additions as shall

...of the work shall be deemed necessary by him during its execution; and in no case shall any work in excess of the requirements of the plans and specifications be paid for unless ordered in writing by him.

be deemed necessary by him during its execution; and in no case shall any work in excess of the requirements of the plans and specifications be paid for unless ordered in writing by him.

15. If there is anything in these specifications or in the plans or specifications as now or hereinafter furnished which is not clear and intelligible to the contractor, he shall not proceed with such work so ordered until he shall have drawn the attention of the Engineer to the element of doubt or misunderstanding, in writing, and have had the same explained to him, but it is the duty of the Contractor to examine the plans and site of the work far enough in advance to anticipate any needed explanation, and he will not be granted extension of time for misunderstanding or failing to understand any instructions.

TEMPORARY  
BRIDGES OR  
CROSSINGS.

16. Whenever it is necessary to cross roads or railroads, the Contractor shall, at his own expense, provide suitable and safe bridges or other sufficient crossings for the accommodation of the travel on said roads; and shall maintain the same in good and safe condition until the roads can be restored, when he shall remove all bridges and other temporary expedients, and restore said roads to a condition suitable for use, all to be satisfactory to the Engineer. The Contractor shall give reasonable notice to the owners of railroads and private ways before interfering with them. He shall provide watchmen, red lights and

GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE  
PROPERTY AND PERSONS OF THE PUBLIC AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE  
PROPERTY AND PERSONS OF THE PUBLIC AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE

fences at his own expense, and take such other precautions as may be necessary to protect life and property; and shall be liable for all damage occasioned in any way by his act or neglect, or that of his agents, employees or workmen.

**CLEARING.** 17. The ground must be cleared of all brush, shrubs or other trees for a distance of eight feet on both sides of the center line.

**VALVES.** 18. All air valves, stop valves and blowoff valves and accessories and all distribution tees and pipes necessary for proper diversion of the water will be furnished by the Company to the Contractor f.o.b. cars, Encinitas or Del Mar as the Contractor may desire.

19. The contractor shall at his own expense convey the materials from the points where they are delivered by the Company and shall at his own expense store the same in the vicinity of the work. He shall be responsible for loss incurred or damage done to materials furnished by the Company from the time of their delivery until the work is accepted.

**MATERIAL** 20. All material and workmanship is to be the best of the kind specified.

**EXCAVATIONS.** 21. Excavations will be classified as follows:  
**EARTH** will include clay, sand, loam, gravel and all other earthy matter or earth containing loose stone or

boulders intermixed which do not exceed in size three cubic feet.

OTHER THAN EARTH will include all material excavated not classified as earth.

BACK-FILLING. 22. After the pipe has been laid and tested, the trench shall be back-filled to such points as determined by the Engineer and shall be paid for per cubic yard of trench actually filled.

CEMENT. 23. Riverside Portland cement shall be used. It shall be properly stored in a dry, well ventilated place, and properly protected from the weather. Cement that has become lumpy shall not be used. All cement required hereunder shall be furnished by Contractor at his own cost, and shall fulfill the requirements of the revised and amended specifications of the American Society of Civil Engineers, same to be tested prior to shipment by an inspector selected by the Water Company.

COARSE AGGREGATES. 24. Coarse aggregates shall consist of gravel or crushed stone which shall pass a  $1\frac{1}{2}$ " ring and be retained on a screen having  $\frac{3}{4}$ " inch diameter holes, and shall be graded from the smallest to the largest particles, it shall be clean, hard, durable and free from all deleterious matter. Aggregates containing dust and soft particles shall be excluded.

SAND. 25. The fine aggregate shall consist of sand or screenings of gravel or crushed stone, free from dust,

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graded from fine to coarse, and passing when dry a screen having  $\frac{1}{4}$  inch diameter holes; it preferably shall be of siliceous material, and not more than 35% by weight shall pass a sieve having 40 meshes per linear inch, it shall be clean, and free from soft particles, lumps of clay, vegetable loam or other organic matter. If the tensile strength developed by the fine aggregate in a 1:3 mortar is less than 85% of the strength of a 1:3 Ottawa-sand mortar, the material shall be rejected.

PIPE. 26. The pipe used shall be plain or reinforced concrete pipe as hereinafter specified suitable for the performance of the duty required. The reinforced pipe shall be designed of sufficient strength to withstand the pressure of a head fifty (50%) per cent greater than the head actually put upon it, and have a factor of safety against bursting of at least five (5) under working conditions as shown on schedule "A" attached hereto, and made a part of these specifications. The leakage of both classes of pipe under working conditions, not including evaporation or seepage, shall not be at a greater rate than one cubic foot per 24 hours for each 300 feet of pipe.

TUNNEL. 27. The tunnels shall be true to line and grade and of such size that there will be sufficient room for the proper placing of the pipe through the tunnel.

EXTRA WORK. 28. Contractor shall make no claims for extra work unless the same shall be ordered by the Engineer and

STIPULATIONS HEREIN SET FORTH SHALL BE DEEMED TO HAVE BEEN ACCEPTED BY THE CONTRACTOR AND SHALL BE BINDING UPON HIM AND HIS SUCCESSORS AND ASSIGNS AND HE SHALL BE DEEMED TO HAVE AGREED TO BE BOUND BY THE SAME AND TO OBEY THE SAME AND TO COMPLY WITH THE SAME AND TO INDEMNIFY AND HOLD HARMLESS THE BOARD OF DIRECTORS OF THE COMPANY FROM AND AGAINST ALL AND EVERY LOSS, DAMAGE, LIABILITY AND EXPENSE OF WHATEVER KIND AND CHARACTER WHICH MAY BE INCURRED BY THE BOARD OF DIRECTORS OF THE COMPANY BY REASON OF THE PERFORMANCE OF THE WORK HEREIN PROVIDED FOR BY THESE CONDITIONS AND AGREEMENTS.

approved by the Board of Directors of the Company.

All claims for extra work must be filed with the Engineer by the 1st of the month following that in which the work is performed, and the contractor shall produce and allow inspection by the Engineer of all bills, statements and vouchers showing the quality, amount of cost of all material entering into such extra work.

**GENERAL REQUIREMENTS.** 29. In all the operations connected with the work herein specified, all city or town ordinances, and all laws controlling or limiting in any way the actions of those engaged on the works, or affecting the materials applied to them, must be respected and strictly complied with.

**NO SPIRITUOUS LIQUORS.** 30. The Contractor shall neither bring nor allow others to bring any spirituous or fermented liquor, or other intoxicant upon the grounds occupied for the prosecution of the work: neither shall he furnish nor allow others to furnish liquors or other intoxicant, to the workmen in his employ or to any person or persons in the vicinity.

31. Grounds in the vicinity of the work shall be maintained in a proper sanitary condition as directed by the Engineer, and the regulation of all camps in which employees are quartered must conform to the California State Law.

32. After the work is finished all materials, rubbish and debris shall be removed from the site, and the site cleaned up satisfactory to the Engineer.

ALL JOINTS FOR EXPOSED WORK MUST BE FITTED WITH THE  
SPECIALTY PAINTS PROVIDED BY THE CONTRACTOR.

SPECIFICATIONS FOR  
PLAIN CONCRETE PIPE LINES

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**PIPE:** Shall be of the "taper joint" pattern, having both ends accurately moulded by iron rings, the socket end being formed on the bottom. It shall be made in not less than two foot lengths. When making the pipe, care must be taken to keep the core centered so that the shell will be of practically uniform thickness. All workmanship shall be up to recognized best standards.

**PROPORTIONS.** All pipe shall be made of Cement Concrete composed of one part (by measure) cement to three parts of clean dry aggregates. The aggregates may be mixed sand and gravel or mixed sand and crushed rock. The sand and gravel, or sand and crushed rock shall be so proportioned to each other as to give the densest body compatible with a fairly smooth pipe. This will ordinarily be about 40% gravel or screened crushed rock, to 60% sand. Crusher run of rock, or natural mixture of sand and gravel may be used where same conforms to the above requirements.

**MIXING:** Mixing must be complete and thorough, and no water used until the dry mixture is of a uniform color throughout. Mixing may be done by hand or by machine. When machine is used it shall be a batch mixer or a type which will as nearly

as possible discharge a dry batch without separating the stones. The dumping type is preferred. When hand mixing is employed it shall be done with hoes in a tight box and the materials shall be thoroughly hoed to alternate ends of the box at least three times dry, and at least two times wet. In this operation the "bite" shall be small enough so that the hoe rides on the bottom of the box for the full length of every draw stroke.

All concrete shall be mixed as wet as it is possible to make the pipe stand without distortion.

**PLACING.** Placing the concrete in the molds shall be uniformly and evenly done and at such a rate as to cause the tamper to make not less than four complete rounds for each linear foot of pipe.

The concrete shall not be thrown into the molds in such a way as to cause the stones to separate and fly to the back of the mold, producing a rough or coarse section on that side of the pipe.

The filling of forms shall be continuous, and if for any reason the work is stopped long enough for the cement to take its initial setting, any partly filled forms shall be emptied.

**TAMPING:** Shall be done with an iron tamper having a face not over five inches long, and a thickness of not over three fourths of the thickness of the shell of the pipe. Tamper.



THESE ARE THE CONDITIONS OF THE CONTRACT FOR THE SUPPLY OF  
PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY OF  
THE WORK AND THE MATERIALS USED.

strokes must overlap each other sufficiently to insure no skipping. Tamping shall be continuous during the feeding and shall be vigorous and hard so as to produce a dense tight pipe, containing no soft or uneven spots. In making the top or spigot end, sufficient concrete shall be piled on the top to require approximately 20 hard blows of the "top former" or "hammer" to form the spigot. The tongue of the spigot end must be strong and dense.

**COATING.** A thick brush coat of neat cement and water shall be put on the inside of the pipe. This coating must be dense and tough and after it is dry must be set tight to the pipe so as not to rub off or powder under the hand when rubbed.

**SETTING.** All pipe must be kept wet for 7 days after making, and watering must be continuous during daylight. At least one man watering must be used for each "temp." Special care must be taken to see that the pipe is kept as full of water as possible during the first day. It is the intent that all pipe shall not only be kept a dark color for the first week but shall be kept soaked through with water. All pipe shall be marked showing date of manufacture.

**PIPE LAYING.** Trench width must be not less than 10 inches greater than the outside diameter of the pipe. Trench bottom must be graded to conform to stakes, which will be set by the owner at least every 10 feet along the line.

