Penfield & Smith

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GIS

December 15, 2011

W.O. 20412.01

Mr. Chuck Mundy
Santa Clara Wastewater Company
815 Mission Rock Road
Santa Paula, CA 93060

Subject: Evaluation of the 10-inch Diameter Pipeline

Dear Chuck:

Previously, our firm provided a hydraulic analysis and assessments of various components of this pipeline in a 1991 report. At that time, we prepared an exhibit which summarized the plan and profile views of this pipeline. If you need additional copies of this report, please let me know.

More recently, on December 5, 2011 a series of tests and inspections were performed at 3 representative locations along the 12 ½ mile pipeline, between your plant near Santa Paula and the connection to the City of Oxnard along Wooley Road in Oxnard. Based on our understanding of the operations and the restraints associated with accessing this pipeline to perform an inspection, we recommended that the pipeline be exposed at 3 locations. The attached exhibits indicate the approximate locations of these test sites. A contractor was hired to excavate an area approximately 6- feet long, from the middle to the top of the pipe and a 2-3 foot length below the pipe, to expose the entire exterior of the pipe. At each of the 3 locations, the exterior coating was carefully examined to determine the material integrity of the asphaltic coating. The coating was removed at each location to measure the steel thickness of the pipe and the coating itself. These tests were made on the exterior circumference of the pipe at approximately 12 o'clock, 3 o'clock, and 7 o'clock markings. This allows representative samples both above and below a standing water level. These 3 tests were made by the use of an ultrasonic device (please see attached report by Westex Company).

Following these tests, an 8" x 12" section of the pipeline was cut out from the top of the pipeline and the coating was separated from the steel cylinder and examined for corrosion. At all 3 locations, there was no evidence of corrosion along the steel, asphalt coating, or cement mortar lining. It did appear that the interior cement mortar lining was a little thinner at the second 2 sites, however there were no signs or symptoms of structural deficiencies or corrosion.

The 3 test site locations are as follows:

Site #	Location	Elevation +/-	Approximate distance from plant
Site 1:	Mission Rock Road	175'	1.5 miles
Site 2:	Highway 118 & Vineyard	130'	5 miles
Site 3:	Rose & Gonzales	70'	10 miles
Pipeline Terminous	Wooley Road	45'	12.5 miles

The test results and physical measurements at each of the test sites indicated that the exterior coating varied between ½" and ⅝"; the steel thickness was between .13 and .14 inches, and the interior lining measured between ⅜" and ½" of cement mortar lining. No evidence was found of cracking or degradation of the lining or coating at any of the 3 locations. There was evidence of material buildup on the sidewalls and sediment in the bottom of the pipeline at all 3 locations, but it was less than 1" in thickness and primarily less than ½". If not cleaned, this will create a hydraulic degradation in the future, but should not affect the structural integrity of the pipeline.

The pipeline section removed from each location will be saved for future reference. A replacement metal collar of 0.13 thickness was installed with a hand-hole to allow the relining of the replacement steel pipe. At each test site, the exterior was then re-coated so these locations can continue to provide the useful service life enjoyed by the rest of the pipeline.

Based on our inspection of the 3 locations, there was no evidence of corrosion or structural degradation and this pipeline should provide many more years of useful service life. Since this pipeline has shown good resilience after 50+ years of service, it is reasonable to expect it will last at least another 30 years.

Please feel free to contact me if you would like to discuss our findings, or if you have any questions. I can be reached at (805) 981-0706 x104 or email pjr@penfieldsmith.com.

Thank you for the opportunity to be of service.

