21.00

#666491

E-17/D059A

REAL PROPERTY ENCROACHMENT AGREEMENT AND COVENANTS UPON REAL ESTATE

(Building structures into drainage easement/damage)

9/4/01

This Agreement between the CITY OF ALBUQUERQUE, New Mexico (City) and ARROYO BOREALIS, LLC, a New Mexico limited liability company (User), is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the County Clerk.

Recital: The User is the owner of certain real property (User's Property) located on Osuna Boulevard in Albuquerque, New Mexico which is more particularly described as:

> Tract 2A Sawaya Addition, as the same is shown and described on the plat thereof filed in the Bernalillo County, New Mexico real estate records on May 7, 2001, in Vol. 2001C, Page 130 (the "Plat").

The City is the owner of an easement (the "Easement") encumbering the User's Property as shown on the Plat. The User intends to construct the following Improvements on the Easement;

> Oasis Restaurant Parking Deck as shown on the plans so entitled dated July 27, 2001, prepared by Brasher & Lorenz, QPEC Quiroga-Pfeiffer Engineering Corporation and Salmons, PC, City Project No. 666481 (DRB# 1001025).
>
> and
>
> Surface parking and driveways as shown on the Site Plan, a copy of which is attached as Exhibit A (the "Surface Improvements").

A sketch of the Deck Improvements are attached hereto as Exhibit B and made a part of this Agreement. The Deck Improvements and the Surface Improvements are collectively referred to as the "Improvements".

The City agrees to permit the Improvements, provided the User procures a City work-order for the design and construction of the Improvements and obtains a certificate of completion from the City engineer evidencing that all construction of the Deck Improvements have been completed in compliance with the approved work-order plans.

City Use of Easement and City Liability. The City has the right to enter upon the Easement at any time and perform whatever

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Page: 1 of 8
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Mary Herrera Bern Co. AGRE R 21.00

inspection, installation, maintenance, repair or modification. If in the opinion of the City, the work to be performed by the City could endanger the structural integrity or otherwise damage the Improvements, the User shall, at its own expense, take whatever protective measures are required to safeguard the Improvements.

User's Responsibility for Improvements. The User will be solely responsible for inspecting, constructing, maintaining, repairing and if required, protecting the Improvements all in accordance with standards required by the City. User agrees to provide inspection reports to the City for the Deck Improvements on a bi-annual basis. The inspection reports shall be prepared and stamped by a non-registered engineer. User will be solely responsible for paying all related costs. The User will not permit the Improvements to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the Easement. The User will conform with all applicable laws, ordinances and regulations.

Demand for Repair, Modification or Protection. The City may send written notice ("Notice") to the User requiring the User to repair the Improvements or take specified protective measures to safeguard the Improvements within sixty (60) days after mailing of the written notice to User ("Deadline") and the User will promptly comply with the requirements of the Notice. The User will perform all required work by the Deadline at User's sole expense.

Failure to Perform; Emergency. If the User fails to comply with the terms of the Notice by the Deadline stated, or if the City determines that an emergency condition exists, the City may perform the work itself. The City may then assess the User for the cost of the Work and for any other expenses or damages which result from User's failure to perform. The User shall pay the City the amount assessed within thirty (30) days after the City give the User written notice of the amount due. If the City employs the City's Legal Department or an outside attorney to enforce this Agreement, the User shall pay the City all costs, charges and expenses, including reasonable attorney's fees for the City's Legal Department or outside attorney, expended or incurred by the City to successfully enforce this Agreement.

Notice. For purposes of giving formal notice to the User, User's address is:

Arroyo Borealis, LLC
7600 Pan American Freeway
Albuquerque, New Mexico 87109

Notice may be given to the User either in person or by mailing notice by regular U.S. Mail, postage paid. Notice will be considered to have been received by the User within three (3) days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

Improvements Covered. User understands and agrees that the Improvements are the only encroachment permitted pursuant to this Agreement and that any modification, alteration or extension of the Improvements shall be a violation of this Agreement. In the event the User violates this provision of this Agreement, the City shall be entitled to require the User to remove the extension, modification or alteration constructed on the Easement. Upon receipt of Notice from the City as provided herein, User shall promptly remove any extension, modification or addition to the Improvements at User's expense.

Release. This Agreement may be released only upon the signature of the City's Chief Administrative Officer with the concurrence of the City Engineer.

Binding on User's Property. The obligations of the User set forth herein shall be binding upon the User, its heirs, assigns, successors, and personal representatives and shall constitute covenants running with User's Property until released by the City.

Indemnification. The User agrees to indemnify, defend and hold harmless the City, its officials, agents and employees, from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of the User the failure of the User to perform any act or duty required of the User herein; provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation of approval of maps, drawings, options, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property. The indemnification required hereunder shall not be limited as a result of the specifications of any applicable insurance coverage. Nothing herein is intended to impair any right or immunity under the laws of the State of New Mexico.

In addition, User understands and agrees that it shall be solely liable for any incidental or consequential damages to the Improvements incurred by User arising out of or as a result of the construction within the Easement, unless resulting from the City's negligence. User agrees that the City shall have no liability to User whatsoever for any damages to User or its property resulting from the City's maintenance of its Property and appurtenances thereto.

User specifically acknowledges and understands that the proximity of the Improvements to the storm drainage facility in the City's Property constitutes an inherent risk to User and its property, and hereby agrees, for itself, its heirs, assigns, successors and personal representatives, that it shall be solely liable for any damages resulting from the location of the Improvements, unless caused by the City's negligence. User hereby releases City from any claims, actions, suits or proceedings arising out of such known and foreseeable risk.

Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

Changes to Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonable capable of completion.

Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not effect the meaning or construction of any of its provisions.

Extent of Agreement. User understands and agrees that the User is solely responsible for ascertaining whether User's Improvements encroaches upon the property or facilities of any other entity and that by entering into this Agreement, the City makes no representations or warranties that the City's property is the only property affected by the encroachment.

CITY OF ALBUQUERQUE

Approved By:

Director, Public Works Department
Date: 9-6-01

City Engineer
Date: 9-6-01

9/4/01

KSL 9/4/01

USER:

ARROYO BOREALIS, LLC, a New Mexico limited liability company

By:
Name: Phil Pickard
Its: Managing Partner
Date: 8-24-01

USER'S NOTARY

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The instrument was acknowledged before me on 24th day of August, 2001, by Phil Pickard, as Managing Partner of Arroyo Borealis, LLC, a New Mexico limited liability company.

Michele B. Tyson
Notary Public

My Commission Expires:

May 1, 2005

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Page: 5 of 8
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CITY'S NOTARY

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The instrument was acknowledged before me on 6th day of September, 2001, by Fred J. Aguirre as Director, Public Works Department of the City of Albuquerque, a municipal corporation, on behalf of said corporation.

Gloria D. Saavedra
Notary Public

My Commission Expires:

11-15-2003

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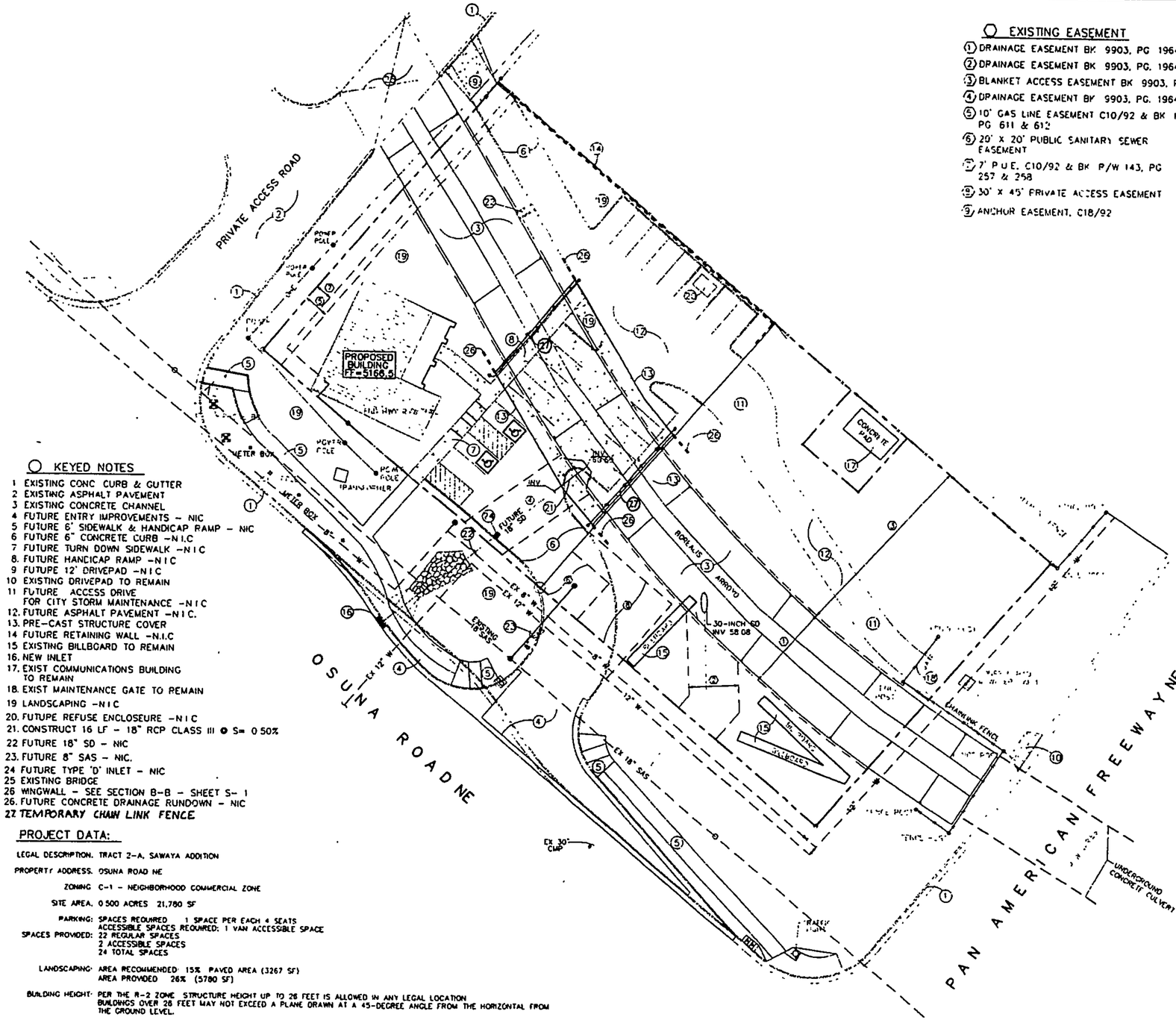
EXHIBIT

A



KEYED NOTES

1. EXISTING CONC CURB & GUTTER
2. EXISTING ASPHALT PAVEMENT
3. EXISTING CONCRETE CHANNEL
4. FUTURE ENTRY IMPROVEMENTS – NIC
5. FUTURE 6' SIDEWALK & HANDICAP RAMP – NIC
6. FUTURE 6" CONCRETE CURB –N.I.C
7. FUTURE TURN DOWN SIDEWALK –N I C
8. FUTURE HANDICAP RAMP –N I C
9. FUTUPE 12' DRIVEPAD –N I C
10. EXISTING DRIVEPAD TO REMAIN
11. FUTURE ACCESS DRIVE FOR CITY STORM MAINTENANCE –N I C
12. FUTURE ASPHALT PAVEMENT –N I C.
13. PRE–CAST STRUCTURE COVER
14. FUTURE RETAINING WALL –N.I.C
15. EXISTING BILLBOARD TO REMAIN
16. NEW INLET
17. EXIST COMMUNICATIONS BUILDING TO REMAIN
18. EXIST MAINTENANCE GATE TO REMAIN
19. LANDSCAPING –N I C
20. FUTUPE REFUSE ENCLOSEURE –N I C
21. CONSTRUCT 16 LF – 18" RCP CLASS III @ S= 0 50%
22. FUTURE 18" SD – NIC
23. FUTURE 8" SAS – NIC.
24. FUTURE TYPE 'D' INLET – NIC
25. EXISTING BRIDGE
26. WINGWALL – SEE SECTION B–B – SHEET S– 1
26. FUTURE CONCRETE DRAINAGE RUNDOWN – NIC
27. *TEMPORARY CHAIN LINK FENCE*

EXISTING EASEMENT

1. DRAINAGE EASEMENT BK 9903, PG 1964
2. DRAINAGE EASEMENT BK 9903, PG. 1964
3. BLANKET ACCESS EASEMENT BK 9903, PG 1964
4. DRAINAGE EASEMENT BK 9903, PG. 1964
5. 10' GAS LINE EASEMENT C10/92 & BK MISC 122, PG 611 & 612
6. 20' X 20' PUBLIC SANITARY SEWER EASEMENT
7. 7' P.U.E. C10/92 & BK P/W 143, PG 257 & 258
8. 30' X 45' PRIVATE ACCESS EASEMENT
9. ANCHOR EASEMENT, C18/92

PROJECT DATA:

LEGAL DESCRIPTION. TRACT 2–A, SAWAYA ADDITION

PROPERTY ADDRESS. OSUNA ROAD NE

ZONING C–1 – NEIGHBORHOOD COMMERCIAL ZONE

SITE AREA. 0 500 ACRES 21,780 SF

PARKING: SPACES REQUIRED 1 SPACE PER EACH 4 SEATS
ACCESSIBLE SPACES REQUIRED: 1 VAN ACCESSIBLE SPACE
SPACES PROVIDED: 22 REGULAR SPACES
2 ACCESSIBLE SPACES
24 TOTAL SPACES

LANDSCAPING: AREA RECOMMENDED 15% PAVED AREA (3267 SF)
AREA PROVIDED 26% (5780 SF)

BUILDING HEIGHT: PER THE R–2 ZONE STRUCTURE HEIGHT UP TO 26 FEET IS ALLOWED IN ANY LEGAL LOCATION BUILDINGS OVER 26 FEET MAY NOT EXCEED A PLANE DRAWN AT A 45–DEGREE ANGLE FROM THE HORIZONTAL FROM THE GROUND LEVEL.

SIGNAGE: ONE FREESTANDING, TWO SIDED SIGN
16 FEET HIGH MAXIMUM.
MAXIMUM AREA = 32 SF

C:\LAND PROJECTS\P2199548 OASIS PARKING DECK\DWG\PARKING DECK.DWG

LEGEND

ITEM	EXISTING	PROPOSED
WATERLINE		
SANITARY SEWER		
STORM SEWER		
FIRE HYDRANT		
VALVE		
WATER SERVICE (SINGLE)		
WATER SERVICE (DOUBLE)		
BLOWOFF		
GUY		
POLE (WALL)		
OVERHEAD ELEC		
UNDERGROUND ELEC		
GAS VALVE		
FLOWLINE (FLEX)		
TOP OF CURB (FLEX)		
SPOT ELEV		
SEWER SERVICE		
POINT OF BEGIN		
POWER POLE (GUYED)		
UNKNOWN TEXT		
CENTERLINE		
RETAINING WALL		
TOP OF ASPHALT ELEV		
CONTOUR		
FENCE		
DIRECTION OF FLOW		
SIGNAL POLE		
TRANSFORMER		
METER BOX		
PHONE BOX		

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Page: 7 of 8
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Mary Herrera

AS BUILT INFORMATION
CONTRACTOR
STARTED BY DATE
COMPLETED BY DATE
ACCEPTANCE BY DATE
PUBLIC WORKS BY DATE
CONSTRUCTION BY DATE
MICRO-FILM INFORMATION
DRAWING BY DATE

BENCH MARKS
ELEVATIONS SHOWN HEREON BASED ON THE CITY OF ALBUQUERQUE CONTROL STATION "B-017A" AN ELEVATION OF 5145.5 MSLD

SURVEY INFORMATION
FIELD NOTES BY DATE
NO

ENGINEER'S SEAL
BENJAMIN A. PHILLIPS
NEW MEXICO
7-17-01

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DATE 7-2001
		DESIGNED BY DAL	DATE 7-2001
		DRAWN BY MOB	DATE 7-2001
		CHECKED BY DAL	DATE 7-2001

BRASHER & LORENZ
CONSULTING ENGINEERS
2701 San Pedro NE Building 1 Suite 220
Albuquerque, New Mexico 87110
Ph: 505-888-0888 Fax: 505-888-8188

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE. OASIS RESTAURANT PARKING DECK
SITE PLAN

Design Review Committee	City Engineer Approval	Land Development Coordination	No./Date	No./Date

City Project No 666481 | Zone Map No. E–17 | Sheet C–3

NO.	DATE	REVISIONS	BY

DESIGN
DRAWN BY JAR DATE JUNE 2001
CHECKED BY PSP DATE JUNE 2001

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: OASIS RESTAURANT PARKING DECK
FOUNDATION PLAN

City Project No. | Zone Map No. E-17 | Sheet S2 Of

Design Review Committee | City Engineer Approval | Date | Design Update

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
ELEVATIONS SHOWN HEREON BASED ON THE CITY OF ALBUQUERQUE CONTROL STATION "8-D17A" AN ELEVATION OF 5143.5 MSLD

AS BUILT INFORMATION

MICRO-FILM INFORMATION

ENGINEER'S SEAL

FOUNDATION PLAN
SCALE: 1" = 10'-0"

EXHIBIT B

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Planning Department

Transportation Development Services Section

October 17, 2002

Steve Morrow, P.E.,
Brasher & Lorenz Consulting Engineers
2201 San Pedro N.E., Bldg. 1
Suite 1200
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for
Oasis Restaurant, [E-17 / D059A]
4451 Osuna N.E.
Engineer's Stamp Dated 10/09/02

Dear Mr. Morrow:

The TCL / Letter of Certification submitted on October 9, 2002 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Mike Zamora, Commercial Plan Checker
Development and Building Services
Planning Department

c: Hydrology file
Mike Zamora

OSUNA2NEW3StMoBLCE

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103
Public Works Department
Transportation Development Services Section

May 6, 2002

Bill Burk, Registered Architect
9617 LaPlaya N.E.
Albuquerque, NM 87111

Re: Traffic Circulation Layout (TCL) Submittal for Building Permit Approval for Oasis Resraurant, [E17 / D059A]
4451 Osuna Rd. N.E.
Architect's Stamp Dated 03/18/02

Dear Mr. Burk:

The TCL submittal, dated May 3, 2002, is sufficient for acceptance by this office and is stamped and signed as such. Four copies have been made as required: two for submittal of building permit plans, one kept by this office and one to be kept by you to be used for certification of the site for final C.O. for Hydrology/Transportation.

When the superintendent of this project calls for a Temporary C.O. immediate issuance is no longer possible at that time. An exact copy of the approved TCL is required, with mark ups(preferably in red) showing incomplete work remaining, along with a letter of certification, prior to issuance of Temporary C.O.
When site is complete and a Final C.O. is needed, a Letter of Certification (specifically stating "Certification"), stating that the site was built in substantial compliance with the approved plan, needs to be included with your copy of the TCL. A second option would be to place a *typed* or stamped Statement of Certification on the approved TCL copy. Letter and/or TCL package must be stamped with the designer's seal, signed and dated for that certification. All documentation must be submitted with a completed Drainage and Transportation Information Sheet (also used for the Grading and Drainage submittal) to Hydrology at the Development Services Center. D & T Information Sheet needs to be *completely* filled in ("contractor" and "surveyor" are not critical) so appropriate parties can be contacted, if necessary.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. to confirm that Final C.O. has been issued to the superintendent, call Building Safety at 924-3306.

Sincerely,

Mike Zamora, Commercial Plan Checker
Development and Building Services
Planning Department

c: Engineer
Hydrology file
Mike Zamora

City of Albuquerq
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO

October 28, 2003

Steve Morrow, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE, Bldg. 1, Ste. 1200
Albuquerque, NM 87110

Re: Oasis Restaurant, 4451 Osuna NE, Certificate of Occupancy
Engineer's Stamp dated 3-14-02 (E17/D59A)
Certification dated 9-02-03

Dear Mr. Morrow,

Based upon the information provided in your submittal received 10-27-03, the above referenced certification is approved for release of permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: Phyllis Villanueva
file

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 21, 2002

Dennis A. Lorenz, PE
Brasher & Lorenz
2201 San Pedro NE
Albuquerque, NM 87110

Re: Oasis Restaurant Grading and Drainage Plan
Engineer's Stamp Dated 3-14-02, (E17/D59A)

Dear Mr. Lorenz,

Based on the information contained in your submittal dated 3-19-02, the above referenced plan is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy approval, Work Order for this project must be completed as well as an Engineer's Certification per the DPM will be required.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Carlos A. Montoya, PE
City Floodplain Administrator, PWD
Development and Building Services

C: Terri Martin, Hydrology
File (2)

DRAINAGE REPORT

FOR

OASIS RESTAURANT

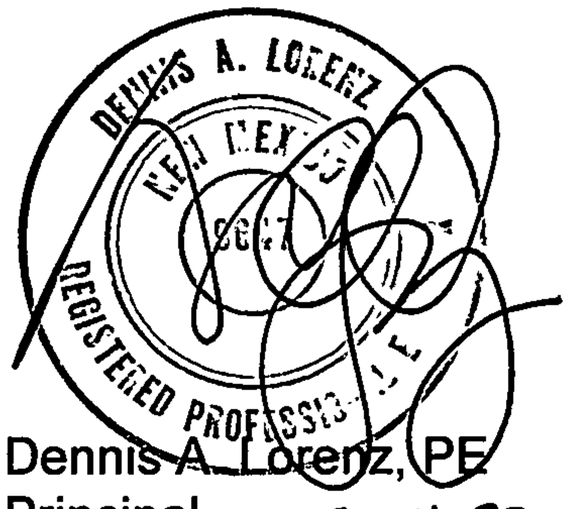
Albuquerque, New Mexico

Prepared For:

Oasis Restaurant
5400 San Mateo Blvd NE
Albuquerque, New Mexico 87109

Prepared By:

BRASHER & LORENZ, INC.
CONSULTING ENGINEERS
2201 San Pedro NE Bldg 1 Suite 1200
Albuquerque, New Mexico 87110



Dennis A. Lorenz, PE
Principal 3.14.02

March 2002

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as the **Oasis Restaurant.** Paving, landscaping, utility, grading, and drainage improvements will be provided to support the project. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and illustrate the grading, paving and drainage improvements required to support the project.

SITE DESCRIPTION

The project site is approximately 0.50 acres in size and is located on Osuna Road NE, just west of Interstate 25. (See Figure 1). Presently the site is undeveloped.

The site is sparsely vegetated with native grasses and shrubs. The site has been disturbed by various construction activities including random trash dumping. Site terrain slopes at varying gradients into the concrete lined channel that bisects the site.

The site is presently described as Tract 2A, Sawaya Addition. The site is bounded on the east by I-25 West Frontage Road, on the south by Osuna Road, on the west by developed M-1 property, and on the north by undeveloped M-1 property.

The site has been recently improved by construction of a reinforced concrete parking deck over the existing concrete channel (see COA Project ****). The deck allows parking and access across the channel.

As shown by the attached FIRM Panel, this site is impacted by a designated flood hazard zone that is confined to a concrete lined channel, which bisects the site (see Figure 2).

EXISTING DRAINAGE CONDITIONS

Presently the site is undeveloped as described above. The site is bisected by the Borealis Arroyo - a concrete lined channel, which conveys flows from east of I-25, westward to the North Diversion Channel. All on-site flows drain directly to the channel. Off-site flows from Osuna Road drain overland to an existing channel side inlet located at the south side of the channel. Off-site flows from the I-25/Osuna interchange also drain by a 30-inch CMP to the channel.

The site has recently been improved as described above. An 18-inch RCP storm drain stubout was installed at the existing channel side inlet allowing drainage access to the concrete channel.

Properties located north and west of the site drain away from the site.

PROPOSED CONDITIONS

As shown by the Plan, the project consists of the development of the property into a restaurant, with associated paving, utility landscaping and drainage improvements. The Plan shows the elevations required to properly grade and construct the recommended improvements. The direction of drainage flows are given by flow arrows and on-site drainage basins are identified. All drainage improvements recommended by the Plan are detailed on Grading and Drainage Plan located in the back pocket of this report.

As shown by the Plan, the site is divided into 2 on-site drainage basins. Basin 1, located south of the channel, will drain to a new Type "D" inlet, to be constructed at the new 18-inch storm drain that originates at Osuna Road, and drains to the channel. Basin 2 located north of the channel, will drain overland to a new concrete rundown channel that is to convey flows to the channel.

The project site is impacted by 3 off-site drainage basins as shown by Figure 3 and described below:

Basin A:

This basin consists of portions of Osuna Road and the I-25 West Frontage Road. These flows presently drain to a low point along the project frontage at Osuna and exist the roadway by a concrete rundown. The rundown flows overland within an existing drainage easement to a side inlet at the channel. The concrete rundown will be replaced with a Type C inlet and 18-inch storm drain that will connect to the existing 18-inch stubout located at the parking deck.

Basin B:

This basin contains 0.92 acres and is located north of the site. These flows drain westerly onto the adjoining tract. Paving improvements on the adjoining parcel direct the runoff to a side inlet west of the site. Construction of the retaining wall proposed by this project will further encourage flows from this basin to drain westward.

Basin C:

This basin represents Tract 2-B and portions of the adjoining street right-of-way. These flows presently drain directly to the channel. Future development anticipates extending the parking deck across Tract 2-B, with the provision of drainage improvements to drain flows to the channel. Review for compliance with City of Albuquerque criteria and standards will be done by the City of Albuquerque Hydrology Section, and the City of Albuquerque Storm Maintenance Department. The improvement is to be privately owned and maintained.

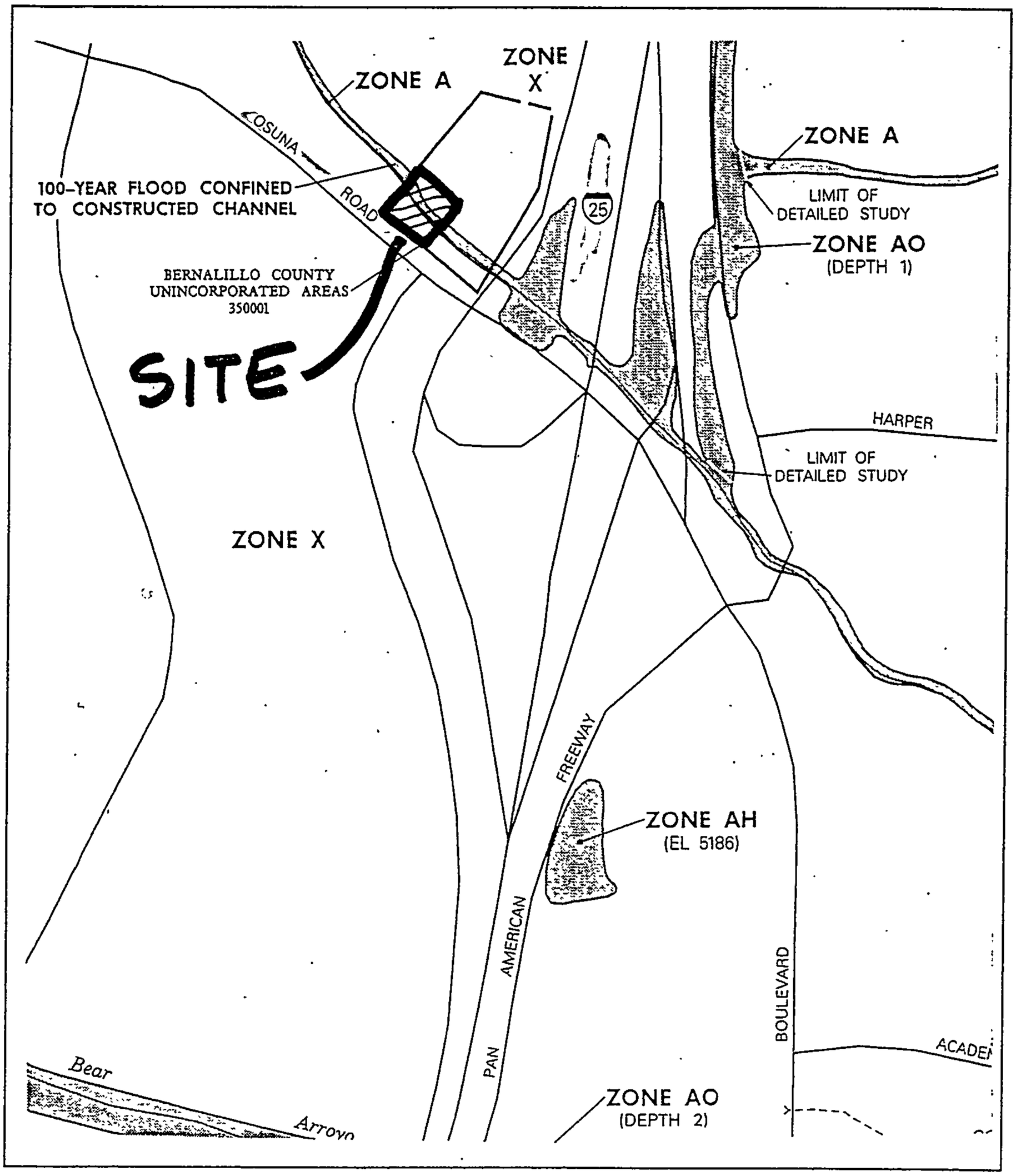
TEMPORARY EROSION CONTROL PLAN

1. The intent of the Temporary Erosion Control Plan is to limit the discharge of sediment into the public street and/or storm drainage system and to protect adjacent properties from excess runoff during construction.

