APPENDIX K

Preliminary Design Additional Transmission Line Alternatives

APPENDIX K

Preliminary Design Additional Transmission Line Alternatives

ASCG.

A. ALTERNATIVE ALIGNMENT EVALUATION

1. Alignment Option A

The ~~CDR~~ proposed alignment consists of exiting the reservoirs and Burton Park on Kathryn Ave, proceeding east to Carlisle Blvd., north to Parkland Place, east to Parkland Circle and north on Parkland Circle to Ridgecrest Blvd., ~~as shown in Drawing C1~~. The proposed CDR alignment does not appear to allow full utilization of the reservoir capacities because the reservoirs are constructed mainly below grade, with the reservoir floors located approximately 18 feet below existing grade. Due to the topography of the immediate area, the transmission pipeline would need to be installed with 15 feet of cover or more, for a distance of approximately 2000 feet.

2. Alignment Option B

Alignment Option B consists of exiting the pump station on Wellesley Drive, proceeding north to Santa Clara Avenue, east to Amherst Drive, north to Pershing Avenue and east on Pershing to Parkland Circle, ~~as shown in Drawing C1~~. This alignment was developed to allow connection to the existing 42" transmission line from Miles Pump Station (immediately west of the Burton Pump Station building) and to keep the pipeline generally with a shallow 4 feet of cover. The 42" transmission line has an approximate invert elevation of 5300 feet and also has an abandoned 30-inch butterfly valve that is suitable for connection.

Alignment Option B is congested with existing utilities along Wellesley and Amherst Drives, ~~as shown in Drawing C1~~. To ascertain the availability of a suitable alignment corridor, ~~ASCG~~ recommends that specific utility potholing be performed on these streets prior to preliminary design.

3. Alignment Option C

Alignment Option C consists of exiting the pump station on Wellesley Drive, proceeding north to Santa Clara Avenue, west to the continuation of Wellesley Drive, north to Pershing Avenue and east on Pershing to Parkland Circle, ~~as shown in Drawing C1~~. This alignment was developed as an alternative to Option B if the existing large diameter utilities on Amherst Drive do not allow for a clear pipeline corridor for the installation of the 36-inch transmission line.

Alignment Option C is less congested with existing utilities because it avoids Amherst Drive, ~~as shown in Drawing C1~~. To ascertain the availability of a suitable alignment corridor, ASCG recommends that specific utility potholing be performed on these streets prior to preliminary design.

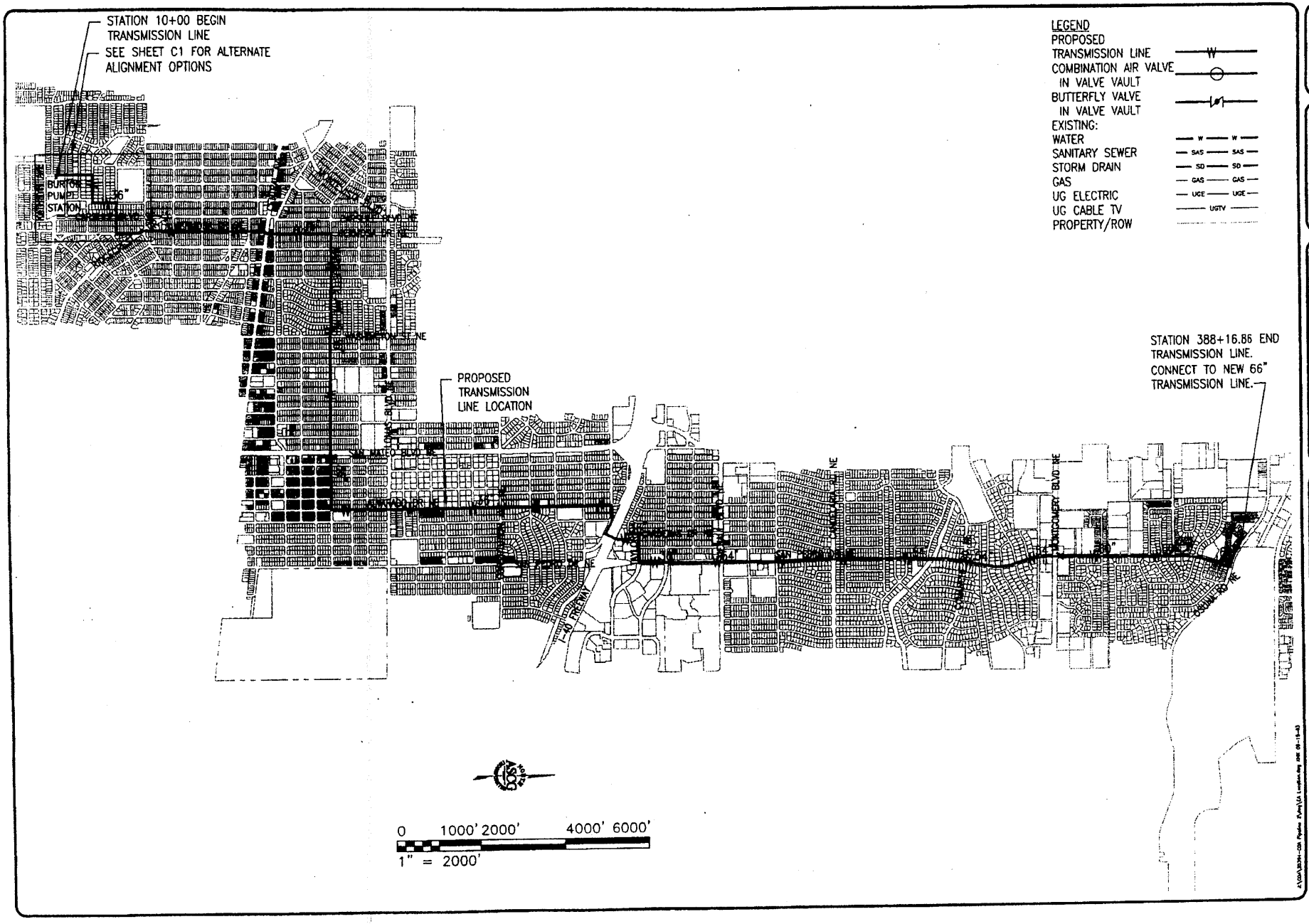
B. PREFERRED ALIGNMENT

At this time, Alignment Option B is the preferred alignment to allow full utilization of the Burton Reservoirs and to decrease the bury depth of the transmission line. However,

Option C alignment may need to be utilized if exploratory work on existing utilities indicates that Amherst Drive is too congested.

1. General Route Alignment-Option B

The pipeline alignment, shown in Drawing T1, starts at Burton Pump Station and exits the site through the existing driveway and proceeds north on Wellesley Drive to Santa Clara Avenue, east to Amherst Drive, north to Pershing Avenue, east to Parkland Circle, north to Hermosa Drive across Central Avenue, east on Marquette across San Mateo Blvd., north on Alvarado across Lomas Blvd., east on Indian School and across Interstate 40 in a northerly direction to a private parking lot north of the freeway, north on Cardenas Drive, east on Taylor Road, north on San Pedro crossing Menaul Blvd., Candelaria Road, Comanche Road and Montgomery Blvd. to Osuna Road, proceeding west on Osuna for approximately 600 feet and connecting to a new 66-inch transmission line that originates at the Water Treatment Plant. Along the route, the transmission line will connect to Charles Wells and Leyendecker reservoirs in a manner yet to be formalized.



