

1 **GUAM CONSOLIDATED COMMISSION ON UTILITIES**
2 **RESOLUTION NO. 27-FY2017**

3 **RELATIVE TO APPROVAL OF CHANGE ORDER NO. 1 FOR DESIGN BUILD OF**
4 **THE MACHECHE SEWER LINE REPLACEMENT PROJECT**

5 **WHEREAS**, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities
6 (“CCU”) has plenary authority over financial, contractual, and policy matters relative to the
7 Guam Waterworks Authority (“GWA”); and
8

9 **WHEREAS**, the Guam Waterworks Authority (“GWA”) is a Guam Public Corporation
10 established and existing under the laws of Guam; and
11

12 **WHEREAS**, GWA currently has a number of important USPEA State Revolving Fund
13 projects including the rehabilitation/replacement of gravity/pressurized sewer mains to address
14 aging Asbestos Cement Pipe (ACP) along Route 26 (Macheche Road) to prevent sewer line
15 breaks that can cause Sanitary Sewer Overflows (SSO); and
16

17 **WHEREAS**, GWA management had solicited design build construction services to
18 conduct the work noted above and was subsequently given authorization to enter into a contract
19 with Giant Construction Corporation via CCU Resolution 51-FY2016; and
20

21 **WHEREAS**, the resolution approved the contract amount of One Million Six Hundred
22 Thirty Four Thousand Dollars (\$1,634,000.00) plus a ten percent (10%) contingency of One
23 Hundred Sixty Three Thousand Four Hundred Dollars (\$163,400.00) to bring the total authorized
24 funding amount to a maximum of One Million Seven Hundred Ninety Seven Thousand Four
25 Hundred Dollars (\$1,797,400.00), which is fully funded by USEPA State Revolving Funds; and
26

27 **WHEREAS**, In the process of obtaining the building permit as required for the project
28 the design build contractor notified GWA of issues and concerns raised by the Guam
29 Environmental Protection Agency (GEPA) relative to the collection design as originally
30 contemplated by GWA, specifically the depth of the new sewer manholes and gravity lines to be
31 installed (See EXHIBIT A); and
32

1 **WHEREAS**, GWA management was also up against a short timeline to conduct certain
2 work within the limits of the project, specifically replacement of a section of sewer line that is
3 “pressurized” so as to stay ahead of the Department of Public Works project to repave a section
4 of Route 26 that coincides with GWA’s project limits; and

5
6 **WHEREAS**, GWA management met with GEPA to discuss their concerns and request
7 GEPA provide a conditional approval for the building permit so that GWA can start pipe
8 installation work within the section of the roadway where DPW expects to repave; and from this
9 meeting GWA agreed it would work with GEPA on their recommendation to adjust the depth of
10 the sewer collection system but only to the extent GWA has additional funding available; and

11
12 **WHEREAS**, GWA concurs with the concept of protecting groundwater resources by
13 planning for increased sewer service in this area, and once GWA and GEPA come to an
14 agreement on how to address GEPA’s recommendation, GEPA would remove any condition to
15 the building permit which would then allow GWA’s design build contractor to work complete
16 the remaining sections of the sewer project; and

17
18 **WHEREAS**, GWA has received a proposal in the amount of Five Hundred Forty Six
19 Thousand Five Hundred Two Dollars and Fifty Four Cents (\$546,502.54) from the design build
20 contractor (See EXHIBIT B) to adjust the depth of the sewer manholes and gravity lines, include
21 sewer stub outs to adjacent street, increase the force main section from 10” diameter to 15”
22 diameter and additional cost associated with change in design to address; and

23
24 **WHEREAS**, GWA management seeks CCU approval to change order the contract with
25 Giant Construction to a “not to exceed” the amount of Five Hundred Forty Six Thousand Five
26 Hundred Two Dollars and Fifty Four Cents (\$546,502.54) to address the recommendation of
27 GEPA but which GWA anticipates the final change order amount to be negotiated down as some
28 of the additional scope noted in the proposal may or may not be eligible under the USEPA grant
29 conditions; and
30
31
32

1 **WHEREAS**, GWA management would like to maintain the “not to exceed” increase
2 funding authority as the cap for any additional work above and beyond what has been discussed
3 with GEPA and what may arise unexpectedly; and