2. The Contractor shall submit a Temporary Erosion Control Plan and obtain a TopSoil Disturbance Permit from Environmental Health prior to performing any earthwork-related operations.

3. After the initial site clearing, the temporary erosion control facilities should be constructed per the Plan to direct excess runoff and sediment the outfall locations.

4. It is the Contractor's responsibility to properly maintain all temporary erosion control facilities during the construction phase of the project.



FLOOD INSURANCE RATE MAP

Figure 2

BRASHER & LORENZ
CONSULTING ENGINEERS
2201 San Pedro NE Building 1 Suite 220
Albuquerque, New Mexico 87110
Ph: 505-888-6088 Fax: 505-888-6188

PROJECT OASIS
DATE 1-16-01 PAGE 1

(1) OSUNA RD DROP INLET

PER AHYMD Q_{100} = 2.28 CFS

(A) PER PLATE 22.3 D-4 :

STREET DEPTH = 0.26 FT

@ S = 2.0%

PER PLATE 22.3 D-5 :

Q GRATING TYPE 'C' = 2.2 CFS

⇒ THIS IS LOW CONSIDERING INLET IS IN A SUMP. ASSUME CAPACITY EXCEEDS Q_{100}

(B) LATERAL PIPE TO CHANNEL

Q_{100} = 2.28 CFS

S = 0.5%

USE 18" RCP

SEWER PIPES

Enter up to 10 pipes.
Enter <Return> only for flowrate and diameter to end.

FLOWRATE (CFS)	DIAMETER (IN)	FRICTION (FT^1/6)	SLOPE (%)	VELOCITY (FPS)
2.26	11.52	0.0130	0.50	3.12

2.

STREET CAPACITY

OSUNA RD

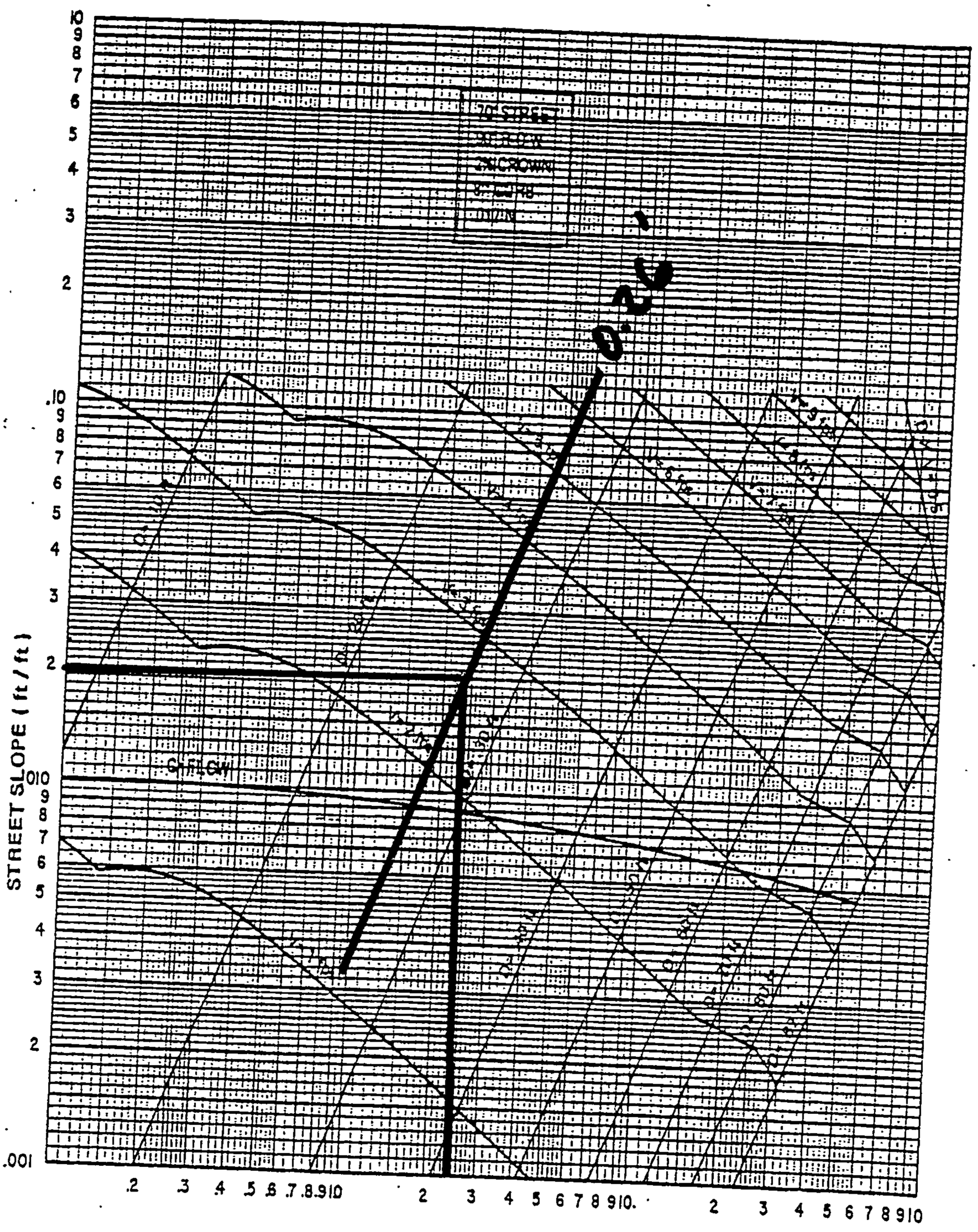


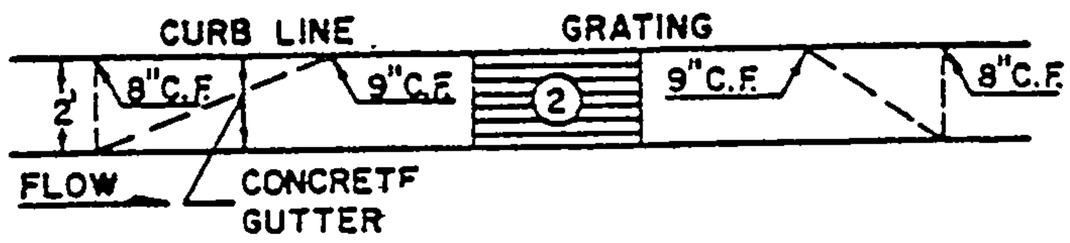
PLATE 22.3 D-4

* * * 3.

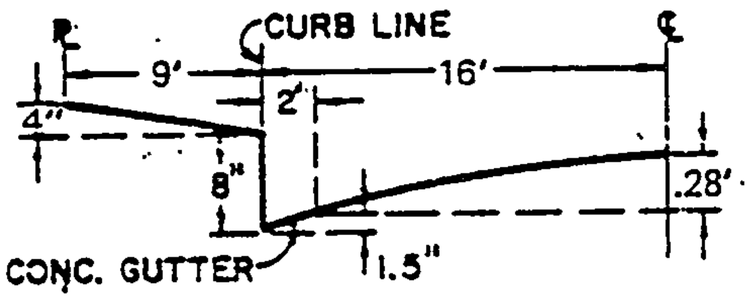
OSUNA DI

22.3

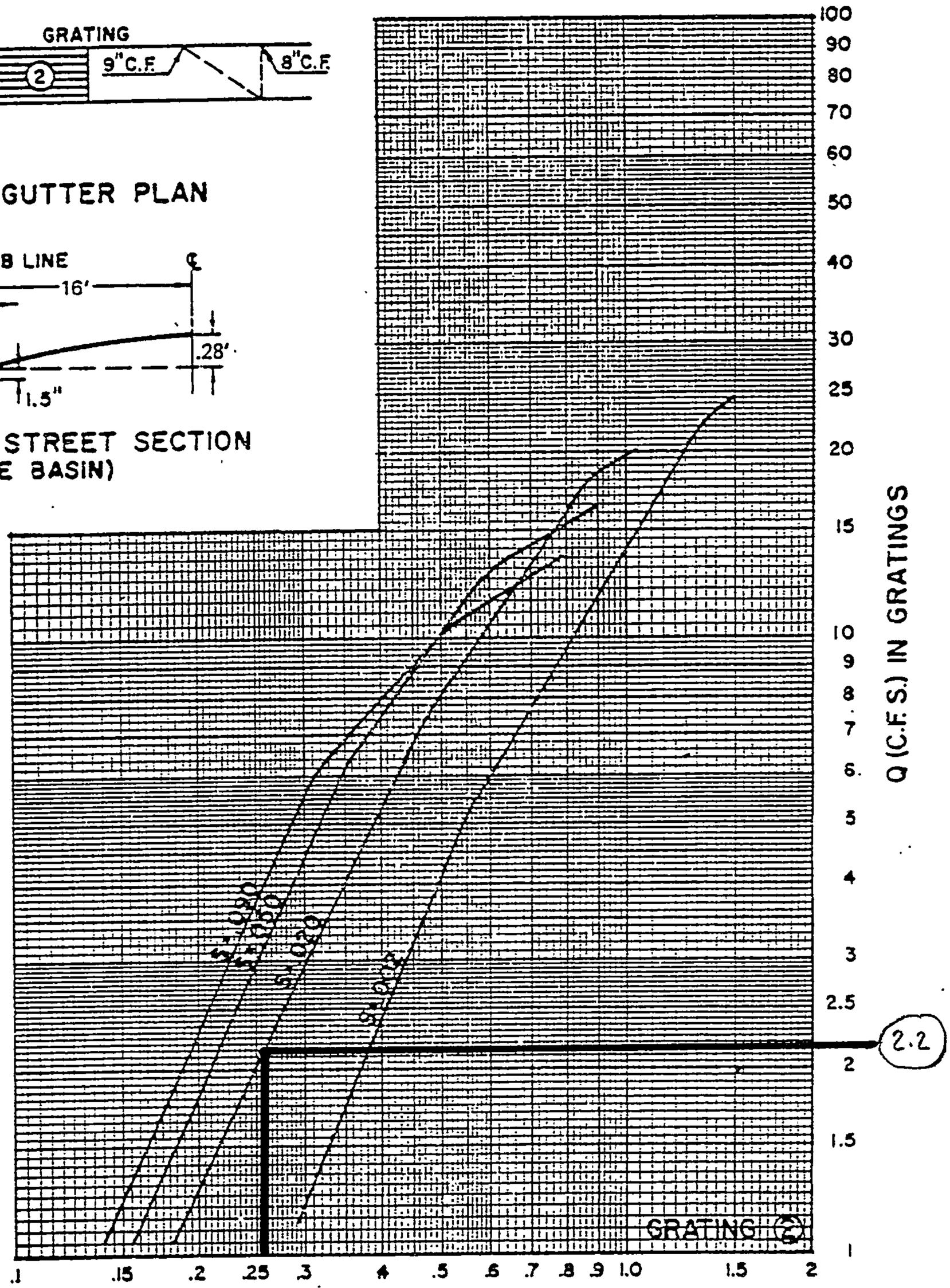
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

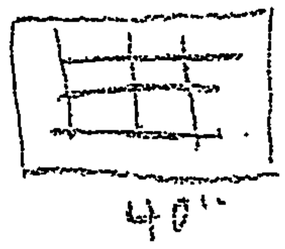
BRASHER & LORENZ
CONSULTING ENGINEERS
2201 San Pedro NE Building 1 Suite 220
Albuquerque, New Mexico 87110
Ph: 505-888-6088 Fax: 505-888-6185

PROJECT OASIS
DATE 1-16-01 PAGE 4

(2) ON-SITE TYPE 'D' INLET (BASIN (1))

PER AHYMD $Q_{100} = 1.29$ CFS

(A) GRATING



$P = 2(25+40)/12 = 10.83$ FT

PER FIG 309.4F

$Q/P = 0.12$ CFS/FT

USING CURVE A: $d = 0.13$ FT (PROVIDED)

(B) LATERAL PIPE TO CHANNEL

$Q_{100} = 1.29$ CFS + 2.28 CFS (OSUNA) = 3.57 CFS

$S = 0.5\%$ MIN

USE 18" RCP

SEWER PIPES

Enter up to 10 pipes.
Enter <Return> only for flowrate and diameter to end.

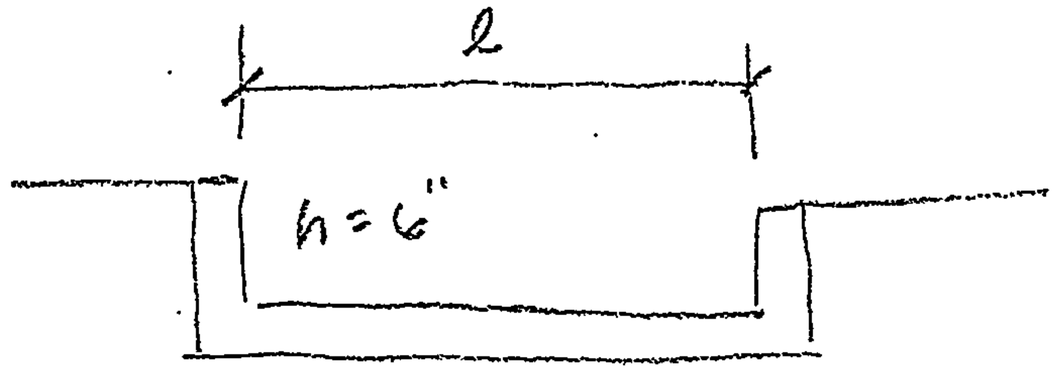
FLOWRATE (CFS)	DIAMETER (IN)	FRICTION (FT^1/6)	SLOPE (%)	VELOCITY (FPS)
3.57	13.68	0.0130	0.50	3.50

18" OK

(3) BASIN (2) RUNDOWN TO ARROYO

Q = 1.02 CFS

BY WEIR:



SECTION

WEIRS

Enter up to 10 weirs.
Enter <Return> only for flowrate and length to end.

FLOWRATE (CFS)	LENGTH (FT)	COEFF (-)	HEAD (FT)
1.02	1.2	2.500	0.50

USE 24"

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =03/14/2002
INPUT FILE = C:\AHYMO\99548.DAT USER NO.= AHYMO-I-9702c01000T35-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.600
COMPUTE NM HYD	EX.SITE	-	1	.00078	1.34	.045	1.08017	1.500	2.682	PER IMP= 25.00
COMPUTE NM HYD	EX.A	-	2	.00072	2.32	.090	2.35527	1.500	5.037	PER IMP= 100.00
COMPUTE NM HYD	EX.B	-	3	.00055	1.32	.043	1.47111	1.500	3.774	PER IMP= 17.00
COMPUTE NM HYD	EX.C	-	4	.00144	3.43	.112	1.46046	1.500	3.723	PER IMP= 16.00
COMPUTE NM HYD	DEV.SITE	-	5	.00078	2.29	.085	2.04850	1.500	4.579	PER IMP= 75.00
COMPUTE NM HYD	DEV.A	-	6	.00095	2.28	.074	1.46046	1.500	3.733	PER IMP= 16.00
COMPUTE NM HYD	DEV.B	-	7	.00055	1.65	.062	2.11027	1.500	4.715	PER IMP= 77.00
COMPUTE NM HYD	DEV.C	-	8	.00144	4.45	.170	2.21679	1.500	4.836	PER IMP= 87.00
COMPUTE NM HYD	DEV.BASIN-1	-	9	.00044	1.29	.048	2.04850	1.500	4.606	PER IMP= 75.00
COMPUTE NM HYD	DEV.BASIN-2	-	10	.00034	1.02	.038	2.04850	1.500	4.630	PER IMP= 75.00
FINISH										

***

SUBORDINATION AGREEMENT

THIS SUBORDINATION AGREEMENT is entered into this 5th day of February, 1999, by and between INTERAMERICA BANK (hereinafter "Mortgagee"), and ARROYO BOREALIS, LTD. CO. (hereinafter "Mortgagor").

WHEREAS, Mortgagor has granted to the Mortgagee a mortgage dated June 6, 1997, and recorded in Book 97-16, Pages 512 through 518, as document No. 97059908, of the real property records of Bernalillo County, New Mexico, which mortgage secures a promissory note from Mortgagor to the Mortgagee in the principal amount of $98,318.01, covering the following described real estate in Bernalillo County, New Mexico:

> Tract 2 of the SAWAYA ADDITION as the same is shown and designated on the Plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on February 27, 1975, in Book C10 Folio 92.

hereinafter referred to as the Premises;

WHEREAS, the Mortgagee has agreed to lend Mortgagor the principal sum of $98,318.01 which indebtedness is evidenced by a promissory note dated June 6, 1997, and secured by a mortgage on the premises of the same date.

WHEREAS, as partial consideration for the loan from the Mortgagee to Mortgager, the Mortgagee has required that its mortgage be a first lien upon the Premises; and

WHEREAS, the parties are desirous of insuring that the mortgage referred to herein is subordinate only to a drainage easement claimed by the City of Albuquerque, with said drainage easement referred to herein as the "Drainage Easement", with a legal description as follows:

DRAINAGE EASEMENT: Parcel 2, A Parcel of land situate within Tract 2, Sawaya Addition, as Bernalillo County as the same is shown and designated on the plat of Sawaya Addition, as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975, in Volume C-10, Folio 92.

NOW THEREFORE, in consideration of the mutual covenants contained herein it is agreed as follows:

1. The mortgage to the Mortgagee shall constitute a subordinate lien to the Drainage Easement of the City of Albuquerque described herein, and shall be a subordinate lien only to that particular Drainage Easement described herein and claimed and maintained by the City of Albuquerque.

2. The Mortgagee agrees to subordinate its mortgage lien to the City of Albuquerque's Drainage Easement described herein, and specifically limits this Subordination Agreement to the Drainage Easement described herein.

INTERAMERICA BANK:

By: _____
MICHAEL MAESTAS,
ITS EXECUTIVE VICE-PRESIDENT

ARROYO BOREALIS, LTD. CO.

By: _____
PHILIP D. PICKARD,
ITS MANAGER

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

OFFICIAL SEAL
G. CYNTHIA LORING
NOTARY PUBLIC - STATE OF NEW MEXICO
Notary Bond Filed With Secretary of State
My Commission Expires 6-24-01

The foregoing instrument was acknowledged before me this 5th day of February, 1999, by Michael Maestas, as Executive Vice-President of Interamerica Bank.

My commission expires:

6-24-01

G. Cynthia Loring
Notary Public

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 3rd day of February, 1999, by Philip Pickard, as Manager of Arroyo Borealis, Ltd. Co.

My commission expires:

OFFICIAL SEAL
Georgia Reinier
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 6-28-00

Georgia Reinier
Notary Public

Judy D. Woodward Bern. Co. SUBR R 9.00

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Page: 2 of 2
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Bk-9903 Pg-1931

EASEMENT

This grant of Easement, between Philip David Pickard, Trustee under the Pickard Trust I dated December 31, 1995, ("Grantor"), whose address is 10207 Anaheim NE, 87122, Albuquerque, New Mexico, grants to the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico 87103:

1. **Grant of Easement.** The Grantor grants to the City 1) a permanent blanket access easement ("Access Easement") over a portion of Grantor's Property ("Property") more particularly shown on Exhibit B-1 as Parcel 1 and attached hereto. The Access Easement shall be for the purpose of allowing the City to access, maintain, operate, inspect and repair all portions of the concrete lined channel ("Channel") currently constructed within the Property. Grantor acknowledges and agrees that access to the Access Easement from the I-25 Frontage Road and the northwest corner of the Access Easement must be maintained at their present locations and may not be blocked at any time for any reason. Grantor shall be permitted to use the Access Easement for vehicular parking, provided Grantor's parking does not interfere with the City's right to access the Property or any portion of the Channel and; 2) Exclusive permanent easements for Storm Drainage Facilities ("Drainage Easements") on, over, under, across and/or through a portion of Grantor's Property more particularly shown on Exhibits B-2 through B-5 as Parcels 2 through 5 respectively and attached hereto, together with the right of the City to operate, maintain, repair, replace and construct Storm Drainage Facilities. The City also reserves the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City, in it's sole opinion, determines such interferes with the appropriate use of the Access Easement and Drainage Easements.

Grantor shall be permitted, at Grantor's expense, to cover the Storm Drainage Facilities, provided 1) Construction does not interfere with the appropriate use of the Drainage Easements; 2) Construction provides for all existing freeboard; 3) All construction is installed and maintained in conformity with all City requirements, procedures, plans and specifications and is approved in advance by the City Engineer which will not be unreasonably withheld.

Grantor shall be permitted, entirely at Grantor's expense, to vacate or terminate the Drainage Easements shown on Exhibits B-4 and B-5 as Parcels 4 and 5 respectively provided all drainage concerns on, over, under, across and/or through the Grantor's Property are addressed by Grantor to the satisfaction of the City Engineer.

2. **City Use of Easements.** In the event Grantor constructs any improvements ("Encroachments") (but not including road surfacing or curb and gutter)

within the Access Easement or the Drainage Easements which obstructs the City's access through the Property to the City Storm Drainage Facilities. The City shall have the right to reasonable alternative access across Grantor's Property for the purpose of operating, inspecting, installing, maintaining, repairing, modifying, or removing ("Work") the Storm Drainage Facilities. If the Work affects any Encroachments, the City will not be financially or otherwise responsible for rebuilding or repairing the Encroachments. If, in the sole opinion of the City, the Work could endanger the structural integrity or otherwise damage the Encroachments, the Grantor shall, immediately and at its own expense, take whatever protective measures are required to safeguard the Encroachments.

3. **Warranties**. Grantor covenants and warrants that it is the owner in fee simple of the Property and that it has a good lawful right to convey the Property or any part thereof including the Access Easement and the Drainage Easements, and that the Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

4. **Binding on Grantor's Property**. The grant and other provisions of these Easements constitute covenants running with title to Grantor's Property for the benefit of Grantor and the City and their successors and assigns until terminated.

Witness my hand and seal this 29th day of DECEMBER, 1998.

GRANTOR:
PICKARD TRUST I

Philip David Pickard
Its: Trustee

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on December 29, 1998, by Philip David Pickard, Trustee of Pickard Trust I.

Linda M Murphy
Notary Public

My Commission Expires
4-18-2001

EXHIBIT B
TO REAL PROPERTY ENCROACHMENT AGREEMENT

rpd4\esmt2 frm

EXHIBIT B-1

SKETCH AND DESCRIPTION SHOWING

BLANKET ACCESS EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998

Parcel 1

A parcel of land situate within Tract 2, Sawaya Addition, Bernalillo County, New Mexico as the same is shown and designated on the plat of Sawaya Addition as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975 in Volume C-10, Folio 92. Being more particularly described by grid bearings and ground distances as follows:

Beginning at the Northwest corner of said Tract 2, a point on the Easterly boundary of Tract 4, Conejos Business Park, as filed for record in said Office of the County Clerk on May 22, 1995 in Volume 95-C, Folio 185 common to the Southwest corner of Tract 1 of said Sawaya Addition from which point the City of Albuquerque Survey Control Monument "8-D17A" having New Mexico State Plane Coordinates (Central Zone) of X=397531.37 and Y=1513576.38 bears N29°54'24"W a distance of 1933.31 feet;

Thence S49°16'34"E along the Northerly boundary of said Tract 2 a distance of 300.10 feet to the Northeast corner of said Tract 2, a point on the Westerly Right-Of-Way line of the Pan American Freeway;

Thence S40°43'26"W along the Easterly boundary of said Tract 2 a distance of 75.97 feet to a point on a non-tangent curve;

Thence along said curve (said curve being concave to the Northeast having a radius of 496.50 feet, a central angle of 01°21'57", a chord which bears N53°39'10"W a distance of 11.83 feet) a distance of 11.84 feet;

Thence S37°01'48"W a distance of 1.50 feet to a point on a curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 498.00 feet, a central angle of 22°11'19", a chord which bears N41°52'32"W a distance of 191.65 feet) a distance of 192.86 feet;

Thence N30°46'53"W a distance of 103.69 feet to a point on the Westerly boundary of said Tract 2;

Thence N40°43'26"E along said Westerly boundary a distance of 20.79 feet to the Point of Beginning and containing 18,298 square feet more or less

I, Daniel C. Montano, City Surveyor for the City of Albuquerque and Professional Surveyor, do hereby certify that this Sketch and Description was prepared from field work performed by me or under my direct supervision, meets the Minimum Standards for surveys in New Mexico and is true to the best of my knowledge and belief.