Ends of pipe must be clean before putting together and must be thoroughly wet just previous to cementing. Joint mortar shall be made of one part cement to two parts good clean sand thoroughly mixed dry and wet only as needed for immediate use. The method shall be to reduce the wetted mortar to the desired plasticity by thoroughly working rather than by a harmful flooding with water. The mortar must make a complete and unbroken collar around the entire joint on the outside.

On pipe of a sufficient diameter for a man to work inside, a complete band of mortar shall be made on the inside of the joint with a trowel. These bands shall be left as smooth and flat as possible, to prevent obstruction of flow, but shall completely fill any gaps between the ends of the pipe. This inside work shall be done after the pipe has been firmly bedded by backfilling, or otherwise not sooner than 24 hours after the outside joint has been made. Joints must be thoroughly wet inside just before mortaring. Previous to setting, joints shall be protected from sun and wind by backfilling or otherwise.

REINFORCED CONCRETE PIPE

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PIPE. Shall be constructed of concrete reinforced with steel. It shall be made in sections not less than three feet in length, and so formed that when the sections are laid together and cemented they shall make a continuous and uniform line of pipe.

PROPORTIONS. Used in the construction of pipe shall consist of the following mixture:

- 1 part of portland cement.
- 2 parts of sand.
- 3 parts of crushed stone or clean coarse gravel.

In determining quantities per batch, aggregates shall be dry when measured.

MIXING. All concrete shall preferably be mixed by machine of the batch type. Materials shall be turned until the mass is of a uniform color; then water added sufficient to produce a mixture that will flow, and the whole mixed until of a uniform consistency. When hand mixing is employed it shall be done in accordance with requirements, for hand mixing in the specifications for plain concrete pipe, attached.

PLACING. The concrete shall be placed in the forms as quickly as possible after being mixed. The filling of forms

shall be continuous and if for any reason the work is stopped long enough for the cement to take its initial set, any partly filled forms shall be emptied. While the concrete is being placed in the forms it shall be thoroughly spaded to produce a uniformly dense concrete.

**COATING.** A thick brush coating of neat cement and water shall be put on the inside of the pipe. This coating must be dense and tough and after it is dry must be set tight to the pipe so as not to rub off or powder under the hand when rubbed.

**FORMS.** Shall consist of iron or steel bottom and top rings and steel plates rolled to a true circle. The latter shall be reinforced, if necessary to prevent distortion while the concrete is being placed. Forms shall not be removed from the pipe before the cement has attained its final set. Joints between plates shall be tight to prevent leakage of concrete and plates shall be locked together in such a manner that the joint will be smooth without offset.

**REINFORCEMENT.** The reinforcement shall consist of American Steel and Wire Company's triangular mesh or spirals of Bessemer Wire hard grade properly held in position by accurate spacers. Size and spacing of wires shall be as shown in Schedule "A" attached hereto and made a part of these specifications.

REVISIONS TO BE MADE TO THE SPECIFICATIONS FOR THE CONSTRUCTION OF  
PIPE LAYING AND CURING

**FINISHING AND CURING.** As soon as the forms are removed from the pipe it shall be protected from the sun by burlap, for a period of three days, and shall be kept wet for a total period of seven days. All pipe shall be marked showing the date of manufacture.

**PIPE LAYING.** Trench width must be not less than 10 inches greater than the outside diameter of the pipe. Trench bottom must be graded to conform to stakes, which will be set by the owner at least every 50 feet along the line. Ends of pipe must be clean before putting together and must be thoroughly wet just previous to cementing. Joint mortar shall be made of one part cement to two parts good clean sand thoroughly mixed dry and wet only as needed for immediate use. The method shall be to reduce the wetted mortar to the desired plasticity by thoroughly working rather than by a harmful flooding with water. The mortar must make a complete and unbroken collar around the entire joint on the outside.

On pipe of a sufficient diameter for a man to work inside, a complete band of mortar shall be made on the inside of the joint with a trowel. These bands shall be left as smooth and flat as possible, to prevent obstruction of flow, but shall completely fill any gaps between the ends of the pipe.

THE CONSTRUCTION OF THE ...  
 FINISHING ...

SCHEDULE "A"  
REINFORCEMENT FOR  
TELEPHONE CONCRETE PRESSURE PIPE

<u>Max. Head</u> <u>with factor</u> <u>of safety of</u> <u>4 or more</u>	<u>Working</u> <u>Head</u>	<u>Size and spacing of round steel</u> <u>wire for various</u> <u>Diameters of Pipe</u>		
		<u>27"</u>	<u>24"</u>	<u>20"</u>
135'	61' to 90'	3/8" @ 2 1/2"	3/8" @ 2 1/2"	5/16" @ 2"
90'	41' to 60'	5/16" @ 2 1/2"	5/16" @ 2 1/2"	1/4" @ 2"
60'	27' to 40'	1/4" @ 2 1/2"	1/4" @ 2 1/2"	1/4" @ 3"
40'	16' to 26'	1/4" @ 3"	1/4" @ 3"	1/4" @ 3"
22.5'	- to 15'	1/4" @ 6"	1/4" @ 6"	1/4" @ 6"

90' - actual max. head.

PIPE THICKNESS

<u>Pressure Pipe</u>		<u>Gravity Pipe</u>	
<u>Diam.</u>	<u>Thickness</u>	<u>Diam.</u>	<u>Thickness</u>
20"	2"	20"	1 7/8"
24"	2 1/2"	24"	2 1/4"
27"	3"	26"	2 1/4"

Specification and  
Contract for  
Distribution Lines

AGREEMENT, made this 1st day of March, 1916,  
by and between ARTHUR W. BENT and H. STANLEY BENT,  
doing business as a co-partnership under the firm  
name of BENT BROTHERS, hereinafter called the  
Contractor, First Party, and the SAN DIEGUITO MUTUAL  
WATER COMPANY, a California Corporation, hereinafter  
called the WATER COMPANY, Second Party.

IN CONSIDERATION of the covenants on the part of  
the Water Company herein set forth and of the faithful keep-  
ing of these by it, the Contractor agrees:

1. To do all the work necessary to construct, erect,  
install and complete the dam known as the San Dieguito Dam,  
and located upon the Rancho San Dieguito, in San Diego County,  
California, in strict conformity with the plans identified  
by the signatures thereon of H. Stanley Bent and H. C. Fullmer,  
and the specifications hereto attached, marked Exhibit A, both  
hereby referred to, and made a part hereof, under the direction  
and to the satisfaction of the Water Company, or its repre-  
sentative.

2. To commence said work within ten days after the  
execution and delivery of this agreement, and to complete the  
same as aforesaid on or before September 1, 1916, and failure  
to complete said work within said time, due to the fault of  
the Contractor, will subject the said Contractor to the penalty  
of paying to the Water Company the sum of \$25.00 per day for



each of the first 30 days of such delay, and \$40.00 per day thereafter, until the completion of said dam.

3. To furnish at the Contractor's own expense all teams, tools, superintendence, labor, machinery, equipment, materials and transportation necessary to do said work and to erect and install said structures except the materials and transportation which in the specifications, Exhibit A, it is stated that the Water Company is to furnish.

4. That should any delay in the doing of said work be occasioned by failure on the part of the Water Company to furnish material, the Water Company shall not be liable to the Contractor in damages on account thereof, except to the extent of any actual extra expense, to be determined by the Company's representative, and such extension of time shall be granted to the Contractor for the completion of said work as will be equivalent to the time consumed by such delay.

5. That the Contractor shall not let or transfer this contract or any part thereof (except for the delivery of materials) without the consent in writing of the Water Company; but such consent will not release or relieve the Contractor from any obligations and liabilities under this contract.

6. To promptly pay all sub-contractors, materialmen, laborers, and other employes engaged in said work as often as payments are made to the Contractor by the Water Company; and to deliver said structures free from any claims or liens on account of such labor, materials, materialmen, or sub-contractors;

and in event of the failure of the Contractor at any time to pay such claims, the Water Company may retain from all subsequent payments due the Contractor sufficient money to pay such claims and may itself pay and discharge the same.

7. To take out, before beginning the work hereunder, and thereafter to maintain the same in full force and effect at all times during the doing of said work, a policy of compensation insurance issued by a responsible insurance company, covering full liability for compensation to any person, including his dependents, injured in the progress of said work or in connection therewith, and the Water Company shall be held free and clear from any responsibility or liability to pay for any such injuries; and the Contractor shall before commencing work, furnish to the Water Company a certificate of the insurance company to the effect that said insurance company has issued an unlimited compensation policy covering the entire liability of said Contractor under the law of California, commonly known as the "Workmen's Compensation, Insurance and Safety Act", and that said insurance company will not cancel the said policy without notifying the Water Company in writing of its intention so to do at least five days prior to such cancellation.

8. That no claim for extra work shall be made by the Contractor or be paid or allowed by the Water Company unless such work shall have been authorized in writing by the Water Company or its duly accredited or authorized representative (which writing shall fix the rate of compensation therefor); and all

claims for extra work must be presented to the Water Company or its duly authorized representative for allowance at the close of the calendar month in which the work was done, otherwise all claims therefor shall be deemed waived by the Contractor.

9. That before final payment is made to the Contractor by the Water Company, the Contractor shall furnish evidence satisfactory to the Water Company or its duly authorized representative that all payrolls, material bills, and outstanding indebtedness of the Contractor in connection with said work have been paid.

10. To furnish and deliver to the Water Company at the time of the execution and delivery of this agreement, a good and sufficient bond of indemnity to the amount of Twenty Thousand (\$20,000.00) Dollars, as security for the faithful performance by the Contractor of all covenants and agreements herein contained on the part of the Contractor.

IN CONSIDERATION of the covenants herein on the part of the Contractor and of the faithful keeping of them, the Water Company agrees:

1. To pay to the Contractor as and for full compensation for all things done by the Contractor in constructing, erecting, installing and completing the San Dieguito Dam hereinbefore mentioned, the sum of Thirty two thousand eight hundred sixty nine and 50/100 Dollars (\$32,869.50), excepting that any work required to be done hereunder, over and above what is included in Mr. Thomas H. King's letter of July 5th, 1918, which

was accepted by the contractor in letter to the Water Company dated July 10th, 1918, shall be ordered in writing and paid for as extras in accordance with Paragraph 8 hereof. All these payments to be made at the time and in the manner herein specified.