ASCG INCORPORATED

CITY OF ALBUQUERQUE, NEW MEXICO

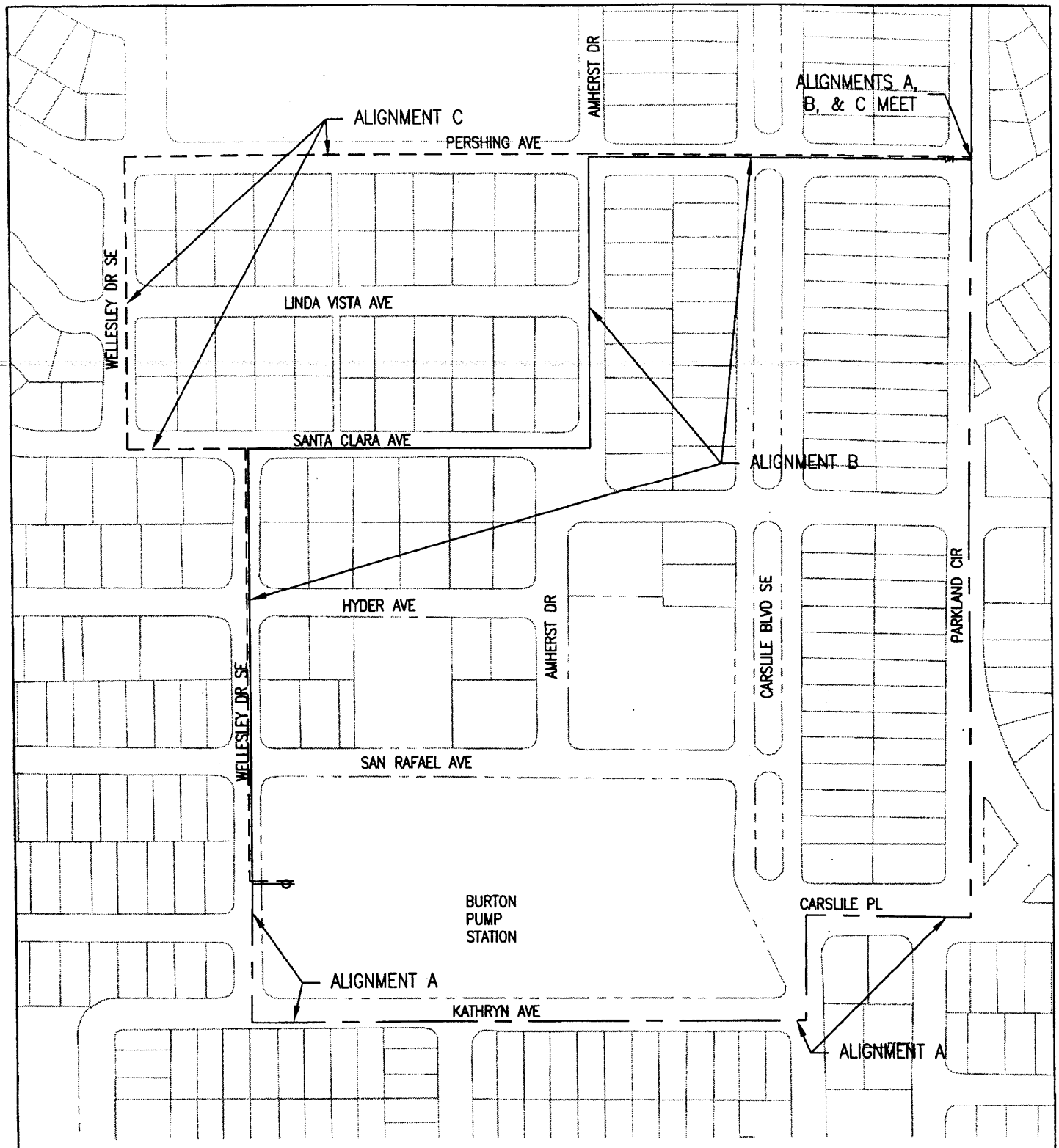
COA DRINKING WATER PROJECT
BURTON PUMP STATION TO OSUNA ROAD
TRANSMISSION LINE NO. 2

EA LOCATION MAP

REVISIONS

NUMBER	DATE

JOB NO:	20394/0300
DATE:	AUG 05, 03
DRAWN BY:	KHK
CHECKED BY:	GXA
DRAWING NO:	T1
SHEET	1 OF 2



COA TRANSMISSION LINE NO. 2
EA ALIGNMENT OPTIONS

ASCG INCORPORATED
ENGINEERS · ARCHITECTS · SURVEYORS · PLANNERS
6501 AMERICAS PARKWAY NE, SUITE 400
ALBUQUERQUE, NEW MEXICO 87110-8573
PHONE 505.347.8294 · FAX 505.342.4648