11/06/98

Daniel C. Montano
N.M.P.S. No. 5340

Date

DANIEL C. MONTANO NEW MEXICO 5340 REGISTERED LAND SURVEYOR

DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

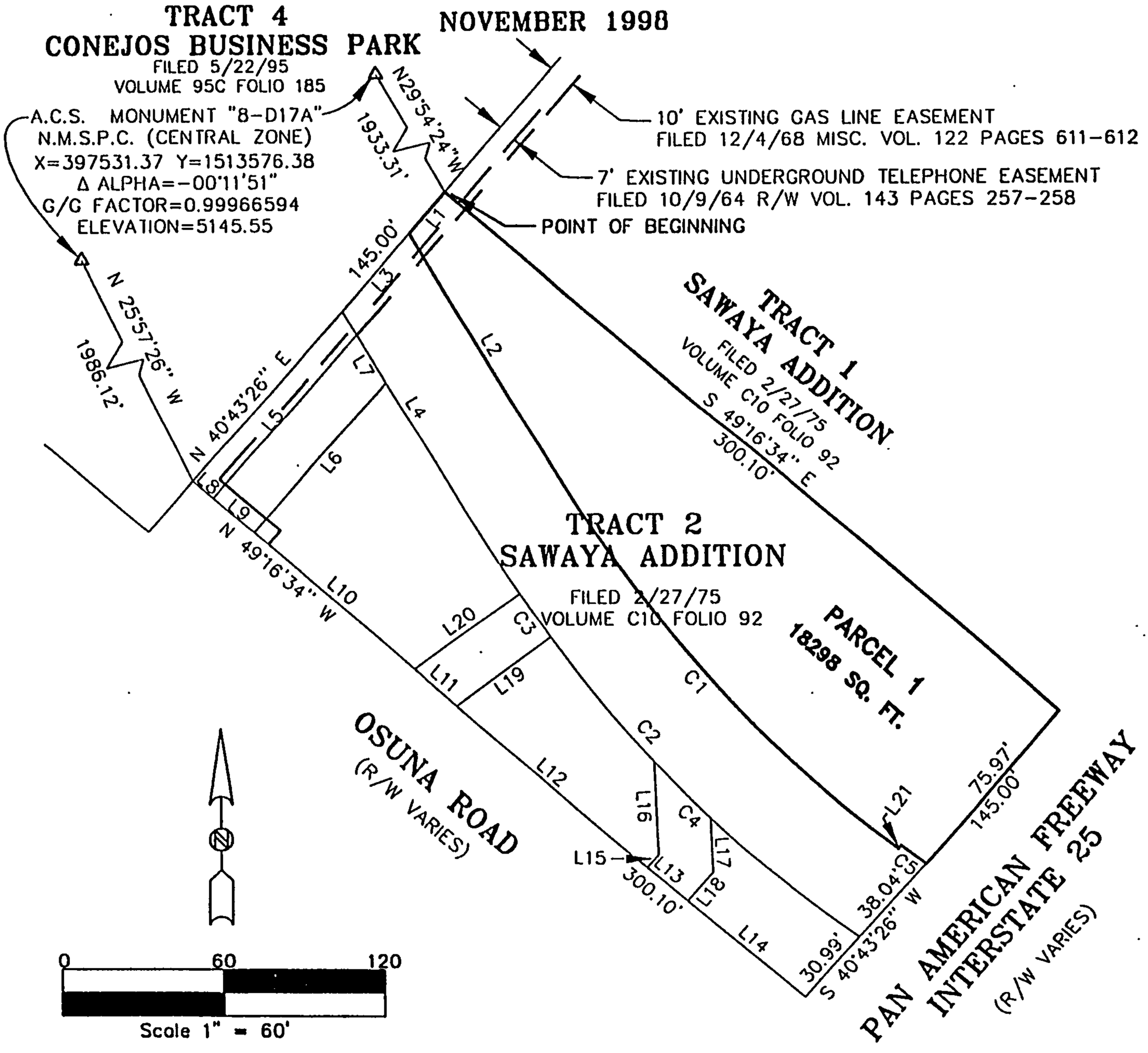
EXHIBIT B-1

SKETCH AND DESCRIPTION SHOWING

BLANKET ACCESS EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998



NUMBER	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH	ARC LENGTH
C1	498.00	22°11'19"	97.65	N 41°52'32" W	191.65	192.86
C2	534.40	23°11'41"	109.67	S 42°22'43" E	214.86	216.34
C3	534.40	02°08'40"	10.00	S 35°35'57" E	20.00	20.00
C4	534.40	03°11'28"	14.89	S 44°39'48" E	29.76	29.76
C5	496.50	01°21'57"	5.92	S 53°39'10" E	11.83	11.84

NUMBER	DIRECTION	DISTANCE
L1	N 40°43'26" E	20.79'
L2	N 30°46'53" W	103.69'
L3	S 40°43'26" W	38.38'
L4	S 30°46'53" E	91.52'
L5	S 40°43'26" W	82.48'
L6	N 40°43'26" E	75.79'
L7	N 30°46'53" W	21.09'
L8	S 49°16'34" E	10.00'
L9	S 49°16'34" E	20.00'
L10	S 49°16'34" E	78.89'
L11	S 49°16'34" E	20.58'

NUMBER	DIRECTION	DISTANCE
L12	S 49°16'34" E	93.28'
L13	S 49°16'34" E	20.00'
L14	S 49°16'34" E	57.35'
L15	N 39°53'05" E	6.59'
L16	N 02°26'09" W	35.28'
L17	S 02°26'09" E	20.99'
L18	S 39°53'05" W	14.63'
L19	S 54°22'58" W	43.30'
L20	N 54°22'58" E	48.16'
L21	N 37°01'48" E	1.50'

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

EXHIBIT B-2

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998

Parcel 2

A parcel of land situate within Tract 2, Sawaya Addition, Bernalillo County, New Mexico as the same is shown and designated on the plat of Sawaya Addition as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975 in Volume C-10, Folio 92. Being more particularly described by grid bearings and ground distances as follows:

Beginning at the Northwest corner of said Tract 2, a point on the Easterly boundary of Tract 4 Conejos Business Park, as filed for record in said Office of the County Clerk on May 22, 1995 in Volume 95-C, Folio 185 common to the Southwest corner of Tract 1 of said Sawaya Addition from which point the City of Albuquerque Survey Control Monument "8-D17A" having New Mexico State Plane Coordinates (Central Zone) of X=397531.37 and Y=1513576.38 bears N29°54'24"W a distance of 1933.31 feet;

Thence S40°43'26"W along the Westerly boundary of said Tract 2 a distance of 20.79 feet to the True Point Of Beginning;

Thence S30°46'53"E a distance of 103.69 feet to the point of curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 498.00 feet, a central angle of 22°11'19", a chord which bears S41°52'32"E a distance of 191.65 feet) a distance of 192.86 feet;

Thence N37°01'48"E a distance of 1.50 feet to a point on a curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 496.50 feet, a central angle of 01°21'57", a chord which bears S53°39'10"E a distance of 11.83 feet) a distance of 11.84 feet to the Easterly boundary of said Tract 2, a point on the Westerly Right-Of-Way line of the Pan American Freeway;

Thence S40°43'26"W along said Easterly boundary a distance of 38.04 feet to a point on a non-tangent curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 534.40 feet, a central angle of 23°11'41", a chord which bears N42°22'43"W a distance of 214.86 feet) a distance of 216.34 feet;

Thence N30°46'53"W a distance of 91.52 feet to the Westerly boundary of said Tract 2, a point on the Easterly boundary of said Tract4 Conejos Business Park;

Thence N40°43'26"E along said Easterly boundary a distance of 38.38 feet to the True Point Of Beginning and containing 11,232 square feet more or less

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Page: 5 of 12
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Judy D. Woodward Bern. Co. EASE R 29.00

I, Daniel C. Montano, City Surveyor for the City of Albuquerque and Professional Surveyor, do hereby certify that this Sketch and Description was prepared from field work performed by me or under my direct supervision, meets the Minimum Standards for surveys in New Mexico and is true to the best of my knowledge and belief.

11/06/98

Daniel C. Montano
N.M.P.S. No. 5340

Date

DANIEL C. MONTANO NEW MEXICO 5340 REGISTERED LAND SURVEYOR

DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

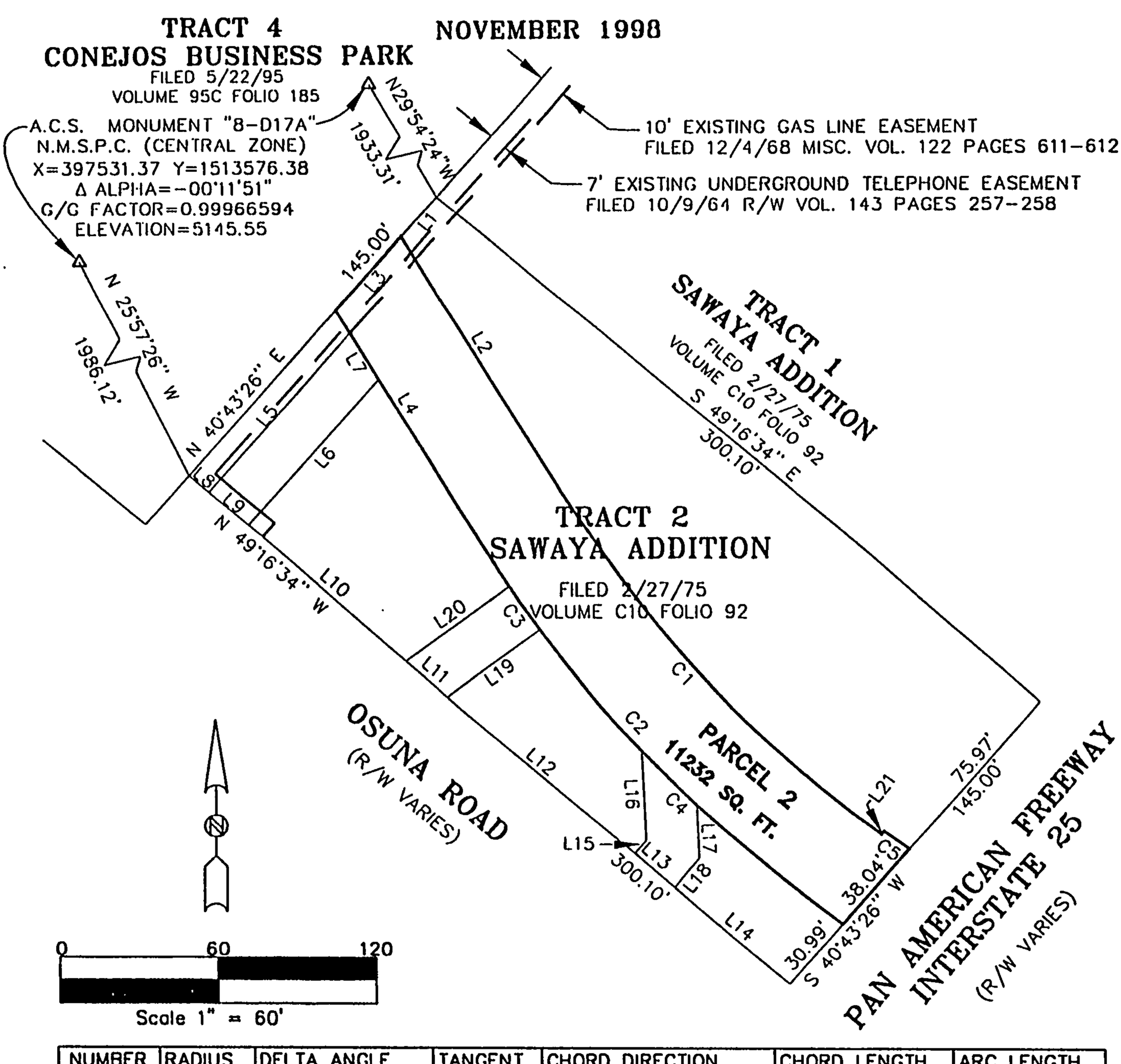
EXHIBIT B-2

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998



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C2	534.40	23°11'41"	109.67	S 42°22'43" E	214.86	216.34
C3	534.40	02°08'40"	10.00	S 35°35'57" E	20.00	20.00
C4	534.40	03°11'28"	14.89	S 44°39'48" E	29.76	29.76
C5	496.50	01°21'57"	5.92	S 53°39'10" E	11.83	11.84

NUMBER	DIRECTION	DISTANCE
L1	N 40°43'26" E	20.79'
L2	N 30°46'53" W	103.69'
L3	S 40°43'26" W	38.38'
L4	S 30°46'53" E	91.52'
L5	S 40°43'26" W	82.48'
L6	N 40°43'26" E	75.79'
L7	N 30°46'53" W	21.09'
L8	S 49°16'34" E	10.00'
L9	S 49°16'34" E	20.00'
L10	S 49°16'34" E	78.89'
L11	S 49°16'34" E	20.58'

NUMBER	DIRECTION	DISTANCE
L12	S 49°16'34" E	93.28'
L13	S 49°16'34" E	20.00'
L14	S 49°16'34" E	57.35'
L15	N 39°53'05" E	6.59'
L16	N 02°26'09" W	35.28'
L17	S 02°26'09" E	20.99'
L18	S 39°53'05" W	14.63'
L19	S 54°22'58" W	43.30'
L20	N 54°22'58" E	48.16'
L21	N 37°01'48" E	1.50'

Judy D. Woodward Bern. Co. EASE R 29.00
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Page: 6 of 12
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DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

EXHIBIT B-3

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998

Parcel 3

A parcel of land situate within Tract 2, Sawaya Addition, Bernalillo County, New Mexico as the same is shown and designated on the plat of Sawaya Addition as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975 in Volume C-10, Folio 92. Being more particularly described by grid bearings and ground distances as follows:

Beginning at the Southwest corner of said Tract 2, a point on the Easterly boundary of Tract 4 Conejos Business Park, as filed for record in said Office of the County Clerk on May 22, 1995 in Volume 95-C, Folio 185, and the Northerly Right-Of-Way line of Osuna Road NE., from which point the City of Albuquerque Survey Control Monument "8-D17A" having New Mexico State Plane Coordinates (Central Zone) of X=397531.37 and Y=1513576.38 bears N25°57'26"W a distance of 1986.12 feet;

Thence S49°16'34"E along the Southerly boundary of said Tract 2 a distance of 10.00 feet to the True Point Of Beginning;

Thence N40°43'26"E a distance of 82.48 feet;

Thence S30°46'53"E a distance of 21.09 feet;

Thence S40°43'26"W a distance of 75.79 feet to a point on the said Southerly boundary of Tract2;

Thence N49°16'34"W along said Southerly boudary of Tract 2 a distance of 20.00 feet to the True Point Of Beginning and containing 1,583 square feet more or less

I, Daniel C. Montano, City Surveyor for the City of Albuquerque and Professional Surveyor, do hereby certify that this Sketch and Description was prepared from field work performed by me or under my direct supervision, meets the Minimum Standards for surveys in New Mexico and is true to the best of my knowledge and belief.

Daniel C. Montano
N.M.P.S. No. 5340

11/06/98
Date

DANIEL C. MONTANO NEW MEXICO 5340 REGISTERED LAND SURVEYOR

DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

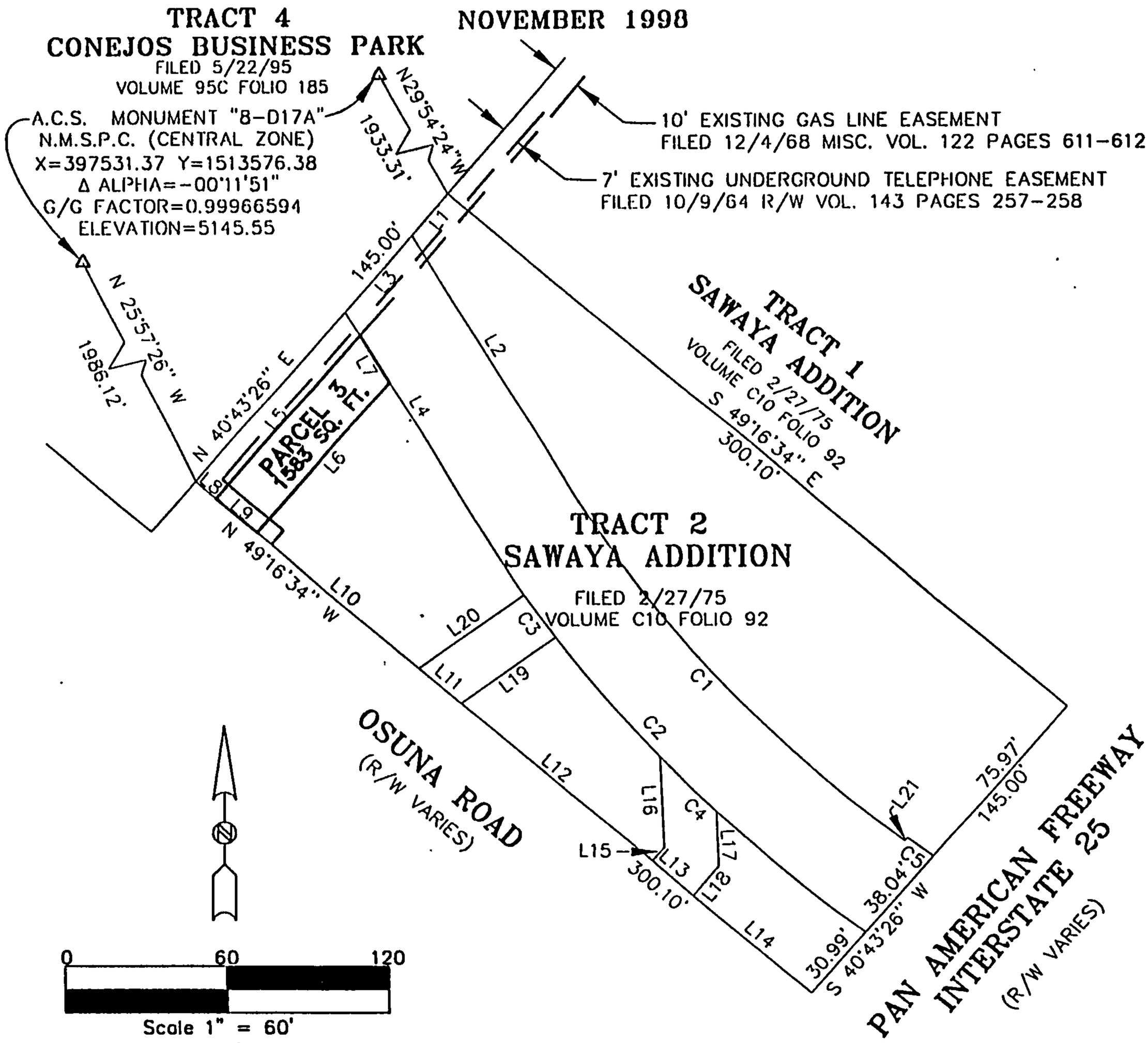
EXHIBIT B-3

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998



NUMBER	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH	ARC LENGTH
C1	498.00	22°11'19"	97.65	N 41°52'32" W	191.65	192.86
C2	534.40	23°11'41"	109.67	S 42°22'43" E	214.86	216.34
C3	534.40	02°08'40"	10.00	S 35°35'57" E	20.00	20.00
C4	534.40	03°11'28"	14.89	S 44°39'48" E	29.76	29.76
C5	496.50	01°21'57"	5.92	S 53°39'10" E	11.83	11.84

NUMBER	DIRECTION	DISTANCE
L1	N 40°43'26" E	20.79'
L2	N 30°46'53" W	103.69'
L3	S 40°43'26" W	38.38'
L4	S 30°46'53" E	91.52'
L5	S 40°43'26" W	82.48'
L6	N 40°43'26" E	75.79'
L7	N 30°46'53" W	21.09'
L8	S 49°16'34" E	10.00'
L9	S 49°16'34" E	20.00'
L10	S 49°16'34" E	78.89'
L11	S 49°16'34" E	20.58'

NUMBER	DIRECTION	DISTANCE
L12	S 49°16'34" E	93.28'
L13	S 49°16'34" E	20.00'
L14	S 49°16'34" E	57.35'
L15	N 39°53'05" E	6.59'
L16	N 02°26'09" W	35.28'
L17	S 02°26'09" E	20.99'
L18	S 39°53'05" W	14.63'
L19	S 54°22'58" W	43.30'
L20	N 54°22'58" E	48.16'
L21	N 37°01'48" E	1.50'

Judy D. Woodward Bern. Co. EASE R 29.00
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Page: 8 of 12
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

EXHIBIT B-4

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998

Parcel 4

A parcel of land situate within Tract 2, Sawaya Addition, Bernalillo County, New Mexico as the same is shown and designated on the plat of Sawaya Addition as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975 in Volume C-10, Folio 92. Being more particularly described by grid bearings and ground distances as follows:

Beginning at the Southwest corner of said Tract 2, a point on the Easterly boundary of Tract 4 Conejos Business Park, as filed for record in said Office of the County Clerk on May 22, 1995 in Volume 95-C, Folio 185, and the Northerly Right-Of-Way line of Osuna Road NE., from which point the City of Albuquerque Survey Control Monument "8-D17A" having New Mexico State Plane Coordinates (Central Zone) of X=397531.37 and Y=1513576.38 bears N25°57'26"W a distance of 1986.12 feet;

Thence S49°16'34"E along the Southerly boundary of said Tract 2 a distance of 108.89 feet to the True Point Of Beginning;

Thence N54°22'58"E a distance of 48.16 feet to a point on a curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 534.40 feet, a central angle of 02°08'40", a chord which bears S35°35'57"E a distance of 20.00 feet) a distance of 20.00 feet;

Thence S54°22'58"W a distance of 43.30 feet to a point on the said Southerly boundary of said Tract 2;

Thence N49°16'34"W along the Southerly boundary of said Tract 2 a distance of 20.58 feet; to the True Point Of Beginning and containing 913 square feet more or less

I, Daniel C. Montano, City Surveyor for the City of Albuquerque and Professional Surveyor, do hereby certify that this Sketch and Description was prepared from field work performed by me or under my direct supervision, meets the Minimum Standards for surveys in New Mexico and is true to the best of my knowledge and belief.

Daniel C. Montano
N.M.P.S. No. 5340

Date

DANIEL C. MONTANO NEW MEXICO 5340 REGISTERED LAND SURVEYOR

DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

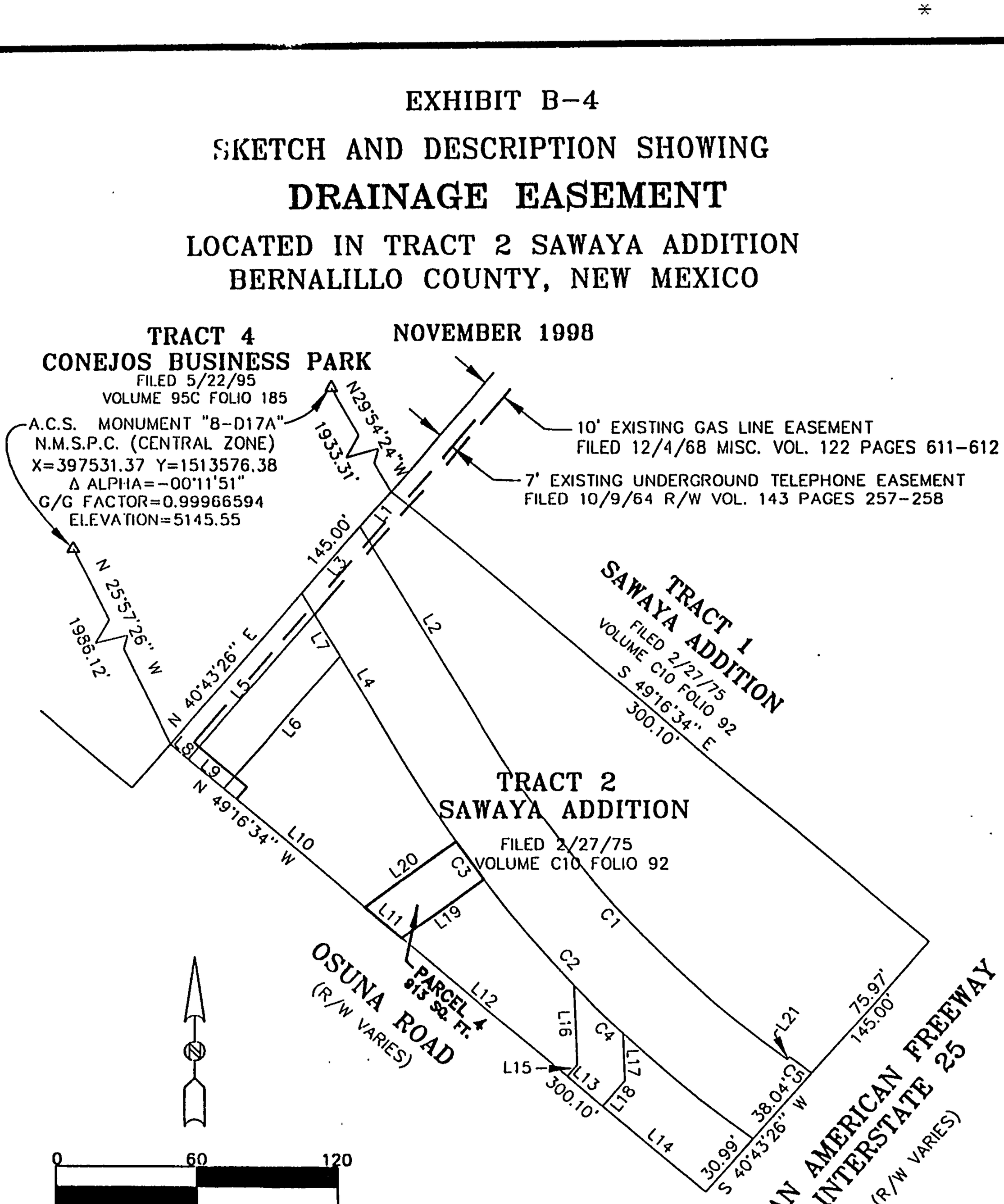
EXHIBIT B-4

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998



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1999021995
5181817
Page: 10 of 12
02/18/1999 02:44P
Bk-9903 Pg-1933

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

EXHIBIT B-5

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998

Parcel 5

A parcel of land situate within Tract 2, Sawaya Addition, Bernalillo County, New Mexico as the same is shown and designated on the plat of Sawaya Addition as filed for record in the Office of the County Clerk of Bernalillo County on February 27, 1975 in Volume C-10, Folio 92. Being more particularly described by grid bearings and ground distances as follows:

Beginning at the Southwest corner of said Tract 2, a point on the Easterly boundary of Tract 4 Conejos Business Park, as filed for record in said Office of the County Clerk on May 22, 1995 in Volume 95-C, Folio 185, and the Northerly Right-Of-Way line of Osuna Road NE., from which point the City of Albuquerque Survey Control Monument "8-D17A" having New Mexico State Plane Coordinates (Central Zone) of X=397531.37 and Y=1513576.38 bears N25°57'26"W a distance of 1986.12 feet;

Thence S49°16'34"E along the Southerly boundary of said Tract 2 a distance of 222.75 feet to the True Point Of Beginning;

Thence N39°53'05"E a distance of 6.59 feet;

Thence N02°26'09"W a distance of 35.28 feet to a point on a curve;

Thence along said curve (said curve being concave to the Northeast, having a radius of 534.40 feet, a central angle of 03°11'28", a chord which bears S44°39'48"E a distance of 29.76 feet), a distance of 29.76 feet;

Thence S02°26'09"E a distance of 20.99 feet;

Thence S39°53'05"W a distance of 14.63 feet to a point on the said Southerly boundary of said Tract2;

Thence N49°16'34"W along the Southerly boundary of said Tract 2 a distance of 20.00 feet to the True Point Of Beginning and containing 771 square feet more or less.

)

I, Daniel C. Montano, City Surveyor for the City of Albuquerque and Professional Surveyor, do hereby certify that this Sketch and Description was prepared from field work performed by me or under my direct supervision, meets the Minimum Standards for surveys in New Mexico and is true to the best of my knowledge and belief.

Daniel C. Montano
N.M.P.S. No. 5340

11/06/98
Date

DANIEL C. MONTANO NEW MEXICO 5340 REGISTERED LAND SURVEYOR

DMZ

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

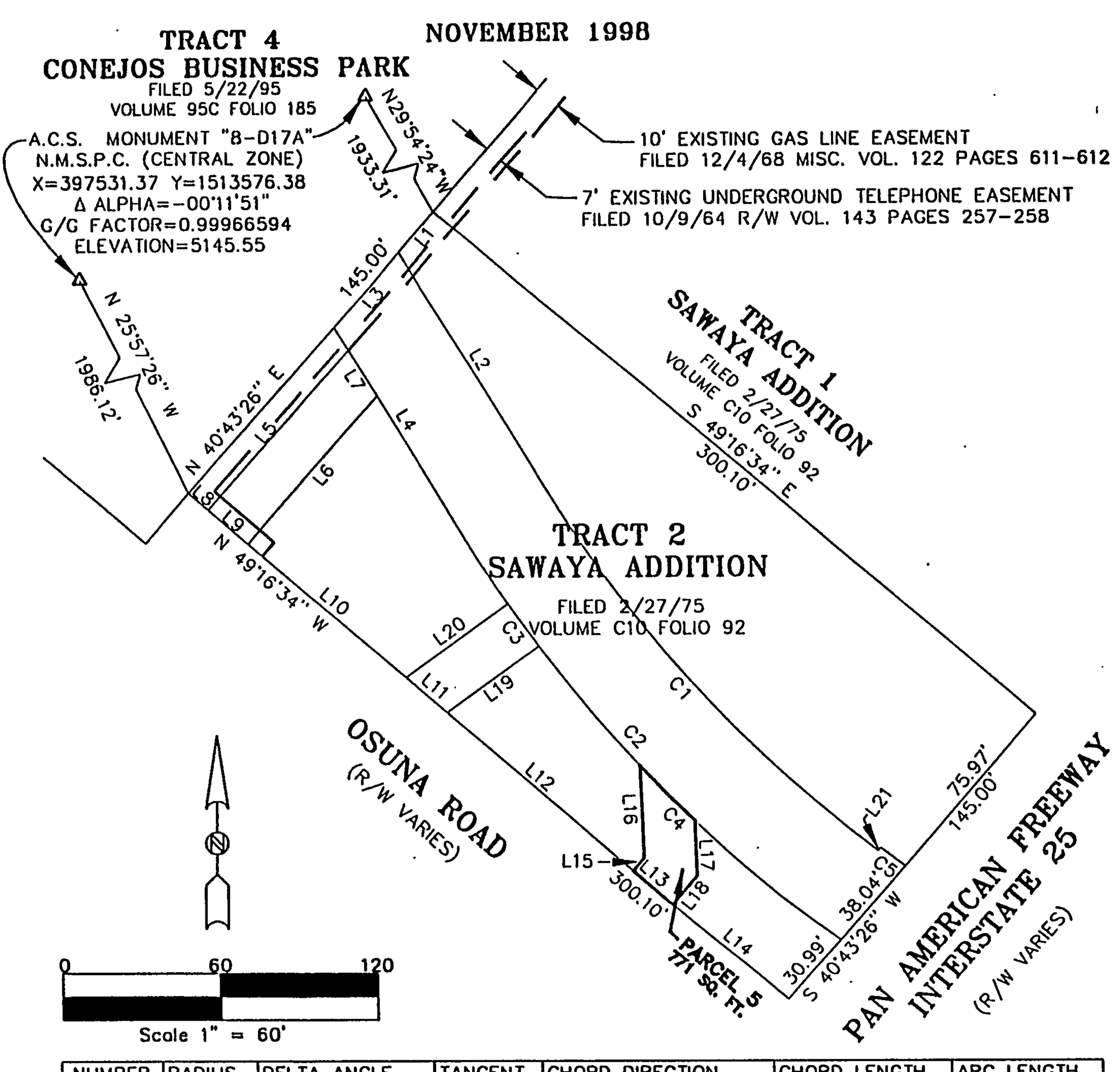
EXHIBIT B-5

SKETCH AND DESCRIPTION SHOWING

DRAINAGE EASEMENT

LOCATED IN TRACT 2 SAWAYA ADDITION
BERNALILLO COUNTY, NEW MEXICO

NOVEMBER 1998



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1999021995
5181817
Page: 12 of 12
02/18/1999 02:44P
Bk-9903 Pg-1933
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
SURVEY SECTION

STRUCTURAL CALCULATIONS FOR
OASIS PARKING DECK FOUNDATIONS

PREPARED FOR

PHILLIP PICKARD

MAY 16, 2001

PAGES 1-11
AND APPENDIX A
BY

QUIROGA-PFEIFFER ENGINEERING CORP.