4
5 **WHEREAS**, funding for this project will be primarily from the USEPA State Revolving
6 Fund, and if necessary SDC Funds and 2013 Bond Funds under line item CIP WW 09-06; and

7
8 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
9 does hereby approve the following:

- 10 1. The recitals set forth above hereby constitute the findings of the CCU.
- 11 2. The CCU finds that the terms of the change order proposal submitted by Giant
12 Construction Corporation are subject to GWA management approval.
- 13 3. The CCU hereby approves the Change Order No. 1 in the amount of Five
14 Hundred Forty Six Thousand Five Hundred Two Dollars and Fifty Four Cents
15 (\$546,502.54).
- 16 4. The CCU hereby further approves the total authorized funding amount of One
17 Million Seven Hundred Ninety Seven Thousand Four Hundred Dollars
18 (\$1,797,400.00, PLUS Five Hundred Forty Six Thousand Five Hundred Two
19 Dollars and Fifty Four Cents (\$546,502.54) as part of Change Order No. 1, to
20 be Two Million Three Hundred Forty Three Thousand Nine Hundred Two
21 Dollars and Fifty Four Cents (\$2,343,902.54).
- 22 5. The CCU hereby further approves the funding will be primarily from the
23 USEPA State Revolving Fund and, if necessary, SDC Funds and 2013 Bond
24 Funds under line item CIP WW 09-06.

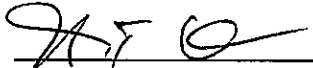
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26 **RESOLVED**, that the Chairman certified and the Board Secretary attests to the adoption
27 of this Resolution.

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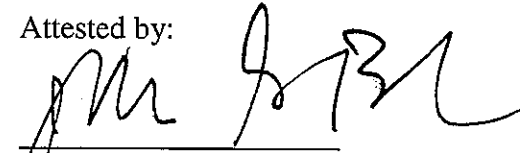
DULY AND REGULARLY ADOPTED, this 18th day of April 2017.

Certified by:

Attested by:



JOSEPH T. DUENAS
Chairperson



J. GEORGE BAMBA
Secretary

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES:	<u>5</u>
NAYS:	<u>0</u>
ABSTENTIONS:	<u>0</u>
ABSENT:	<u>0</u>



GUAM ENVIRONMENTAL PROTECTION AGENCY

ATIENSIAK PRUTEKSION LINLA GUAHAN



EDDIE BAZA CALVO
GOVERNOR OF GUAM

RAY TENORIO
LT. GOVERNOR OF GUAM

P.O. BOX 22439 BARRIGADA, GU 96921

EPA.GUAM.GOV



FEB 15 2017

MEMORANDUM

TO: Mr. Miguel Bordallo, P.E.
General Manager
Guam Waterworks Authority
P.O. Box 3010, Hagatana, Guam 96932

FROM: Administrator

Attention: Mr. Clint Huntington, P.E.
Project Manager

SUBJECT: Design-Build of Macheche Sewerline Replacement
GWA Project No. S16-005-EPA

Hafa Adai Mr. Bordallo,

The staff of this Agency reviewed the 90% Design submittals of the above reference project and hereby submits our comment and recommendation.

1. Gravity Main Sewer System

Findings: The slope of the proposed sewer main from Sta. 0+00 (point of connection) to Sta. 13+00 is too steep that does not allow a gravity sewer line serving a majority of residential and commercial establishment within the service area. Macheche village is a major water recharge to the ground water protection zone. There are several good production wells that exists within the service area, and majority of houses area are still using the conventional septic tank and leaching field or cesspool which is no longer allowed for individual disposal sysem. Providing public sewer system to these establishments are crucial in the prevention of potential contamination and to insure the integrity of water quality within the ground lens.

Recommendation: Utilize the minimum sewer gravity slope along the subject area to allow a construction of gravity sewer line serving Macheche Road and the vicinity. A slope of 5% or smaller (min. 0.22 per 10 state standards) extending from the point of connection to Sta. 13+00 will create an invert elevation at Cueto Ave.

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Mr. Miguel Bordallo, P.E.

approximately 310', and Nandez Ave. 312' allowing customers along those roads to be connected to the public sewer system. Also, a 10-inch force main from Sta. 12+68 to 19+39 can be converted to a 12-inch gravity line allowing customers within the the stations to connect to the public sewer system.