NORTH

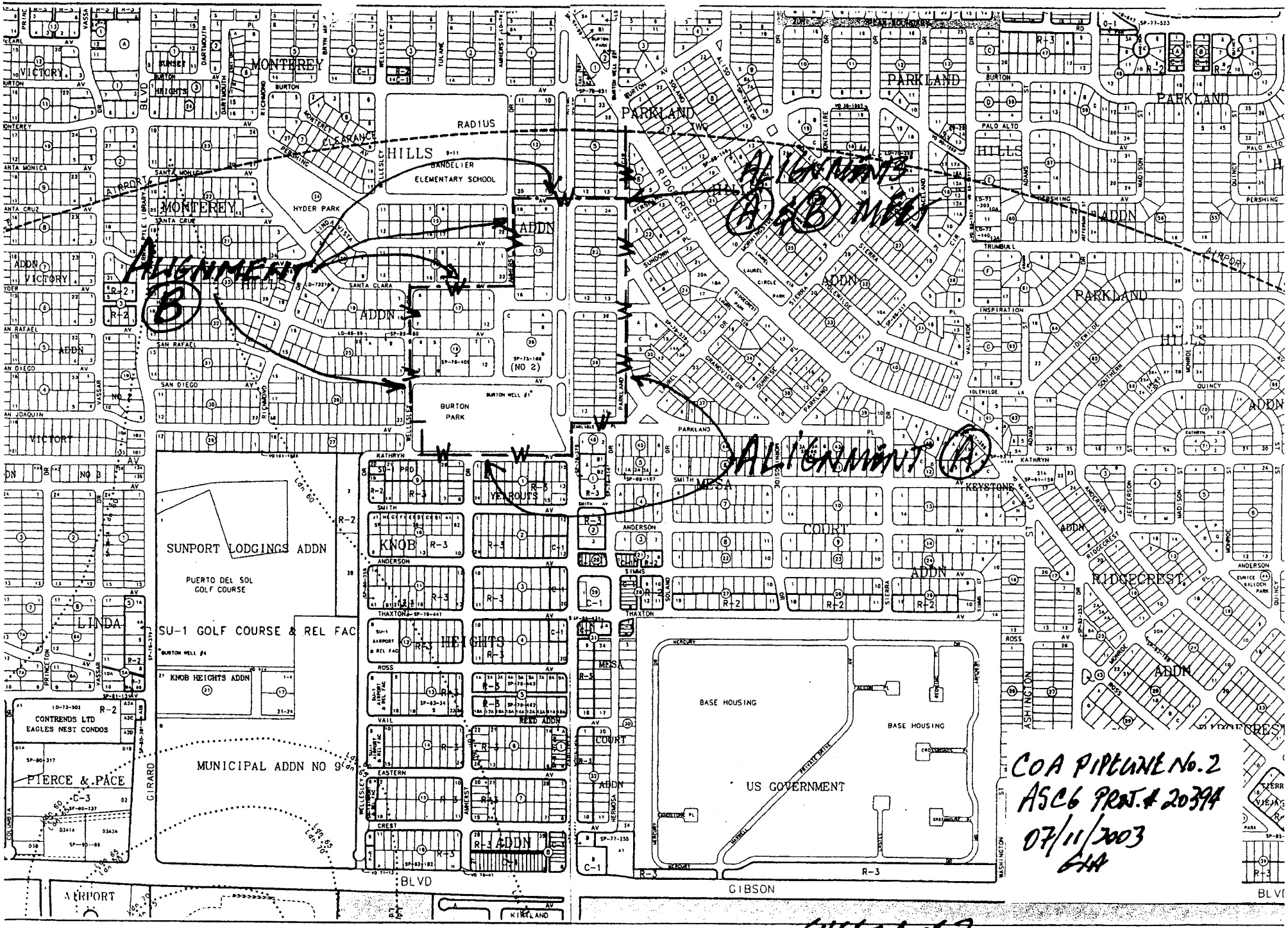
0 125' 250' 500' 750'

1" = 250'

DRAWING NO.: C1

J:\COA\20394-COA Pipeline 2\dwg\EA Location.dwg KMK 09-19-03

PWR:

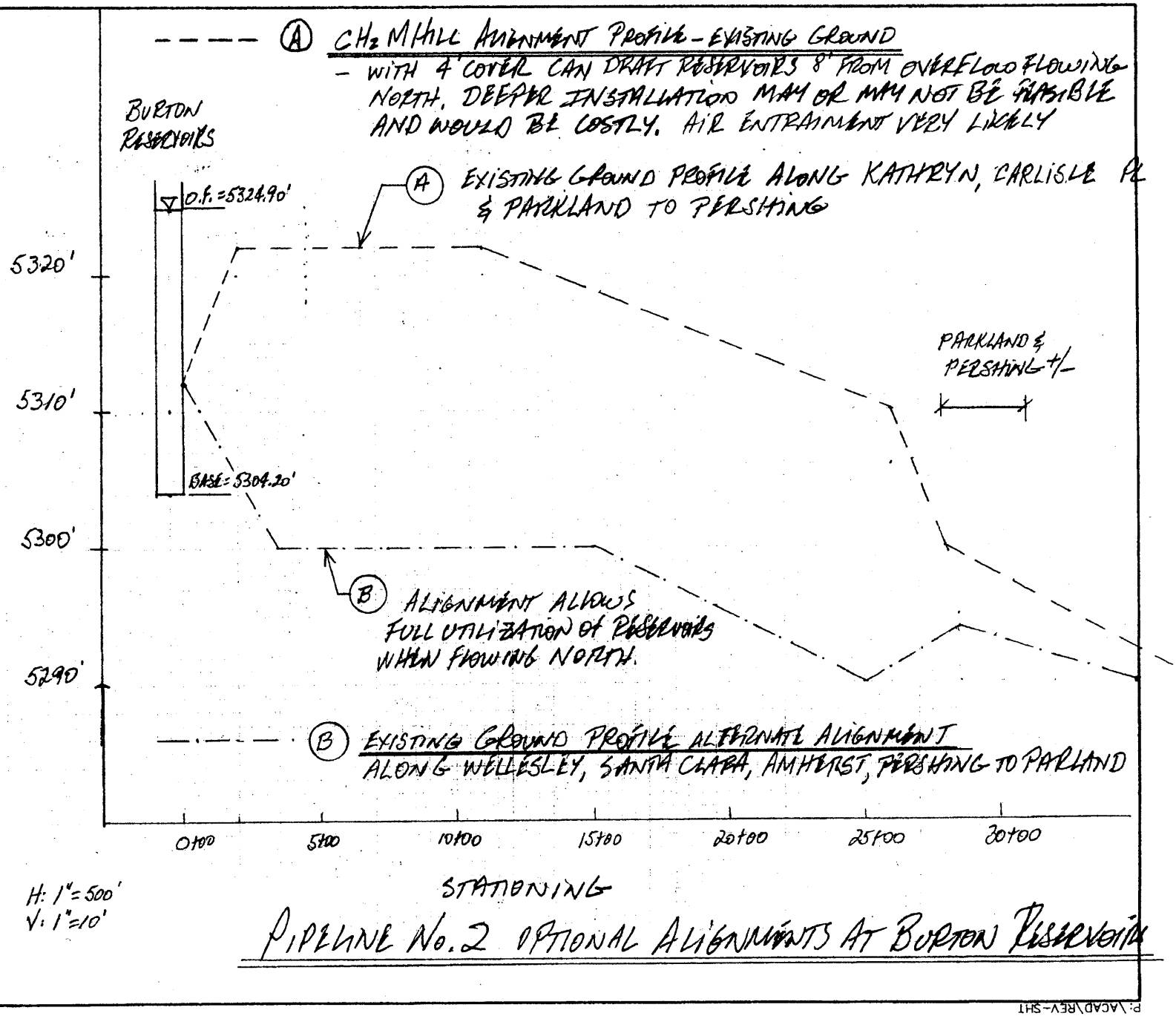

ALIGNMENTS (A) & (B) MERGE
ALIGNMENT (B)
ALIGNMENT (A)
RADIUS
CLEARANCE
BANDELIER ELEMENTARY SCHOOL
HYDER PARK
BURTON PARK
SUNPORT LODGINGS ADDN
PUERTO DEL SOL GOLF COURSE
SU-1 GOLF COURSE & REL FAC
KNOB HEIGHTS ADDN
MUNICIPAL ADDN NO 9
CONTRENDS LTD EAGLES NEST CONDOS
PIERCE & PACE
BASE HOUSING
US GOVERNMENT
MONTEREY
VICTORY
HILLS
PARKLAND
LINDA
MESA
RIDGECREST
COURT
KNOB
HEIGHTS
AIRPORT
GIRARD BLVD
GIBSON
KIRTLAND
COA PIPELINE No.2
ASC6 PROJ.# 20394
07/11/2003
GHA
SHEET 1 OF 2