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK
JOB NO.
SUBJECT FOUNDATION DESIGN

SHEET 1 / 11

BY DGG DATE 3/14/01 CK RSP DATE 3/19/01

6DT24 FOUNDATION ANALYSIS
LOAD TO EA WEB OF TEE:

LIVE: 50psf(3'-0")(44'-4"/2+0'-8") = 3425#

SEE SHT 11 → OR 19.36k/2 + ((14'-0" / 44'-4") 4.84k/2) = 10444# INCLUDES IMPACT CONTROLS

SEE REVISIONS SHEET 9

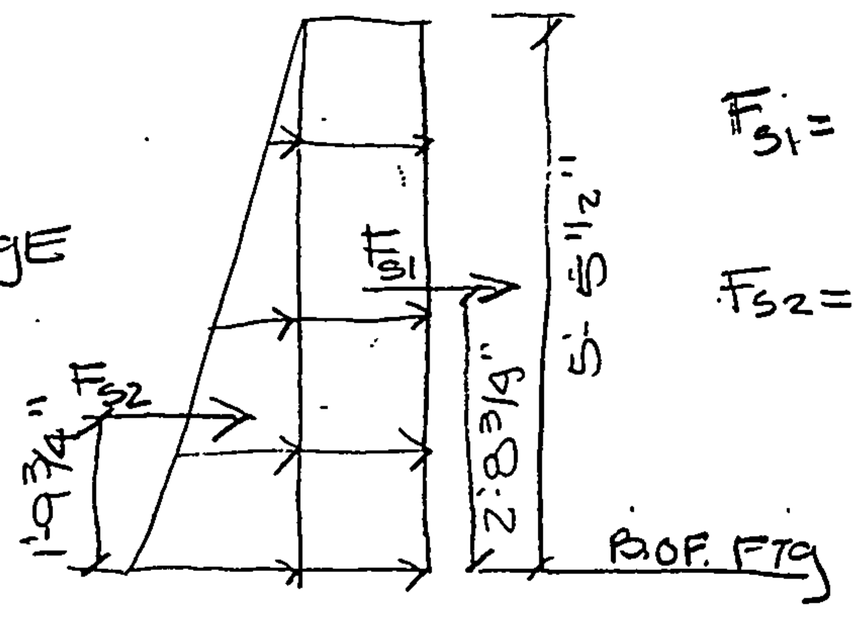
DEAD: GIRDER dL = 0.368KLF
5" TOPPING = 0.375K LF
1" TOPPING = 0.075 KLF
0.818 KLF / 6'-0" WIDTH (due to camber) } SUPER

0.818KLF (44'-4")(0.5) ÷2 = 9067#

DIAPHRAGM: 1'-6"(2'-5")(150pcf) = 544 pcf
ABUT WALL: 1'-6"(2'-0")(150pcf) = 450 pcf
FOOTING: 5'-6"(1'-0")(150pcf) = 825 pcf
SOIL ON Ftg: 2'-4"(1'-6")(120pcf)
+ 1'-8"(4'-5½")(120pcf) = 1312 PLF
÷4 = 3131 PLF } SUB

SOIL LOADING:

γ = 125pcf
K_a = 0.3
K_p = 2.4
2'-0" surcharge

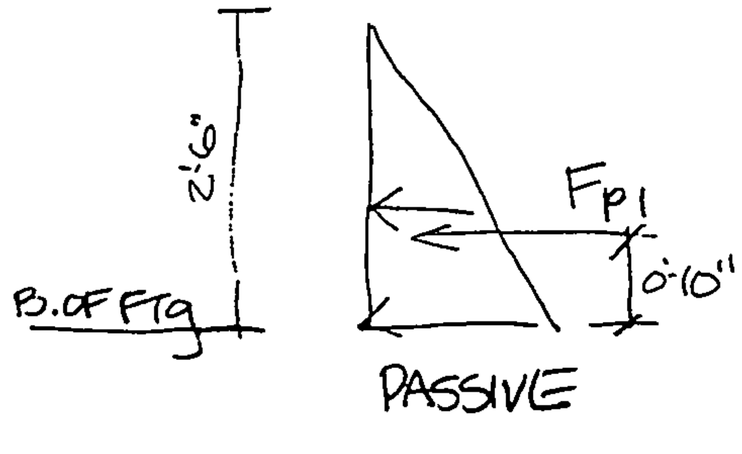


ACTIVE

F_{S1} = 0.3(125 pcf)(2'-0")(1'-0")(5'-5½")
= 410#/FT

F_{S2} = 0.3(125pcf)(1'-0")(5'-5½")² / 2
= 559#/FT

Me B OF FTG = 410#(2'-8 3/4") + 559#(1'-9 3/4") = 2132#-FT/FT



PASSIVE

F_{P1} = 2.4(125 PCF)(1'-0")(2'-6")² / 2 = 938#/FT

Me B OF FTG = 938"(0'-10")
= 782#-FT/FT

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK
JOB NO.
SUBJECT FOUNDATION DESIGN

SHEET 2

BY DGG DATE 3/14/01 CK RSP DATE 3/19/01

6DT24 FOUNDATION ANALYSIS CONT.

BEARING PRESSURE: dL+LL+SOIL

SEE REVISIONS SHEET 9

*NEGLECT PASSIVE RESISTANCE

$q = \frac{P}{A} \pm \frac{6M}{BL^2}$; $P = 10444\# + 9067\# + 3'0"(3131\#/FT) = 28904\#/3'0"$

(LL: SOIL TOE; dL super: SOIL HEEL; dL SUB: DIA + ABUT WALL)

$M = 2132\#\text{-FT}(3'0") + [420\#(1'-7") - 892\#(1'-11") - 994\#(0'-4")]3'0" = 2268\#\text{-FT}$

$q = \frac{28904\#}{3'0"(5'-6")} \pm \frac{6(2268\#)}{3'0"(5'-6")^2} \Rightarrow 1752psf \pm 150\ psf$

$= 1902psf$ or $1602psf < 2000psf$ (gallon) OK

SLIDING: dL + SOIL

*NEGLECT PASSIVE RESISTANCE

SLIDING FORCE = $(410\# + 559\#)3'0" = 2907\#$

RESISTING FORCE = $[9067\# + 3'0"(3131\#/FT)]0.4 = 7384\#$

$FS = \frac{7384}{2907} = 2.54 > 1.50$ ∴OK

OVERTURNING: dL + SOIL

*NEGLECT PASSIVE RESISTANCE

OTM = $2132\#/FT(3'0") = 6396\#\text{-FT}$

RESISTING MOMENT:

SUPER = $9067\#(2'-9") \Rightarrow 24935\#\text{-FT}$

SUB = $[(544\#_{DIA} + 450\#_{WALL})3'0"]3'-1" + 825\#_{FTG}(3'0")(2'-9") = 16001\#\text{-FT}$

SOIL = $[420\#(1'-2") + 892\#(4'-8")]3'0" = 13958\#\text{-FT}$

$\Sigma = 54894\#\text{-FT}$

$FS = \frac{54894}{6396} = 8.6 > 1.50$ ∴OK

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK

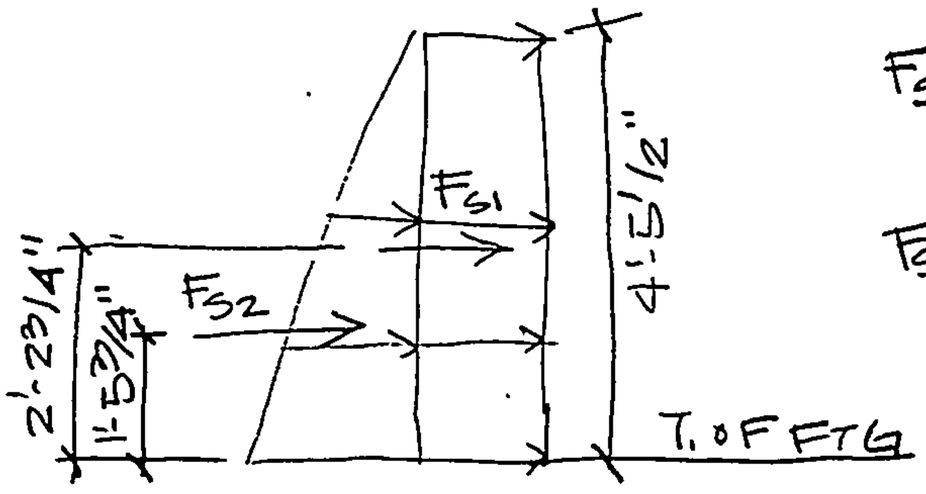
JOB NO.

SUBJECT FOUNDATION DESIGN

SHEET 3/

BY DGG DATE 3/15/01 CK RSP DATE 3/19/01

STEMWALL DESIGN



$F_{S1} = 0.3(125 pcf)(2'-0")(1'-0")(4'-5\frac{1}{2}") = 335\#/FT$

$F_{S2} = \frac{0.3(125 pcf)(1'-0")(4'-5\frac{1}{2}")^2}{2} = 373\#/FT$

$M_u = 1.7(335\#-FT)(2'-2\frac{3}{4}") + 1.4(373\#-FT)(1'-5\frac{3}{4}") = 2042\#-FT$

$b_w = 12"$, $d = 18" - 3" = 15"$

FROM HP48GX $A_s = 0.040 in^2/FT$ $(4/3 A_s)$

USE #4 @ 12" O.C. $A_s = 0.20 in^2/FT$

FOUNDATION DESIGN

$M_u = 1.7(2 KSF)(1'-0")(2'-4")^2/2 = 9.30 K-FT$

$b_w = 12"$, $d = 12" - 3" = 9"$

FROM HP48GX $A_s = 0.314 in^2/FT$ $(4/3 A_s)$

USE #5 @ 12" O.C. $A_s = 0.31 in^2/FT$

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK
JOB NO.
SUBJECT FOUNDATION DESIGN

SHEET 4

BY DGG DATE 3/14/01 CK RSP DATE 3/19/01

BOT 24 FOUNDATION ANALYSIS
LOAD TO EA. WEB OF TEE:

LIVE: 50psf(4'-0")(44'-4 1/2" + 0'-8") = 4567#

DEAD: GIRDER DL = 0.417 KLF
3" TOPPING = 0.300 KLF
3" Additional TOP = 0.300 KLF
1.018 KLF } SUPER (DUE TO drainage & LEVELING)

SEE REVISIONS SHEET 10

1.018 KLF (44'-4")(0.5) ÷ 2 = 11.283#

DIAPHRAGM:	1'-6" (2'-3") (150 pcf) =	507 plf	
ABUT. WALL:	1'-6" (2'-2") (150 pcf) =	488 plf	
FOOTING:	4'-6" (1'-0") (150 pcf) =	675 plf	
SOIL ON FTG:	1'-10" (1'-6") (120 pcf)		
	+ 1'-2" (4'-5 1/2") (120 pcf) =	954 plf	SUB
	Σ =	2624 plf	

SOIL LOADING:

"SAME AS BOT 24"

M BOT OF FTG = 2132#-FT/FT (ACTIVE)

M BOT OF FTG = 782#-FT/FT (PASSIVE)

SEE REVISIONS SHEET 10

BEARING PRESSURE: DL+LL+ SOIL

* NEGLECT PASSIVE RESISTANCE

$$q = \frac{P}{A} \pm \frac{6M}{BL^2}$$

$$P = \underset{LL}{4567\#} + \underset{dl\ super}{11283\#} + \underset{dl\ sub}{4'-0"(2624\ plf)} = 26346\#/4'-0"$$

$$M = 2132\#\text{-ft}(4'-0") + [\underset{soil\ toe}{330\#(1'-4")} - \underset{soil\ heel}{624\#(1'-8")} - \underset{dia+abut\ wall}{995\#(0'-4")}]4'-0" = 4801\#\text{-ft}/4'-0"$$

$$q = \frac{26346}{4'-0"(4'-6")} \pm \frac{6(4801)}{4'-0"(4'-6")^2} = 1464psf \pm 356psf$$

= 1820psf or 1108psf
< 2000psf (qallow)
OK

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK
JOB NO.
SUBJECT FOUNDATION DESIGN

SHEET 5/

BY DLG DATE 3/15/01 CK RSP DATE 3/19/01

BOT24 FOUNDATION ANALYSIS (CONT.)

SLIDING : DL + SOIL

* NEGLECT PASSIVE RESISTANCE

SLIDING FORCE = (410# + 1559#) 4'0" = 3876#

RESISTING FORCE = [11283# + 4'-0"(2624#)]0.4 = 8712#

$FS = \frac{8712}{3876} = 2.25 > 1.50 \therefore OK$

OVERTURNING : DL + SOIL

* NEGLECT PASSIVE RESISTANCE

OTM = 2132#(4'0") = 8528 #-FT

RESISTING MOMENT:

SUPER = 11283# (2'-3") = 25387 #-FT

SUB = [(507# + 488#)(4'-0")] 2'-7" + 675#(4'-0")(2'-3") = 16357#-FT
PIA WALL

SOIL = [330#(0'-11") + 625#(3'-11")] 4'0" = 11002#-FT

∴ 52746#-FT

$FS = \frac{52746}{8528} = 6.19 > 1.50 \therefore OK$

STEMWALL & FOUNDATION REINF. USE SAME AS BOT24

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DEK

JOB NO.

SUBJECT FOUNDATION DESIGN

SHEET 6

BY DGG DATE 3/19/01 CK RGP DATE 3/19/01

ABUTMENT WALL DESIGN AT 18" CIP PIPE LOCATION

SPAN : 2'-0" , b_W = 10", d = 8½"

BEAM SIZE : 1'-6" x 1'-0" ⇒ 225 PLF

GIRDER REACTION : 10.44 KIPS (LL) 9.067 KIPS (DL)

LOADING

W_u = 1.4(225PLF) = 315 PLF

P_u = 1.4(9.067 K) + 1.7(10.44 K) = 30.44 KIPS

MAXIMUM MOMENT

M_u = 315 K/LF (2'-0")²/8 + 30.44 K (2'-0") / 4 = 15.38 K-FT

FROM HP48GX A_s = 0.427 in²

A_{min} = 0.51

4/3 * A_s = 0.55

USE (3) #4 BARS A_s = 0.60 in²

MAXIMUM SHEAR

V_u = 0.315(2'-0")/2 + 30.44 K = 30.8 KIPS

ϕV_c = 0.85(2√300d)(10)(8.5)/1000 = 7.91 KIPS < V_u ∴ SHEAR REINF. REQ'd

TRY #4 STIRRUPS @ 6" O.C. . . .

$\frac{A_v}{s} = \frac{(V_u - \phi V_c)}{0.85 f_y d}$ ⇒ $s = \frac{0.2(2)(0.85)(60)(8.5)}{(30.8 K - 7.91 K)}$ = 7.6 in

USE # 4 STRRUPS @ 6" O.C.

QUIROGA · PFEIFFER ENGINEERING CORPORATION

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SHEET 7

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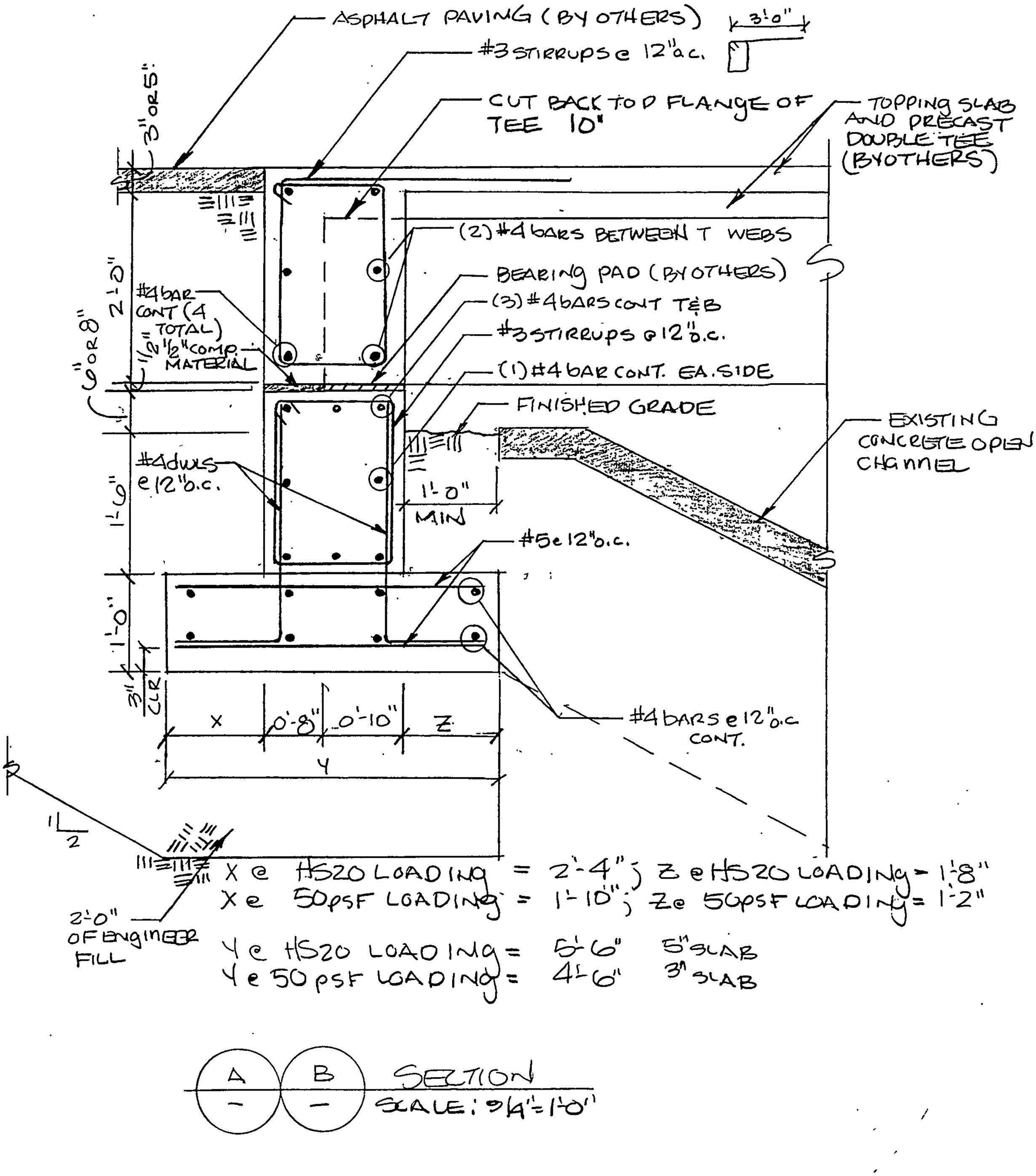

X @ HS20 LOADING = 2'-4" ; Z @ HS20 LOADING = 1'-8"

X @ 50 PSF LOADING = 1'-10" ; Z @ 50 PSF LOADING = 1'-2"

Y @ HS20 LOADING = 5'-6" 5" SLAB

Y @ 50 PSF LOADING = 4'-6" 3" SLAB

A — B — SECTION

SCALE: 3/4" = 1'-0"

QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK

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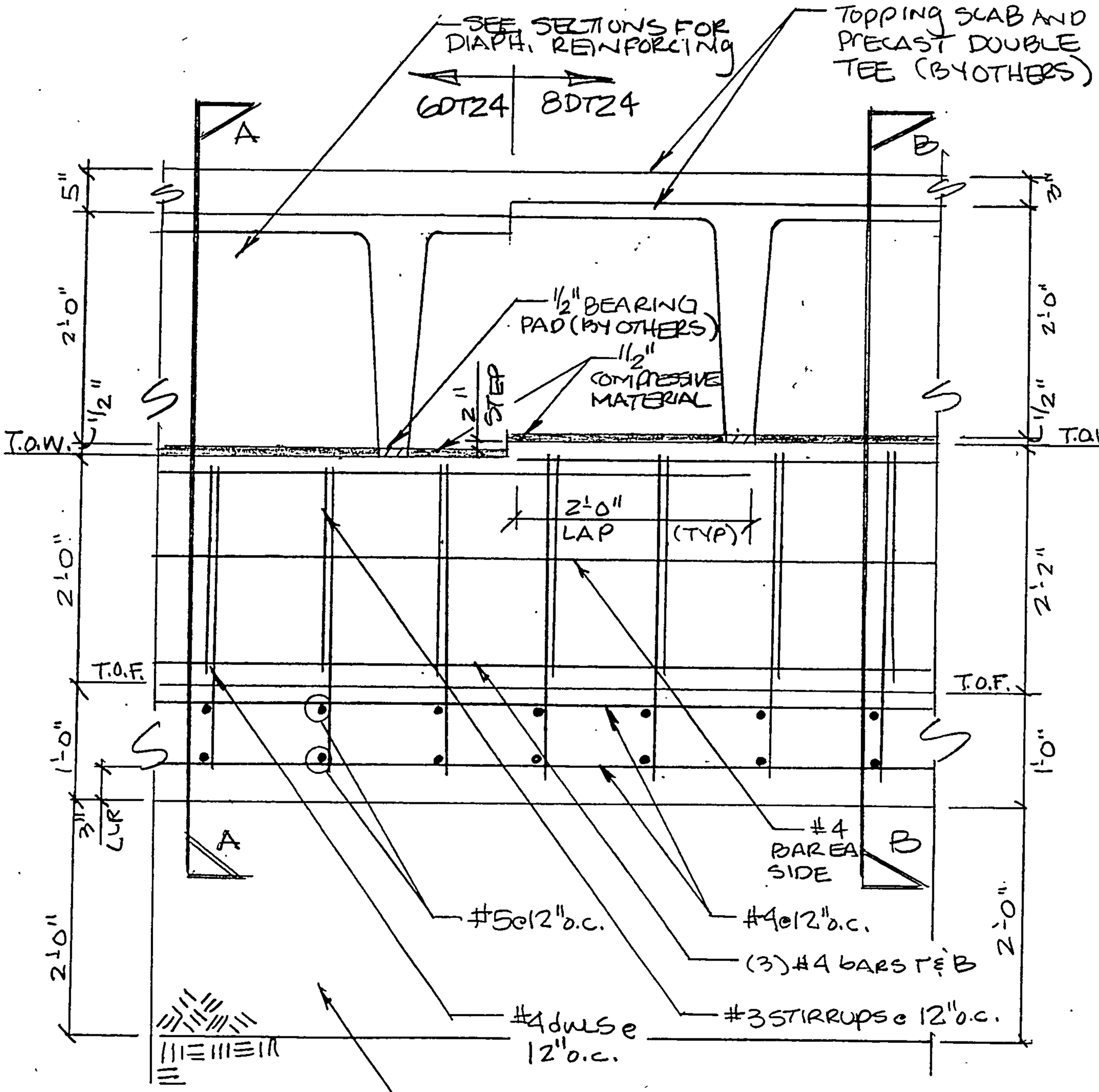
SUBJECT FOUNDATION DESIGN

SHEET 8/

BY DGG DATE 3/15/01 CK RSP DATE 3/19/01



QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK

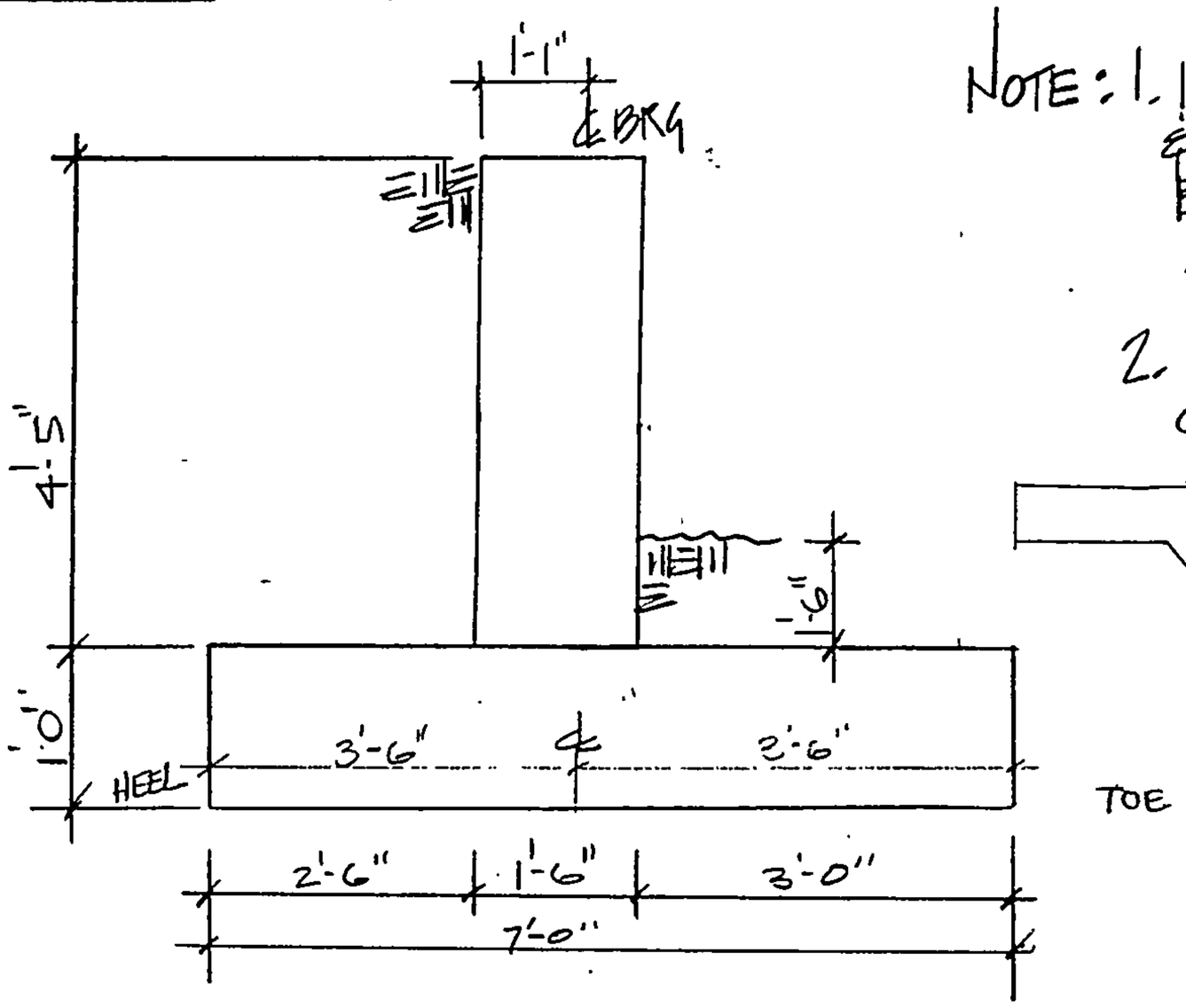
JOB NO.

SUBJECT REVISION

SHEET 9

BY J. RIVERA DATE 01MAY01 CK _____ DATE _____

REVISIONS @ 6DT24



NOTE: 1. INCLUDE IMPACT LOAD & INCREASE ALLOWABLE BEARING PRESSURE BY 1/3.