2. That at the end of each calendar month during the time the work of erecting and constructing the said San Diego Dam shall be in progress, the Water Company, or its duly authorized representative, shall make approximate estimates of the amount of work done by the Contractor under this contract, and of the value thereof, based on the proportion that the quantity of work done during such calendar month, and the value thereof bears to the total amount of work required under the contract, and of the full payment therefor; and on or before the 10th day of the next ensuing calendar month, the Water Company will pay to the Contractor 90% of such estimate, and retain the remaining 10% thereof until the completion of said work in accordance with the terms of this agreement.

3. That when the work of installing, erecting and constructing said dam has been completed as aforesaid, and the duly authorized engineer of the Water Company has certified to the same in writing, and the contractor has submitted satisfactory evidence to the Water Company that all payrolls,

material bills and other outstanding indebtedness of the Contractor incurred in connection with the doing of said work have been paid, and no liens therefor are outstanding, the Water Company will pay to the Contractor the balance of the money due for the work of erecting, constructing and installing said structures under the terms of this agreement; said final payment to be made within thirty five (35) days after such completion, certification and showing of the non-existence of liens.

FOR THE CONSIDERATIONS STATED, it is mutually agreed:-

1. That the Contractor shall not be liable for delays or disasters caused by conditions of war, public enemies, acts of God, strikes, or any other causes over which the Contractor has no control.

2. That if at any time during the progress of said work the Contractor shall neglect to remedy any imperfections, therein, requested in writing by the Water Company, or its duly authorized representative, or if from causes not heretofore excepted it shall appear that said work will not be completed within the time above specified, or if in any other manner the covenants herein on the part of the Contractor are being violated, then the Water Company shall have the right to elect either (a) to declare this contract at an end and pay the Contractor the balance due for work then done under the terms hereof, or, (b) to employ such force and means

as in the judgment of the Water Company or its duly authorized representative shall be necessary to complete said work within the time above stated, at the expense of the Contractor, using for that purpose the men, tools, machinery, material and plant provided by the Contractor for that purpose, as well as such additions thereto as may be deemed necessary (but in such event the Contractor shall be allowed by the Water Company the contract price therefor; or, (c) to allow the Contractor to proceed with said work and collect the penalties for delay above mentioned.

3. This agreement shall apply, bind and inure to the benefit of the heirs, personal representatives, successors and assigns, as the case may be, of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement the day and year first above written.

BENT BROTHERS,

By \_\_\_\_\_

SAN DIEGOITO MUTUAL WATER COMPANY,

By \_\_\_\_\_  
Its President

ATTEST:

\_\_\_\_\_  
Its Secretary

U.S. GEOLOGICAL SURVEY

GENERAL DESCRIPTION  
FOR SAN DIEGO VALLEY, TO BE BUILT  
ON THE SAN DIEGO RIVER, NEAR  
SAN DIEGO, CALIFORNIA, FOR  
SAN DIEGO METROPOLITAN WATER COMPANY.

GENERAL SPECIFICATIONS  
FOR CONSTRUCTION OF A DAM FOR  
SAN DIEGUIO MUTUAL WATER COMPANY  
ON THE SAN DIEGUIO RIVER, LEAN  
SAN DIEGO, CALIFORNIA.

General

Description. 1. The work to be done under these specifications consists of the construction of a dam for the San Dieguito Mutual Water Company, on the San Dieguito Ranch, near Del Mar, California.

It is the object of these specifications to provide for all material (except valves as hereafter specified) and all labor, plant and equipment necessary to build the structure herein provided for.

2. Whenever the word "company" or a pronoun in place of it is used, the same is understood to mean the San Dieguito Mutual Water Company. Whenever the word "engineer" or a pronoun in place of it is used, the same is understood to mean the <sup>Chief</sup> engineer duly authorized by said Company acting either directly or through his properly authorized agents. Such agents acting within the scope of the particular duties entrusted to them. Whenever the word "contractor" or a pronoun in place of it is used, the same is understood to mean the person or



persons or co-partnership or corporation engaged in the construction of the work herein described as the party of the second part or his or their legal representative.

The contractor will commence the work herein required to be done, within 10 days after the signing of the contract unless the engineer shall authorize or direct a further delay, and at his own proper cost and expense, and on or before Sept. 1, 1918, shall complete all the work and furnish all the labor, machinery, tools and materials except as herein specified, to do everything required to build and put in complete working order the San Diego Dam, and all appurtenant structures herein described.

3. The plans and specifications are intended to be explanatory of each other; but should any discrepancy appear, or any misunderstanding arise as to the import of anything contained in either, the parties hereto further agree that the explanation and decision of the Engineer shall be final and binding on the Contractor; and all directions and explanations required, allowed to or necessary to complete any of the provisions of this contract and specifications, and give them due effect, shall be given by the Engineer. Correction of errors or omissions in drawings or specifications may be made by the Engineer when such correction is necessary for the

proper fulfillment of the intention of such drawings or specifications, the effect of such correction to date from the time that the Engineer gives due notice thereof to said contractor.

4. To prevent all disputes and litigation, the Engineer shall be referee, in all cases, to decide upon the amount, quality, acceptableness and fitness of the several kinds of work and materials which are to be paid for under this contract, and upon all questions which may arise relative to the fulfillment of the contract on the part of the Contractor, and his estimates and decision shall be final and conclusive; and such estimate and decision, in case any question shall arise, shall be a condition precedent to the right of said Contractor to receive any money under this agreement; also that said Engineer, by himself or by assistants or inspectors acting for him, shall inspect the materials furnished and the work done under this agreement, to see that the same strictly correspond with the specifications hereinafter set forth. And the Contractor also agrees that he will at all times give to the Engineer, his assistants and inspectors, ladders, tools and labor, and all facilities necessary for inspecting the materials furnished and the work done under this agreement.

5. The methods throughout this work, shall

conform to what is recognized as good practice.

e. All accepted materials delivered at or near the site of the works are to be considered the property of the Company and cannot be removed without the company's consent.

DISCIPLINARY  
EMPLOYEES.

7. Any incompetent, disorderly or otherwise undesirable employees shall on request of the Engineer be dismissed and not again employed on this work.

REMOVAL OF  
MATERIAL.

8. All materials and supplies delivered at or near the site of the works are subject to inspection and if condemned at any time by the Engineer, shall be so branded, and shall upon demand be removed at once to a satisfactory distance.

9. No inspection of any work or materials shall constitute an acceptance of same prior to the final acceptance of full completion of this contract, and all work or materials rejected by the Engineer at any time prior to final acceptance shall be at once made good by the Contractor.

SUPERVISION  
OF WORK.

10. The Contractor must give this work his personal attention and at all times have a competent foreman, experienced in this class of work, on the ground, authorized to accept orders from the Engineer.

LOCATION. 11. The character of foundation and conditions at the site as shown on the plans or indicated by the engineer are supposed to be approximately correct, but the contractor should depend upon his own examination as the Company does not guarantee the information.

WITH TO CON-  
PLAN TO  
LINE, GRADE  
AND FORM  
ACCOUNT.

12. All work, during its progress and on its completion shall conform to the lines and levels given by the engineer, and shall be built in accordance with the contract plan and directions given from time to time by him.

If any emergency demand, or if the engineer deems it necessary for the production of suitable and safely designed structures he may make alterations in the line, grade, plan, form, position, dimensions, or material of the work herein contemplated, or of any part thereof, either before or after the commencement of construction.

If such alterations diminish the quantity of the work to be done, they shall not constitute a claim for damages or for anticipated profits on the work that may be dispensed with; if they increase the amount of work, such increase shall be paid for according to the quantity actually done and at the price established for such work under this contract; or in case there is no price estab-

lished, it shall be paid for at its actual reasonable cost, as determined by the Engineer, plus ten (10) per cent of said cost.

In no case shall any work in excess of the requirements of the plans and specifications be paid for unless ordered in writing by the Engineer.

13. If there is anything in these specifications or in the plans or specifications as now or hereinafter furnished which is not clear and intelligible to the Contractor, he shall not proceed with such work as ordered until he shall have drawn the attention of the Engineer to the element of doubt or misunderstanding, in writing, and have had the same explained to him, but it is the duty of the Contractor to examine the plans and site of the work far enough in advance to anticipate any needed explanation, and he will not be granted extension of time for misunderstanding or failing to understand any instructions.

TEMPORARY  
BRIDGES OR  
CROSSINGS.

14. Whenever it is necessary to cross roads or railroads, the Contractor shall, at his own expense, provide suitable and safe bridges or other sufficient crossings for the accommodation of the travel on said roads; and shall maintain the same in good and safe condition until the roads can be restored, when he shall

remove all bridges and other temporary expedients, and restore said roads to a condition suitable for use all to be satisfactory to the Engineer. The Contractor shall give reasonable notice to the owners of railroads and private ways before interfering with them. He shall provide watchmen, red lights and fences at his own expense, and take such other precautions as may be necessary to protect life and property; and shall be liable for all damage occasioned in any way by his act or neglect, or that of his agents, employees or workmen.

CEMENT. 15. Riverside Portland cement shall be used. It shall be properly stored in a dry, well ventilated place, and properly protected from the weather. Cement that has become lumpy shall not be used.

All cement required hereunder shall be furnished by the contractor at his own cost, and shall fulfill the requirements of the revised and modified specifications of the American Society of Civil Engineers, the same to be tested prior to shipment, by an inspector selected by the Water Company, but at the expense of the Contractor.

VALVES, FITTINGS, ETC. 16. All valves and pipe necessary for the service and sluice outlets will be furnished by the Company to the contractor f.o.b. cars and car.

17. The contractor shall at his own expense

convey the materials from the points where they are delivered by the Company and shall at his own expense store the same in the vicinity of the work. He shall be responsible for loss incurred or damage done to materials furnished by the Company from the time of their delivery until the work is accepted.

MATERIAL  
AND WORK-  
MANSHIP.

16. All material and workmanship is to be the best of the kind specified. The Contractor shall produce and allow inspection by the Engineer of all bills, statements and vouchers showing the quality, amount and cost of all material and labor entering into extra work.

SAND.