ASCG INCORPORATED
ENGINEERS · ARCHITECTS · SURVEYORS · INSPECTION SERVICES

COMPUTATIONS

NAME OF PROJECT/CALCULATION: COA PIPELINE No. 2
COMPUTED BY: BVA
CHECKED BY:
JOB/TASK NO.: 2039.4/0300
DATE: 07/10/2003
SHEET NO. 1 OF 1

1.0 SUBJECT | 2.0 PURPOSE | 3.0 REFERENCES | 4.0 ASSUMPTIONS | 5.0 CRITERIA / REQUIREMENTS
6.0 SKETCHES | 7.0 CALCULATIONS | 8.0 CONCLUSIONS | 9.0 ATTACHMENTS
IDENTIFY/ADDRESS THESE ELEMENTS
REVISION # | SUPERSEDES CALC TITLE | CHECKED BY: | DATED



PIPELINE No. 2 OPTIONAL ALIGNMENTS AT BURTON RESERVOIR

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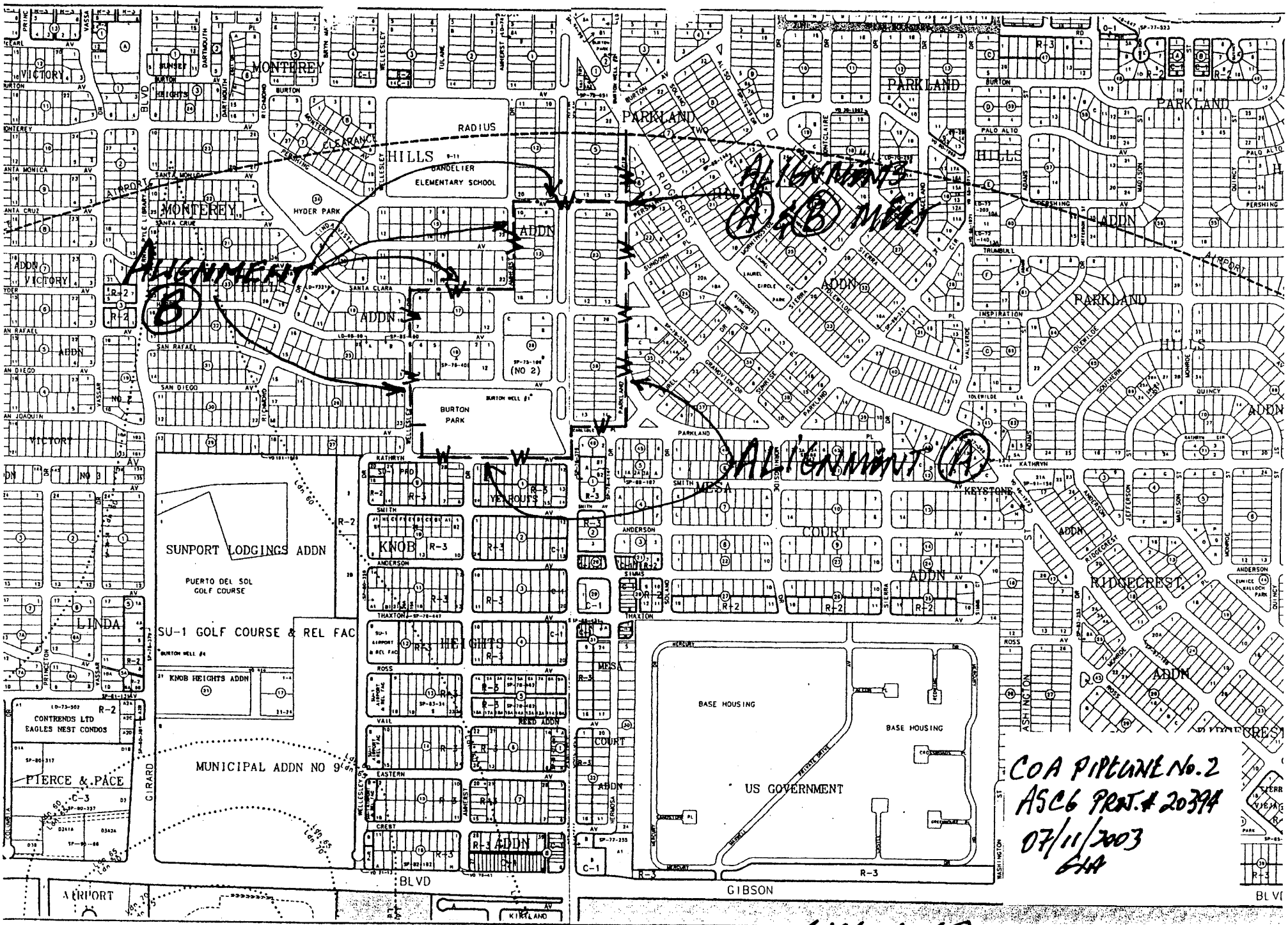
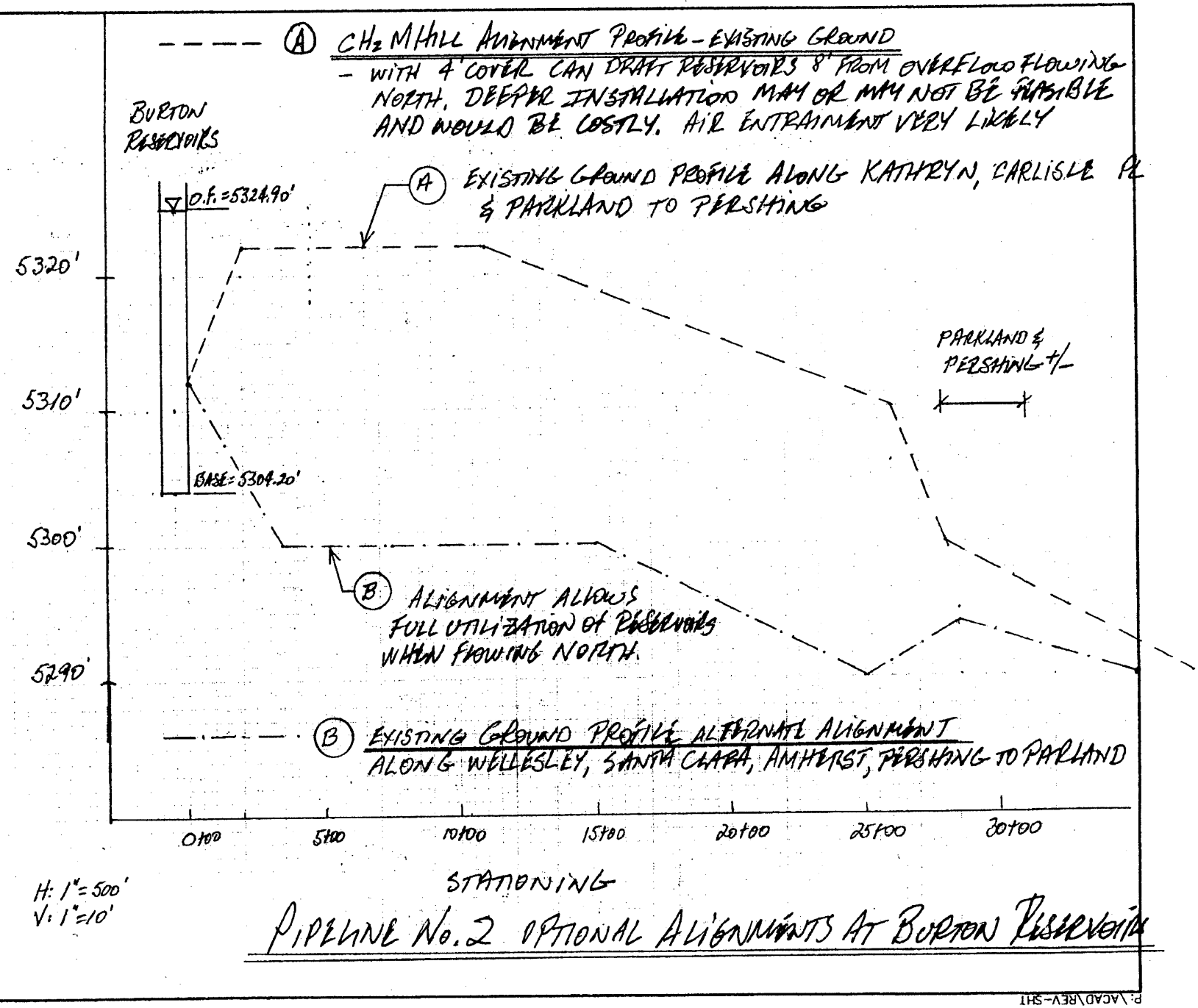
SHEET 2 OF 2