Sincerely,

PENFIELD & SMITH

REGISTERED PROFESSIONAL ENGINEER
PATRICK J. REEVES
No. 25278
Exp. 12-31-13
CIVIL
STATE OF CALIFORNIA

Patrick J. Reeves, P.E.
Principal Engineer

PJR: dkb

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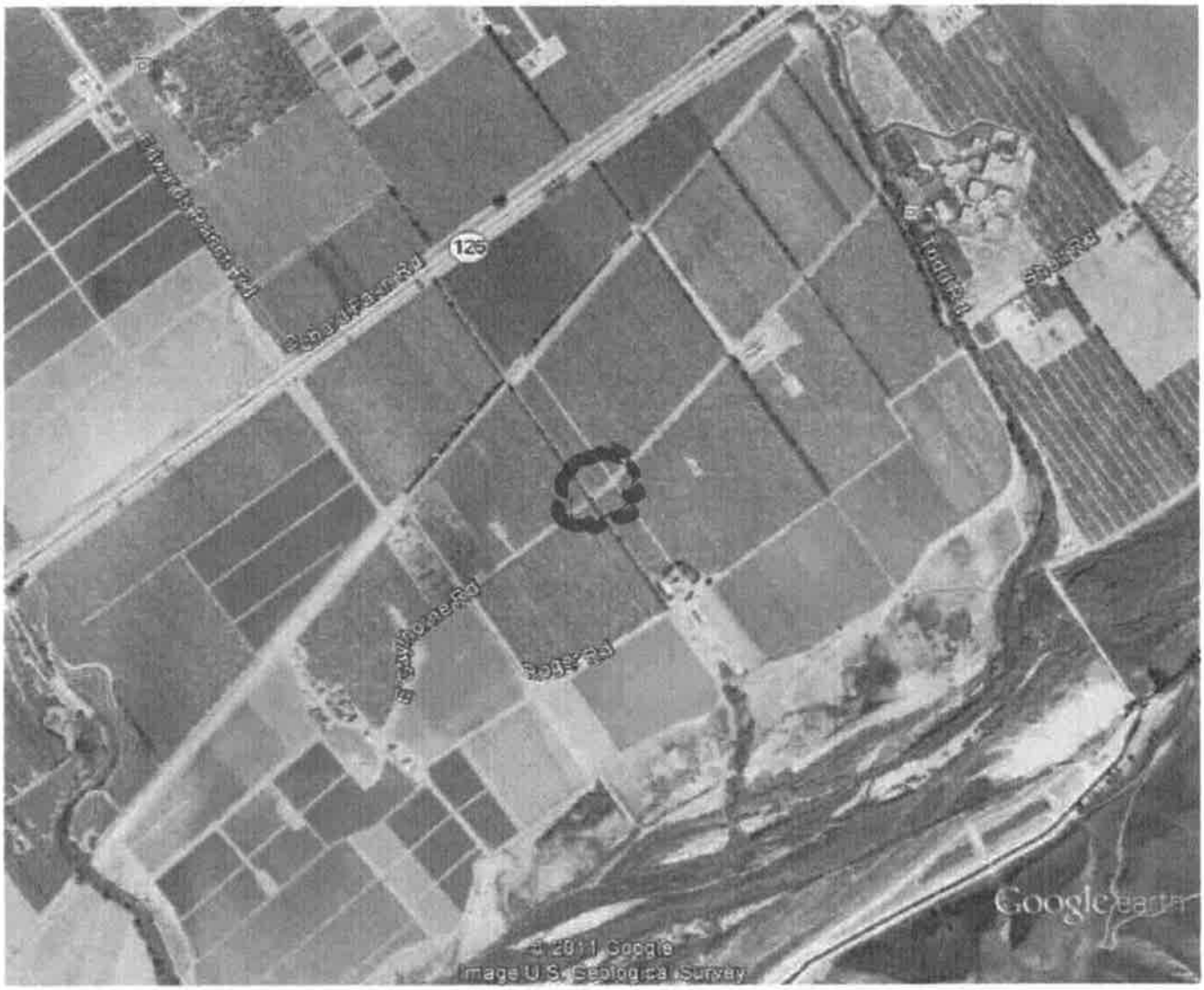
WO 204/2.01