17. The fine aggregate shall consist of sand or screenings of gravel or crushed stone, free from dust, graded from fine to coarse and passing when dry a screen having one quarter (1/4) inch diameter holes, it preferably shall be of siliceous material, and not more than 30% by weight shall pass a sieve having 40 meshes per linear inch, it shall be clean, and free from soft particles, lumps of clay, vegetable loam or other organic matter. If the tensile strength developed by the fine aggregate in a 1:3 mortar is less than 85 per cent of the strength of a 1:3 Ottawa-sand mortar, the material shall be rejected.

COARSE  
AGGREGATE.

18. Coarse aggregate shall consist of gravel

or crushed stone, which is retained on a screen having one quarter (1/4) inch diameter holes, and shall be graded from the smallest to the largest particles, it shall be clean, hard, durable, and free from all deleterious matter. Aggregates containing dust and soft particles, shall be excluded. The gravel or crushed stone shall be separated into two sizes and combined in the proper proportion, in case it is not found uniformly graded, from the min. size of quarter inch to the max. size which will pass a 2 1/4 inch ring.

WATER. 21. The water used in mixing concrete shall be free from oil, acid, alkali, or organic matter.

GENERAL SPECIFICATIONS

REINFORCING STEEL. 22. Steel used for reinforcement either in tension or compression shall comply with the following specifications, and shall be in shapes and sizes called for on the detailed plans and more detailed specifications.

1. Steel shall be made by the Open hearth process from standard billets. Material re-rolled from T-rails or scrap of any kind will not be accepted.

2. Deformed bars of the round or square corrugated type shall be used as specified. Cold



twisted square bars will not be accepted as deformed bars.

3. The chemical and physical properties shall conform to the following specifications:-

Phosphorus, maximum, basic process 0.04, acid process 0.06,  
Sulphur, maximum 0.06,

Ultimate strength, pounds per square inch:-  
minimum 70000  
maximum 85000

Yield point, pounds per square inch:-  
minimum 40000

Elongation, per cent in 8 inches, minimum 1125000  
Ultimate strength

Cold bends, without fracture:- 180 degrees  
bars under 1/2" d = 3T  
bars 1/2" and over d = 5T

where d = "3T" signifies "around a pin whose diameter is 3 times the thickness of diameter of specimen.

4. Bending tests may be made by pressure or by blows.

All tests shall conform in method and manner to the standards prescribed by the American Society for testing materials.

5. All steel shall be free from injurious sound, flaws, cracks, defective edges or other defect, and have a smooth, uniform and workmanlike finish.

6. As far as practicable the mill, the year rolled and the name or initials of manufacturer are to be rolled or stamped on all finished steel bars.

7. Material, which subsequent to the tests at the mill and its acceptance there, develops weak spots, brittleness, cracks or other imperfections, or is found to have injurious defects, will be rejected and shall be replaced by the Contractor at his own cost.

8. Inspectors, retained by the Company, will be authorized to reject all material which does not conform to these specifications. All material shall be tested before shipment from the rolling mills or warehouse and the Contractor shall furnish the Company with evidence in writing that this has been done and that the steel complies with the specifications, guaranteeing to the Company the identical material covered by the tests and inspection.

9. Reinforcing steel shall be free from excessive rust, loose scale or other coatings of any character which would reduce or destroy the bond, and it shall be cleaned if necessary to secure this.

10. The Contractor shall furnish the inspector on the work, statements showing exact shipping weights in detail for all material covered by his inspection.

11. The Contractor shall bear the cost of any suit arising through the reinforcing material furnished being deemed to infringe other patents and shall pay such damage as may be awarded in said suit in consequence of the use of such infringing material.

PROPORTIONS. 23. The proportions of the raw materials for the concrete shall be accurately determined by density experiments made by the Engineer from time to time to ascertain the relative coarseness of the aggregate in order to fix the proportions necessary to a concrete of maximum density. The Contractor shall use such proportions until notified by the Engineer to change, due to changes in the aggregate. The Cement shall be measured by the sack as packed by the manufacturer containing approximately 94 pounds net, and considered equivalent to 95/100 cubic foot. Other aggregate shall be measured as shoveled loose into a measuring box or barrel.

HAND  
MIXING.

24. If the concrete, or any part of it, is mixed by hand, the cement and aggregate must be thoroughly mixed dry until mixture is of uniform color, and the water added on a thoroughly water tight platform, the amount of mixing shall be sufficient to produce a concrete of uniform color and appearance with the stones thoroughly incorporated into the mortar and the consistency uniform

throughout.

MACHINE  
MIXING.

25. If the concrete is mixed in a machine mixer, the machine shall be so arranged that the materials, including the water can be regularly and precisely proportioned, and which will produce a concrete of uniform consistency and color with the stones thoroughly mixed and incorporated with the mortar. The aggregate shall be turned in the mixer for the minimum length of time of one and one quarter ( $1\frac{1}{4}$ ) minutes, if a half yard mixer, is used and one and one half ( $1\frac{1}{2}$ ) minutes, if a one yard mixer is used, after all the ingredients are assembled in the mixer. The number of revolutions of the mixer shall be so regulated as to give at the periphery of the drum a uniform speed between 160 and 200 feet per minute. If the mixer is of two yard capacity or more, the time a batch is to be turned shall not be less than two minutes.

SURFACES.

26. Noticeable voids and stone pockets discovered when forms are struck shall be immediately filled with mortar mixed in the same proportion as the mortar in the concrete. No allowance for labor or material over ~~and above the normal unit price~~ will be allowed for preparation of joints or filling of voids or stone pockets. The surfaces shall have no special treatment other than care in placing the concrete to avoid voids or stone pockets.

**FORMS.** 27. The lumber for the forms and the design of the forms shall be adapted to the structure. The forms shall be sufficiently tight to prevent loss of mortar. They shall be thoroughly braced or tied together so that the pressure of concrete or the movement of men, machinery or materials, shall not throw them out of place. Forms shall be left in place until in the judgment of the engineer the concrete has attained sufficient strength.

**STEEL.** 28. All reinforcing steel must occupy the exact position called for on the drawings, and method of placing must be such, that the reinforcement can not be displaced by the operation of placing concrete. Length of overlapping reinforcement shall be equal to at least 24 diameters of bars.

**CONCRETE.** 29. All concrete allowed for as extra work will be measured in the finally completed structure and will be paid for to the amount actually placed in the structures.

**QUARRIES.** 30. Quarries and borrow pits may be opened only on sites where excavation, in the judgment of the engineer, will not endanger the safety or stability of the structures contemplated.

**EXTRA WORK.** 31. Contractor shall make no claims for extra work unless the same shall be ordered by the

**Engineer.**

All claims for extra work must be filed with the Engineer by the 10th of the month following that in which the work is performed.

**GENERAL REGULATIONS.**

32. In all the operations connected with the work herein specified, all laws controlling or limiting in any way the actions of those engaged on the works, or affecting the materials applied to them, must be respected and strictly complied with.

**NO SPIRITUOUS LIQUORS.**

33. The Contractor shall neither bring nor allow others to bring any spirituous or fermented liquor or other intoxicant, upon the grounds occupied for the prosecution of the work; neither shall he furnish nor allow others to furnish liquors or other intoxicant, to the workmen in his employ or to any person or persons in the vicinity.

34. Grounds in the vicinity of the work and all camps in which employes are quartered shall be maintained in a proper, sanitary condition as directed by the Engineer.

35. After the work is finished, all materials, rubbish and debris shall be removed from the site, and the site cleaned up satisfactory to the Engineer.

DETAILED SPECIFICATIONS

FOR MULTIPLE ARCH DAM

ON SAN DIEGO RIVER

FOR

SAN DIEGO WATER CONTROL COMPANY

--o--

GENERAL SPECIFICATIONS

LOCATION OF  
STRUCTURE.

The work to be done under these specifications consists of the construction of San Dieguito Dam on the San Dieguito Ranch, near Del Mar, California.

The drawings accompanying these specifications cover the general features of the work. Further drawings showing details of construction will be supplied by the Engineer as required.

GENERAL DE-  
SCRIPTION OF  
THE STRUCTURE.

This dam is to be of the multiple-arched type, in which design, arches are used for the water face deck and buttresses are used for the support of the same, and so designed as to be completed from a depth of foundations satisfactory to the State Engineer up to contour elevation of 250. It will consist of 14 arches supported by 13 buttresses. The structure is to be founded on a solid rock foundation, the cut-off wall at the front edges of the arch ring foundations to be cut into sound rock for a tight cut-off and the buttress foundations to be sound rock, roughened and notched.

GENERAL DI-  
MENSIONS.

The general dimensions of the proposed 50 foot section for San Dieguito dam are as follows:-

Slope of crown line of arches, 8 to 12.

Slope of back edges of buttresses 4 to 10.



Spans, 60 feet from center to center of buttresses.

Arc of extrados, angle of arc 120 deg. of sloping part.

Radius of extrados of arches, 28.85 feet.

Radius of extrados of arches vertical head, 26.70 feet.

Radius of intrados of arches, varied with thickness.

Arch rings are monolithic heavily reinforced.

The thicknesses of the arch walls are 1 foot at the top, increasing to a thickness of 2.42 feet at the bottom, this giving a direct loading of 300# per square inch with the water at elevation 250.

The buttresses are to have the same loadings at the edge where they meet the arches, and less as base is approached due to the taper, the thickness at the top being 1.0 feet, and at the base 3.10 feet.

**COUNTERFORT  
BUTTRESSES.**

The spans being wide to give greatest economy for the small height, there are no strut beams used but to give stiffness to the rear ends of the buttresses, an equivalent is made by the use of Counterfort buttresses running from top to bottom of all buttresses as shown on the drawings.

A foot walk is provided by widening the cope

of the arch and buttress to 4 feet and placing a wave reacting cope along the upstream edge.

SPILLWAY. A small siphon spillway is to be located between two convenient buttresses to take care of any excess water in the reservoir and to regulate its level within 4 inches of the top of the dam at all times.

Reinforcement to be placed according to detail drawing.

The siphon spillway will be as shown on the drawings, and is to have a capacity of 1229 cubic feet per second to regulate the level of the water from the conduit in addition to the local storm waters.