2. REFERENCE PREVIOUS CALCS - SHT 1

VERTICAL

6DT24	: 19.36K ÷ 2 + (83'-4"/47'-4") 4.84K ÷ 2 =	11384#	*	1"	=	947
GIRDER/TOPPING	: 0.818 KLF (47'-4") ½ ÷ 2 WEBS =	9680	*	1"	=	807
DIAPHRAGM	: .544 KLF (3'-0") =	1632	*	3"	=	408
ABUTMENT	: .450 KLF (3'-0") =	1350	*	3"	=	338
TOE SOIL	: .120 KCF (1'-6") (3'-0") (3'-0") =	1620	*	2'-0"	=	3240
HEEL SOIL	: .120 KCF (4'-5") (2'-6") (2'-6") =	3313	*	2'-3"	=	-7453
FTG	: .150 KCF (1'-0") (7'-0") (3'-0") =	3150	*	0	=	0
		32129				

LATERAL

ACTIVE	: ½ 0.3 (125 PCF) (5'-5")² (3'-0") =	1650	*	1.81'	=	2980
SURCHARGE	: 0.3 (125 PCF) (5'-5") (3'-0") (2'-0") =	1219	*	2.71'	=	3301
PASSIVE	: 2.4 (125 PCF) (2'-6")² (3'-0") ½ =	2813	*	.83'	=	-2344

⇒ M_{ℓ} = 2226 #-ft

BEARING PRESSURE $P/A \pm CM/bL^2$

$$\frac{32129}{(7'-0")(3'-0")} + \frac{6(2226)}{(3'-0")(7'-0")^2} = 1620 \text{ PSF} < (1.33)(1500 \text{ PSF}) \quad \text{ok}$$

$$\frac{32129}{(7'-0")(3'-0")} - \frac{6(2226)}{(3'-0")(7'-0")^2} = 1470 \text{ PSF} > \phi \quad \text{ok}$$

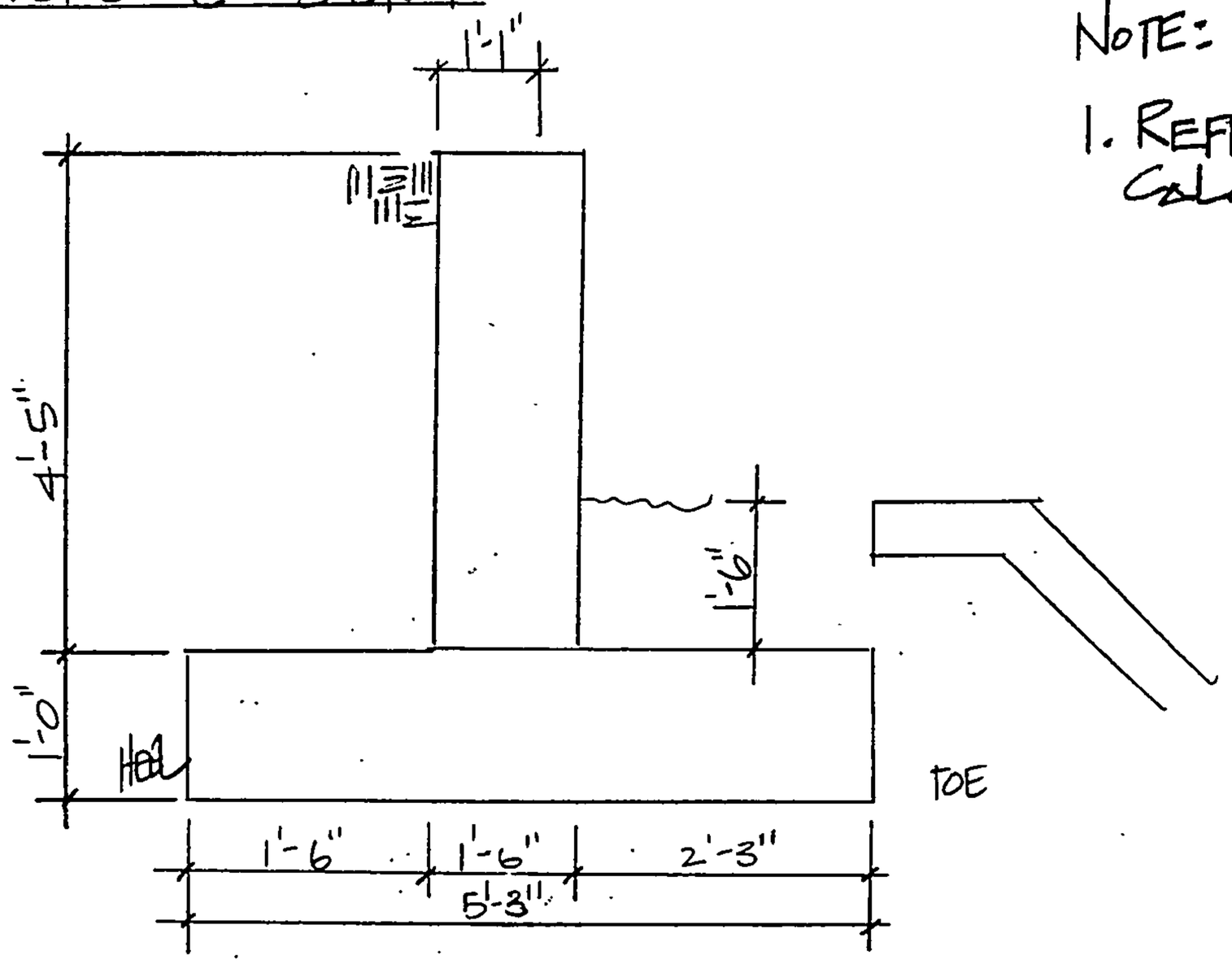
QUIROGA · PFEIFFER ENGINEERING CORPORATION

PROJECT OASIS DECK
JOB NO.
SUBJECT REVISIONS

SHEET 10

BY J. RIVERA DATE 01 MAR 01 CK _____ DATE _____

REVISIONS @ 8DT24



NOTE:

1. REFERENCE PREVIOUS CALCS. SHT 4

VERTICAL

8DT24 :	50 PSF (4'-0") (½) ÷ 2 WEBS (47'-4")	=	2367	½"	98.6
GIRDER/TOP :	1.018 KLF * (47'-4" ½ ÷ 2 WEBS) ÷ 1'	=	12030	½"	501.25
DIAPHRAGM :	.507 KLF * 4'-0"	=	2028	4½"	761.0
ABUTMENT :	.450 KLF * 4'-0"	=	1800	4½"	675
TOE SOIL :	.120 KLF * (2'-3") * (1'-6") (4'-0")	=	1620	1'-6"	2430
HEEL SOIL :	.128 KLF * (1'-6") * (4'-5") (4'-0")	=	3180	1'-10½"	5963
FTG :	.150 KCF * (1'-0") * (5'-3") (4'-0")	=	3150	0	0
			26175#		

HORIZONTAL

ACTIVE :	1650	(4'-0"/3'-0")	* 1.81'	= 3982
SURCHARGE :	1219	(4'-0"/3'-0")	* 2.71'	= 4405
PASSIVE :	2813	(4'-0"/3'-0")	* 0.83'	= 3113

$\Rightarrow M_d = .295$ #·ft

BEARING PRESSURE

$$\frac{26175}{(5'\text{-}3")(4'\text{-}0")} + \frac{6(295)}{(4'\text{-}0")(5'\text{-}3")^2} = 1262 \text{ PSF} < 1500 \text{ PSF} \quad \underline{\text{ok}}$$

$$= 1230 \text{ PSF} > \phi \quad \underline{\text{ok}}$$

C

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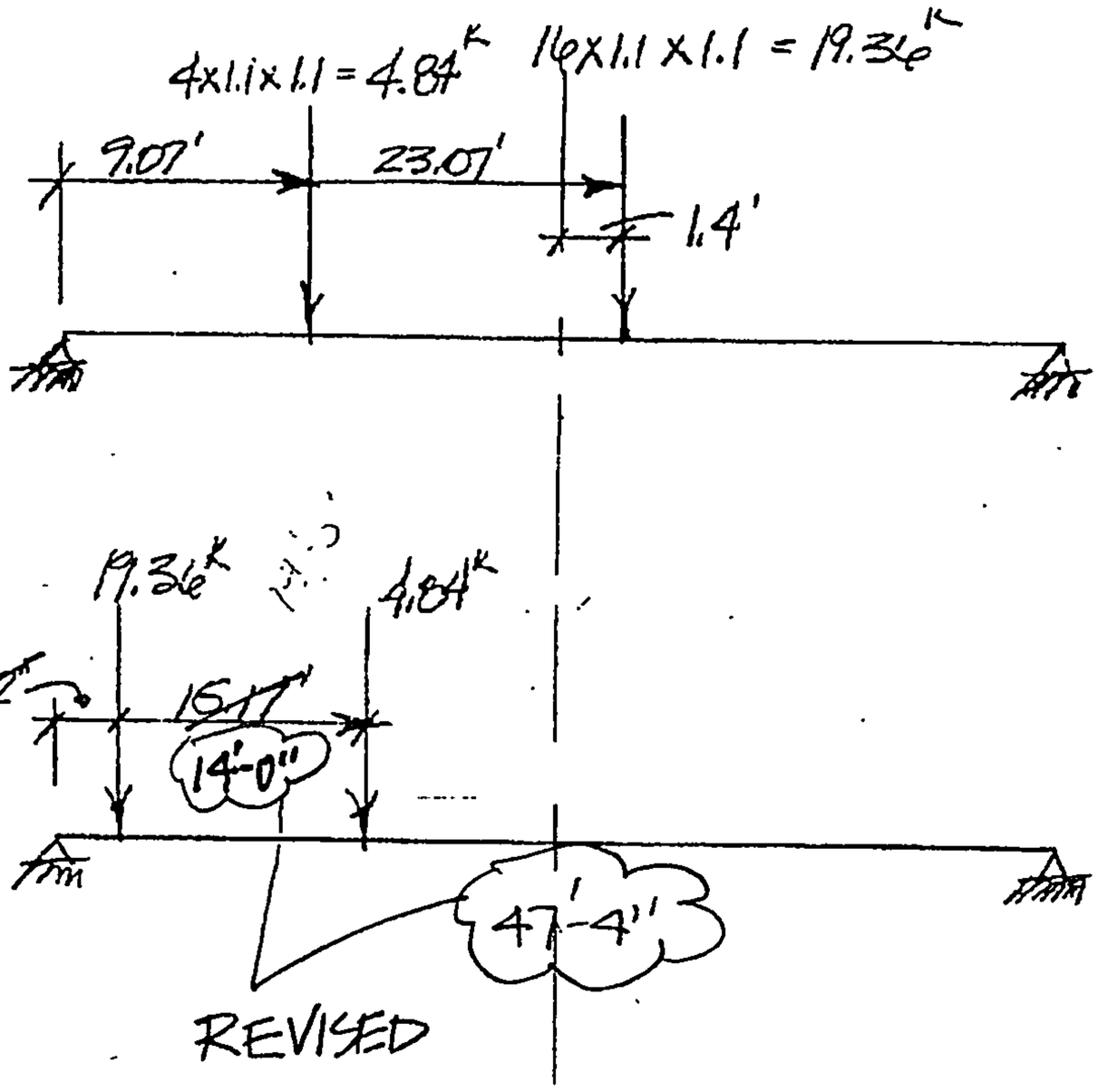
SHEET 11/11

,T/PRESTRESSED CONCRETE ENGINEERING

JT OAKS RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 9 OF 30

MAX M_{LL} =



MAX V_{LL} =

CONCRETE =

$f'_{c\ TOPPING} = 3000 PSI$

$f'_{c\ PRECAST} = 6000 PSI$

NO STRAND

APPENDIX A

Vinyard & Associates, Inc.

8916-A Adams Street, NE
Albuquerque, New Mexico 87113
(505) 797-9743 • Fax: (505) 797-9749

Geotechnical Engineering • Materials Testing • Environmental Engineering

April 25, 2001

Arroyo Borealis, Ltd., Co.
7600 Pan American Freeway, NE
Albuquerque, NM 87109

Attention: Mr. Philip Pickard

Subject: Parking Deck
V & A Project No.: 01-1-064

Gentlemen:

As requested, we have re-evaluated the necessity of placing a minimum of two feet of structural fill below footings. If desired, foundations may be placed directly on compacted natural ground. If this option is selected, foundations may be designed for an allowable bearing pressure of 1500 pounds per square foot. This value may be increased by one third for short-term loads. All other recommendations presented in our report remain applicable.

Should you have any questions regarding this letter, please do not hesitate to call.

Sincerely,
Vinyard & Associates, Inc.

Martin D. Vinyard, P.E.

MDV/er

1 OF 1.0

OASIS RESTAURANT PARKING DECK
FERRERI CONCRETE STRUCTURES

ALL PRECAST COMPONENTS AND CONNECTIONS ARE DESIGNED TO RESIST THE FOLLOWING LOADS AND TO COMPLY WITH THE:

AASHTO 1996 edition
ACI 318-95
AISC (ASD) 9th Edition or (LRFD) 1st Edition
PCI Design Handbook 5th Edition (Including PCI Standard Design Practice)

Design Loads:

A. Dead loads

- 5 " concrete topping - 62.5 psf (@ truck traffic areas).
- 3" concrete topping - 37.5 psf (@ car traffic areas).
- Additional 1" concrete topping at truck traffic areas due to camber - 12.5 psf
- Additional 3" concrete topping at car traffic areas due to camber & drainage - 37.5 psf
- 6DT24 - 61.3 psf
- 8DT24 - 52.2 psf

B. Live Load

- Snow load - 20 psf
- H20 axle loading.
- Car traffic load - 50 psf

Materials:

• Concrete topping	f'c = 4000 psi
• Concrete-precast	f'c = 6000 psi min.
• Prestressing Steel	ASTM A-416, 1/2" 7 wire Lo-Lax Strands, Grade 270 ksi
• Mild Steel Rein.	ASTM A-615, Grade 60 ksi
• Welded Rein.	ASTM A-706, Grade 60 ksi, (weldments per AWS D1.4)
• Welded Wire Fabric	ASTM A-185, Grade 65 ksi
• Structural Stl. plates	ASTM A-36, Grade 36 ksi, (weldments per AWS D1.1)

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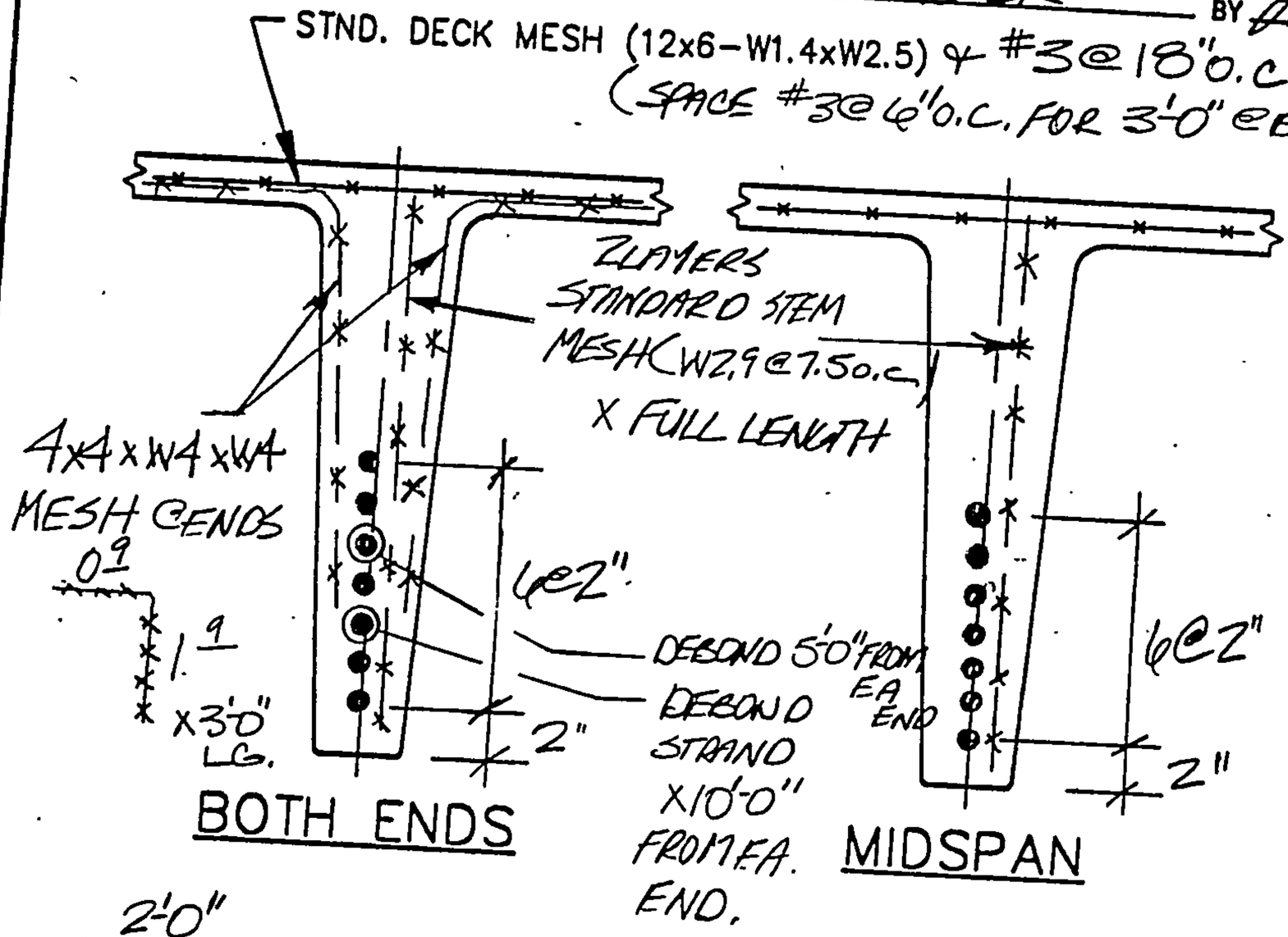
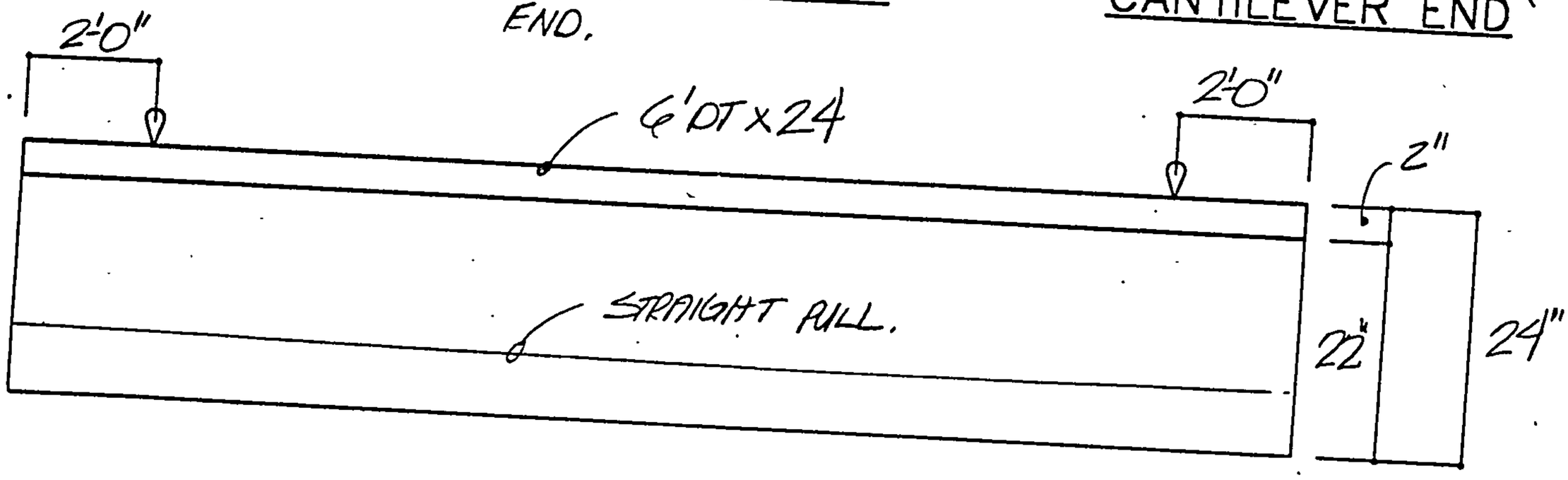
PROJECT OASIS RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 2 OF 1.0

△1 REVISED 5/15/01





AGGREGATE:	
■ STONE	□ LT. WT.
RELEASE STRENGTH (psi):	
□ 3500	■ 4800 PSI △1
FINAL STRENGTH (psi):	
□ 5000	■ 6000 PSI △1
INITIAL CAMBER:	1"
HOLD-DOWN FORCE/LEG:	N/A
UNDERWRITERS LABEL:	N/A

STRAND PATTERN (A5) → H20 LOADING
△1 (14) ½"ø LOW-REFLEX STRAND
( ) ⅜"ø LOW-REFLEX STRAND
PULL EACH ½" STRAND TO: 31.0 Kips
PULL EACH ⅜" STRAND TO: _____ Kips

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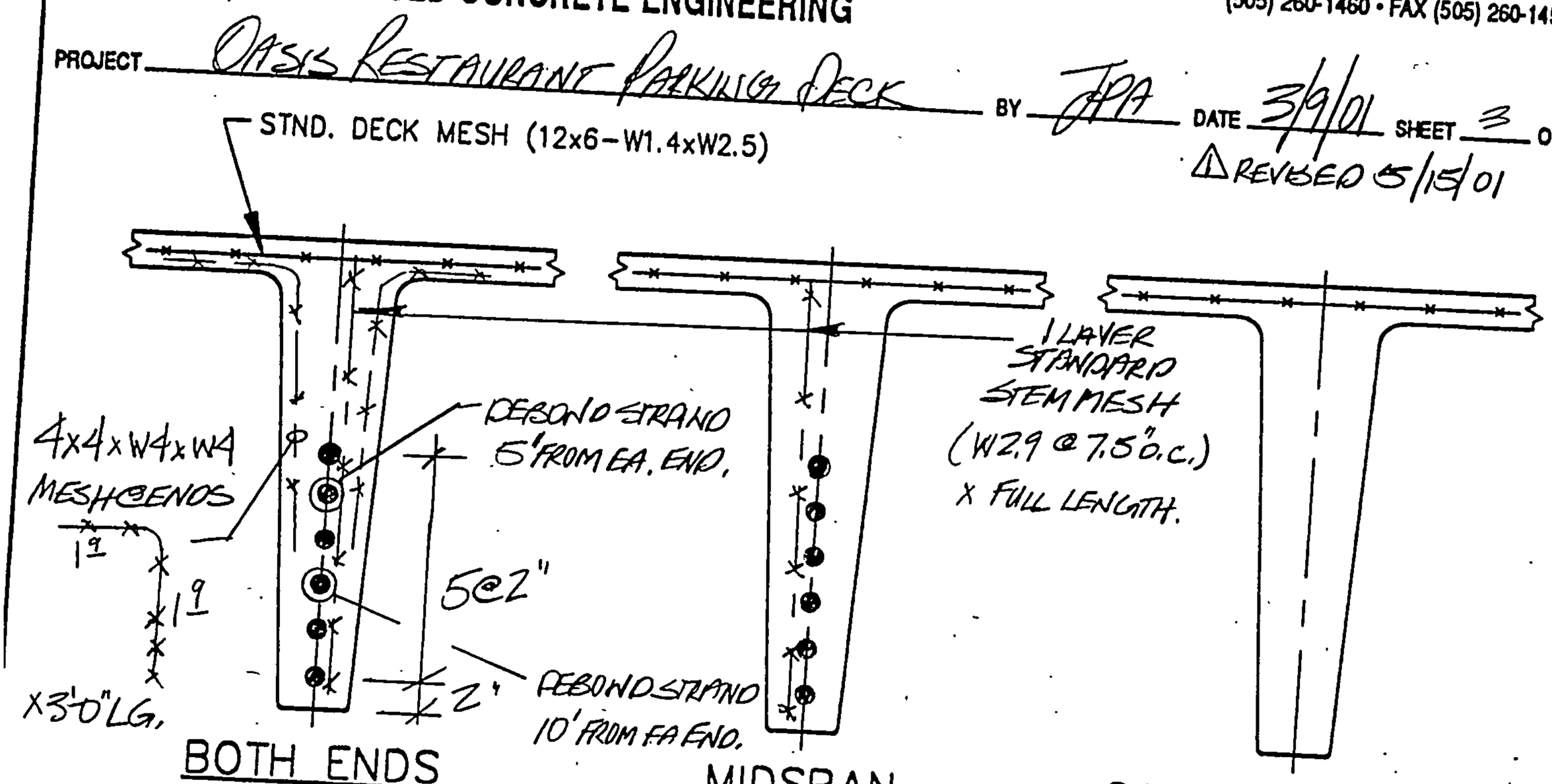
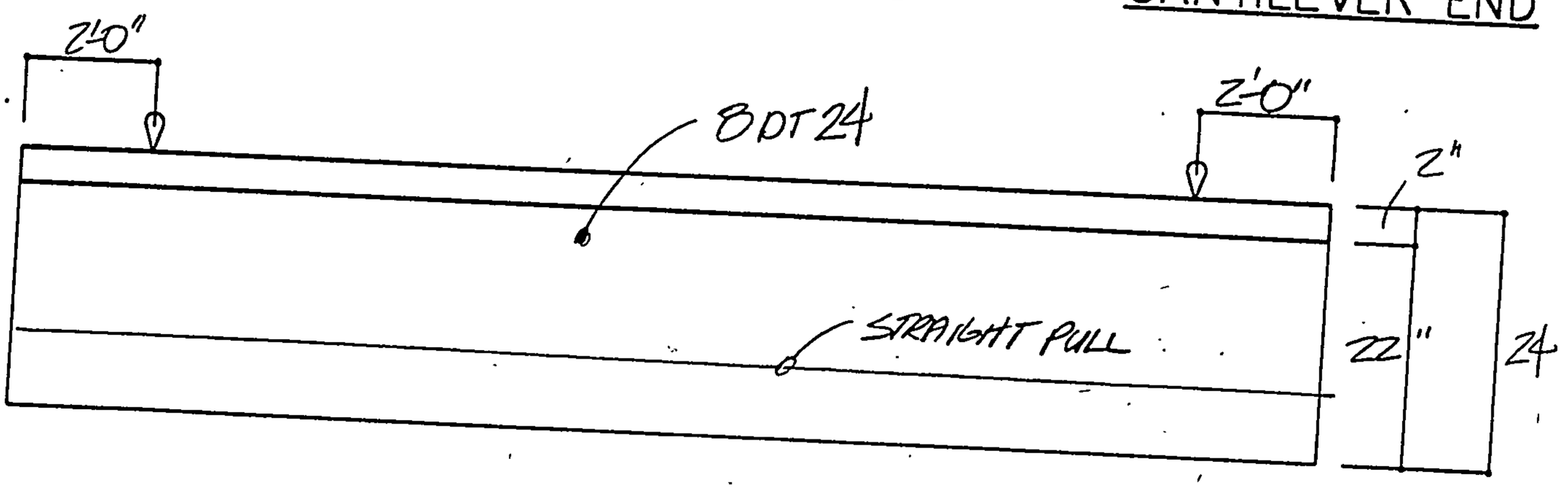
PROJECT OASIS RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 3 OF 10

⚠1 REVISED 5/15/01





AGGREGATE:	
■ STONE	☐ LT. WT.
RELEASE STRENGTH (psi):	
☐ 3500	■ 4290PSI ⚠1
FINAL STRENGTH (psi):	
☐ 5000	■ 6000 PSI
INITIAL CAMBER:	1" ⚠1
HOLD-DOWN FORCE/LEG:	N/A
UNDERWRITERS LABEL:	N/A

STRAND PATTERN (B3) → CAR LOADING.	
⚠1	(12) ½"ø LOW-REFLEX STRAND
	( ) ⅜"ø LOW-REFLEX STRAND
	PULL EACH ½" STRAND TO: 31.0 Kips
	PULL EACH ⅜" STRAND TO: _____ Kips