Google earth

miles 5
km 9

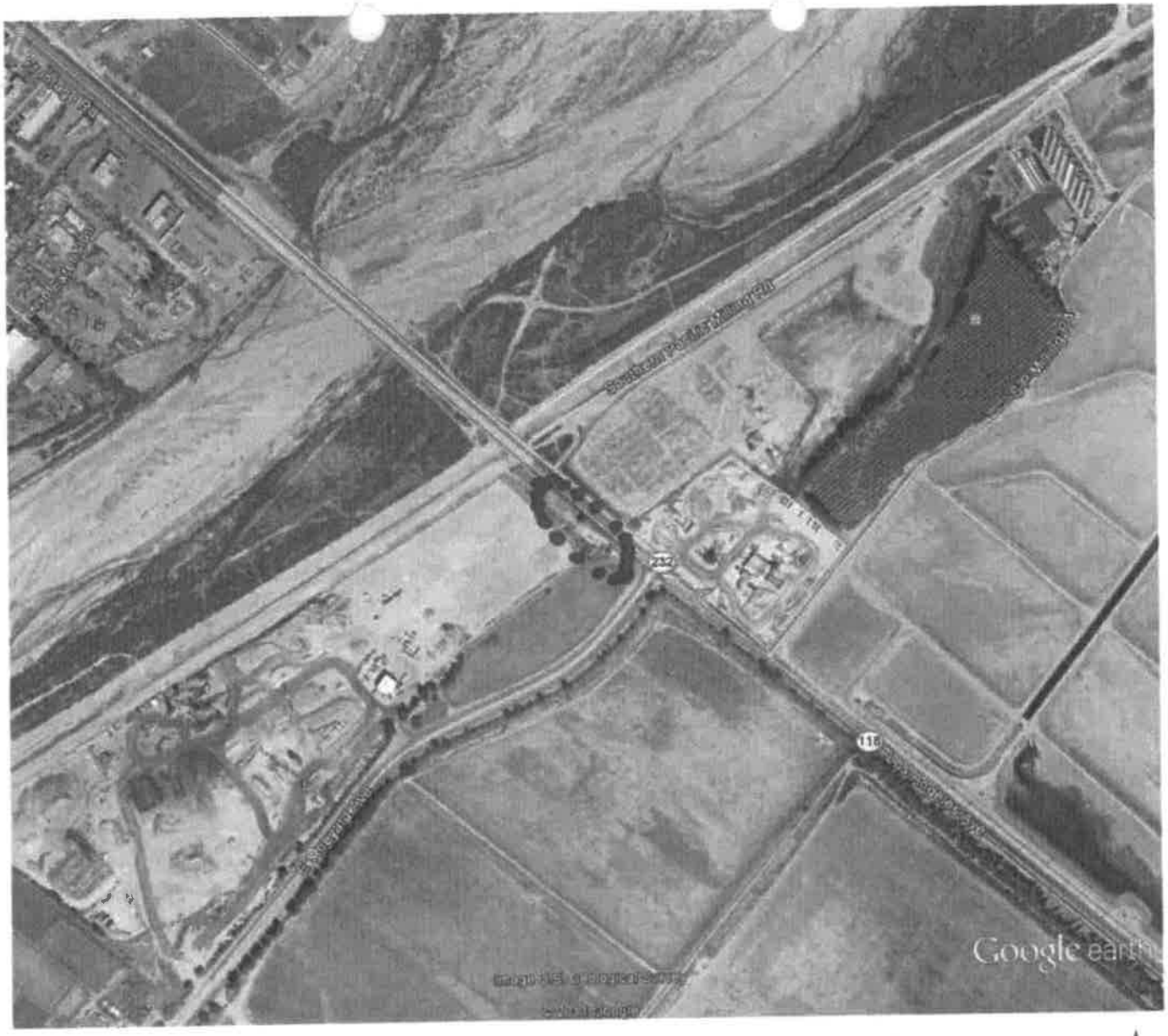
#3

#2



Google earth feet 4000 km 1

SITE 1



Google earth

feet 2000

meters 800

#2

Google earth

feet 1000
meters 300

#3

WESTEX
P.O. Box 5587 Oxnard, CA 93031
Phone (805) 485-2205 Fax (805) 485-9323
www.westexco.com

U.T. Thickness Report #: 23290

Ultrasonic Thickness Report

Date of Work: December 5, 2011
Item Description: 10" dia Water Pipeline, Cement Lined
Location: Santa Paula, Ventura, Oxnard

Customer: Penfield & Smith
Address: Camarillo, CA
P.O. Number: Verbal Pat Reeves

"10" Cement Lined Water Pipeline"

Ultrasonic thickness was taken @ (3) different locations see maps below

Map of: Project Area 1
815 Mission Rock Rd
Santa Paula, CA 93060-9762

Map of: Project Area 2
Los Angeles Ave & E Vineyard Ave
Oxnard, CA 93036

Map of: Project Area 3
N Rose Ave & E Gonzales Rd
Oxnard, CA 93036

See page 3 for Instrument information and calibration standard used.