#### EXCAVATIONS FOR

FOUNDATIONS. The excavations of the overburden to reach the foundations are to be so made as to enable good sound supporting bedrock to be reached for the buttress foundations and to permit the cut to be made for the cut-off walls of the arch ring walls into sound and tight bedrock. In rock excavation for the foundations, only small and light shots shall be used where blasting is necessary, the shots being so placed as to disturb as little as possible the surrounding ground. The bed rock must be cleaned of all spalls or loose fragments before placing concrete. The arch ring foundations can be excavated as a trench in all parts, and as an open cut having the general outline of the elliptic plan of the arch rings, giving the cut such

slopes as the materials will lay on, as an angle of repose. The excavations for the buttresses are best made as trenches for all depths, the cuts being wide enough to permit erecting forms inside of them.

FORMS FOR  
CONCRETE.

As the type of structure is somewhat unusual in its shape, the forms are designed as a part of the dam to give the contractor the advantage of past experience in their construction, and to remove all uncertainty as to the best forms to adopt. The forms are of wood, those for the buttresses being of panels made to reset and use over and over, all so designed as to fit in any part as well as of such sizes and shapes as to give a complete cover for the wall in the handiest units and shapes. The forms for the undersides of the arch rings are made up as a frame work of liners, giving the exact shape for the arch, these being made into a frame upon which is bent to shape lapped  $\frac{1}{2}$  x 6 inch boards, making a foundation from which to space the panels used for the outside forms for the arches. The use of these forms is not arbitrary but is recommended as the result of actual experience in building and will, if used, make the form work as simple as for a straight wall.

OUTLET  
WORKS.

and connection pipes  
The outlet gates/are to be furnished by the Company and placed by the Contractor where, and as

directed by the Engineer of the Company, without extra charge.

**UNIT STRESSES IN**

**THE STRUCTURE. Section 1.** In the design of this dam the

following unit stresses have been considered as the maximum allowable and all parts are so designed and constructed that these limits can not be exceeded when the structure is finally completed to the contour at elevation 250 and is full of water to that level.

Loading on foundations, maximum 14.0 tons per square ft.

Buttresses in compression, 350# per square inch.

Arched deck in direct compression, 300# per square inch.

Foundation bases in direct shear, 99# per square inch.

Steel reinforcement, 14,000# per square inch.

There is no bending, no beam shear, or tension in the structure and none of the steel is stressed at all under normal conditions of temperature, the steel being only for temperature change stresses.

All of the above named stresses are the maximum in the final completed structure with water to elevation 250.

Steel for reinforcement shall be in shapes and sizes called for on the detail plans and in the specification and shall be of deformed bars, preferably corrugated bars.

**REINFORCEMENT.** Steel for reinforcement shall be in shapes and sizes called for on the detail plans and in accordance with the provisions in the general specifications

and shall be of round corrugated bars, known as rib bars.

The reinforcement for the arch rings is to be of rib bars of sizes and spacing, as shown on the reinforcement sheet. At the bases of the arches there are to be inserted steel bars to join the arch rings to the cut off walls and also to reinforce the front in a longitudinal line at this point. Full details are shown on the reinforcement sheet of the plans.

All secondary reinforcement such as netting, wire, or ties shall be of the best quality obtainable.

#### REINFORCED CONCRETE.

**PROPORTIONING AND MIXING.** In all buttresses and their footings a concrete having a mix of 1:2½:5 shall be used, containing 1.3 bbls. of cement per cubic yard.

In the arch rings and the gate settings a 1:2:4 mix shall be used, containing 1.5 bbls. of cement per cubic yard.

Sand and stone shall be measured when packed not more closely than by throwing it in the usual way into boxes.

**CONSISTENCY.** The resulting concrete mixture shall be of such consistency as to move freely and be sloppy and

soft when deposited. It shall be in every instance what is generally known as "wet concrete." However, care must be exercised to not add an excess of water and thereby cause separation of cement from the aggregate.

**DEPOSITING.** Each batch must be deposited in place as quickly as possible after mixing and the entire mass must have primary set within twenty four hours. Concrete which has commenced to set before being deposited will not be permitted to remain in the work.

All concrete shall be deposited wet and sloppy and shall be thoroughly spaded and puddled to remove air and until all the interstices between the stones are thoroughly filled with mortar. When deficiency of moisture is indicated it shall be supplied by sprinkling. Each batch must be puddled and properly in place before another batch is deposited in the forms. All exposed surfaces of finished and unfinished work shall be kept moist by sprinkling with water under pressure at short intervals. No walking or handling of materials on concrete is to be permitted until it has thoroughly and completely hardened, and all finished work shall be protected as may be necessary by canvas or plank. Layers shall be formed with square ends and not sloped or tapered.

**FINISHING.** The concrete shall be placed by skilled workmen and all stones shall be well worked back from the face of

forms by spading, so as to produce a smooth surface and so that no stone shall approach the face of the work.

**GROUTING.** When new work is joined to old work or to concrete already set, the joints shall be scarified and loose material on the surface flushed out of the forms with water under pressure, the surface then slushed with grout of neat cement, or if still wet from the washing with neat cement dusted on the wet surface. The surface must not be grouted or dusted unless concrete is to be immediately laid on it, the grouting in all cases to immediately precede the laying of concrete.

**LAYING.** Concrete shall be laid continuously in so far as possible and each layer incorporated with the one previously laid. Wherever it becomes necessary to place fresh concrete upon old concrete surface, the old surface shall be cleaned of all dirt, scum and littance and thoroughly wetted and flushed before depositing the grout and fresh concrete.

**JOINTS.** The construction must be as nearly monolithic as possible, but if it is necessary to place the concrete in sections, key blocks in the form of an inverted truncated pyramid for ease of removal without disturbing the surrounding concrete of proper size and arrangement shall be imbedded in the concrete where the work is stopped so that the joining work may later be

properly connected to it. Vertical joints shall not be permitted in buttress walls or arch ring walls except as shown on the plans. The vertical joints in the buttresses where they are to be later joined to the new work for the completed structure shall be provided with the joining reinforcement as shown on the plans and shall also be provided with key blocks fastened to the vertical forms and imbedded in the horizontal portions of the steps to key the parts of the walls together.

**CONSTRUCTION OF BUTTRESSES.** The buttresses and all walls are tapered uniformly from top to bottom to give the required thickness, and the wall is to be carried up with such lifts as are convenient, but in all cases must be left when ceasing work on a buttress wall so that the rear or downstream end of the wall is higher than the front by means of temporary boards placed across the forms to create steps or keys, each rising higher as the rear of the buttress is approached. Weepholes to be left where directed by the Engineer.

**ARCH RING CONSTRUCTION.** The buttresses should be built first or kept at least a good distance ahead of the arch ring constructions, preferably completed to the full height after which the arch rings are built in place. The forms for the under side can be carried up to a con-



considerable distance above the place where work is being done, or completed to the top of the completed buttresses, the walls then being placed by using panel forms for the outside forms, braced to the inside forms. The steel for reinforcing the arch rings should be put in place before erecting the outside panels where the walls are thin. The outside panel forms must be properly spaced from the inside forms to give the required thickness of arch walls at the various levels. All of these dimensions will be given in field drawings.

**REMOVAL OF  
FORMS.**

Forms shall not be removed before the concrete is sufficiently set. Buttress forms shall in no case be removed while the concrete is taking its set, and in not less than 24 hours after placing, for buttress forms, not less than 12 hours for outside panels forms of arches, and for inside arch forms, not less than 7 days from the date of laying.

Reinforcing bars must not be jarred or moved while the concrete is taking its set.

**FORMS.**

All concrete masonry shall be built in place in wooden forms of sufficient strength, properly tied and braced together so as to be practically unyielding. The forms must have close joints and for outside walls be of lumber dressed on the side exposed to the concrete

so as to produce a smooth surface on all showing faces. The forms shall be coated with a heavy oil before using, and where used over, as in the case of panels, must be cleaned of adhering concrete before re-use. All forms shall be thoroughly wet before placing concrete against them. The forms for the arch rings need not be of dressed lumber. All concrete is to be dense and have a smooth exterior surface and no cracks or spalling shall be repaired.

**EXPOSED SUR-  
FACES.**

All exposed surfaces of concrete in the superstructure or that portion above the natural surface of the ground and exposed to view, shall be given special attention in laying in order to produce smooth surfaces in true planes uniform in structure and appearance. The corners of all finished edges as that of the struttie beams are to be clipped by inserting a fillet in the corners of all forms for such parts of the work.

**EXPOSED REIN-  
FORCEMENT.**

All exposed reinforcement, left protruding from the buttress walls must be coated with a grout of cement after the work is completed and before leaving the work, to prevent rusting by exposure to the elements.

**BUTTRESSES.**

Buttresses are to be built of 1:2½:5 concrete and shall be built with such lifts as are most convenient but at the termination of the pouring for any day the

REVISIONS TO SPECIFICATIONS ON THE SUBJECT MATTER

rear or downstream and is to be left higher than the front and proper keys provided in the wall at the point of cessation of work. The foundations shall be prepared by removing all spalls, fragments, chips shavings or any foreign matter of any kind from the bedrock, washing it clean with a hose under pressure dusting the surface with dry cement or slushing it with cement grout as may be directed, and placing the concrete immediately on this prepared surface. The forms for the buttress bases at the foundation should be of frame work of studs nailed to a plate to bring the top to a level to begin the use of the panel buttress forms, leaving the boards of the forms off at the bottom to permit the spread of the concrete to form the proper footing for the buttresses. At the end of each pouring, beveled wooden blocks of convenient size are to be imbedded in the fresh concrete by pressing down into it till they are flush with the top, which are to be removed before beginning work on the surface, the surface roughened and all loose material of any kind washed out of the forms, till the surface is clean, then grouted or dusted and pouring immediately commenced. ~~These forms must be braced firmly to the buttress forms to prevent sagging.~~

ARCH RINGS. The deck and arch ring waterface of the dam

shall be built of 1:2:4 concrete placed very wet and very carefully placed. The cut off wall is to be placed carefully in a trench of such depth as will place all of it in sound rock that is free from seams, the trench being perfectly clean before concrete is laid in it and the reinforcing bars shown on the reinforcement sheet, placed in it, bent to an angle to fit the slope of the arch ring wall at the point placed. The concrete in the cut off wall is to be continued up and constitute the base of the arch ring and is a part of it. The arch rings shall be cast in longitudinal lifts of about 6 feet, the wall being so provided with key blocks as to be continuous and have no longitudinal joints.