2. Provide 200 feet of sewer line with SMH at both side of Cueto Avenue (East & West) and both side of Nandez Avenue (East and West) to take advantage of deep excavation with bracing at SMH No.4 and at terminal manhole on Station 12+86 during the construction saving costs. These sewer lines must be installed at a minimum slope to allow sewer connection upstream of the service area.
3. For the design flow in the determination of the size of sewer main, the population within the service area including the Capacity of pump stations and service area connected to the new main sewer system and/or currently connected to the existing sewer lines must be considered *.
4. Laterals must be provided to all properties with or without existing buildings along the route of new sewer lines.

Should you have questions or need additional information please contact Mr. Angel Marquez @ 300-4796.

Dangkulo na Si Yu'us Ma'ase



WALTER S. LEON GUERRERO



GIANT CONSTRUCTION CORP.

P.O. Box 9578 Tamuning, Guam 96931
Tel.: (671) 649-6472 • Fax.: (671) 646-3693
E-mail: giantconst@gmail.com

Mar. 27, 2017

4

Guam Waterworks Authority

Mr. Miguel Bordallo PE

General manager

P.O. Box 3010


Hagatna, Guam 96913

Attention : Mr. Thomas Cruz / Chief Engineer

Project : Design-Build of Macheche Sewer Line
GWA S16-005-EPA

Subject : Cost Proposal of Sewer main and manhole lower

No.	Description	Quantity	Amount
A.	Existing Sewer Manhole Additional excavation, Sewer Manhole riser and related work	6 EA	\$ 92,607.68
B.	Existing Sewer Line Additional excavation and related work	1,286 LF	\$ 249,275.91
C.	New 8" Gravity Sewer Line stub out (4 places)	120 LF	\$ 86,889.62
D.	New Sewer Manhole Installation Work (On Forcemain Replace line)	2 EA	\$ 49,785.76
E.	10" Focemain Change to 15" gravity Sewer Line	614 LF	\$ 57,943.57
F.	Survey and Design Cost	1 LS	\$ 10,000.00
Total Proposal Amount			\$ 546,502.54


Chung In Chul
Vice-President

Note : We ask the completion date extension around 6 months to finish the site survey, design and construction for additional work.

Design Build - Macheche Sewer Line Replacement

A. Existing Sewer Manhole Additional excavation, Sewer Manhole riser and related work

1. Sewer manhole No.2 (- 3.32 Ft) (Top 314.75 Inv. 307.09)

a	Additional excavation (3.32 x 11' x 11')	15	CY	\$	60.00	\$	900.00
b	Backfill	13	CY	\$	50.00	\$	650.00
c	Disposal	2	CY	\$	32.00	\$	64.00
d	4' Manhole riser	1	EA	\$	1,000.00	\$	1,000.00
e	Additional mortar connection and skim coat	6	Bag	\$	20.00	\$	120.00
f	Boom truck Hauling the manhole riser	3	Hours	\$	85.00	\$	255.00
g	additional Labor cost	56	Hours	\$	25.00	\$	1,400.00
h	Additional shoring work (Boom Truck and labor)	1	LS	\$	700.00	\$	700.00
i	Traffic control	1	LS	\$	300.00	\$	300.00
j	Additional compaction test fee	1	LS	\$	210.00	\$	210.00
	Sub - Total					\$	5,599.00
	Overhead 18 %					\$	1,007.82
	Permit fee, GRT, Bond fee 7.2 %					\$	475.69
	Total Amount					\$	7,082.51