ALIGNMENTS A & B MOD
ALIGNMENT B
ALIGNMENT A
RADIUS
CLEARANCE
BANDELIER ELEMENTARY SCHOOL
HYDER PARK
BURTON PARK
SUNPORT LODGINGS ADDN
PUERTO DEL SOL GOLF COURSE
SU-1 GOLF COURSE & REL FAC
KNOB HEIGHTS ADDN
MUNICIPAL ADDN NO 9
CONTRENDS LTD EAGLES NEST CONDOS
PIERCE & PACE
BASE HOUSING
US GOVERNMENT
MONTEREY
VICTORY
HILLS
ADDN
PARKLAND
PARKLAND TWO
RIDGECREST
MESA
COURT
KNOB
HEIGHTS
LINDA
AIRPORT
GIBSON
BLVD
COA PIPELINE No. 2
ASCE PROJ. # 20394
07/11/2003
SHEET 1 OF 2

ASCG INCORPORATED
ENGINEERS · ARCHITECTS · SURVEYORS · INSPECTION SERVICES
COMPUTATIONS

NAME OF PROJECT/CALCULATION: COA PIPELINE No. 2
COMPUTED BY: BWH
CHECKED BY:
JOB/TASK NO.: 23941/0300
DATE: 07/10/2003
SHEET NO. 1 OF 1

1.0 SUBJECT | 2.0 PURPOSE | 3.0 REFERENCES | 4.0 ASSUMPTIONS | 5.0 CRITERIA / REQUIREMENTS
6.0 SKETCHES | 7.0 CALCULATIONS | 8.0 CONCLUSIONS | 9.0 ATTACHMENTS
IDENTIFY/ADDRESS THESE ELEMENTS
REVISION # | SUPERSEDES CALC TITLE | DATED | CHECKED BY:



PIPELINE No. 2 OPTIONAL ALIGNMENTS AT BURTON RESERVOIR

P:\ACAD\REV-SH1

SHEET 2 OF 2

Billings, Rick

From: Billings, Rick
Sent: Wednesday, October 01, 2003 2:33 PM
To: 'Deborah Dixon'
Subject: RE: San Juan Chama EIS - Pipeline # 3 Alignments

Thanks Deborah for keeping us in the loop. I will run the figures by all the engineers before we complete the FEIS. Take care. Rick.

-----Original Message-----
From: Deborah Dixon [mailto:ddixon@bhinc.com]
Sent: Wednesday, October 01, 2003 12:29 PM
To: rick.billings@parsons.com
Cc: Elizabeth Smith; jstomp@cabq.gov; JRchavez@cabq.gov
Subject: San Juan Chama EIS - Pipeline # 3 Alignments

Rick,

On September 23, BHI forwarded a confirmation of final alignment options for the Pipeline #3 project for incorporation into the EIS.

At that time we had just returned from a field meeting with MRGCD and the City where we had been instructed by Subhas Shah that Alameda Lateral would be the ideal alternative for getting the pipe from Montano to Candelaria and 2nd St. rather than going Montano west and 2nd St and south to Candelaria. So our email to you suggested that we would no longer need to include the alternate previously shown in the draft EIS showing an alignment from Montano southwest on Alameda Lateral to Edith and south on Edith to Griegos, then west on Griegos to 2nd Street.

As luck would have it, when we actually walked the length of Alameda Lateral we found that some of the ditch water is conveyed in a pipe under buildings, especially in properties between Griegos and Candelaria.

So now we have to retract the direction that we previously gave you.

As of today, the west side alternatives previously described are still valid, and the east side alternate alignments remain the same as presented on September 23 with the following exceptions:

1. Continue to include the route from Montano west to 2nd St and 2nd south to the intersection of Candelaria and 2nd St.

2. Continue to include the route from Montano, then southwest on Alameda Lateral to Edith and south on Edith to Griegos, then west on Griegos to 2nd Street.

3. Continue to include the route from Montano then south on Alameda Lateral all the way to Candelaria and west on Candelaria to 2nd St.