The inside forms are to be supported on liners out to the required radius for the point placed all of which are given in the field drawings, these liners resting on the projecting ledge of the buttress. These liners are spaced 7'10" apart to make use of even length studs of 16 feet cut to fit between the liners, making a frame of studs upon which the 1/2 x 6" boards are bent and nailed. Collar braces to stiffen the liners are put on at the time of erection, the liners being assembled to fit the required radius on a platform in the carpenter

yard. The reinforcement is placed on the inside forms and separated from it by means of briquettes of mortar of such dimensions as to space it properly from the forms and in the proper place in the walls.

The outside forms are to consist of panels as shown on the detail sheet showing arch forms and details. These panels are to be held in place by means of dowel pins and over all a cable of light weight provided with turnbuckles and hooks at the ends to hold the row of panels in place, the ends of the cable fastening to wire loops placed in the filler of the buttress when the buttresses are poured. This arrangement obviates the tying of the outside form to the inside by means of wires left in the wall which are objectionable as cause of weeping leaks where the water follow them.

The cope of the arch rings is to be built to serve as a foot walk across the structure, the wave cope on the up-stream side to serve as a railing and the railing to be placed on the down stream side.

**FIELD JOINTS.** Field joints in the arch rings shall be thoroughly roughened by picking and the feather edges of the top and bottom of the walls broken away and cleaned out before continuing the concreting. Great care must be taken to secure a tight joint between both inside and outside forms and old concrete at the top of lifts in

... of the State Engineer of Missouri  
... on the basis of the plans and specifications  
... of the State Engineer of Missouri

in order that no leakage of cement may take place at this joint, as it is essential that all surfaces, both inside and outside be as nearly perfect as it is possible to make them.

**FINISHING SURFACES.**

All surfaces in the interior of the dam, such as the under side, deck, sides of buttresses shall be made as smooth as possible by the use of close, well made forms, but no special finishing is required after forms are removed except that any rough or porous spots shall be thoroughly cleaned and filled with a mortar to match in color and texture the concrete and be floated over with a wooden float to resemble the remainder of the walls.

**CLEANING UP.**

After the work is finished, all materials, rubbish and debris shall be removed from the site, and the site cleaned up satisfactory to the engineer.

**FIELD SERVICE.**

Field drawings of all parts of the works in such detail as to make all parts of the work plain, as well as instructions as to best and most economical methods will be furnished the contractor as required.

**CHANGES IN DESIGN.**

~~Should it meet with the approval of the State Engineer, the main foot walk cope may be built to elevation 248 and the crest of the wave cope to elevation 250. In which case a reduction will be made as stated in the bid for the work.~~

①  
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55-A

# TABULATION OF BIDS ON DISTRIBUTION LINES '1A'-'2B'-'2C'-'2D' & '2E' FOR T

*Contract  
Between Bidder*

		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		
		<i>Pacific Tank &amp; Pipe Co.</i>		<i>Redwood Mfg Co</i>		<i>Long Mfg Co</i>		<i>Baker Iron Works</i>		<i>Western Pipe &amp; Steel Co</i>		<i>Weld &amp; Steel Cast Iron Pipe &amp; Foundry Co</i>		<i>Robert Daley</i>		
		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		
		<i>Mono Steel</i>		<i>Redwood</i>		<i>Steel</i>		<i>Steel - FOB Bidder includes lagging</i>		<i>Steel</i>		<i>Cast Iron</i>		<i>Excavation only</i>		
		Quantity	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
EXCAVATION	Earth	11,120 cu.yds														
	Other than Earth	2,780 "														
	Tunnel No.1	410 lin.ft.														
	" No.2	900 "														
	" No.3	1,175 "														
BACKFILLING		9,500 cu.yds.														
TOTALS																
PIPE ON GRADE CONTOURS	26" pipe	6,390 lin.ft.	2.12	13547	2.12	13547	4.02	25686	4.09	26135	4.04	25816	8.185	52307		
	24" pipe	6645 "	2.00	13290	2.05	13622	3.71	24653	3.78	25118	3.73	24786	7.76	51565		
	22" pipe	6865 "	1.90	13044	1.94	13318	3.45	23684	3.52	24165	3.47	23822	6.31	43318		
	16" pipe	5692 "					1.87	10644	1.92	11042	1.89	10758	4.115	23423		
	TOTALS			(39981)		(40487)		84669		86460		85182		170608		
SIPHONS NOT OVER 40' HEAD	26" pipe	3,345 lin.ft.	2.12	7091	2.12	7091	4.02	13447	4.09	13681	4.04	13514	8.185	27374		
	24" pipe	4,044 "	2.00	8088	2.05	8290	3.71	15003	3.78	15286	3.73	15084	7.76	31381		
	22" pipe	535 "	1.90	1017	1.94	1038	3.45	1846	3.52	1883	3.47	1856	6.31	3376		
	16" pipe	1,622 "					1.87	3033	1.92	3147	1.89	3066	4.115	6675		
	TOTALS			(16196)		(17419)		33329		33997		33520		68811		
SIPHONS 40' to 120' HEAD	26" pipe	1,120 lin.ft.	2.88	3228	3.08	3450	4.02	4502	4.09	4581	4.04	4525	8.185	9167		
	24" pipe	2,525 "	2.70	6838	2.98	7494	3.71	9369	3.78	9545	3.73	9418	7.76	19590		
	22" pipe	none														
	16" pipe	1,450 "					1.87	2712	1.92	2813	1.89	2740	4.115	5967		
	TOTALS			(10066)		(10944)		16582		16939		16683		34729		
GRAND TOTALS				(66143)		(68850)		134580		137396		135385		274147		

*Extra on Bids  
Feb. 1934 - not laid*

*FOB Bidder  
Lagging*

*5-16-34*



# C-2D & 2E FOR THE SAN DIEGUITO MUTUAL WATER CO.

Bids opened 10 AM, July 19, 1917

Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		REMARKS	
Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe			
Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
Unit States Cast Iron and Foundry Co.		Robert Daley		National Metal Supply		James Kennedy		James Kennedy		James Kennedy		Best Pros.	
Cast Iron		Excavation only		Universal Pipe 2 1/2" Discount		Lumber Pipe		Machine Wood Stain Pacific Pipe & Tank		Cast Wood			Concrete
Cost + 15%													
				55	2116	55	6116	55	6116	50	5560		
				250	6950	250	6950	250	6950	100	2780		
				400	1640	400	1640	400	1640	600	2460		
				450	4050	450	4050	450	4050	600	5400		
				500	5875	500	5875	500	5875	600	7050		
				209	1900	209	1900	20	1900	25	2375		
					26531		26531		26531		25625		
8185	52302			30"	240	15336		292	18659	140	8946	11	
776	51565			30"	240	15948	274	18207	150	18606	132	8771	
631	43318			30"	240	16476	258	17712	270	18536	115	7893	
4115	23423			30"	215	12234	200	11384			80	4554	
	170608					52998		(47303)		55801		30166	
8185	27379			30"	225	9199		292	9767	275	9199		
776	31381			30"	275	11121	280	11323	280	11523	225	9099	
631	3376			30"	275	1471	263	1407	270	1445	225	1204	
4115	6175	463	7510	30"	245	3974	203	3293			175	2839	
	68911					25765		(16023)		22535		22341	Rent in
8185	9127			30"	325	3640		352	3942	275	5050	444	
776	19574			30"	325	4206	322	4131	336	4484	225	5681	407
				30"							225	380	Quoted
4115	5967	463	6714	30"	280	4060	239	3175				216	
	34768					15906		(11306)		(12426)		8761	
	274177		14224			128200		(101163)		(117293)		86893	

150 487  
170 524

2 1/2"  
Cost + 15%

1 1/2" Pipe  
Metal Steel Sigs

DRAWING No  
S.D.M.W.CO. FILE No

Quoted paper - 1/2%

COMBINATION BID OF BENT BROS. WITH WOOD PIPE (PACIFIC TANK AND PIPE COMPANY)

-----  
Concrete Pipe and High Head 16" Wood Siphon

Excavation and Backfill including Tunnels-----	\$	25,625
Hauling and Distributing for 16" wood pipe -----		508
Gravity Line - Cement hand made -----		30,166
Siphons - to 40 ft. head (Cement Reinforced) -----		22,341
Siphons - 26" and 24" high head (Reinforced cement) ----		8,761
Siphons - 16" wood machine banded -----		<u>2,016</u>
	\$	89,417 ✓

-----  
Concrete Pipe Gravity Line - Wood pipe Siphons

Excavation and Backfill including Tunnels -----	\$	25,625
Hauling and Distributing -----		5,124
Gravity Line (Cement hand made) -----		30,166
Siphons - to 40 ft. head 26, 24 and 22" (Wood Cont.Stave)		16,196
Siphons - to 40 ft. head 16" (Machine Banded) -----		1,995
Siphons - to high head 26" and 24" -----		10,066
Siphons - 16"(wood machine banded) -----		<u>2,016</u>
	\$	91,188 C

-----  
Wood Pipe

Excavation and Backfill including Tunnels -----	\$	25,625
Hauling and Distribution -----		14,082
Gravity Line - 26 - 24 - 22" Continuous Stave -----		39,881
Gravity Line - 16" (Machine Banded) -----		6,830
Siphon - 40 ft. head 26-24-22 (Wood Cont. Stave) -----		16,196
Siphon - 40 ft. head 16" (Machine Banded) -----		1,995
Siphon - high head 26-24 (Cont. Wood Stave) -----		10,066
Siphon - 16"(Wood mach. Banded)-----		<u>2,016</u>
	\$	116,691 ✓

-----  
Combination Bid Concrete Pipe - with High head 16"  
Riveted Steel Pipe

Excavation and Backfill including Tunnel -----	\$	25,625
Gravity Line - Cement Hand Made -----		30,166
Siphons - to 40 ft. head (Cement Reinforced) -----		22,341
Siphons - 26-24 high head (Reinforced cement) -----		8,761
Siphons - 16" Riveted Steel -----		<u>3,132</u>
	\$	90,025 ✓