2. Sewer manhole No.3 (- 6.5 Ft) (Top 320.90 Inv. 308.58)

a	Additional excavation (6.5 x 11' x 11')	29.5	CY	\$	70.00	\$	2,065.00
b	Backfill	25	CY	\$	60.00	\$	1,500.00
c	Disposal	5	CY	\$	32.00	\$	160.00
d	4' Manhole riser	1	EA	\$	1,000.00	\$	1,000.00
e	2' Manhole riser	1	EA	\$	650.00	\$	650.00
f	1' Manhole riser	1	EA	\$	300.00	\$	300.00
g	Additional mortar skim coat	11	Bag	\$	20.00	\$	220.00
h	Boom truck Hauling the manhole riser	4	Hours	\$	85.00	\$	340.00
i	additional Labor cost	96	Hours	\$	25.00	\$	2,400.00
j	Additional shoring work	1	LS	\$	900.00	\$	900.00
k	Traffic control	1	LS	\$	700.00	\$	700.00
l	Additional compaction test fee	1	LS	\$	400.00	\$	400.00
	Sub - Total					\$	10,635.00
	Overhead 18 %					\$	1,914.30
	Permit fee, GRT, Bond fee 7.2 %					\$	903.55
	Total Amount					\$	13,452.85

3. Sewer manhole No.4 (- 8.16 Ft) (Top 325.70 Inv. 309.74)

a	Additional excavation (8.16 x 11' x 11')	37	CY	\$	75.00	\$	2,775.00
b	Backfill	31	CY	\$	63.00	\$	1,953.00
c	Disposal	6	CY	\$	32.00	\$	192.00
d	4' Manhole riser	2	EA	\$	1,000.00	\$	2,000.00

e	Additional mortar skim coat	12	Bag	\$	20.00	\$	240.00
f	Boom truck Hauling the manhole riser	6	Hours	\$	85.00	\$	510.00
g	additional Labor cost	144	Hours	\$	25.00	\$	3,600.00
h	Additional shoring work	1	LS	\$	1,000.00	\$	1,000.00
i	Traffic control	1	LS	\$	800.00	\$	800.00
j	Additional compaction test fee	1	LS	\$	600.00	\$	600.00
	Sub - Total					\$	13,670.00
	Overhead 22 %					\$	3,007.40
	Permit fee, GRT, Bond fee 7.2 %					\$	1,200.77
	Total Amount					\$	17,878.17

4. Sewer manhole No.5 (- 9.06 Ft) (Top 328.92 Inv. 311.89)

a	Additional excavation (9.06 x 11' x 11')	41	CY	\$	75.00	\$	3,075.00
b	Backfill	34.5	CY	\$	63.00	\$	2,173.50
c	Disposal	6.5	CY	\$	32.00	\$	208.00
d	4' Manhole riser	2	EA	\$	1,000.00	\$	2,000.00
e	1' Manhole riser	1	EA	\$	300.00	\$	300.00
f	Additional mortar skim coat	16	Bag	\$	20.00	\$	320.00
g	Boom truck Hauling the manhole riser	8	Hours	\$	85.00	\$	680.00
h	additional Labor cost	144	Hours	\$	25.00	\$	3,600.00
i	Additional shoring work	1	LS	\$	1,000.00	\$	1,000.00
j	Traffic control	1	LS	\$	800.00	\$	800.00
k	Additional compaction test fee	1	LS	\$	600.00	\$	600.00
	Sub - Total					\$	14,756.50
	Overhead 22 %					\$	3,246.43
	Permit fee, GRT, Bond fee 7.2 %					\$	1,296.21
	Total Amount					\$	19,299.14

5. Sewer manhole No.6 (- 9.8 Ft) (Top 328.93 Inv. 313.70)

a	Additional excavation (9.8 x 11' x 11')	44	CY	\$	75.00	\$	3,300.00
b	Backfill	37	CY	\$	63.00	\$	2,331.00
c	Disposal	7	CY	\$	32.00	\$	224.00
d	4' Manhole riser	2	EA	\$	1,000.00	\$	2,000.00
e	2' Manhole riser	1	EA	\$	650.00	\$	650.00
f	Additional mortar skim coat	18	Bag	\$	20.00	\$	360.00
g	Boom truck Hauling the manhole riser	8	Hours	\$	85.00	\$	680.00
h	additional Labor cost	144	Hours	\$	25.00	\$	3,600.00
i	Additional shoring work	1	LS	\$	1,000.00	\$	1,000.00
j	Traffic control	1	LS	\$	800.00	\$	800.00
k	Additional compaction test fee	1	LS	\$	600.00	\$	600.00
	Sub - Total					\$	15,545.00
	Overhead 22 %					\$	3,419.90