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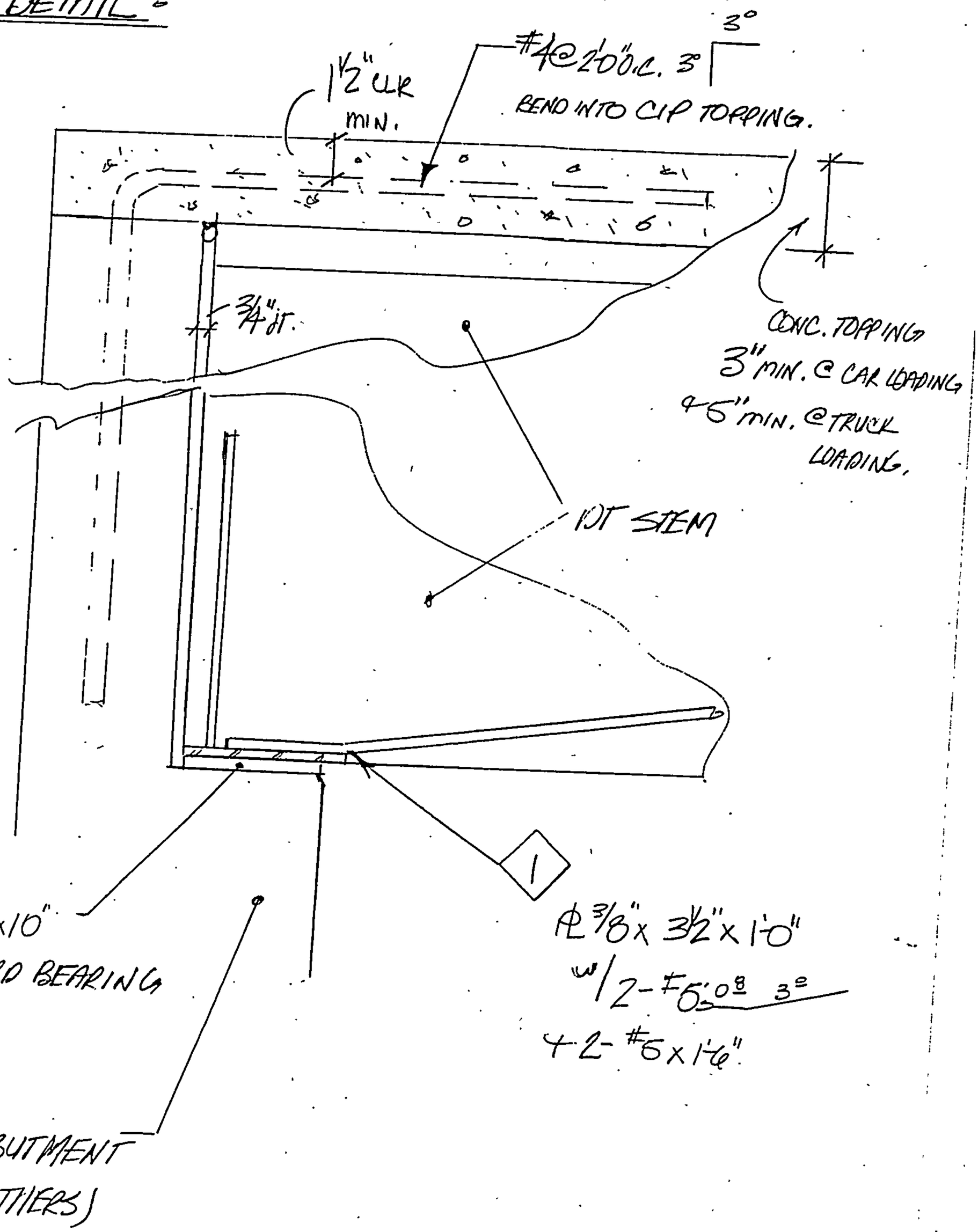
PROJECT OASIS RESTAURANT PARKING DECK BY JPA DATE 3/2/01 SHEET 1 OF 20

TYPICAL BRG. DETAIL @



C1

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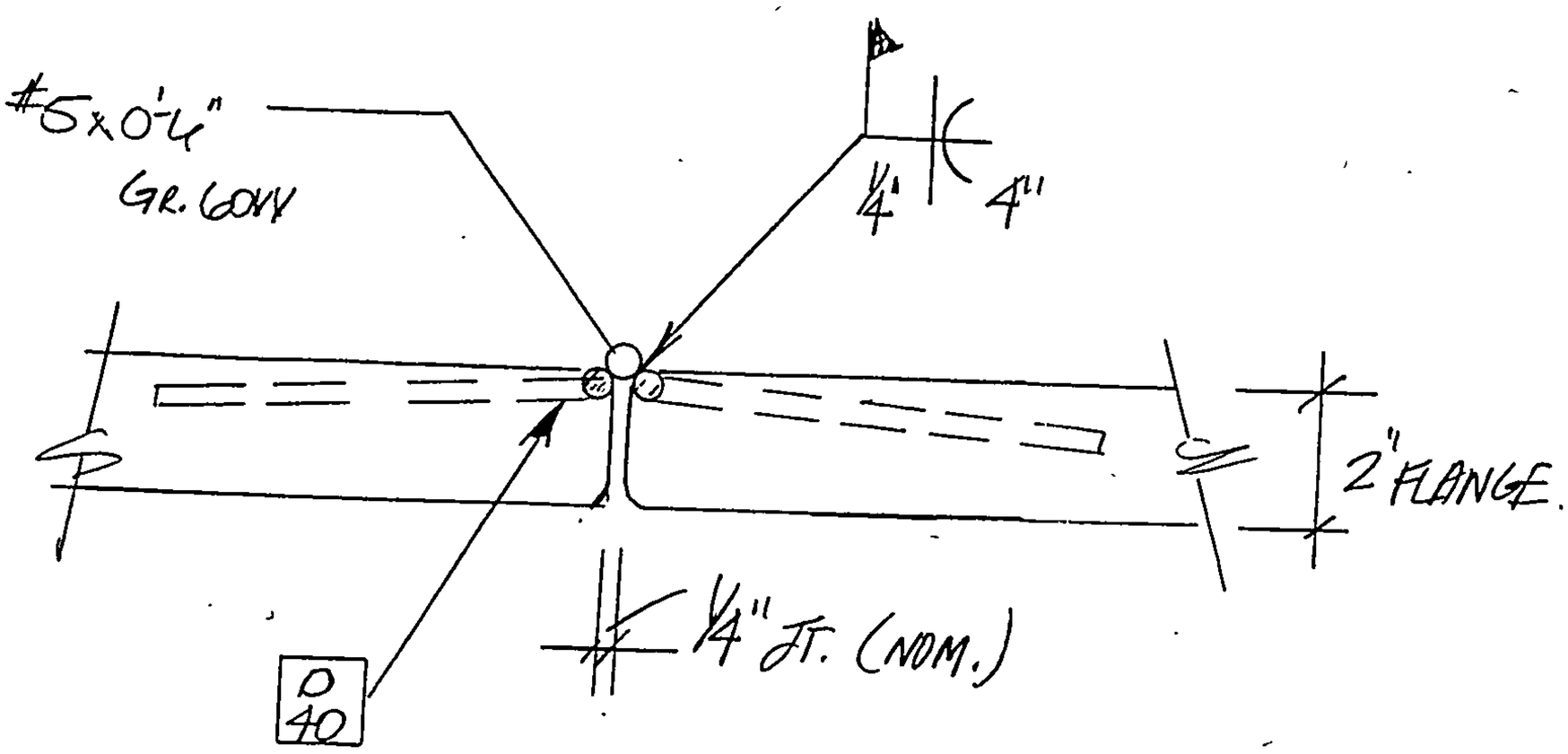
PROJECT Oasis Restaurant Parking Deck BY JPA DATE 3/2/01 SHEET 2 OF 20



TYPICAL FLANGE TO FLANGE CONN.

(SPACE @ 5'-0" O.C.)

C2

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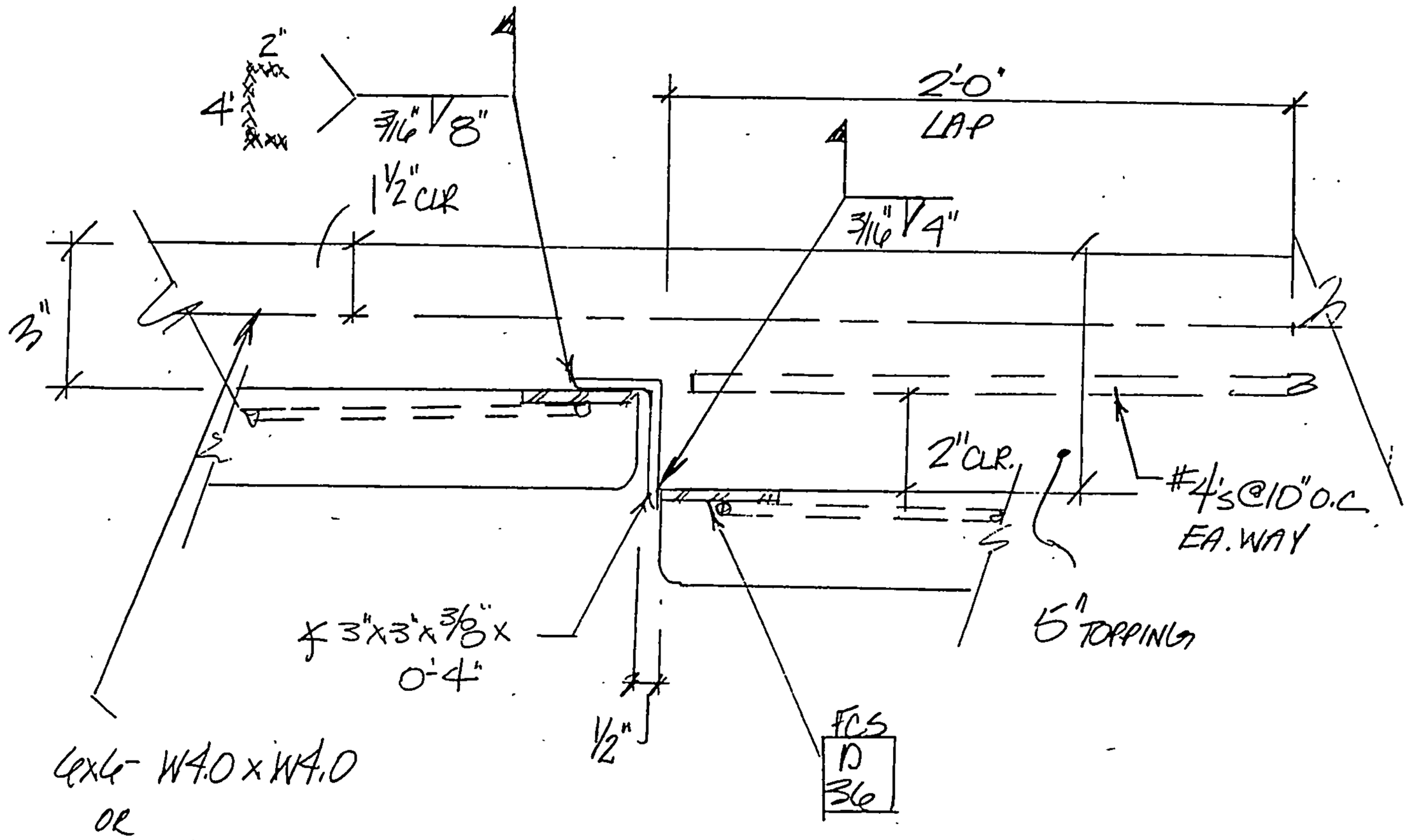
PRECAST/PRESTRESSED CONCRETE ENGINEERING

PROJECT Oasis Restaurant Parking Deck BY JPA DATE 3/12/01 SHEET 3 OF 20



TYPICAL FLANGE TO FLANGE CONNECTION
@ 3" TO 5" TOPPING TRANSITION

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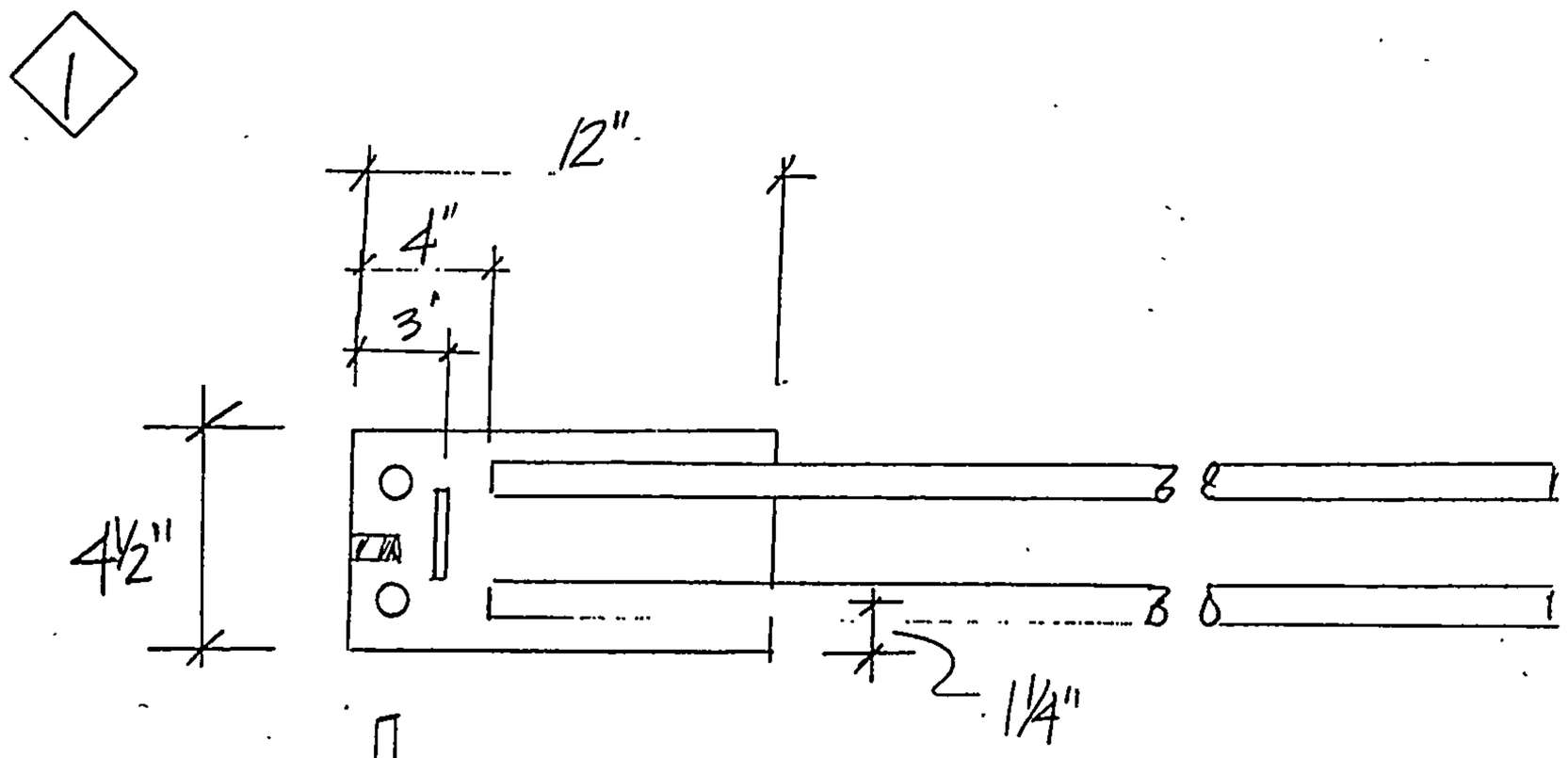
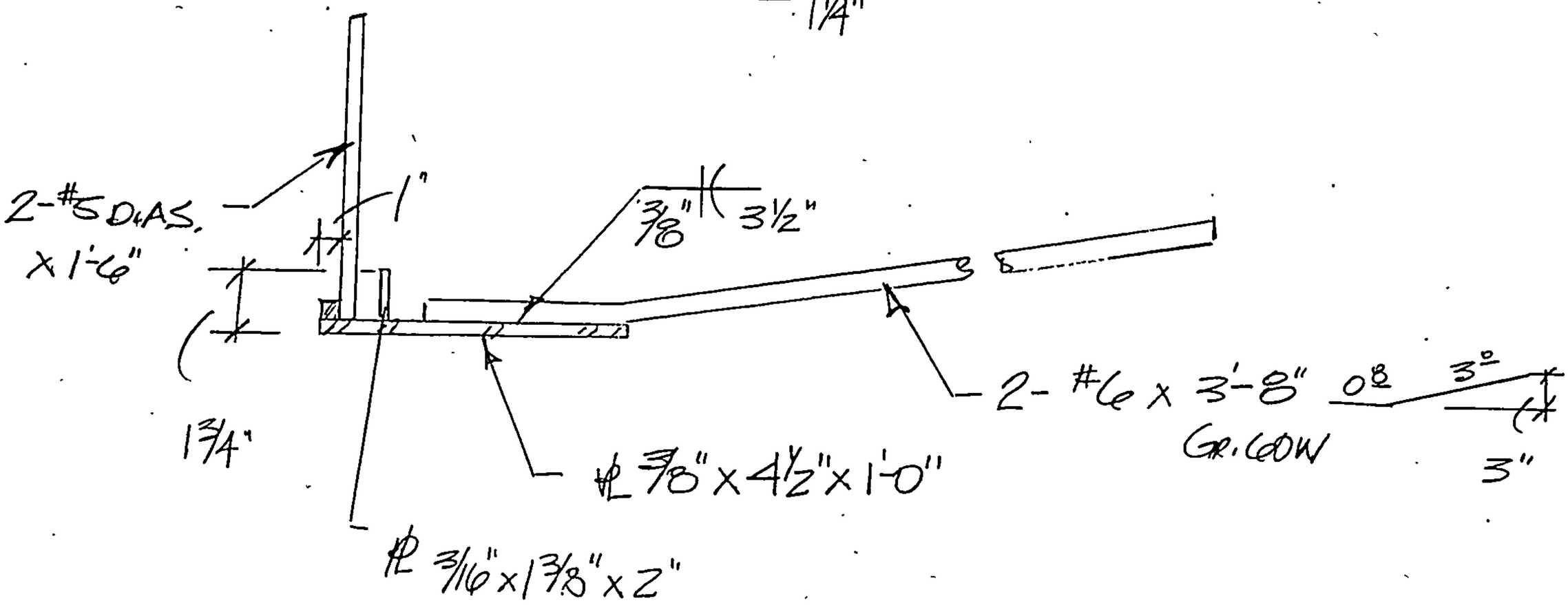
PROJECT Oasis Restaurant Parking Deck BY FPA DATE 3/2/01 SHEET 1 OF 2.1





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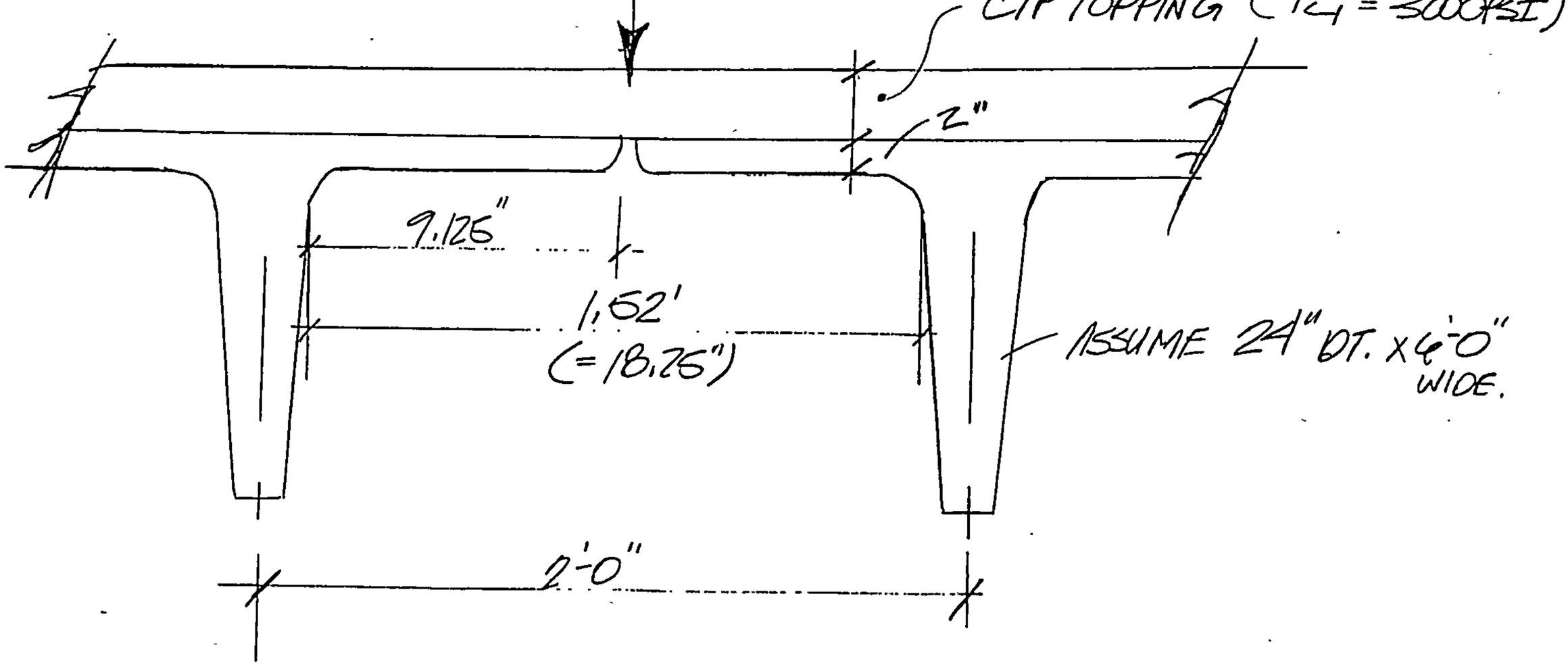
PROJECT Oasis Restaurant Parking Deck BY JPA DATE 3/9/01 SHEET 1 OF 3.0

Determine Topping Thickness

Flange Design: -H20 Loading.

$16^K \times 2.17 \times 1.1 = 38.19^K$ ← Impact.



Check Deflection of Flange & Slab:

$$\frac{P_t l^3}{192 E_t I_t} = \frac{P_f l^3}{2(3) E_f I_f}$$

@ 6" C/P Topping ($t = 5"$)

$E_t = 33(160)^{1.5}\sqrt{3000} = 3,320 \times 10^4$ PSI

$I_t = \frac{1}{12}(12)(5)^3 = 125 IN^4$

$E_f = 33(150)^{1.5}\sqrt{5000} = 4,287 \times 10^4$ PSI

$I_f = \frac{1}{12}(12)(2)^3 = 8 IN^4$

$$\frac{P_t (18.25)^3}{192(3,320)(125)} = \frac{P_F (9.125)^3}{6(4287)(8)} \Rightarrow P_t = 48.4 P_F$$

$P_t + P_f = 38.19^K$, $48.4 P_f + P_f = 38.19^K$, $P_f = \frac{38.19}{48.40} = .79^K$

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PROJECT OASIS RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 2 OF 3.0

STRESS ON FLANGE & DISTRIBUTION WIDTH = 2(1.69') + 1'-0" ← TIRE CONTACT AREA.
= 4.38' = 52.5"

$$M_s = \frac{.79}{2.17}(9.125) + .025\frac{(1.760)^2}{2}(4.38')(12) = 3.70^{K-IN}$$

$$\text{STRESS} = \frac{3.70(1.0)}{\frac{1}{12}(52.5)(2)^3} = -.106^{KSI} < 7.5\sqrt{6000} = .530PSI \quad (OK)$$

USE 6" CONCRETE TOPPING

ASSUME: $b=52.5"$, $d=1.0"$, $f'_c = 6^{KSI}$

$$M_u = .79(9.125) + 1.3(.025)(4.38)(1.760)^2(12)/2 = 7.702^{K-IN}$$

$$C_c = .85(6)(52.5)a = 223a$$

$$\frac{7.702}{1.0} = 223a\left(1 - \frac{a}{2}\right) \Rightarrow 7.702 = 223a - 111.5a^2$$

$$a = \frac{223 \pm \sqrt{223^2 - 4(111.5)(7.702)}}{2(111.5)}$$

$$= .035"$$

$$A_{s\,REQ'D} = \frac{223(.035)}{60} = .131 IN^2$$

$$A_{s/FT} = .131/4.38' = .029 IN^2/FT.$$

USE 12x5-W1.4 x W2.5 MIN.

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PROJECT ORIS RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 3 OF 30

DETERMINE $A_{S REQ'D}$ IN TOPPING:

$$M_u = (30.19 - .79)\left(\frac{18.25''}{12}\right) = 7.11^{K-FT}$$

8

$A_{S REQ'D}$: $b = 52.5''$, $d = 5'' - 2\frac{1}{4}'' = 2.75''$, $f'_c = 3.0^{KSI}$

$$C_c = .85(3.0)(52.5)(a) = 133.87a$$

$$\frac{7.11(12)}{1.0} = 133.87a\left(2.75 - \frac{a}{2}\right) \Rightarrow 85.3 = 368.14a - 66.94a^2$$

$$a = \frac{368.14 \pm \sqrt{368.14^2 - 4(85.3)(66.94)}}{2(66.94)} = .24''$$

$$A_{S REQ'D} = \frac{133.87(.24)}{60} = .536\,IN^2$$

$$A_{S REQ'D/FT} = .536/4.38 = .122\,IN^2/FT$$

USE #4@12" O.C. MIN.

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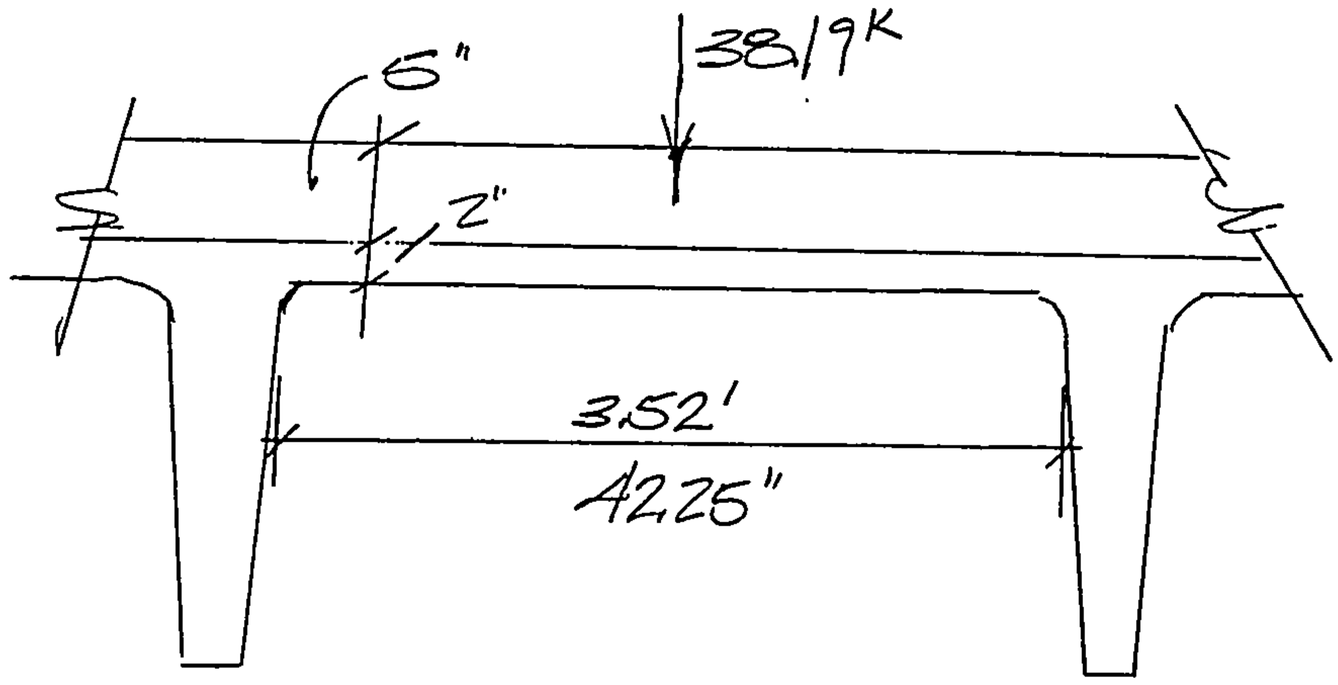
PROJECT Oasis Recruitment Parking Deck BY TPA DATE 3/1/01 SHEET 4 OF 3.0

CHECK BETWEEN STEMS @ CONTINUOUS SECTION



$$M_{u\ pos.} = \frac{1.3\left(\frac{7.0}{12}\right)(.15)(4.38')(3.62)^2}{24} + \frac{38.19(3.62)}{8} = 17.06^{K\text{-}FT}$$

$A_{S\,REQ'D}$: $b = 4.38' = 52.5"$, $d = 7.0 - 1" = 6.0"$, $f'_c = 3.0^{KSI}$

$$C_c = .85(3.0)(52.5)a = 133.87a$$

$$\frac{17.06(12)}{1.0} = 133.87(6.0 - a/2) \Rightarrow 204.72 = 803.22 - 66.94a^2$$

$$a = \frac{803.22 \pm \sqrt{803.22^2 - 4(66.94)(204.72)}}{2(66.94)} = .260"$$

$$A_{S\,REQ'D} = \frac{133.87(.260)}{65} = .54\ IN^2$$

$$A_{S\,REQ'D/FT} = .54/4.38' = .122\ IN^2/FT$$

* CONTROLS FOR FLANGE REIN.