S U M M A R Y

<u>Name</u>	<u>Kind of Pipe</u>	<u>Where Delivered</u>	<u>Includes</u>	<u>Hauling and Distributing</u>	<u>Trenching and Backfilling</u>	<u>Amount</u>
✓ Pacific Tank & Pipe Co.	continuous stave	fob Del Mar	Constructed in ditch 8,764 ft. 16" Pipe not included	No	No	\$ 66,143 ✓
✓ Pacific Tank & Pipe Co.	Machine banded	fob Del Mar	Constructed in ditch 10,855 ft. 26" Pipe not included	No	No	51,130 ✓
✓ Redwood Mfg. Co.	Continuous stave	fob Del Mar	Constructed in ditch 8,764 ft. 16" Pipe not included	No	No	68,850 ✓
✓ Redwood Mfg. Co.	Machine banded	fob Del Mar	Constructed in ditch 10,855 ft. 26" Pipe not included	No	No	52,916 ✓
✓ Lacey Mfg. Co.	Riveted Steel	fob Del Mar	Furnishing pipe only	No	No	134,580 ✓
✓ Baker Iron Works	Riveted Steel	fob Del Mar	Constructed in ditch	No	No	137,396 ✓
✓ Western Pipe & Steel Co.	Riveted Steel	fob Del Mar	Constructed in ditch	No	No	135,385 ✓
✓ U.S. Cast Iron Pipe & Foundry Co.	Cast Iron	fob Del Mar	Furnishing pipe only	No	No	274,147 ✓
✓ Western Metal Supply Co.	Universal Pipe	fob San Diego	Furnishing 16" only	No	No	14,224 <i>cut</i>
✓ Daley Rankin Co.	Propose to construct line complete at cost of labor & Material plus 10%.					
✓ J. Kennedy	Gunite Pipe		Complete in place	Yes	Yes	128,200 ✓
✓ J. Kennedy	Continuous stave		Complete in place 8,764 ft. 16" pipe not included	Yes	Yes	117,293 ✓
✓ J. Kennedy	Machine banded wood stave		Complete in place 10,855 ft. 26" pipe not included	Yes	Yes	101,163
✓ J. Kennedy	Gunite Pipe		( 30" Gunite used instead of 26" & ) ( 24" and 24" Gunite instead of ) ( 22" & 16" complete in place )	Yes	Yes	126,324 ✓
Bent Bros.	Concrete		Complete in place 1,450 ft. 16" high head syphon not included.	Yes	Yes	86,893
Bent Bros.	Steel Syphon & Concrete pipe		Complete in place	Yes	Yes	111,021
Bent Bros.	On gravity portion Glazed Pipe would be \$33,182 - Machine made \$30,166.					

# TABULATION OF BIDS ON DISTRIBUTION LINES 1A-2B-2C-2D & 2F FOR THE SAN

	Quantity	Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder	
		Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
EXCAVATION	Earth	11120	CuYds														
	Other than Earth	2780															
	Tunnel No. 1	410	Lin Ft														
	No. 2	900															
	No. 3																
BACKFILLING	9500	CuYds															
TOTALS																	
PIPE ON GRADE, CONTOURS	26" pipe	6370	Lin Ft	2.12	13547	2.12	13547	4.02	25688	4.09	26135	4.04	25816	8.185	52302		
	24" pipe	6045	" "	2.00	13290	2.05	13622	3.71	24653	3.78	25118	3.73	24786	7.76	51565		
	22" pipe	6865	" "	1.90	13044	1.94	13318	3.45	23684	3.52	24165	3.47	23877	6.31	43316		
	12" pipe	5692	" "					1.87	10644	1.94	11042	1.89	10758	4.115	23423		
	TOTALS				39881		40487		84669		86460		85182		170608		
SIPHONS NOT OVER 40' HEAD	26" pipe	3345	Lin Ft	2.12	7091	2.12	7091	4.02	13447	4.09	13681	4.04	13514	8.185	27379		
	24" pipe	4044	" "	2.00	8088	2.05	8290	3.71	15003	3.78	15286	3.73	15084	7.76	31381		
	22" pipe	535	" "	1.90	1017	1.94	1038	3.45	1846	3.52	1883	3.47	1856	6.31	3376		
	12" pipe	1622	" "					1.87	3033	1.94	3147	1.89	3066	4.115	6675	4.63	7510
	TOTALS				16196		17419		33329		33997		33520		68811		
SIPHONS 40 to 120 FT HEAD	26" pipe	1120	Lin Ft	2.88 <sup>a</sup>	3228	3.08	3450	4.02	4502	4.09	4581	4.04	4525	8.185	9167		
	24" pipe	2525	" "	2.70 <sup>b</sup>	6838	2.96 <sup>b</sup>	7494	3.71	9368	3.78	9545	3.73	9418	7.76	19594		
	22" pipe	None															
	12" pipe	1450	" "					1.87	2712	1.94	2813	1.89	2740	4.115	5967	4.63	6714
	TOTALS				10066		10944		16587		16939		16683		34728		
GRAND TOTALS					66143		68850		134580		137396		135385		274147		14224

FOB Del Mar.  
Not Paid  
Extra on Bonds

FOB  
San Diego

# TABULATION OF BIDS ON DISTRIBUTION LINES 1A-2B-2C-2D & 2F FOR THE SAN

		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder	
		Pacific Tank & Pipe Co.	Redwood Mfg. Co.	Lacey Mfg. Co.	Baker Iron Works	Western Pipe & Steel	Foundry Co.	Chas. Daley	Western Metal Supply Co.	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe
		Wood Stave	Redwood	Steel	Steel	Steel	Steel	Steel	Cast Iron	Excavation only	Universal Pipe						
	Quantity	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
EXCAVATION	Earth	11120	Cu Yds														
	Other than Earth	2750	" "														
	Tunnel No. 1	410	Lin Ft														
	No. 2	900	" "														
	No. 3		" "														
	BACKFILLING	9500	Cu Yds														
	TOTALS																
PIPE ON GRADE, CONTOURS	26" pipe	6370	Lin Ft	2.12	13547	2.12	13547	4.02	25688	4.09	26135	4.04	25816	8.185	52302		
	24" pipe	6045	" "	2.00	12090	2.05	12322	3.71	22453	3.78	22718	3.73	22486	7.76	46855		
	22" pipe	6865	" "	1.90	13044	1.94	13318	3.45	23684	3.52	24165	3.47	23822	6.31	43316		
	20" pipe	5672	" "					1.87	10644	1.94	11042	1.89	10758	4.115	23423		
	TOTALS				39881		40487		84669		86460		85182		170601		
SIPHONS NOT OVER 40' HEAD	26" pipe	3345	Lin Ft	2.12	7091	2.12	7091	4.02	13447	4.09	13681	4.04	13514	8.185	27379		
	24" pipe	4044	" "	2.00	8088	2.05	8290	3.71	15003	3.78	15286	3.73	15084	7.76	31381		
	22" pipe	535	" "	1.90	1017	1.94	1038	3.45	1846	3.52	1883	3.47	1856	6.31	3376		
	20" pipe	1622	" "					1.87	3033	1.94	3147	1.89	3066	4.115	6675	4.63	7510
	TOTALS				16196		17419		33329		33997		33520		68811		
SIPHONS 40 to 120' HEAD	26" pipe	1120	Lin Ft	2.88 <sup>2</sup>	3228	3.08	3450	4.02	4502	4.09	4581	4.04	4525	8.185	9167		
	24" pipe	2525	" "	2.70 <sup>2</sup>	6838	2.96 <sup>2</sup>	7494	3.71	9368	3.78	9545	3.73	9418	7.76	19594		
	22" pipe	None															
	20" pipe	1450	" "					1.87	2712	1.94	2813	1.89	2740	4.115	5967	4.63	6714
	TOTALS				10066		10944		16587		16939		16683		34728		
	GRAND TOTALS				66143		68850		134580		137396		135385		274147		14224

FOB Del Mar  
Not Paid  
Extra on Bonds

FOB  
San Diego

# FOR THE SAN DIEGUITO MUTUAL WATER CO.

Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder
Chas Daley		Western Metal Supply Co		James Kennedy		James Kennedy		James Kennedy		Brent Bros		Brent Bros		Redwood Mfg Co		Pacific Pipe & Tank Co		James Kennedy		Brent Bros		Na
Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Ki
Excavation only		Universal Pipe 2 1/2 Diameter		Gunite Pipe		Machine Wood Stake		Continuous Wood		Concrete		Combination Riveted Steel and Concrete		Machine Banded		Machine Banded		Gunite Pipe		Glazed Pipe		
Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit
Cost + 15%				55	6116	55	6116	55	6116	50	5560	50	5560					55	6116			
				2 50	6950	2 50	6950	2 50	6950	1 00	2780	1 00	2780					2 50	6950			
				4 00	1640	4 00	1640	4 00	1640	6 00	2460	6 00	2460					4 00	1640			
				4 50	4050	4 50	4050	4 50	4050	6 00	5400	6 00	5400					4 50	4050			
				5 00	5875	5 00	5875	5 00	5875	6 00	7050	6 00	7050					5 00	5875			
				20	1900	20	1900	20	1900	25	2375	25	2375					20	1900			
					26531		26531		26531		25625		25625						26531			
				30	240	15336	292	18659	1 40	8946	1 40	8946									1 54	2841
				30	240	15948	2 74	18207	2 30	18606	1 32	8771	1 32	8771	2 02	13423	1 94	12891	2 40	31284	1 52	9649
				30	240	16476	2 58	17712	2 70	18536	1 15	7895	1 15	7895	1 85	12700	1 78	12220			1 26	8684
				30	215	12238	2 00	11384			80	4554	80	4554	1 25	7115	1 20	6830	2 15	26998	88	5009
						59998		47503		5580		30166		30166		33238		31941		58282		33182
				30	275	9199	2 92	9767	2 75	9199	4 44	14852	4 44	14852								
				30	275	11121	2 80	11323	2 80	11323	2 25	9099	2 25	9099	4 07	16459	2 07	8371	2 00	8088	2 75	20320
				30	275	1471	2 63	1407	2 70	1445	2 25	1204	2 25	1204	3 80	2033	1 90	1017	1 83	979		
				4 63	7510					1 75	2839	1 75	2839	2 16	3504	1 28	2076	1 23	1995	2 45	5285	
						25765		16023		22535		22341		36848		11464		11062		25605		
				30	325	3640	3 52	3542	3 52	3542	2 75	3080	2 75	3080	4 44	4223						
				30	325	8206	3 22	8131	3 36	8484	2 25	5681	2 25	5681	4 07	10227	2 42	6111	2 42	6111	3 25	11846
				4 63	6714																	
				2 80	4060	2 19	3175							2 16	3132	1 45	2103	1 39	2016	2 80	4060	
					15906		11306		12426		8761		18382		8214		8227				15906	
				14224	128200		101163		117293		86893		11021		52916		51130				126324	