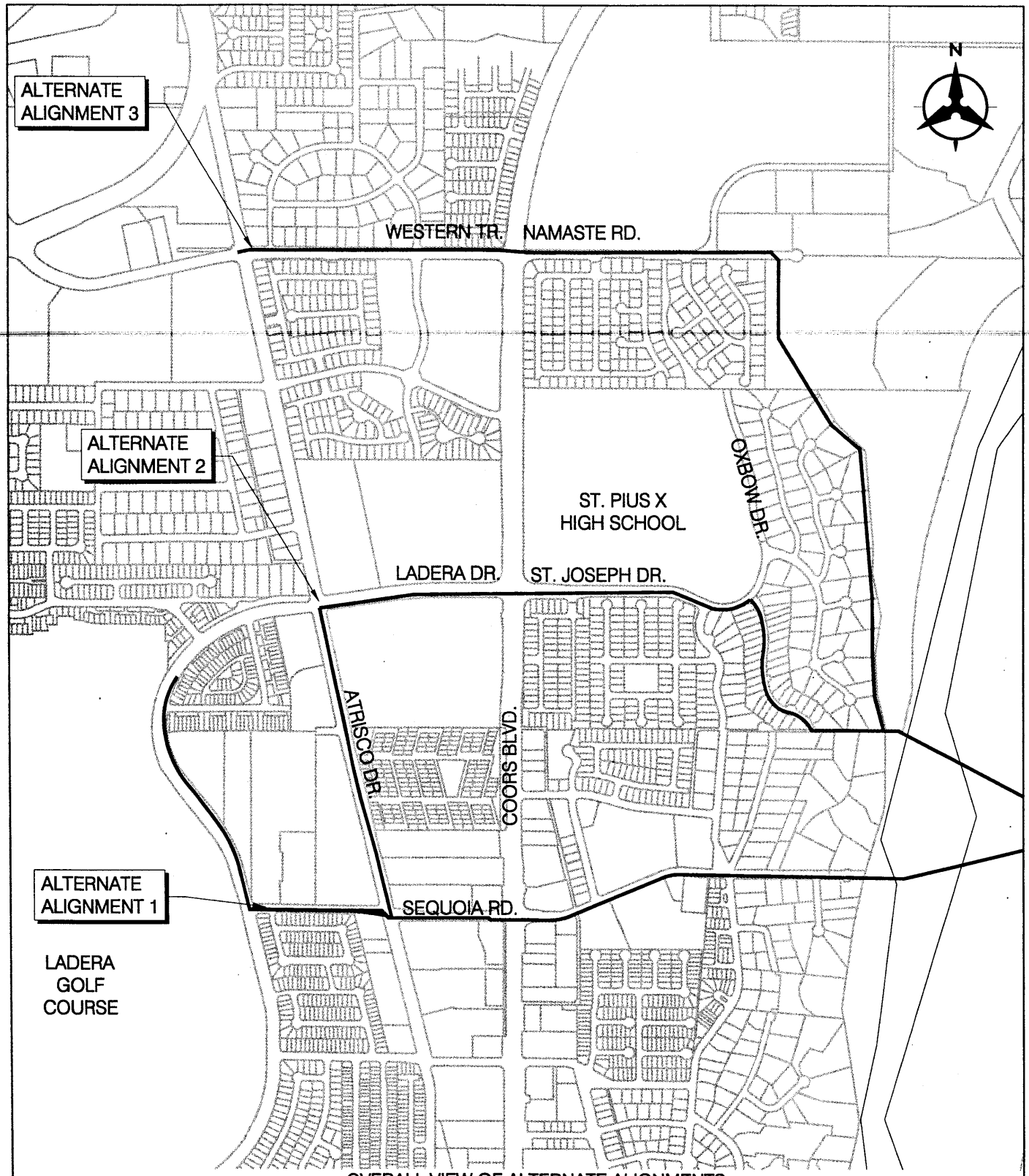
4. Add a route from Montano, then southwest on Alameda Lateral all the way to Griegos, then south on Edith Blvd to Candelaria and west on Candelaria to 2nd St.

If these four route are covered in the EIS then we can pick and choose the best alignment after we have an opportunity to look at utility as-built drawings and property ownership.

If you have any questions, please call me or Elizabeth Smith.

Thank you,

Deborah Dixon
Deborah K. Dixon, P.E.
Bohannan Huston, Inc.
7500 Jefferson St. NE
Courtyard I
Albuquerque, NM 87109-4335
voice: 505.823.1000
direct line: 505.798.7831
facsimile: 505.798.7988
toll free: 800.877.5332
email: ddixon@bhinc.com <mailto:ddixon@bhinc.com>