USE 12x5-W1.4xW2.5 MESH W/ #3@18" O.C.

$A_{S\,PROV'D/FT} = .124\ IN^2/FT$

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PROJECT ONATE RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 5 OF 30

DETERMINE $A_{S\,REQ'D}$ IN TOPPING:

$$M_{u\,NEG.} = \frac{1.3\left(\frac{7.0}{12}\right)(.16)(4.38')(3.52)^2}{12} + \frac{38.19(3.52)}{8} = 17.32^{K\text{-}FT}$$

$A_{S\,REQ'D}$: $b = 52.5"$; $d = 7" - 2\frac{3}{4}" = 4\frac{1}{4}"$, $f'_c = 5^{KSI}$

$$C_c = .85(5)(52.5)(a) = 223.13a$$

$$17.32(12) = 223.13a\left(4.25" - \frac{a}{2}\right) \Rightarrow 208 = 948a - 111.5a^2$$

$$a = \frac{948 \pm \sqrt{948^2 - 4(111.5)(208)}}{2(111.5)} = .23"$$

$$A_{S\,REQ'D} = \frac{223.13(.23)}{60} = .86\,IN^2$$

$$A_{S\,REQ'D/FT} = .86/4.38 = .20\,IN^2/FT$$ *CONTROLS FOR TOPPING REIN.

USE #4 @ 10" O.C. EA. WAY

$A_{S\,PROV'D} = .24\,IN^2$

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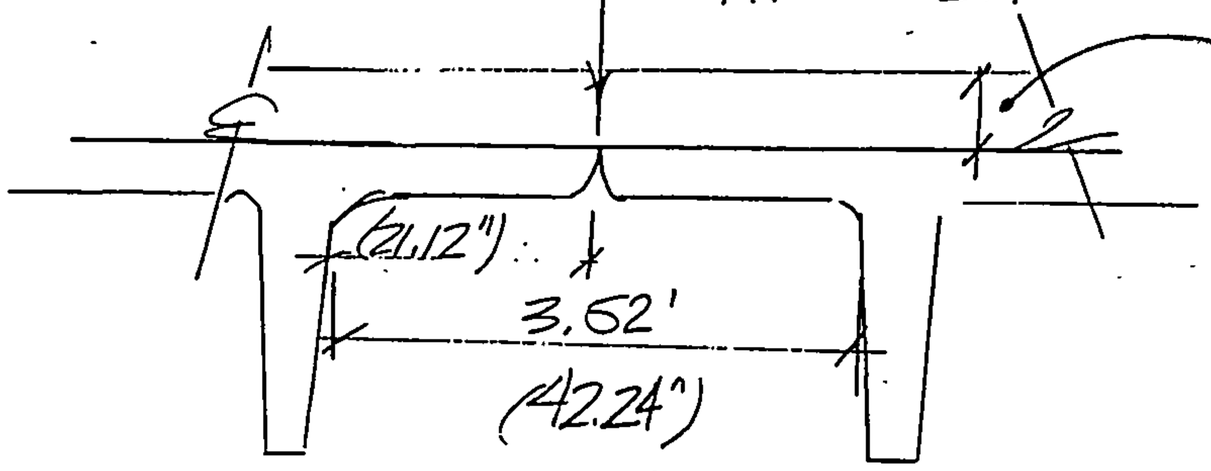
PROJECT OABS FLEETNURSE PARKING DECK BY JPA DATE 3/9/01 SHEET 6 OF 30

FLANGE DESIGN — CAR LOADING — 2000# WHEEL LOAD.



$f'_{c\,TOPPING} = 3000PSI$

DISTRIBUTION WIDTH

= 3.52' + 1' = 4.52'

@3" CIP TOPPING ($t = 3"$)

$I_t = \frac{1}{12}(12)(3)^3 = 27\,in^4$

$$\frac{P_t (42.24)^3}{P_t (3{,}320)(27)} = \frac{P_F (21.12)^3}{6(4287)(8)}, \quad P_t = 10.46 P_F$$

$P_t + P_F = 3.4^K \quad 10.46 P_F + P_F = 3.4^K$

$P_F = \frac{3.4}{11.46} = .30^K$

ASSUMED IN FLANGE

$M_u = .30\left(21.12/12\right) + .025(4.52)\left(\frac{21.12}{12}\right)^2 / 2 = .703^{K\text{-}FT} = 8.43^{K\text{-}IN}$

$\phi M_{n\,PROV'D/FT} = (.9)(.0625)(65)(1 - 9/2)$ (12x5 - W1.4 x W2.5 MESH).

$q = \frac{.0625(65)}{.85(5)(12)} = .08"$

$\phi M_{n\,PROV'D/FT} = .9(.0625)(65)(1 - .08"/2) = 3.51^{K\text{-}IN}/FT$

$4.52' \times 3.51 = 15.9^{K\text{-}IN} > 8.43^{K\text{-}IN}$ OK

S P C
PRECAST/PRESTRESSED CONCRETE ENGINEERING

SALMONS INC.
1121 SAN MATEO NE • ALBUQUERQUE, NM 87110
(505) 260-1460 • FAX (505) 260-1459

PROJECT ONE STORY RESIDENCE BY TPA DATE 3/9/01 SHEET 7 OF 30

$A_{REQ'D}$ IN TOPPING @

$$M_u = (3.4^k, .30^k)\frac{(3.52)}{8} = 1.364^{k-ft} = 16.37^{k-in.}$$

$A_{REQ'D}$ @ $b = 1.52' = 54.2''$, $d = 1\frac{1}{2}''$, $f'_c = 30^{ksi}$

$$C_c = .85(3)(54.2)(a) = 138.21a$$

$$\frac{16.37}{.9} = 138.21a\,(1.5 - a/2) \Rightarrow 18.19 = 207.32a - 69.11a^2$$

$$a = \frac{207.32 \pm \sqrt{207.32^2 - 4(69.11)(18.19}}{2(69.11)}$$

$$a = .091''$$

$$A_{s\,REQ'D} = \frac{138.21(.091)}{60} = .21\,in^2$$

$$A_{s\,REQ'D}/ft = .21/4.52 = .05\,in^2/ft$$

USE 6x6-W4xW4 MESH $A_{s\,PROV'D} = .083\,in^2/ft$

OR #3 @ 16" O.C. EA. WAY

$A_{s\,PROV'D} = .0825\,in^2/ft$

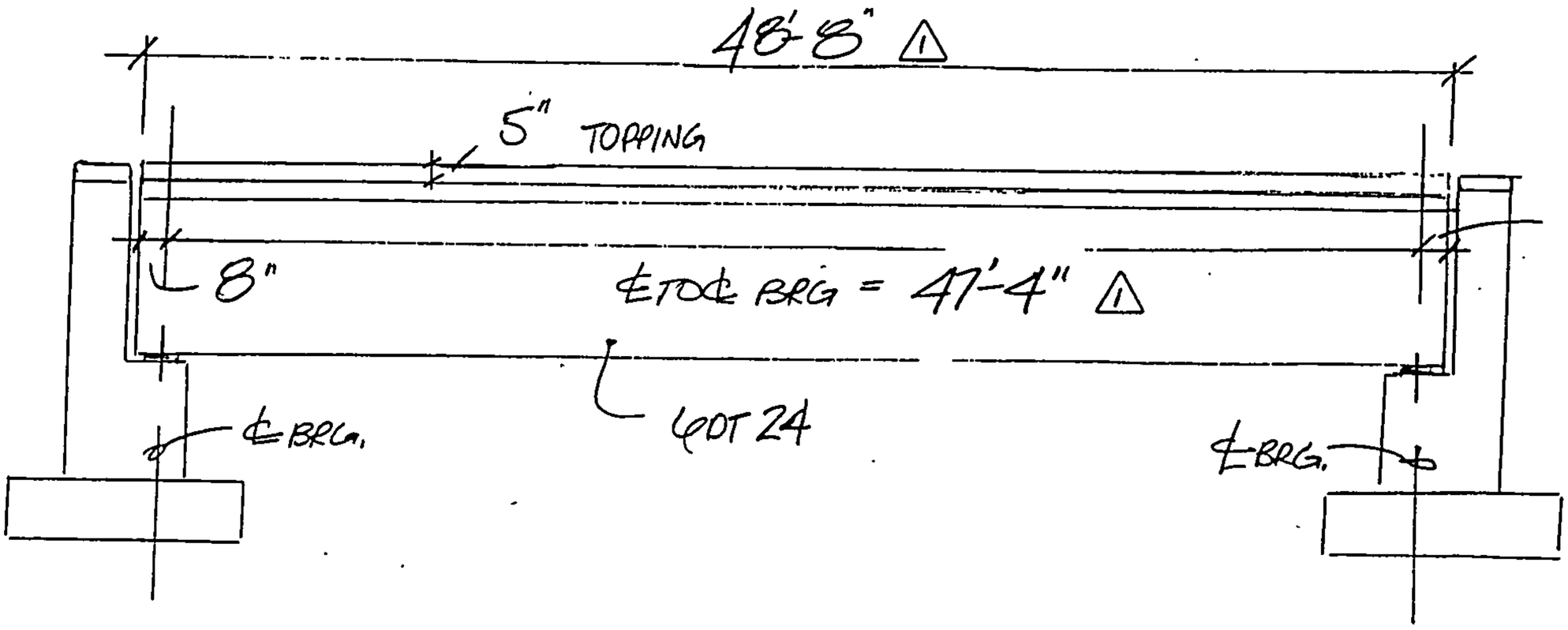
S P C
PRECAST / PRESTRESSED CONCRETE ENGINEERING

SALMONS P.C.
1121 SAN MATEO NE • ALBUQUERQUE, NM 87110
(505) 260-1460 • FAX (505) 260-1459

PROJECT OASIS RESTAURANT PARKING DECK BY JPA DATE 5/1/01 SHEET 8 OF 30

△ REVISED 5/15/01

DESIGN (A5) - (H20 TRAFFIC LOADING)



DESIGN DATA:

DL:

$GL = \frac{353}{144} \times .150 = .3677^{KLF}$

$DL_{5" \text{ TOPPING}} = \frac{5.0}{12} \times 6' \times .15 = .375^{KLF}$

LL: - ADD ADDITIONAL 1" TOPPING DUE TO CAMBER $= .075^{KLF}$

- SNOW LOADING: $= 20^{PSF}$

H20 LOADING: (AS SPECIFIED BY OWNER)

- WHEEL LOAD DISTRIBUTION $= \frac{6.0}{5.5} = 1.10$

- IMPACT = USE 1.1 IMPACT (AS SPECIFIED BY OWNER).

S P C
PRECAST / PRESTRESSED CONCRETE ENGINEERING

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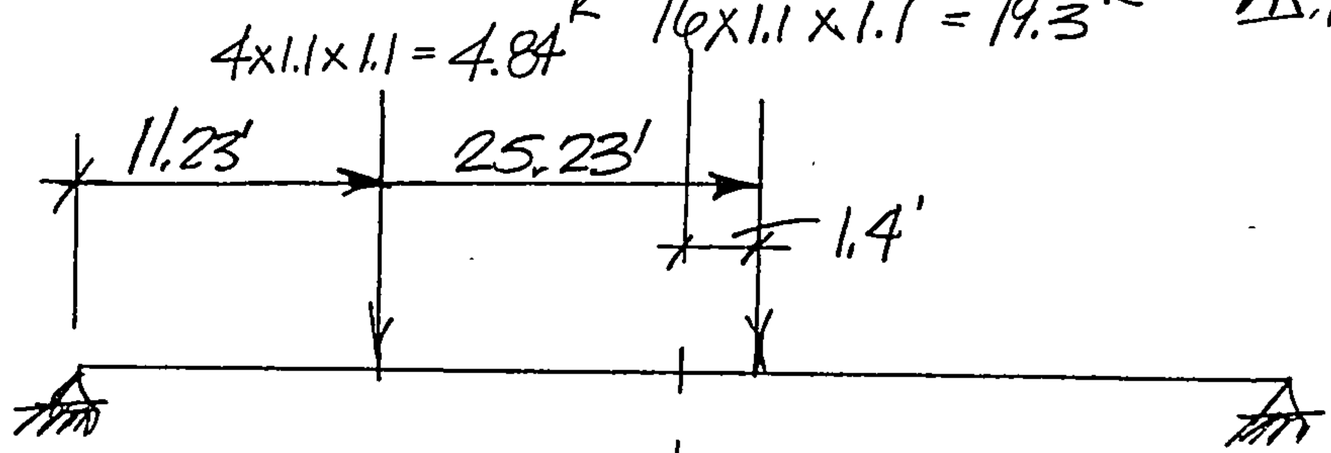
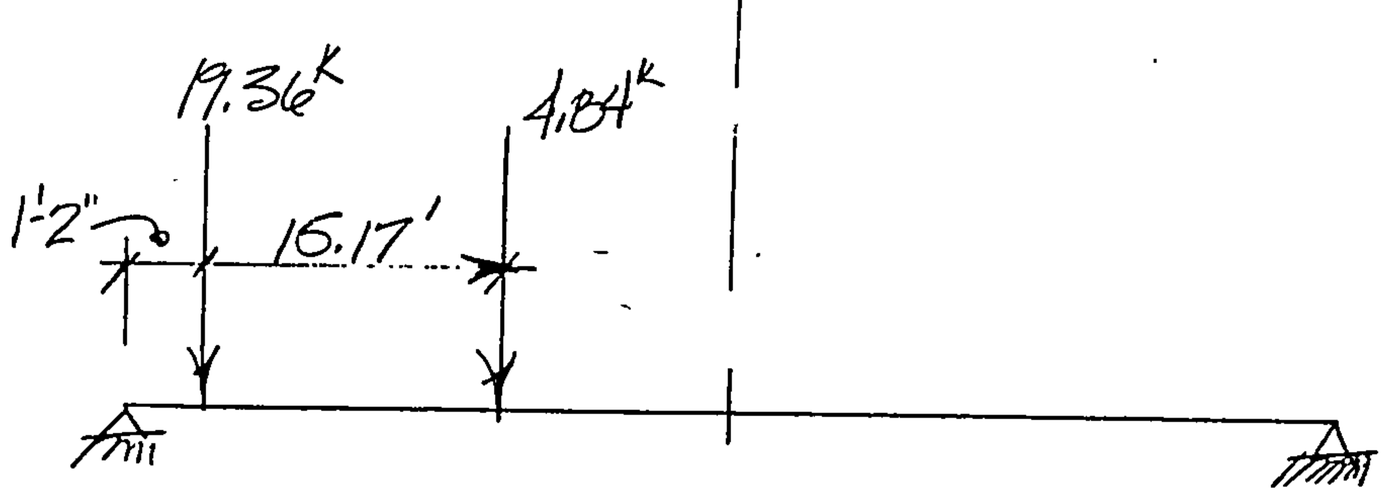
PROJECT ONE RESTAURANT PARKING DECK BY JPA DATE 3/9/01 SHEET 9 OF 30

Δ. REVISED 5/15/01

MAX M_{LL} :



MAX V_{LL} :



CONCRETE :

$f'c_{TOPPING} = \frac{4000PSI}{\cancel{3000PSI}}$ Δ1

$f'c_{PRECAST} = \cancel{5000PSI}$
$6000PSI$ Δ

Bridge Analysis by PCBRIDGE tm v2.60 05-15-2001 16:20

File (Project) Name : NUL

1 Span Bridge took less than 1 minute(s) to analyze.

Span Number : 1
Span Length : 46.5
Relative EI : 1.00
Dead Load : 0.00

2 Concentrated Loads (Loads INCLUDE distribution factor of 1.00)

<spacing>|load|<spacing>|load| ...

< 0.0>| 4.80| <14.0>| 19.30|

User Def Vehicle is MOVING

Bridge Dist	@ Veh Loc	MAX Reaction
0.0	14.0	22.7
46.5	32.5L	22.7

Summary Analysis by PCBRIDGE tm v2.60 05-15-2001 16:20

Span No	MAX +Moment	MAX -Moment	MAX Shear	MAX	Deflect Coeff
1	247.6 (2951 K-IN)	-0.0	22.4		-1005.1

NUL Bridge Analysis by PCBRIDGE tm v2.60 05-15-2001 16:20

Bridge Dist	Span No	Span Dist	@ Veh Loc	MAX +Moment	@ Veh Loc	MAX -Moment	@ Veh Loc	MAX Shear	@ Veh Loc	Deflect Coeff
0.0	1	0.0	21.0L	0.0	29.5L	-0.0	-13.5L	19.1	22.0L	-0.0
0.5	1	0.5	14.5	11.2	0.0	0.0	14.5	22.4	31.5	-33.9
1.0	1	1.0	15.0	22.1	0.0	0.0	15.0	22.1	31.5	-67.7
1.5	1	1.5	15.5	32.8	0.0	0.0	15.5	21.9	31.5	-101.5
2.0	1	2.0	16.0	43.2	0.0	0.0	16.0	21.6	31.5	-135.1
2.5	1	2.5	16.5	53.4	0.0	0.0	16.5	21.4	31.5	-168.6
3.0	1	3.0	17.0	63.3	0.0	0.0	17.0	21.1	31.5	-201.9
3.5	1	3.5	17.5	72.9	0.0	0.0	17.5	20.8	31.5	-235.0
4.0	1	4.0	18.0	82.3	0.0	0.0	18.0	20.6	31.5	-267.9
4.5	1	4.5	18.5	91.5	0.0	0.0	18.5	20.3	31.5	-300.4
5.0	1	5.0	19.0	100.3	0.0	0.0	19.0	20.1	31.5	-332.7
5.5	1	5.5	19.5	108.9	0.0	0.0	19.5	19.8	31.5	-364.5
6.0	1	6.0	20.0	117.3	0.0	0.0	20.0	19.5	31.5	-396.0
6.5	1	6.5	20.5	125.4	0.0	0.0	20.5	19.3	31.5	-427.0
7.0	1	7.0	21.0	133.2	0.0	0.0	21.0	19.0	32.0	-457.6
7.5	1	7.5	21.5	140.8	0.0	0.0	21.5	18.8	32.0	-487.7
8.0	1	8.0	22.0	148.1	0.0	0.0	22.0	18.5	32.0	-517.2
8.5	1	8.5	22.5	155.1	0.0	0.0	22.5	18.2	32.0	-546.2
9.0	1	9.0	23.0	161.9	0.0	0.0	23.0	18.0	32.0	-574.6
9.5	1	9.5	23.5	168.4	0.0	0.0	23.5	17.7	32.0	-602.3
10.0	1	10.0	24.0	174.7	0.0	0.0	24.0	17.5	32.0	-629.3
10.5	1	10.5	24.5	180.7	0.0	0.0	24.5	17.2	32.0	-655.7
11.0	1	11.0	25.0	186.5	0.0	0.0	25.0	17.0	32.0	-681.2
11.5	1	11.5	25.5	192.0	0.0	0.0	25.5	16.7	32.5	-706.1
12.0	1	12.0	26.0	197.2	0.0	0.0	26.0	16.4	32.5	-730.2
12.5	1	12.5	26.5	202.2	0.0	0.0	26.5	16.2	32.5	-753.5
13.0	1	13.0	27.0	206.9	0.0	0.0	27.0	15.9	32.5	-775.8
13.5	1	13.5	27.5	211.4	0.0	0.0	27.5	15.7	32.5	-797.3
14.0	1	14.0	28.0	215.6	0.0	0.0	28.0	15.4	32.5	-817.8
14.5	1	14.5	28.5	219.5	0.0	0.0	28.5	15.1	33.0	-837.5
15.0	1	15.0	29.0	223.2	0.0	0.0	29.0	14.9	33.0	-856.2
15.5	1	15.5	29.5	226.6	0.0	0.0	29.5	14.6	33.0	-873.9
16.0	1	16.0	30.0	229.8	0.0	0.0	30.0	14.4	33.0	-890.5
16.5	1	16.5	30.5	232.7	0.0	0.0	30.5	14.1	33.0	-906.0
17.0	1	17.0	31.0	235.3	0.0	0.0	31.0	13.8	33.5	-920.7
17.5	1	17.5	31.5	237.7	0.0	0.0	31.5	13.6	33.5	-934.2
18.0	1	18.0	32.0	239.9	0.0	0.0	32.0	13.3	33.5	-946.5
18.5	1	18.5	32.5	241.7	0.0	0.0	32.5	13.1	33.5	-957.6
19.0	1	19.0	33.0	243.3	0.0	0.0	33.0	12.8	34.0	-967.7
19.5	1	19.5	33.5	244.7	0.0	0.0	33.5	12.5	34.0	-976.7
20.0	1	20.0	34.0	245.8	0.0	0.0	34.0	12.3	34.0	-984.3
20.5	1	20.5	34.5	246.6	0.0	0.0	34.5	12.0	34.5	-990.7
21.0	1	21.0	35.0	247.2	0.0	0.0	35.0	11.8	34.5	-996.1
21.5	1	21.5	35.5	247.5	0.0	0.0	35.5	11.5	34.5	-1000.2
22.0	1	22.0	36.0	247.6	0.0	0.0	36.0	11.3	34.5	-1002.9
22.5	1	22.5	36.5	247.4	0.0	0.0	36.5	11.0	35.0	-1004.6
23.0	1	23.0	37.0	246.9	0.0	0.0	37.0	10.7	35.0	-1005.1
23.5	1	23.5	9.5L	246.9	46.5L	0.0	9.5L	10.7	11.5L	-1005.1
24.0	1	24.0	10.0L	247.4	46.5L	0.0	10.0L	11.0	11.5L	-1004.6
24.5	1	24.5	10.5L	247.6	46.5L	0.0	10.5L	11.3	12.0L	-1002.9

OTE:SHEAR values are calculated just to the
LEFT of Bridge or Span Dist(ance) for vehicles facing right and

NUL Bridge Analysis by PCBRIDGE™ v2.60 05-15-2001 16:20

Bridge Dist	Span No	Span Dist	@ Veh Loc	MAX +Moment	@ Veh Loc	MAX -Moment	@ Veh Loc	MAX Shear	@ Veh Loc	Deflect Coeff
25.0	1	25.0	11.0L	247.5	46.5L	0.0	11.0L	11.5	12.0L	-1000.2
25.5	1	25.5	11.5L	247.2	46.5L	0.0	11.5L	11.8	12.0L	-996.1
26.0	1	26.0	12.0L	246.6	46.5L	0.0	12.0L	12.0	12.0L	-990.7
26.5	1	26.5	12.5L	245.8	46.5L	0.0	12.5L	12.3	12.5L	-984.3
27.0	1	27.0	13.0L	244.7	46.5L	0.0	13.0L	12.5	12.5L	-976.7
27.5	1	27.5	13.5L	243.3	46.5L	0.0	13.5L	12.8	12.5L	-967.7
28.0	1	28.0	14.0L	241.7	46.5L	0.0	14.0L	13.1	13.0L	-957.6
28.5	1	28.5	14.5L	239.9	46.5L	0.0	14.5L	13.3	13.0L	-946.5
29.0	1	29.0	15.0L	237.7	46.5L	0.0	15.0L	13.6	13.0L	-934.2
29.5	1	29.5	15.5L	235.3	46.5L	0.0	15.5L	13.8	13.0L	-920.7
30.0	1	30.0	16.0L	232.7	46.5L	0.0	16.0L	14.1	13.5L	-906.0
30.5	1	30.5	16.5L	229.8	46.5L	0.0	16.5L	14.4	13.5L	-890.5
31.0	1	31.0	17.0L	226.6	46.5L	0.0	17.0L	14.6	13.5L	-873.9
31.5	1	31.5	17.5L	223.2	46.5L	0.0	17.5L	14.9	13.5L	-856.2
32.0	1	32.0	18.0L	219.5	46.5L	0.0	18.0L	15.1	13.5L	-837.5
32.5	1	32.5	18.5L	215.6	46.5L	0.0	18.5L	15.4	14.0L	-817.8
33.0	1	33.0	19.0L	211.4	46.5L	0.0	19.0L	15.7	14.0L	-797.3
33.5	1	33.5	19.5L	206.9	46.5L	0.0	19.5L	15.9	14.0L	-775.8
34.0	1	34.0	20.0L	202.2	46.5L	0.0	20.0L	16.2	14.0L	-753.5
34.5	1	34.5	20.5L	197.2	46.5L	0.0	20.5L	16.4	14.0L	-730.2
35.0	1	35.0	21.0L	192.0	46.5L	0.0	21.0L	16.7	14.0L	-706.1
35.5	1	35.5	21.5L	186.5	46.5L	0.0	21.5L	17.0	14.5L	-681.2
36.0	1	36.0	22.0L	180.7	46.5L	0.0	22.0L	17.2	14.5L	-655.7
36.5	1	36.5	22.5L	174.7	46.5L	0.0	22.5L	17.5	14.5L	-629.3
37.0	1	37.0	23.0L	168.4	46.5L	0.0	23.0L	17.7	14.5L	-602.3
37.5	1	37.5	23.5L	161.9	46.5L	0.0	23.5L	18.0	14.5L	-574.6
38.0	1	38.0	24.0L	155.1	46.5L	0.0	24.0L	18.2	14.5L	-546.2
38.5	1	38.5	24.5L	148.1	46.5L	0.0	24.5L	18.5	14.5L	-517.2
39.0	1	39.0	25.0L	140.8	46.5L	0.0	25.0L	18.8	14.5L	-487.7
39.5	1	39.5	25.5L	133.2	46.5L	0.0	25.5L	19.0	14.5L	-457.6
40.0	1	40.0	26.0L	125.4	46.5L	0.0	26.0L	19.3	15.0L	-427.0
40.5	1	40.5	26.5L	117.3	46.5L	0.0	26.5L	19.5	15.0L	-396.0
41.0	1	41.0	27.0L	108.9	46.5L	0.0	27.0L	19.8	15.0L	-364.5
41.5	1	41.5	27.5L	100.3	46.5L	0.0	27.5L	20.1	15.0L	-332.7
42.0	1	42.0	28.0L	91.5	46.5L	0.0	28.0L	20.3	15.0L	-300.4
42.5	1	42.5	28.5L	82.3	46.5L	0.0	28.5L	20.6	15.0L	-267.9
43.0	1	43.0	29.0L	72.9	46.5L	0.0	29.0L	20.8	15.0L	-235.0
43.5	1	43.5	29.5L	63.3	46.5L	0.0	29.5L	21.1	15.0L	-201.9
44.0	1	44.0	30.0L	53.4	46.5L	0.0	30.0L	21.4	15.0L	-168.6
44.5	1	44.5	30.5L	43.2	46.5L	0.0	30.5L	21.6	15.0L	-135.1
45.0	1	45.0	31.0L	32.8	46.5L	0.0	31.0L	21.9	15.0L	-101.5
45.5	1	45.5	31.5L	22.1	46.5L	0.0	31.5L	22.1	15.0L	-67.7
46.0	1	46.0	32.0L	11.2	46.5L	0.0	32.0L	22.4	15.0L	-33.9
46.5	1	46.5	25.5	0.0	17.0	-0.0	60.0	19.1	24.5	-0.0

NOTE: SHEAR values are calculated just to the
LEFT of Bridge or Span Dist(ance) for vehicles facing right and
RIGHT of Bridge or Span Dist(ance) for vehicles facing left.

Salmons P.C.
Oasis Restaurant
Beam, 3.02, (C)1997 BY JACQUES & ASWAD, INC.