Permit fee, GRT, Bond fee 7.2 % \$ 1,365.47

Total Amount \$ 20,330.37

6. Sewer manhole No.7 (- 9.0 Ft) (Top 328.93 Inv. 314.56)

a	Additional excavation (9 x 11' x 11')	40.5	CY	\$ 70.00	\$ 2,835.00
b	Backfill	34.3	CY	\$ 60.00	\$ 2,058.00
c	Disposal	6.2	CY	\$ 32.00	\$ 198.40
d	4' Manhole riser	2	EA	\$ 1,000.00	\$ 2,000.00
e	1' Manhole riser	1	EA	\$ 300.00	\$ 300.00
f	Additional mortar skim coat	12	Bag	\$ 20.00	\$ 240.00
g	Boom truck Hauling the manhole riser	4	Hours	\$ 85.00	\$ 340.00
h	Labor cost	144	Hours	\$ 25.00	\$ 3,600.00
i	Additional shoring work	1	LS	\$ 1,000.00	\$ 1,000.00
j	Traffic control	1	LS	\$ 800.00	\$ 800.00
k	Additional compaction test fee	1	LS	\$ 600.00	\$ 600.00

Sub - Total \$ 11,136.40

Overhead 22 % \$ 2,450.01

Permit fee, GRT, Bond fee 7.2 % \$ 978.22

Total Amount \$ 14,564.63

Sewer Manhole additional cost total \$ 92,607.68

B. New Sewer Manhole Installation Work

1. New Sewer manhole No.8 (Top 324.20 Inv. 315.40 Depth 8.8 Ft)

a	Excavation (11' x 11' x 10.8')	49	CY	\$ 42.00	\$ 2,058.00
b	Backfill	32	CY	\$ 42.00	\$ 1,344.00
c	Disposal	24	CY	\$ 20.00	\$ 480.00
d	Flowable fill concrete	13	CY	\$ 200.00	\$ 2,600.00
e	Dump truck	16	Hours	\$ 60.00	\$ 960.00
f	Base course	11	SY	\$ 33.00	\$ 363.00
g	Manhole base	1	EA	\$ 650.00	\$ 650.00
h	4' high Manhole riser	2	EA	\$ 980.00	\$ 1,960.00
i	2' Manhole riser	1	EA	\$ 650.00	\$ 650.00
j	3' high cone	1	EA	\$ 780.00	\$ 780.00
k	Sewer manhole frame and cover	1	EA	\$ 730.00	\$ 730.00
l	15" Kor & Seal	2	EA	\$ 200.00	\$ 400.00
m	Concrete and concrete work	2	CY	\$ 250.00	\$ 500.00
n	Collar concrete preparation	1	LS	\$ 500.00	\$ 500.00
o	Traffic control	1	LS	\$ 1,200.00	\$ 1,200.00
p	Asphalt cutting	1	LS	\$ 150.00	\$ 150.00
q	1" Cold mix asphalt	2	Ton	\$ 300.00	\$ 600.00
r	Foreman	12	Hours	\$ 28.00	\$ 336.00
s	Trench box	1	LF	\$ 700.00	\$ 700.00
y	Quikcrete cement	20	Bag	\$ 20.00	\$ 400.00

u	Collar concrete	1	LS	\$ 500.00	\$ 500.00
v	Boom truck	12	Hours	\$ 85.00	\$ 1,020.00
w	Labor cost	1	LS	\$ 4,200.00	\$ 4,200.00
	Sub Total				\$ 23,081.00
	Overhead, GRT, Building Permit, Bond fee 22 %				\$ 5,077.82
	Total Amount				\$ 28,158.82