OVERALL VIEW OF ALTERNATE ALIGNMENTS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
WATER UTILITY DIVISION

Bohannan Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES

SAN JUAN CHAMA TRANSMISSION LINE 3
DESIGN ANALYSIS REPORT

FIGURE 1
VICINITY MAP

DRAWN BY:	S.F.G.	DATE:	08.19.03
CHECKED BY:	D.K.D./J.C.T.	PROJECT NO.	030080.001.04.CWH

P:\030080\Hydro\Reports\Figures\030080MDARVicinity05.dwg
Aug 28, 2003 - 1:32pm

met. D. Dixon
9/12/03

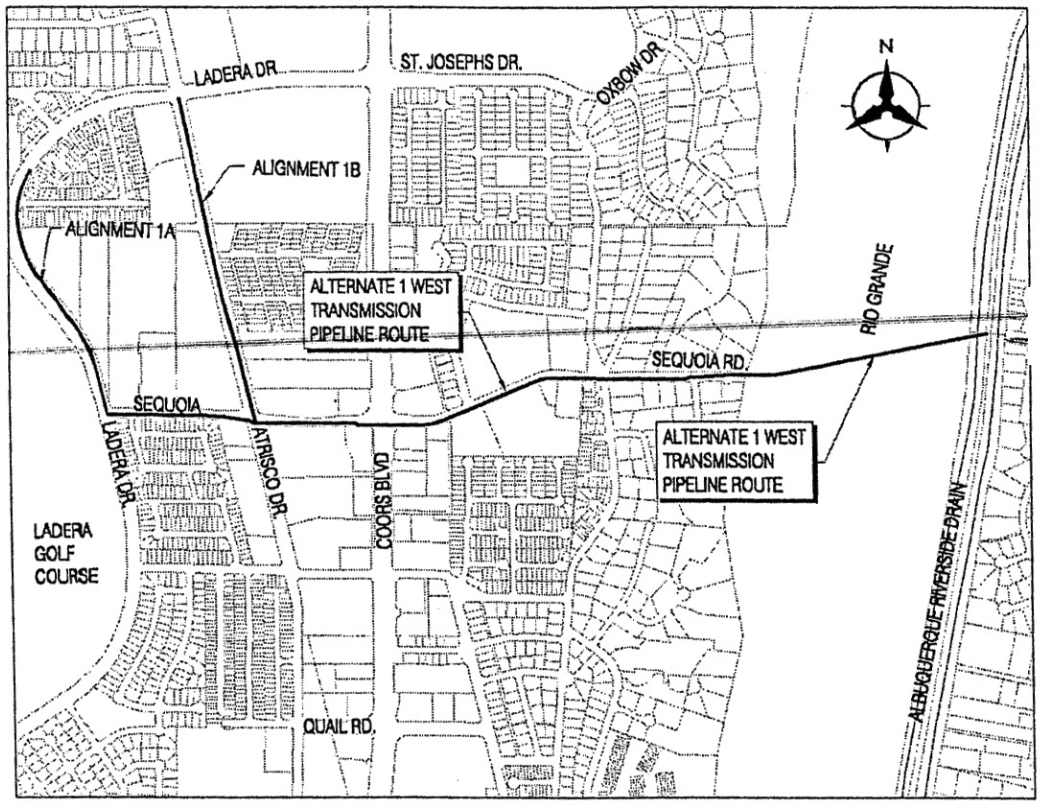
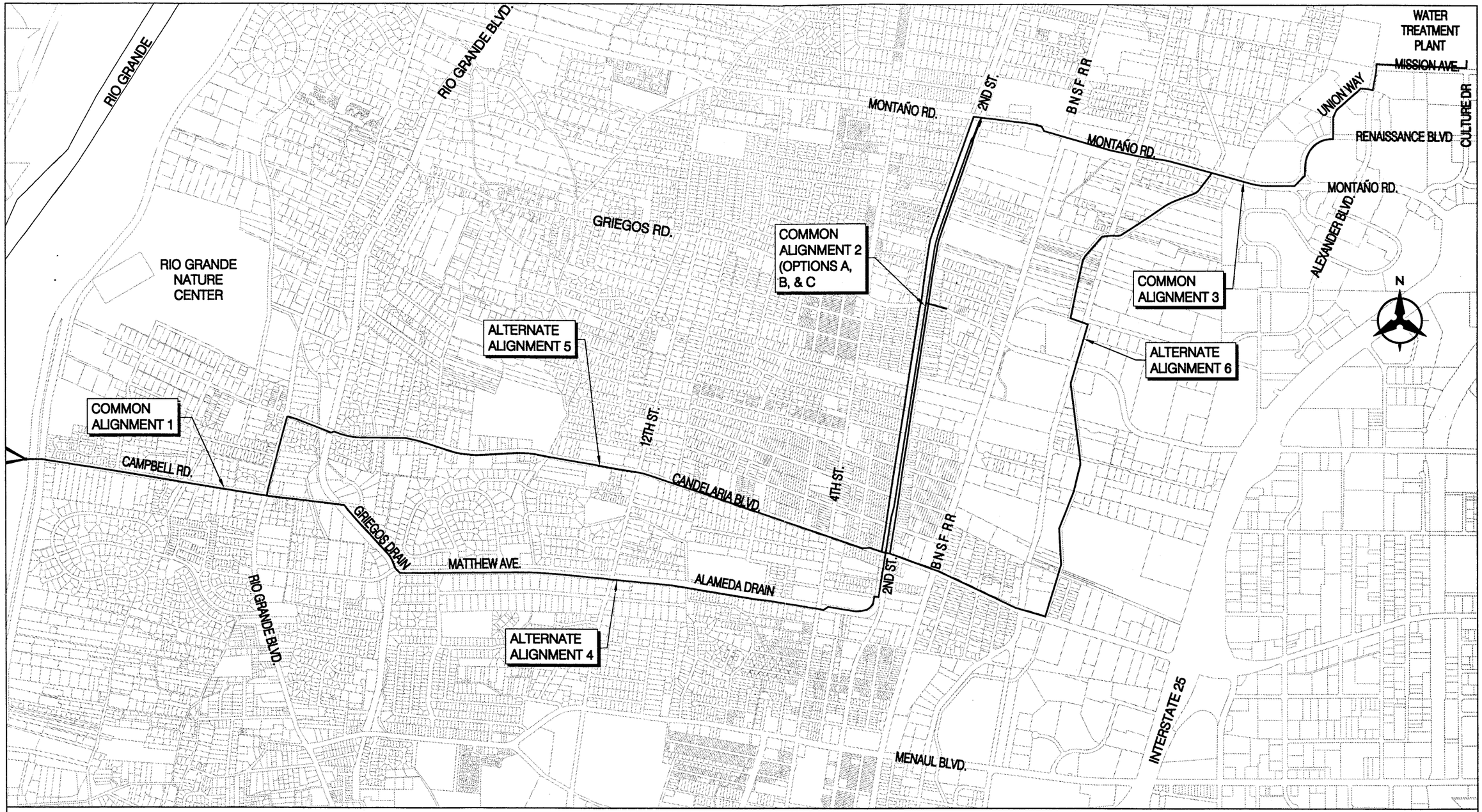


Figure 9 Alternate 1, Sequoia Road Alignment

Detailed drawings of Alternate 1 alignment and the existing utilities are included in **Appendix B**. The following discussion will describe the reasoning behind where the pipeline location within the street section is proposed.

A quick review of connecting to Pipeline 4 by way of Ladera Drive versus Atrisco Drive indicates that Atrisco is the preferable route. Although they are approximately the same distance, the overall construction cost is less along Atrisco Drive.

If the Ladera Drive alignment were selected, just east of Ladera Drive, Sequoia Road contains a sanitary sewer in the center of the street and a waterline and storm drain in the northern half of the street. As a result, the waterline was aligned in the southern half of the street along Sequoia in this area. It was aligned parallel to the existing sanitary sewer with a ten foot separation between pipelines, in accordance with COA DPM requirements. At Atrisco Drive, both the pavement and the existing utilities jog to the south. Therefore, the proposed



ALTERNATE AND COMMON ALIGNMENTS
SCALE: 1"=1500'

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
WATER UTILITY DIVISION

Bohannan Huston
Courtyard 1 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING · SPATIAL DATA · ADVANCED TECHNOLOGIES

SAN JUAN CHAMA TRANSMISSION LINE 3
DESIGN ANALYSIS REPORT

OVERALL FIGURE LAYOUT
ALTERNATE TRANSMISSION PIPELINE 3 EAST ROUTES

DRAWN BY:	S.F.G.	DATE:	09.18.03
CHECKED BY:	D.K.D./J.C.T.	PROJECT NO.	030080.001.05.CWH

FIGURE 1A

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Sep 22, 2003 - 11:12am

City of Albuquerque
San Juan-Chama Water Pipeline No. 1 Project

Alternates

AMAFCA Alternate

This alternate was considered, but not adopted. This alternate considered changing the CDR alignment to proceed north on the east dike of the North Diversion Channel (NDC) east of the intersection of Chappell Road and the Vulcan Concrete Access Road to the Bear Canyon Arroyo, then easterly along the south bank of the Bear Canyon Arroyo to Jefferson Blvd. The pipe diameter has been increased from a 48" pipe to a 66" pipe. This was not adopted because the increased cost of 1854 ft. of additional 66" pipeline far outweighed the inconvenience to the motoring public.

Osuna Alternate

This Alternate was adopted. It proceeds southerly from the Bear Canyon Arroyo outlet along the east side of Interstate 25 Frontage Road to the westbound driving lanes of Osuna Road NE, then it proceeds easterly along the westbound driving lanes of Osuna Road NE to near the southwest corner of the Arroyo del Oso Golf Course. The pipe diameter increased from 4'8" to a 66".

Louisiana Alternate

This Alternate was adopted. It proceeds easterly along Forrest Hills Dr. from San Pedro to Louisiana Blvd. NE, then north on Louisiana to the Domingo Baca Arroyo, then westerly along the south side of the Domingo Baca Arroyo to the drainage easement between Edmund G. Ross and Hope Christian School, then north under the arroyo and along the easement to Palomas Avenue and into Coronado Reservoir. The pipe diameter is 30".