SHEET 13 OF 30
DATE: 5/16/01
PAGE: 1 BY: jpa

DESIGN DATA

Left Cant. = 0.00 ft	Simple Span = 47.33 ft	Right Cant. = 0.00 ft
Beam Length = 47.33 ft	Loop @ Left = 2.00 ft	Loop @ Right= 2.00 ft
Design Bearing Lengths:	@ Left = 0.000 ft	@ Right= 0.000 ft
Leg Bottom = 3.750 in	Flange width= 72.000 in	Web width = 9.500 in
Leg Top = 5.750 in	Flange thick= 2.000 in	Tpg. thick = 5.000 in
Stem height = 22.000 in	No. of stems= 2.00	Section Type=DOUBLE TEE

Non-Composite : (Based on above section dimensions)				Height =	24.000 in
Area =	353.000 in-2	Sb =	1168.13 in-3	St =	2497.66 in-3
I =	19101.54 in-4	Yb =	16.3522 in	Yt =	7.6478 in
Composite : (Based on above section dimensions)				Height =	29.000 in
Ac =	646.939 in-2	Sbc =	1728.30 in-3	Stc(P/C)=	11929.17 in-3
Ic =	36230.13 in-4	Ybc =	20.9629 in	Stc(Tpg)=	5520.98 in-3

Miscellaneous :

Beam type	=NORMAL WT.	Topping type=NORMAL WT.			
Beam weight	= 150.00 pcf	Topping wt.	= 150.00 pcf		
Cu	= 2.350	eds	= 300 E-06	eshu	= 650 E-06
Vol/Surf	= 1.521 in	Rel. humid	= 25.00%	Strain Curve	=PCI Handbook
Beam f'ci	= 4.800 ksi	Beam f'c	= 6.000 ksi	Topping f'c	= 4.000 ksi
Eci modifier	= 1.000	Ec modifier	= 1.000	Camber Mult.	= 1.000
phi Factors	:	Flexure	= 1.000	Shear	= 0.850
Load Factors	:	Dead Load	= 1.300	Live Load	= 2.170
Shear Options	:	Depth used	=COMP	f'c used	=BEAM
Allow. Concrete Stress:		At Release	=0.680f'ci	At Final	=8.500sqrt f'c

Stress Block=PARABOLIC

Prestressing Strands (Strand Type = LOW RELAXATION)

Eff. Pull	= 0.750Xfpu	Strand diam.= 0.5000 in		Estrand	=28322.44 ksi
Strand fpu	=270.00 ksi	Area ea.str.= 0.1531 in-2		LtMult	= 1.000
# Str. lev.	= 7	# of Strand = 14.00		LdMult	= 1.000
Losses: PCI Comm. Report (RATIONAL)			Strand Transformed -> YES		

Strand Level :	1	2	3	4	5	6	7
Left end patt. :	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Right end patt.:	2.00	2.00	2.00	2.00	2.00	2.00	2.00
No. of Strand :	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Harping Profile:

Description	X(ft) From Left End	Hstr (in)	Eccent. (in)	Area of P/S (in-2)
Left End of Beam----------	0.00	8.00	8.35	2.1434
Right End of Beam----------	47.33	8.00	8.35	2.1434

Strand Debonding :

Strand Level	Debonding Location	Dist. from Left End Start (ft)	Stop (ft)	Length of Debonding (ft)	# of Strands Debonded
3	LEFT END	0.00	10.00	10.000	2.00
	RIGHT END	37.33	47.33	10.000	2.00
5	LEFT END	0.00	5.00	5.000	2.00
	RIGHT END	42.33	47.33	5.000	2.00

NOTE: A factor of 2.000 will be applied to Lt and Ld for debonded strand.

Mild Steel

Shear : fyv = 60.00 ksi fyh = 60.00 ksi fyl = 60.00 ksi

C:\Program Files\Jacques & Aswad\Beam\Oasis\6'-Dt-bm-H20-1.bem

Emild = 29000 ksi LdMult = 1.000

Distributed Loads (non-factored)

Load Type	Magnitude of Load Beginning (k/ft)	Ending (k/ft)	Distance From Left Beginning (ft)	Ending (ft)	Eccent. (in)
P/C Self Weight	0.368	0.368	0.00	47.33	0.000
Non-comp. Dead Load	0.450	0.450	0.00	47.33	0.000
Composite Dead Load	0.000	0.000	0.00	47.33	0.000
Live Load	0.120	0.120	0.00	47.33	0.000

At Release Only: Suction = 0.000 k/ft Core Material = 0.000 k/ft

NOTE: 0.00% of all distributed and concentrated live loads are sustained.

Special Assigned Symmetrical Live Load Envelopes

Moment: Mmax = 2951 k-in at 0.470*L = 22.25 ft
Shear : V2 = 22.10 kips at h/2 = 1.21 ft (LEFT end) Ecc. = 0.000 in
V2 = 22.10 kips at h/2 = 46.12 ft (RIGHT end) Ecc. = 0.000 in
V1 = 14.70 kips at L/3 = 15.78 ft Ecc. = 0.000 in
Vmin =0.3*V2 = 6.63 kips
NOTE: Moment diagram is parabolic from end to 22.25 ft and
is constant from 22.25 ft to beam midspan.
NOTE: End shear due to Special Moving Loads is included in end reactions.

Bearing Plates

Nu = 0.20*Pu Height= 0.00 in Bearing Pad Thickness = 0.500 in
Eff. Brg. Surface: Width = 3.50 in Length =10.000 in
Plate Rebar: Angle = 10.00 deg fy = 60.00 ksi
Confinement for non-debonded prestressing strand assumed -> NO

********** OUTPUT **********

INITIAL STRESSES (psi, at release)

A) DL beam + core material (if any) + suction (if any)
Beam is supported at 2.00 ft from LEFT end and 2.00 ft from RIGHT end

X(ft) From Left End	Initial P/S Top	Bot.	Init.P/S + BM Top	Bot.	Aux. steel area (ACI 18.4.1)
2.08	-147	2876	-148	2876	0.00
6.33	-141	3016	4	2704	0.00
10.67	-140	3408	121	2848	0.00
15.00	-204	3977	141	3240	0.00
19.33	-204	3984	190	3141	0.00
23.67	-204	3987	207	3108	0.00
28.00	-204	3984	190	3141	0.00
32.33	-204	3977	141	3240	0.00
36.66	-140	3408	121	2848	0.00
41.00	-141	3016	4	2704	0.00
45.25	-147	2876	-148	2876	0.00

NOTE: Required f'ci = 4800 psi based on assigned minimum.

STRAND STRESSES (Based on f'ci=4.800 ksi, f'c=6.000 ksi, by PCI Committee)

X(ft) from Left End	at Tensioning ksi	at Release ksi	DL and Sust. LL ksi	Final* ksi	P/S Loss ksi	P/S Loss %

9.466	0.0	<3>	0.075	<3>		0.000	
11.833	0.0	<3>	0.081	<3>		0.000	
14.199	0.0	<3>	0.074	<3>		0.000	
16.566	0.0	<3>	0.071	<3>		0.000	
18.932	0.0	<3>	0.050	<3>		0.000	
21.299	0.0	<3>	0.047	<3>		0.000	
23.665	0.0	<3>	0.047	<3>		0.000	
26.032	0.0	<3>	0.047	<3>		0.000	
28.398	0.0	<3>	0.050	<3>		0.000	
30.765	0.0	<3>	0.071	<3>		0.000	
33.131	0.0	<3>	0.074	<3>		0.000	
35.498	0.0	<3>	0.081	<3>		0.000	
37.864	0.0	<3>	0.075	<3>		0.000	
40.231	0.0	<3>	0.045	<3>		0.000	
42.597	0.0	<3>	0.035	<3>		0.000	
44.964	0.0	<3>	0.035	<3>		0.000	
46.122	0.0	<3>	0.084	<3>	0.084	0.000	0.000

Awv=Awl= 0.000(left), 0.000(right)=Vertical and longitudinal web reinf. for bending due to torsional equil. reactions (ledge face,in-2), based on:
Tu = 0.0 k-in at Left End, = 0.0 k-in at Right End
ds = 1.000 in Hs = 21.000 in
Ash=Hanger reinforcement (ledge face only).
NOTE: The above values for steel are for one face only. Columns (2) & (A) should be applied to both faces. All other columns need only be applied to the ledge face.
<3>NOTE: Section does not have a ledge, or is defined as a General Section.

PREDICTED DEFLECTIONS

Based on : Rational approach and PCI Committee Recommendations for losses.
f'ci = 4.800 ksi, f'c = 6.000 ksi and ACI-209
Eci = 4200 ksi, Ec = 4696 ksi, Camber Mult.= 1.000
Modified : Cu = 2.586 eshu = 747 E-06
NOTE: Negative values indicate camber.

	Midspan Position (in)
Release : PS(-1.52)+BM DL(0.49)	-1.02
Creep Before Erection	-0.98
Erection: PS+BM DL	-2.00
(@ 4 weeks)	
Change Due to Non-Comp.DL	0.53
: PS+BM DL+Non-Comp.DL	-1.47
Change Due to Comp.DL+SustLL	0.00
: PS+All DL+Sust.LL	-1.47
Long Term Creep	-0.01
Final : PS+All DL+Sust.LL	-1.47
: PS+All DL+LL	-0.83

NOTE: LL deflection due to special loads is exaggerated, see manual.
NOTE: Beam has cracked under positive moment, deflections are based on a bilinear moment-deflection relationship (ACI 18.4.2).

MISC. PRODUCTION INFORMATION

Initial prestress force = 434 kips Final prestress force = 360 kips
Concrete strengths used in design:
Release strength f'ci= 4800 psi Final strength f'c= 6000 psi
Beam is NORMAL WEIGHT concrete. Piece weight = 17.40 kips.

Estimated shortening between supports at erection time :

	at C.G.	Curvature Effect	Total	
Top	0.41	-0.22	0.18	<<<Length correction not to exceed this value
C.G	0.41	0.00	0.41	
Bot	0.41	0.48	0.88	

HORIZONTAL ANCHOR REINFORCEMENT & BEARING STRESS ON BEARING PAD

NOTE: For members with multiple legs, reactions and required steel are calculated for one leg only.

Confinement for prestressing strand assumed -> NO

Factored Reaction: Pu = 39.6 kips Pw = 22.1 kips at LEFT support
React. Components: Pdl,nc= 9.7 kips Pdl,c= 0.0 kips Pll= 12.5 kips
Factored Shear : Vu = 39.6 kips Nu = 7.9 kips
Calculated : Height= 22.00 in Bearing Surface Width = 3.50 in

Bearing Length (in)	Avf Reqd. (in-2)	Factored Brg. Stress (ksi)	Brg. Pad Stress (ksi)	Sugg. Pad Type
10.0	0.40	1.133	0.633	(2)

PROVIDE 2-#5's GR. 60W @ BRG.

Factored Reaction: Pu = 39.6 kips Pw = 22.1 kips at RIGHT support
React. Components: Pdl,nc= 9.7 kips Pdl,c= 0.0 kips Pll= 12.5 kips
Factored Shear : Vu = 39.6 kips Nu = 7.9 kips
Calculated : Height= 22.00 in Bearing Surface Width = 3.50 in

Bearing Length (in)	Avf Reqd. (in-2)	Factored Brg. Stress (ksi)	Brg. Pad Stress (ksi)	Sugg. Pad Type
10.0	0.40	1.133	0.633	(2)

USE ½"x3"x3" MASTIC COR BRG. PAD

NOTE: End shear due to Special Moving Loads is included in the determination of the end reations Pu and Pw. Since the bearing pad design and concrete bearing strength check are based on these values, their checks also include this force.

NOTE: As detailed bearing lengths must be longer than minimum used in calcs to allow for as-built tolerances. Suggest minimum added length be 1/2 in. + difference in shortening between top and bottom of member.

NOTE: Reactions are used for concrete bearing strength check and bearing pad design, shear is used for design of Avf.

Pad Types: (following PCI Handbook 5th Edition)
(2): Random Oriented Fiber (ROF)

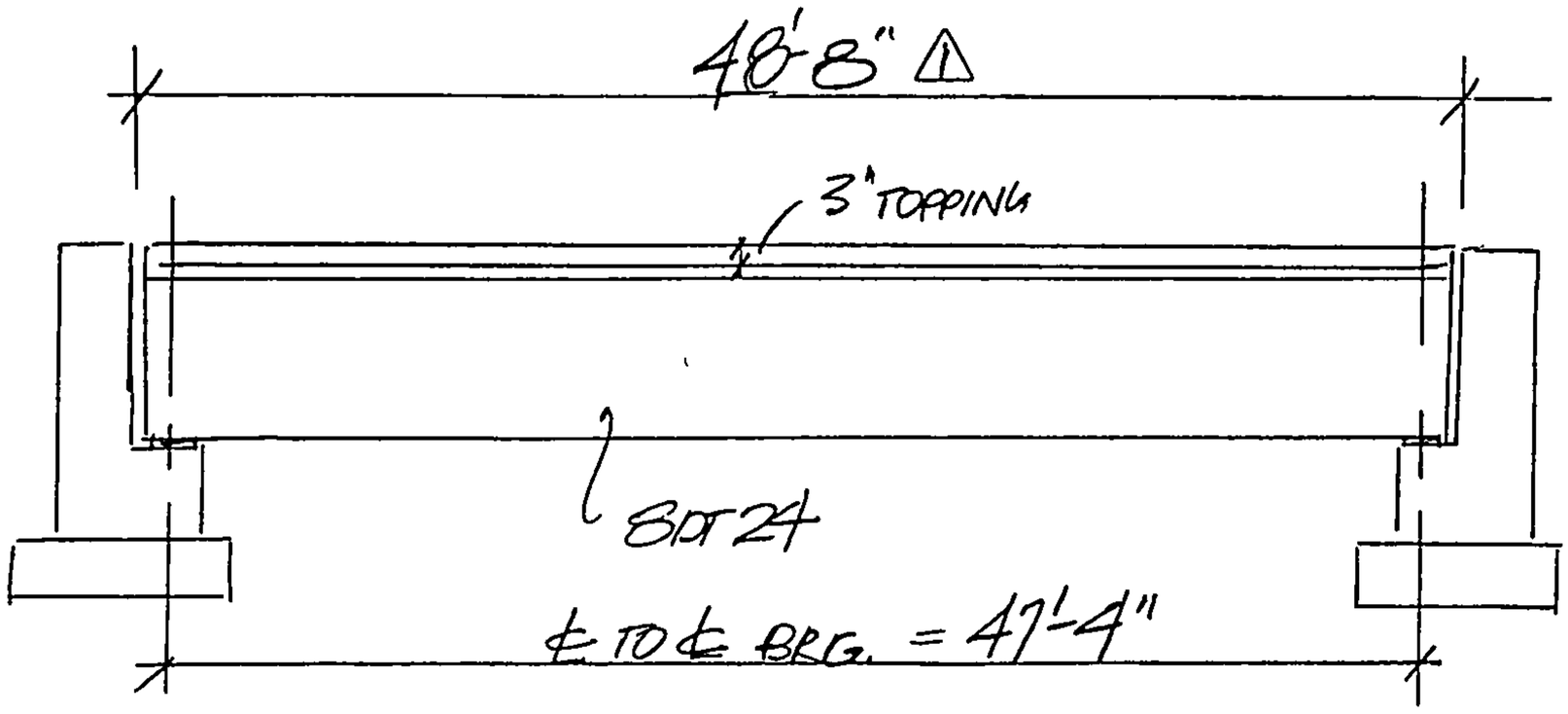
S P C
PRECAST / PRESTRESSED CONCRETE ENGINEERING

SALMONS P.C.
1121 SAN MATEO NE • ALBUQUERQUE, NM 87110
(505) 260-1460 • FAX (505) 260-1459

PROJECT Oasis Restaurant Parking Deck BY JPA DATE 3/9/01 SHEET 19 OF 30

⚠ REVISED 5/15/01.

DESIGN Bs — PARKING LOAD



DESIGN DATA:

DL: $GL = \frac{401}{144} \times .150 = .417^{KLF}$

$DL_{3"TOPPING} = \frac{3}{12} \times 8' \times .15 = .30^{KLF}$

DL ADDITIONAL 3" OF TOPPING FOR DRAINAGE & LEVELING PURPOSES $= .30^{KLF}$

LL:

— SNOW LOAD = 20 PSF (.16 KLF)

— TRAFFIC LOAD = 50 PSF (.400 KLF)

— PLACE 24" x 24" B.O. @ MIDSPAN FOR DRAINAGE REQUIREMENTS.

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Oasis Restaurant
Beam, 3.02, (C)1997 BY JACQUES & ASWAD, INC.

DESIGN DATA

Left Cant. = 0.00 ft	Simple Span = 47.33 ft	Right Cant. = 0.00 ft
Beam Length = 47.33 ft	Loop @ Left = 2.00 ft	Loop @ Right= 2.00 ft
Design Bearing Lengths:	@ Left = 0.000 ft	@ Right= 0.000 ft
Leg Bottom = 3.750 in	Flange width= 96.000 in	Web width = 9.500 in
Leg Top = 5.750 in	Flange thick= 2.000 in	Tpg. thick = 3.000 in
Stem height = 22.000 in	No. of stems= 2.00	Section Type=DOUBLE TEE

Non-Composite : (Based on above section dimensions)				Height =	24.000 in
Area =	401.000 in-2	Sb =	1223.75 in-3	St =	3062.58 in-3
I =	20984.89 in-4	Yb =	17.1480 in	Yt =	6.8520 in
Composite : (Based on above section dimensions)				Height =	27.000 in
Ac =	636.151 in-2	Sbc =	1556.74 in-3	Stc(P/C)=	8367.42 in-3
Ic =	31501.14 in-4	Ybc =	20.2353 in	Stc(Tpg)=	5703.23 in-3

Miscellaneous :

Beam type	=NORMAL WT.	Topping type=NORMAL WT.			
Beam weight	= 150.00 pcf	Topping wt.	= 150.00 pcf		
Cu	= 2.350	eds	= 300 E-06	eshu	= 650 E-06
Vol/Surf	= 1.432 in	Rel. humid	= 25.00%	Strain Curve	=PCI Handbook
Beam f'ci	= 4.300 ksi	Beam f'c	= 6.000 ksi	Topping f'c	= 4.000 ksi
Eci modifier	= 1.000	Ec modifier	= 1.000	Camber Mult.	= 1.000
phi Factors	:	Flexure	= 0.900	Shear	= 0.850
Load Factors	:	Dead Load	= 1.300	Live Load	= 2.170
Shear Options	:	Depth used	=COMP	f'c used	=BEAM
Allow. Concrete Stress:		At Release	=0.680f'ci	At Final	=8.500sqrt f'c

Stress Block=PARABOLIC

Prestressing Strands (Strand Type = LOW RELAXATION)

Eff. Pull	= 0.750Xfpu	Strand diam.= 0.5000 in		Estrand	=28322.44 ksi
Strand fpu	=270.00 ksi	Area ea.str.= 0.1531 in-2		LtMult	= 1.000
# Str. lev.	= 6	# of Strand = 12.00		LdMult	= 1.000
Losses: PCI Comm. Report (RATIONAL)			Strand Transformed -> YES		

Strand Level :	1	2	3	4	5	6
Left end patt. :	2.00	2.00	2.00	2.00	2.00	2.00
Right end patt.:	2.00	2.00	2.00	2.00	2.00	2.00
No. of Strand :	2.00	2.00	2.00	2.00	2.00	2.00

Harping Profile:

Description	X(ft) From Left End	Hstr (in)	Eccent. (in)	Area of P/S (in-2)
Left End of Beam----------	0.00	7.00	10.15	1.8372
Right End of Beam----------	47.33	7.00	10.15	1.8372

Strand Debonding :

Strand Level	Debonding Location	Dist. from Left End Start (ft)	Stop (ft)	Length of Debonding (ft)	# of Strands Debonded
3	LEFT END	0.00	10.00	10.000	2.00
	RIGHT END	37.33	47.33	10.000	2.00
5	LEFT END	0.00	5.00	5.000	2.00
	RIGHT END	42.33	47.33	5.000	2.00

NOTE: A factor of 2.000 will be applied to Lt and Ld for debonded strand.

Mild Steel

Shear : fyv = 60.00 ksi fyh = 60.00 ksi fyl = 60.00 ksi

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NOTE: Required f'ci = 4300 psi based on assigned minimum.

STRAND STRESSES (Based on f'ci=4.300 ksi, f'c=6.000 ksi, by PCI Committee)

X(ft) from Left End	at Tensioning ksi	at Release ksi	DL and Sust. LL ksi	Final* ksi	P/S Loss ksi	P/S Loss %
0.00	202.5	187.8	0.0	0.0	202.50	100.00
4.73	202.5	189.5	164.7	166.4	36.12	17.84
9.47	202.5	188.9	166.0	168.9	33.63	16.61
14.20	202.5	186.7	163.5	167.3	35.15	17.36
18.93	202.5	187.2	165.9	170.3	32.20	15.90
23.67	202.5	187.4	166.7	171.3	31.21	15.41
28.40	202.5	187.2	166.0	170.3	32.19	15.89
33.13	202.5	186.7	163.5	167.4	35.14	17.35
37.86	202.5	188.9	166.0	168.9	33.62	16.60
42.60	202.5	189.5	164.7	166.4	36.11	17.83
47.33	202.5	187.8	0.0	0.0	202.50	100.00

*NOTE: Final strand stresses include elastic regain for Live Load.

FINAL STRESSES (psi)

X(ft) From Left End	FP + BM Top	FP + BM Bot	FP + DL + Sustained LL Tpg	FP + DL + Sustained LL Top	FP + DL + Sustained LL Bot	FP + DL + All LL Tpg	FP + DL + All LL Top	FP + DL + All LL Bot
0.00	0	0	0	0	0	0	0	0
2.37	-108	1928	0	16	1629	61	58	1409
4.73	-37	1802	0	197	1236	116	278	820
7.10	31	1864	0	363	1063	165	477	476
9.47	91	1937	0	507	935	207	651	200
11.83	114	2061	0	601	892	242	769	35
14.20	122	2248	0	667	947	270	855	-7
16.57	151	2206	0	741	796	293	945	-237
18.93	171	2176	0	793	689	309	1008	-401
21.30	251	2132	0	1038	524	389	1331	-645
23.67	187	2152	0	836	603	322	1060	-533
26.03	184	2158	0	825	624	319	1047	-500
28.40	172	2175	0	794	688	309	1009	-402
30.76	151	2205	0	741	795	293	945	-238
33.13	123	2247	0	667	946	270	856	-8
35.50	114	2060	0	601	891	242	769	34
37.86	91	1937	0	507	935	207	651	200
40.23	32	1863	0	363	1063	165	477	475
42.60	-37	1802	0	197	1235	116	278	819
44.96	-108	1928	0	16	1629	61	58	1409
47.33	-0	0	0	-0	0	-0	-0	0

NOTE: Allowable bottom tension stress = 8.50*sqrt(f'c) = -658 psi

ULTIMATE MOMENT (k-in)

X(ft) From Left End	Required Mu by Fact'd Loads	Required Mu by 1.2*Mcr (ACI 18.8.3)	Provided phi*Mn by Strain-compat.	Provided phi*Mn Dev.Length Limits (ACI Ch.12)	Provided phi*Mn if Over-Reinforced (ACI 18.8.1)
0.00	0		0		
2.37	1618			3850 (1)	
4.73	3066			5468 (1)	

C:\Program Files\Jacques & Aswad\Beam\Oasis\Car loaded Dt-1.bem

7.10	4344			6322 (1)
9.47	5450			6716 (1)
11.83	6387			7298 (1)
14.20	7152			7934 (1)
16.57	7747			8256 (1)
18.93	8171			8451 (1)
21.30	8425			8441 (1)
23.67	8512	6314	8590	
26.03	8428			8560 (1)
28.40	8174			8451 (1)
30.76	7749			8256 (1)
33.13	7154			7934 (1)
35.50	6388			7298 (1)
37.86	5452			6716 (1)
40.23	4345			6322 (1)
42.60	3067			5468 (1)
44.96	1619			3850 (1)
47.33	-0	0	0	

(1): Development length controlled by strand.
*NOTE: Provided Mu > 2*Reqd. Mu, ACI 18.8.3 requirements can be ignored.

VERTICAL SHEAR REINFORCING

X(ft) From Left End	D in.	Vu kips	Tu k-in	Vci kips	Vcw kips	-- Required Reinforcing -- for Avci in-2/ft	for Avcw in-2/ft	for Avmin in-2/ft
1.13	21.60	57.14	0.0	190	65	0.000	0.024	0.031(2)*
2.37	21.60	53.99	0.0	143	73	0.000	0.000	0.058(2)*
4.73	21.60	47.98	0.0	71	78	0.000	0.000	0.058(2)*
7.10	21.60	41.98	0.0	50	85	0.000	0.000	0.065(2)*
9.47	21.60	35.97	0.0	39	92	0.034	0.000	0.072(2)*
11.83	21.60	29.96	0.0	32	96	0.034	0.000	0.078(2)*
14.20	21.60	23.96	0.0	27	101	0.011	0.000	0.087(2)*
16.57	21.60	17.95	0.0	27	103	0.000	0.000	0.087(2)*
18.93	21.60	11.94	0.0	27	105	0.000	0.000	0.087(2)*
21.30	21.60	5.98	0.0	27	115	0.000	0.000	0.000
23.67	21.60	0.06	0.0	27	106	0.000	0.000	0.000
26.03	21.60	-5.95	0.0	27	106	0.000	0.000	0.000
28.40	21.60	-11.95	0.0	27	105	0.000	0.000	0.087(2)*
30.76	21.60	-17.96	0.0	27	103	0.000	0.000	0.087(2)*
33.13	21.60	-23.97	0.0	27	101	0.011	0.000	0.087(2)*
35.50	21.60	-29.97	0.0	32	96	0.034	0.000	0.078(2)*
37.86	21.60	-35.98	0.0	39	92	0.034	0.000	0.072(2)*
40.23	21.60	-41.99	0.0	50	85	0.000	0.000	0.065(2)*
42.60	21.60	-47.99	0.0	71	78	0.000	0.000	0.058(2)*
44.96	21.60	-54.00	0.0	143	73	0.000	0.000	0.058(2)*
46.21	21.60	-57.15	0.0	190	65	0.000	0.024	0.031(2)*

2 LEGS W2.9 @ 7.5" O.C. = .09 IN²/FT PROVIDED OK

(2): Minimum based on ACI Eq. 11-14.
NOTE: Reqd. reinf. is based on a total web width = 9.500 in.
*NOTE: Spacing must not exceed the lesser of 24(in) or 3/4*h= 18.00(in).
NOTE: No significant torsion was found (ACI 11.6.1).
NOTE: Design assumes web reinforcing is carried as close to compression and tension surfaces as possible per ACI 12.13.1.

SUMMARY OF MINIMUM VERTICAL AND LONGITUDINAL WEB REINFORCEMENT REQUIREMENTS

NOTE: The specified section type does not have a bottom ledge.
For Vertical Reinf, select from columns (1), (2), (3) or (4) : (in-2/ft)
For Longitudinal Reinf, select from columns (A) or (B) : (in-2)

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Beam, 3.02, (C)1997 BY JACQUES & ASWAD, INC.

Initial prestress force = 372 kips Final prestress force = 315 kips
Concrete strengths used in design:
Release strength f'ci= 4300 psi Final strength f'c= 6000 psi
Beam is NORMAL WEIGHT concrete. Piece weight = 19.67 kips.

Estimated shortening between supports at erection time :

	at C.G.	Curvature Effect	Total	
Top	0.36	-0.19	0.16	<<<Length correction not to exceed this value
C.G	0.36	0.00	0.36	
Bot	0.36	0.49	0.84	

HORIZONTAL ANCHOR REINFORCEMENT & BEARING STRESS ON BEARING PAD

NOTE: For members with multiple legs, reactions and required steel are calculated for one leg only.
Confinement for prestressing strand assumed -> NO

Factored Reaction: Pu = 30.0 kips Pw = 18.6 kips at LEFT support
React. Components: Pdl,nc= 12.0 kips Pdl,c= 0.0 kips Pll= 6.6 kips
Factored Shear : Vu = 30.0 kips Nu = 6.0 kips
Calculated : Height= 22.00 in Bearing Surface Width = 3.50 in

Bearing Length (in)	Avf Reqd. (in-2)	Factored Brg. Stress (ksi)	Brg. Pad Stress (ksi)	Sugg. Pad Type
10.0	0.30	0.857	0.533	(1)

Factored Reaction: Pu = 30.0 kips Pw = 18.6 kips at RIGHT support
React. Components: Pdl,nc= 12.0 kips Pdl,c= 0.0 kips Pll= 6.6 kips
Factored Shear : Vu = 30.0 kips Nu = 6.0 kips
Calculated : Height= 22.00 in Bearing Surface Width = 3.50 in

Bearing Length (in)	Avf Reqd. (in-2)	Factored Brg. Stress (ksi)	Brg. Pad Stress (ksi)	Sugg. Pad Type
10.0	0.30	0.857	0.533	(1)

USE ½" x 3½" x 10" MASTICORD PAD

NOTE: As detailed bearing lengths must be longer than minimum used in calcs to allow for as-built tolerances. Suggest minimum added length be 1/2 in. + difference in shortening between top and bottom of member.
NOTE: Reactions are used for concrete bearing strength check and bearing pad design, shear is used for design of Avf.

Pad Types: (following PCI Handbook 5th Edition)
(1): AASHTO Grade Neoprene (60 durometer) or Random Oriented Fiber (ROF)