2. New Sewer manhole No.9 (4.0 Ft) (Top 320.75 Inv. 316.75)

a	Excavation (11' x 11' x 6')	27	CY	\$42.00	\$1,134.00
b	Backfill	18	CY	\$42.00	\$756.00
c	Disposal	20	CY	\$20.00	\$400.00
d	Flowable fill concrete	14	CY	\$140.00	\$1,960.00
e	Dump truck	12	Hours	\$60.00	\$720.00
f	Base course	11	SY	\$33.00	\$363.00
g	Manhole base	1	EA	\$650.00	\$650.00
h	2' high riser	1	EA	\$680.00	\$680.00
i	1' Manhole riser	1	EA	\$300.00	\$300.00
j	3' high cone	1	EA	\$780.00	\$780.00
k	Sewer manhole frame and cover	1	EA	\$730.00	\$730.00
l	12" Kor & Seal	2	EA	\$100.00	\$200.00
m	Concrete and concrete work	2	CY	\$250.00	\$500.00
n	Collar concrete preparation	1	LS	\$500.00	\$500.00
o	Traffic control	1	LS	\$1,200.00	\$1,200.00
p	Asphalt cutting	1	LS	\$150.00	\$150.00
q	1" Cold mix asphalt	2	Ton	\$300.00	\$600.00
r	Foreman	8	Hours	\$28.00	\$224.00
s	Trench box	1	LF	\$500.00	\$500.00
y	Quikcrete cement	10	Bag	\$20.00	\$200.00
u	Collar concrete	1	LS	\$500.00	\$500.00
v	Boom truck	8	Hours	\$85.00	\$680.00
w	Labor cost	1	LS	\$3,500.00	\$3,500.00
x	Leakage test	1	LS	\$500.00	\$500.00
	Sub Total				\$ 17,727.00
	GRT, Building Permit, Bond fee 22 %				\$ 3,899.94
	Total Amount				\$ 21,626.94

New Sewer Manhole Cost Total (2 EA)

\$ 49,785.76

C. Existing Sewer Line Additional excavation and related work

1 From SMH No. 1 - SMH No. 2 (Additional average depth 2' x 3' W x 240' L)

a	Additional cost pipe change from 12" to 15" SDR-35 PVC pipe	240	LF	\$ 5.00	\$ 1,200.00
b	Additional bedding sand by changing pipe size	240	LF	\$ 2.50	\$ 600.00
c	Additional flowable fill concrete by changing the pipe size	7	CY	\$ 200.00	\$ 1,400.00

d	Excavation additional	66	CY	\$	35.00	\$	2,310.00
e	Backfill	66	CY	\$	32.00	\$	2,112.00
f	Additional shoring work	240	LF	\$	15.00	\$	3,600.00
g	Additional boom truck work	70	Hours	\$	85.00	\$	5,950.00
h	Additional Labor	400	Hours	\$	25.00	\$	10,000.00
i	Additional Traffic control	128	Hours	\$	20.00	\$	2,560.00
j	Additional compaction test fee	1	LS	\$	370.00	\$	370.00
	Sub - Total					\$	30,102.00
	Overhead 20 %					\$	6,020.40
	Permit fee, GRT, Bond fee 7.2 %					\$	2,600.81
	Total Amount					\$	38,723.21
2	From SMH No. 2 - SMH No. 3 (Additional average depth 5.0' x 3' W x 230' L)						
a	Additional cost pipe change from 12" to 15" SDR-35 PVC pipe	230	LF	\$	5.00	\$	1,150.00
b	Additional bedding sand by changing pipe size	230	LF	\$	2.50	\$	575.00
c	Additional flowable fill concrete by changing the pipe size	7	CY	\$	200.00	\$	1,400.00
d	Excavation	140	CY	\$	48.00	\$	6,720.00
e	Backfill	140	CY	\$	42.00	\$	5,880.00
f	Additional shoring work	240	LF	\$	15.00	\$	3,600.00
g	Additional Labor	400	Hours	\$	25.00	\$	10,000.00
h	Additional Traffic control	128	Hours	\$	20.00	\$	2,560.00
i	Additional compaction test fee	1	LS	\$	370.00	\$	370.00
	Sub - Total					\$	32,255.00
	Overhead 20 %					\$	6,451.00
	Permit fee, GRT, Bond fee 7.2 %					\$	2,786.83
	Total Amount					\$	41,492.83
3	From SMH No. 3 - SMH No. 4 (Additional average depth 7.4' x 3' W x 190' L)						
a	Additional cost pipe change from 12" to 15" SDR-35 PVC pipe	190	LF	\$	5.00	\$	950.00
b	Additional bedding sand by changing pipe size	190	LF	\$	2.50	\$	475.00
c	Additional flowable fill concrete by changing the pipe size	6	CY	\$	200.00	\$	1,200.00
d	Excavation	158	CY	\$	48.00	\$	7,584.00
e	Backfill	158	CY	\$	42.00	\$	6,636.00
f	Additional shoring work	190	LF	\$	15.00	\$	2,850.00
g	Additional Labor	360	Hours	\$	25.00	\$	9,000.00
h	Additional Traffic control	116	Hours	\$	20.00	\$	2,320.00
i	Additional compaction test fee	1	LS	\$	370.00	\$	370.00
	Sub - Total					\$	31,385.00
	Overhead 22 %					\$	6,904.70
	Permit fee, GRT, Bond fee 7.2 %					\$	2,756.86
	Total Amount					\$	41,046.56