09/23/2003 03:05:44 PM

c:\projects\COA\TP No. 1\Base Files\TP1C-EISreport.dgn

PASEO DEL NORTE BLVD

30" PALOMAS AVE

DOMINGO BACA ARROYO 30"

30"

SAN PEDRO DR

LOUISIANA BLVD

SAN ANTONIO DR

FORMER SAN ANTONIO LANDFILL

PINO ARROYO

FORREST HILLS DR 30"

25

OSUNA RD

CHAPPELL RD NE

NORTH DIVERSION CHANNEL

BEAR CANYON ARROYO 66"

JEFFERSON BLVD

MIDWAY PARK BLVD

OFFICE BLVD

PAN AMERICAN HWY

SAN MATEO BLVD

MC KINNEY DR

BOREALIS

ARROYO

50"

ACADEMY RD

68"

66"

VULCAN CONCRETE ACCESS ROAD

SINGER BLVD NE

OSUNA RD

CHAPPELL DRIVE WATER TREATMENT PLANT SITE

ARROYO DEL OSO GOLF COURSE

CONNECT TO TRANSMISSION PIPELINE NO. 2

LEGEND

- CDR ALIGNMENT
- AMAFCA ALTERNATE
- OSUNA ALTERNATE
- LOUISIANA ALTERNATE

1000' 500' 0 1000'

SCALE

AS BUILT INFORMATION

CONTRACTOR

WORK STARTED BY: DATE

INSPECTED BY: DATE

ACCEPTANCE BY: DATE

FIELD VERIFICATION BY: DATE

DRAWINGS CORRECTED BY: DATE

MICRO-FILM INFORMATION

ACCORDED BY: DATE

NO.

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

DMJMH+N

DESIGN

DESIGNED BY:	B K WATKINS	DATE: AUGUST 2003
DRAWN BY:	B K WATKINS	DATE: AUGUST 2003
CHECKED BY:	D J LARROW	DATE: AUGUST 2003

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: DRINKING WATER PROJECT
SAN JUAN CHAMA
TRANSMISSION PIPELINE NO. 1
ALIGNMENT ALTERNATIVES

ZONE MAP NO.: C-18, D-18, E-18, F-16, F-17, F-18

DATE: AUGUST 2003

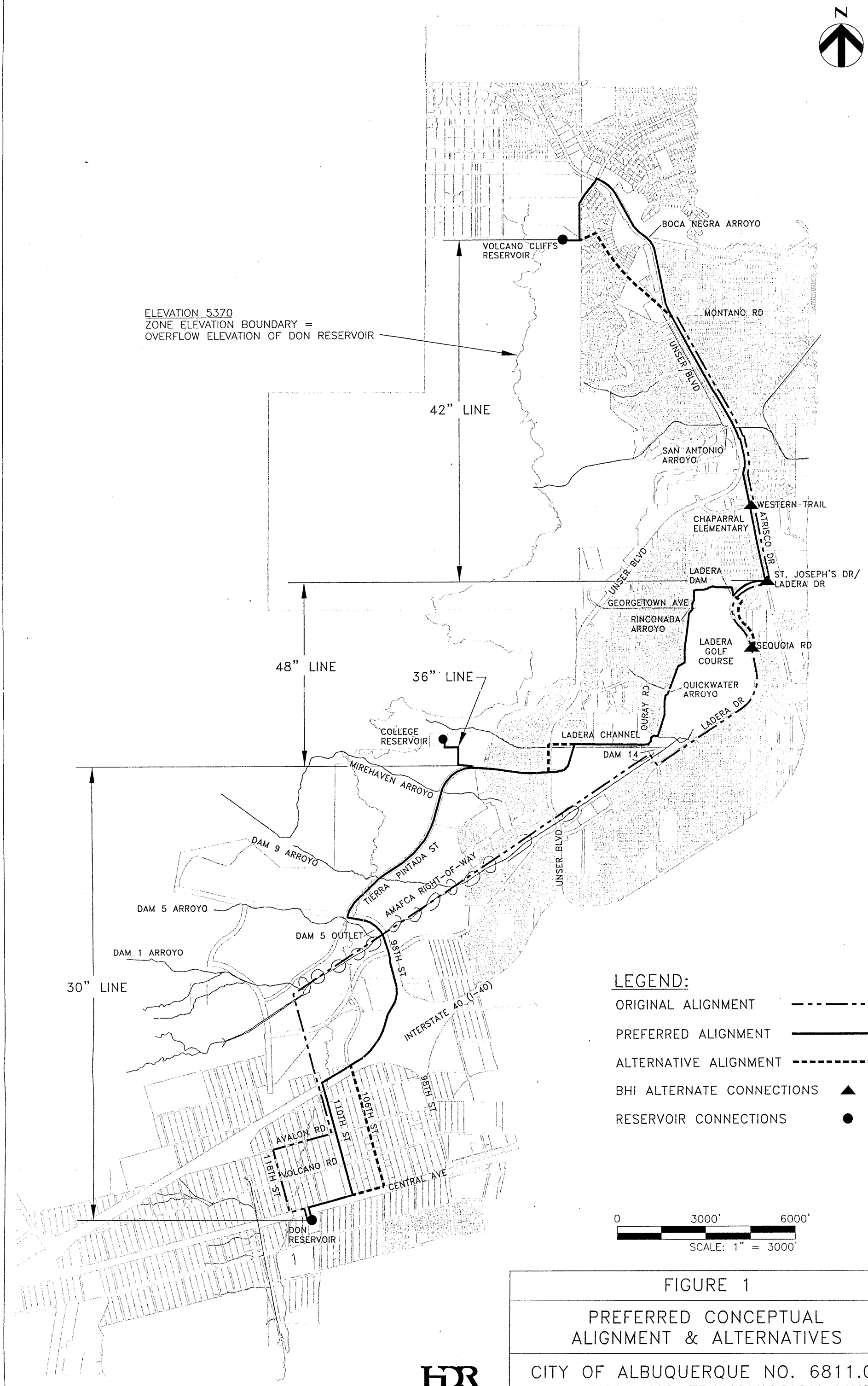
City Project No.
6808-01

Sheet Of

A. Introduction

As part of the COA San Juan-Chama Drinking Water Project, HDR was selected to provide traditional engineering services for design of the portion of the water transmission line, designated in the contract as No. 4, which runs from the intersection of Montano Rd. and Unser Blvd. then south and west to connect to the existing Don Reservoir near the intersection of Central Ave. and 116th St. The COA Authorization number for this portion of the transmission line is 6811-01. Because this segment of transmission line connects the Don and Volcano Cliffs Reservoirs, for clarity, it will be referred to as the "Don - Volcano Transmission Line", or "DVTL".

The alignment of the DVTL generally runs from its beginning at the intersection of Montano Rd. and Unser Blvd. from it's connection toward the Volcano Cliffs Reservoir, south on Unser to its connection to the western terminus of the WTP-DVTL transmission line at one of three alternate locations described later, then south and west to connect to the existing College Reservoir, continuing south and west to cross I-40, and then connects to the existing Don Reservoir located near the intersection of Central Ave. and 116th St (see *Figure 1*). The total length of transmission line for this portion of the project is approximately 9 miles (46,000 lf) and will be relatively large-diameter pipe ranging between 30-inches and 48-inches. The majority of the proposed transmission line will lie within existing rights-of-way (ROW's) and easements.



HDR Engineering, Inc.

FIGURE 1

PREFERRED CONCEPTUAL ALIGNMENT & ALTERNATIVES

CITY OF ALBUQUERQUE NO. 6811.01
DON-VOLCANO TRANSMISSION LINE