FOG  
San Diego

# BID FOR THE SAN DIEGUITO MUTUAL WATER CO.

Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	Name of Bidder	No		
Chas Daley	Western Metal Supply Co	James Kennedy	James Kennedy	James Kennedy	Bent Bros	Bent Bros	Redwood Mfg Co	Pacific Pipe & Tank Co	James Kennedy	Bent Bros													
Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe	Kind of Pipe		
Excavation only	Universal Pipe 2 1/2 inches	Gunite Pipe	Machine Wood Stake 4 inch Pipe 4 Tank	Continuous Wood	Concrete	Concrete	Machine Banded	Machine Banded	Gunite Pipe	Glazed Pipe													
Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
Cost + 15%		55	6116	55	6116	55	6116	50	5560	50	5560							55	6116				
		2.50	6950	2.50	6950	2.50	6950	1.00	2780	1.00	2780							2.50	6950				
		4.00	1640	4.00	1640	4.00	1640	6.00	2460	6.00	2460							4.00	1640				
		4.50	4050	4.50	4050	4.50	4050	6.00	5400	6.00	5400							4.50	4050				
		5.00	5875	5.00	5875	5.00	5875	6.00	7050	6.00	7050							5.00	5875				
		20	1900	20	1900	20	1900	25	2375	25	2375							20	1900				
			26531		26531		26531		25625		25625								26531				
		30	240	15336	2.92	18659	1.40	8946	1.40	8946										1.54	9841		
		30	240	15948	2.74	18207	2.80	18606	1.32	8771	1.32	8771	2.02	13423	1.94	12891			2.40	31284	1.452	9649	
		30	240	16476	2.58	17712	2.70	18536	1.15	7895	1.15	7895	1.85	12700	1.78	12220					1.265	8684	
		24	215	12238	2.00	11284			80	4554	80	4554	1.25	7115	1.20	6830			2.15	26998	88	5009	
				59298		47503		55801		30166		30166		33238		31941				58282		33182	
		275	9199			2.92	9767	2.75	9199	4.44	14852												
		275	11121	2.80	11323	2.80	11323	2.25	9099	4.07	16259	2.07	8371	2.00	8088					2.75	20320		
		275	1471	2.63	1407	2.70	1445	2.25	1204	3.80	2033	1.90	1017	1.83	979								
	4.63	7510	24	245	3974	2.03	3293			1.75	2839	2.16	3504	1.28	2076					2.45	5285		
				25765		16023		22535		22341		36848		11464		11062					25605		
		30	325	3640	3.52	3542	3.52	3542	2.75	3080	4.44	4273											
		30	325	8206	3.22	8131	3.36	8484	2.25	5681	4.07	10277	2.42	6111	2.42	6111					3.25	11846	
									2.25														
	4.63	6714	24	280	4060	2.19	3175					2.16	3132	1.45	2103	1.39	2016			2.80	4060		
				15906		11306		12426		8761		18342		8214		827					15906		
			14224	128200		101163		117293		86893		111021		52916		51130					126324		

FOG San Diego

R CO.

Bids opened 10 AM, July 19, 1917

Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		REMARKS
Bent Bros		Redwood Mfg. Co.		Pacific Pipe & Tank Co.		James Kennedy		Bent Bros				
Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		
Concrete		Combination Riveted Steel and Concrete		Machine Banded		Machine Banded		Gunite Pipe		Clay Pipe		
Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
50	5560	50	5560					55	6116			
100	2780	100	2780					250	6950			
600	2460	600	2460					400	1620			
600	5400	600	5400					450	4050			
600	7050	600	7050					500	5875			
25	2375	25	2375					20	1900			
	25625		25625						26531			
140	8946	140	8946							154	9841	
132	8771	132	8771	202	13423	194	2891	240	31284	1452	9649	
115	7895	115	7895	185	12700	178	12220			1265	8684	
80	4554	80	4554	123	7115	120	6830	115	26998	88	5009	
	30166		30166		33238		31941		58282		33182	
275	9199	275	14852									
225	9099	207	6459	207	8371	200	8088	275	20325			
225	1204	380	2033	190	1017	183	979					
175	2839	216	3504	128	2076	123	1995	245	5285			
	22341		36848		11464		11062		25505			
275	3080	275	4973									
225	5681	207	10277	242	6111	242	6111	325	11846			
225												
		216	3132	145	2105	139	2016	280	4060			
	8761		18342		8214		8127		15906			
	86893		111021		52916		51130		126324			

DRAWING No  
S.D.M.W.CO. FILE No



R CO.

Bids opened 10 AM, July 19, 1917

Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		Name of Bidder		REMARKS
Bent Bros		Redwood Mfg. Co.		Pacific Pipe & Tank Co.		James Kennedy		Bent Bros				
Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		Kind of Pipe		
Concrete		Riveted Steel and Concrete		Machine Banded		Machine Banded		Gunite Pipe		Clayed Pipe		
Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
50	5560	50	5560					55	6116			
100	2780	100	2780					250	6950			
600	2460	600	2460					400	1640			
600	5400	600	5400					450	4050			
600	7050	600	7050					500	5875			
25	2375	25	2375					20	1900			
	25625		25625						26531			
140	8946	140	8946							154	9841	
132	8771	132	8771	202	13423	194	2891	240	31284	1452	9649	
115	7895	115	7895	185	12700	178	12220			1265	8684	
80	4554	80	4554	123	7115	120	6830	15	26998	88	5009	
	30166		30166		33238		31941		58282		33182	
275	9199	275	14852									
225	9099	207	6459	207	8371	200	8088	275	20320			
225	1204	350	2033	190	1017	183	979					
175	2839	216	3594	128	2076	123	1995	245	5285			
	22341		36848		11464		11062		25505			
275	3080	275	4973									
225	5681	207	10277	242	6111	242	6111	325	11846			
225												
		216	5132	145	2105	139	2016	280	4060			
	8761		18352		8214		8127		15906			
	86893		111021		52916		51130		126324			

DRAWING No. 217  
S. D. M. W. CO. FILE No.

217 S.2

15  
600  
600

Long Me #155-A

217 S-2

0

NOTICE OF COMPLETION AND ACCEPTANCE OF WORK:

TO WHOM IT MAY CONCERN:

NOTICE IS HEREBY GIVEN that the undersigned, the San Dieguito Mutual Water Company, as the owner of the property hereinafter described, caused a conduit to be erected upon said property, the contract for erecting said conduit was made with Arthur S. Bent and H. Stanley Bent, doing business as a co-partnership under the firm name of Bent Brothers, as Contractor, and the undersigned as the owner of the property, under date of May 15, 1917.

That said conduit was actually completed and accepted by the undersigned in accordance with the provisions of said contract on January 29th, 1919.

That the property hereinbefore referred to and on which said conduit was constructed is hereby described as follows, to-wit:-

A right of way 25 feet in width the center line of which is co-incident with the center line of said conduit as the same is now constructed, extending from a point beginning at Lake Hodges dam in what, when surveyed, will be the Southeast quarter (SE $\frac{1}{4}$ ) of Northwest quarter (NW $\frac{1}{4}$ ) of Section 18, Township 13 South, Range 2 West SBB&M, thence continuing in a general westerly direction through Section 18, Township 13 South, Range 2 West SBB&M, and Sections 13, 14, 23 and 22 Township 13 South, Range 3 West SBB&M, thence continuing westerly within the boundaries of the Rancho San Dieguito to what is known as the San Dieguito Reservoir located on the tract of land deeded to the San Dieguito Mutual Water Company by the Santa Fe Land Improvement Company, and recorded in Book of Deeds No. 734, Page 296, all in San Diego County, California.

SAN DIEGUITO MUTUAL WATER COMPANY,

By \_\_\_\_\_  
Its President.

STATE OF CALIFORNIA )  
                          :SS  
COUNT OF SAN DIEGO (

ED. FLETCHER being duly sworn, says: That he is the President of the San Dieguito Mutual Water Company mentioned in the foregoing notice; that he has read said notice and knows the contents thereof, and that the same is true of his own knowledge.

SUBSCRIBED AND SWORN to before me  
this \_\_\_\_\_ day of \_\_\_\_\_ 1919.

\_\_\_\_\_  
Notary Public in and for said County and State.

NOTICE OF COMPLETION AND ACCEPTANCE OF WORK.

TO WHOM IT MAY CONCERN:

NOTICE IS HEREBY GIVEN that the undersigned, the San Dieguito Mutual Water Company, as the owner of the property hereinafter described, caused concrete water pipe lines to be erected upon said property, the contract for erecting said concrete water pipe lines was made with Arthur S. Bent and H. Stanley Bent, doing business as a co-partnership under the firm name of Bent Brothers, as contractor, and the undersigned as the owner of the property, under date of October 31st, 1917.

That said concrete water pipe lines were actually completed and accepted by the undersigned in accordance with the provisions of said contract on January 29th, 1919.

That the property hereinbefore referred to and on which said concrete water pipe lines are constructed is hereby described as follows:--

**A right of way**

Beginning at the San Dieguito Dam located on that certain tract of land described in deed from Santa Fe Land Improvement Company to the San Dieguito Mutual Water Company, dated April 9, 1917, and recorded in Book of Deeds No. 734, Page 296, on May 1st, 1917, to which reference for complete description is hereby made, thence in a general westerly and southwesterly direction through the Rancho San Dieguito before mentioned, and through Section 31, Township 13 South, Range 3 West, and Section 6, Township 14 South, Range 3 West, and Section 1, Township 14 South, Range 4 West, and Section 36, and ending on Section 35, Township 13 South Range 4 West, all referring to SBB&M and located in San Diego County, California.

SAN DIEGUITO MUTUAL WATER COMPANY,

By \_\_\_\_\_  
Its President.

STATE OF CALIFORNIA)  
COUNTY OF SAN DIEGO)SS.

Ed Fletcher being duly sworn, says: That he is the President of the San Dieguito Mutual Water Company mentioned in the foregoing notice; that he has read said notice and knows the contents thereof, and that the same is true of his own knowledge.

SUBSCRIBED and sworn to before \_\_\_\_\_  
me this \_\_\_\_\_ day of \_\_\_\_\_ 1919

\_\_\_\_\_  
Notary Public in and for  
said County and State.

**Ed Fletcher Papers**

**1870-1955**

**MSS.81**

**Box: 2 Folder: 12**

**General Correspondence - Bent Brothers  
Construction Company - Contracts**



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