Inspector and Level: G. Lopez II

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U.T. Thickness Repo 23290

Ultrasonic Thickness Report

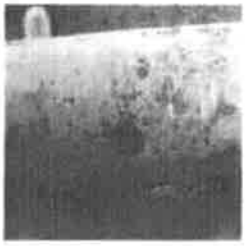
Date of Work: December 3, 2011
Item Description: 10" dia Water Pipeline, Cement Lined
Customer: Penfield & Smith
Address: Camarillo, CA
Location: Santa Paula, Ventura, Oxnard
P.O. Number: Verbal Pat Reeves

"10" dia Cement Lined Water Pipeline"

All Ultrasonic thickness readings were taken starting on Top or 12 O'clock, 3 O'clock and 7 O'Clock position. Concrete had been chipped away for inspection.

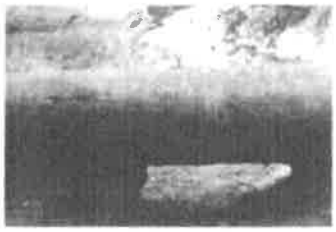
Map of: Project Area 1
815 Mission Rock Rd
Santa Paula, CA 93060-9762

12 O'Clock (Top)		3 O'Clock		7 O'Clock	
1	0.133	1	0.141	1	0.139



Map of: Project Area 2
Los Angeles Ave & E Vineyard Ave
Oxnard, CA 93036

2	0.133	2	0.130	2	0.133



Map of: Project Area 3
N Rose Ave & E Gonzales Rd
Oxnard, CA 93036

3	0.133	3	0.190	3	0.133

Inspector and Level: G. Lopez II

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U.T. Thickness Report #: 23290

Ultrasonic Thickness Report

Date of Work: December 3, 2011
Item Description: 10" dia Water Pipeline, Cement Lined

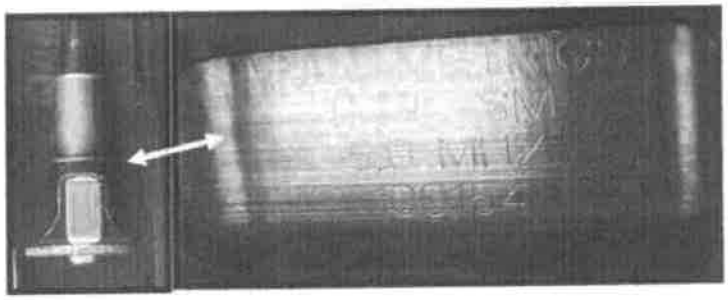
Customer: Penfield & Smith
Address: Camarillo, CA

Equipment

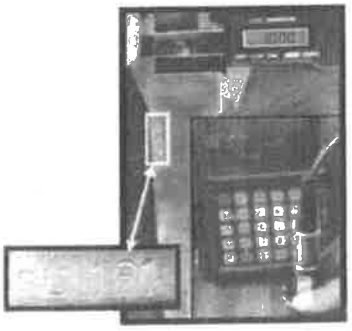
Ultrasonic instrument is certified/calibrated for horizontal linearity and in conformance to manufactures specifications.

Digital displayed ultrasonic instrument:
Panametrics 36DL Plus Ultrasonic Thickness Gage.
Serial Number: 002175505

Transducer:
Panametrics
D790SM
5.0 MHZ
SN: 100154



Calibration standard used was a 10 step reference block:
ID#: GL 161
Thickness: 1.000" to 0.100"



Inspector and Level: G. Lopez II