4	From SMH No. 4 - SMH No. 5 (Additional average depth 8.61' x 3' W x 340' L)				
a	Additional cost pipe change from 12" to 15" SDR-35 PVC pipe	340	LF	\$ 5.00	\$ 1,700.00
b	Additional bedding sand by changing pipe size	340	LF	\$ 2.50	\$ 850.00
c	Additional flowable fill concrete by changing the pipe size	10	CY	\$ 200.00	\$ 2,000.00
d	Excavation	345	CY	\$ 50.00	\$ 17,250.00
e	Backfill	345	CY	\$ 45.00	\$ 15,525.00
f	Additional shoring work	340	LF	\$ 20.00	\$ 6,800.00
g	Additional Labor	660	Hours	\$ 25.00	\$ 16,500.00
h	Additional Traffic control	320	Hours	\$ 20.00	\$ 6,400.00
i	Additional compaction test fee	1	LS	\$ 700.00	\$ 700.00
	Sub - Total				\$ 67,725.00
	Overhead 22 %				\$ 14,899.50
	Permit fee, GRT, Bond fee 7.2 %				\$ 5,948.96
	Total Amount				\$ 88,573.46

5	From SMH No. 5 - SMH No. 6 (Additional average depth 9.43' x 3' W x 286' L)				
a	Additional cost pipe change from 12" to 15" SDR-35 PVC pipe	286	LF	\$ 5.00	\$ 1,430.00
b	Additional bedding sand by changing pipe size	286	LF	\$ 2.50	\$ 715.00
c	Additional flowable fill concrete by changing the pipe size	8	CY	\$ 200.00	\$ 1,600.00
d	Excavation	310	CY	\$ 50.00	\$ 15,500.00
e	Backfill	310	CY	\$ 45.00	\$ 13,950.00
f	Additional shoring work	286	LF	\$ 20.00	\$ 5,720.00
g	Additional Labor	550	Hours	\$ 25.00	\$ 13,750.00
h	Additional Traffic control	320	Hours	\$ 20.00	\$ 6,400.00
i	Additional compaction test fee	1	LS	\$ 700.00	\$ 700.00
	Sub - Total				\$ 59,765.00
	Overhead 22 %				\$ 13,148.30
	Permit fee, GRT, Bond fee 7.2 %				\$ 5,249.76
	Total Amount				\$ 78,163.06

Sewer Line additional Excavation Cost Total \$ 249,275.91

6	Forcemain change to Gravity sewer Line (Additional average depth 6.5' x 2.5' W x 330' L)				
a	Additional cost pipe change from 10" to 15" SDR-35 PVC pipe	214	LF	\$ 6.00	\$ 1,284.00
b	Additional bedding sand by changing pipe size	214	LF	\$ 2.80	\$ 599.20
c	Additional flowable fill concrete by changing the pipe size	9	CY	\$ 200.00	\$ 1,800.00
d	Excavation	200	CY	\$ 42.00	\$ 8,400.00
e	Backfill	200	CY	\$ 38.00	\$ 7,600.00
f	Additional shoring work	250	LF	\$ 8.00	\$ 2,000.00
g	Additional Labor	160	Hour	\$ 25.00	\$ 4,000.00
h	Traffic control (Flag man)	120	Hour	\$ 20.00	\$ 2,400.00
	Sub - Total				\$ 28,083.20
	Overhead 20 %				\$ 5,616.64

Permit fee, GRT, Bond fee 7.2 %				\$	2,426.39
Total Amount				\$	36,126.23

7 Frocemain change to Gravity Sewer Line (Additional average depth 2' x 2.5' W x 300' L)

a	Additional cost pipe change from 10" to 15" SDR-35 PVC pipe	300	LF	\$	6.00	\$	1,800.00
b	Additional bedding sand by changing pipe size	300	LF	\$	2.80	\$	840.00
c	Additional flowable fill concrete by changing the pipe size	10	CY	\$	200.00	\$	2,000.00
d	Excavation	56	CY	\$	40.00	\$	2,240.00
e	Backfill	56	CY	\$	30.00	\$	1,680.00
f	Additional shoring work	250	LF	\$	8.00	\$	2,000.00
g	Additional Labor	160	Hour	\$	25.00	\$	4,000.00
h	Traffic control (Flag man)	120	Hour	\$	20.00	\$	2,400.00
	Sub - Total					\$	16,960.00
	Overhead 20 %					\$	3,392.00
	Permit fee, GRT, Bond fee 7.2 %					\$	1,465.34
	Total Amount					\$	21,817.34

Sewer Line additional Excavation Cost Total \$ 57,943.57


D. New 8" Gravity Sewer Line

1. 8" Sewer Line East & West Cueto Avenue (Ave. Depth 16.8 Ft Deep)

a	Excavation (17.5' D x 3' W x 60'L)	118	CY	\$55.00	\$6,490.00
b	Backfill and compaction (16' x 3' x 60')	107	CY	\$50.00	\$5,350.00
c	Disposal of excess materal	15	CY	\$25.00	\$375.00
d	Bedding sand	15	CY	\$40.00	\$600.00
e	8" SDR-35 PVC pipe	60	LF	\$8.00	\$480.00
f	Traffic Control	108	Hours	\$20.00	\$2,160.00
g	Flowable fill concrete	24	CY	\$200.00	\$4,800.00
h	Steel plate	60	LF	\$10.00	\$600.00
i	Compaction test	1	LS	\$400.00	\$400.00
j	Labor cost	216	Hours	\$25.00	\$5,400.00
k	Milling	72	SY	\$7.00	\$504.00
l	3" Thick asphalt paving	72	SY	\$42.00	\$3,024.00
m	1" Cold mix asphalt	3	Ton	\$220.00	\$660.00
n	Leakage test	60	LF	\$7.00	\$420.00
o	Boom truck	30	Hours	\$85.00	\$2,550.00
p	Asphalt cutting	130	LF	\$1.50	\$195.00
q	Foreman	24	Hours	\$28.00	\$672.00
r	Trench box shoring	60	LF	\$20.00	\$1,200.00
	Sub - Total				\$35,880.00
	GRT, Building Permit, Bond fee 22 %				\$7,893.60
	Total Amount				\$43,773.60

3. 8" Sewer Line East & West Nandez Avenue (Ave. Depth 16.2 Ft Deep)

a	Excavation (16.8' D x 3' W x 60'L)	112	CY	\$55.00	\$6,160.00
b	Backfill and compaction (15' x 3' x 60')	100	CY	\$50.00	\$5,000.00
c	Disposal of excess material	12	CY	\$25.00	\$300.00
d	Bedding sand	15	CY	\$40.00	\$600.00
e	8" SDR-35 PVC pipe	60	LF	\$8.00	\$480.00
f	Traffic Control	108	Hours	\$20.00	\$2,160.00
g	Flowable fill concrete	24	CY	\$200.00	\$4,800.00
h	Steel plate	60	LF	\$10.00	\$600.00
i	Compaction test	1	LS	\$400.00	\$400.00
j	Labor cost	216	Hours	\$25.00	\$5,400.00
k	Milling	72	SY	\$7.00	\$504.00
l	3" Thick asphalt paving	72	SY	\$45.00	\$3,240.00
m	1" Cold mix asphalt	3	Ton	\$220.00	\$660.00
n	Leakage test	60	LF	\$7.00	\$420.00
o	Boom truck	30	Hours	\$85.00	\$2,550.00
p	Asphalt cutting	130	LF	\$1.50	\$195.00
q	Foreman	24	Hours	\$28.00	\$672.00
r	Trench box shoring	60	LF	\$20.00	\$1,200.00
	Sub - Total				\$35,341.00
	GRT, Building Permit, Bond fee 22 %				\$7,775.02
	Total Amount				\$43,116.02
	New 8" PVC Gravity Sewer Line Cost Total				\$86,889.62


 Chung, In Chul
 Vice-President

