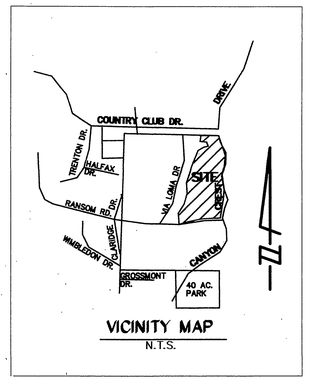
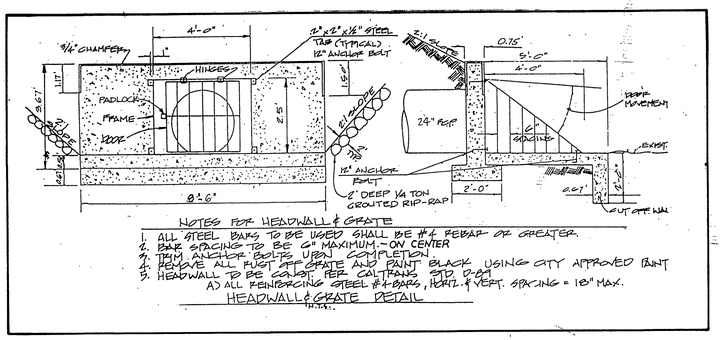
TRACT 25486-4
STORM DRAIN IMPROVEMENT PLANS



VICINITY MAP
N.T.S.



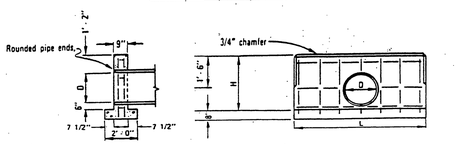
NOTES FOR HEADWALL & GRATE
1. ALL STEEL BARS TO BE USED SHALL BE #4 REBAR OR GREATER.
2. BAR SPACING TO BE 6" MAXIMUM.-ON CENTER
3. TRIM ANCHOR BOLTS UPON COMPLETION
4. REMOVE ALL RUST, SPRAY GRATE AND PAINT BLACK USING CITY APPROVED PAINT
5. HEADWALL TO BE CONST. PER CALTRANS STD. D-89
   A) ALL REINFORCING STEEL #4 BARS, HORZ. & VERT. SPACING = 18" MAX.

HEADWALL & GRATE DETAIL

GRATE DETAIL (6)

D	H	SINGLE L	Steel Lbs.	Conc C.Y.
12"	2'-8"	5'-0"	35	0.60
15"	2'-11"	6'-0"	40	0.75
18"	3'-2"	7'-0"	50	0.91
21"	3'-5"	7'-6"	60	1.02
24"	3'-8"	8'-6"	75	1.20
27"	3'-11"	9'-6"	85	1.39
30"	4'-2"	10'-0"	85	1.52
33"	4'-5"	11'-0"	100	1.73
36"	4'-8"	12'-0"	105	1.95
39"	4'-11"	12'-6"	130	2.09
42"	5'-2"	13'-6"	140	2.34
45"	5'-5"	14'-6"	150	2.60
48"	5'-8"	15'-0"	160	2.75
51"	5'-11"	16'-0"	180	3.03
54"	6'-2"	17'-0"	190	3.31

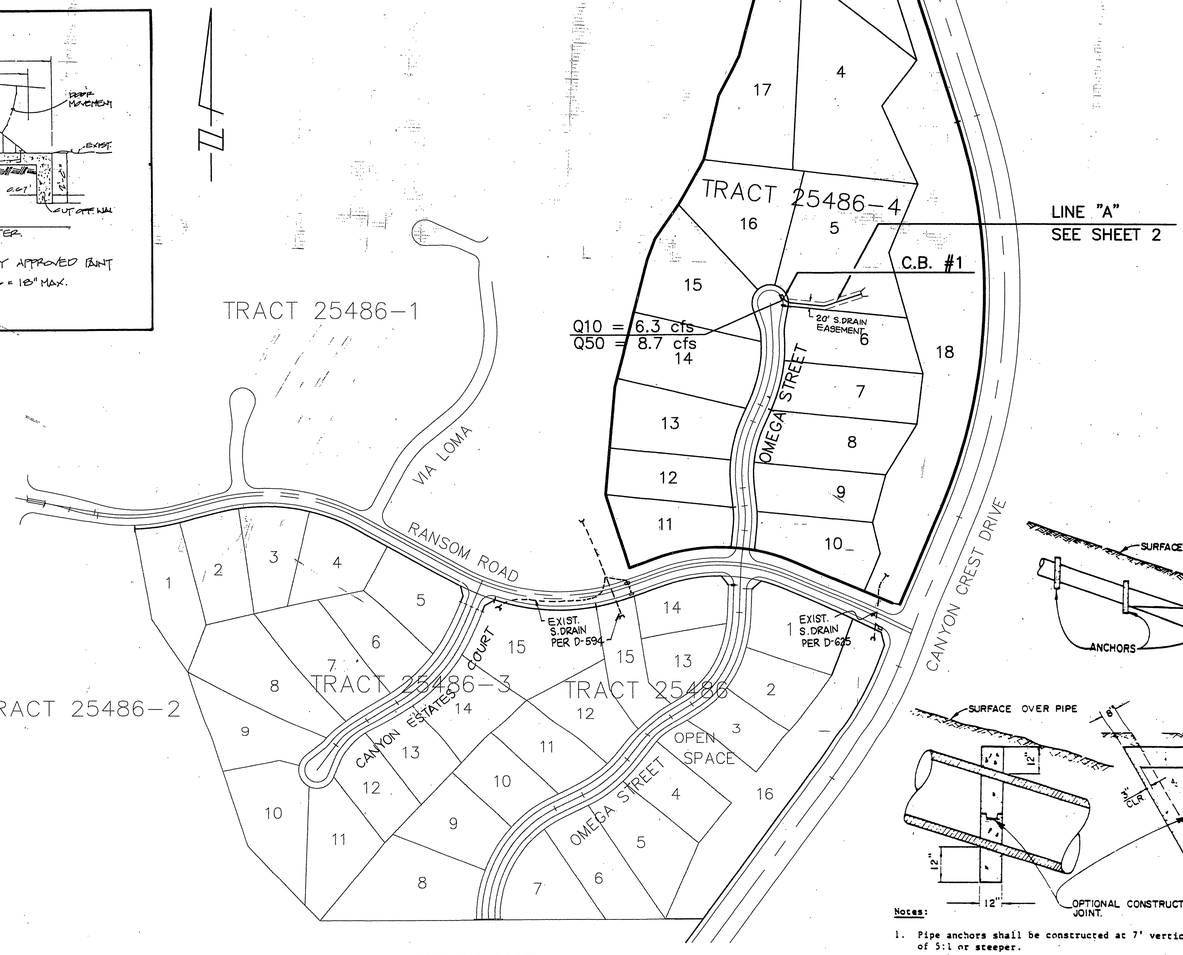
← LINE "A"



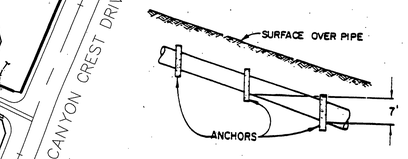
SECTION — ELEVATION SINGLE HEADWALL

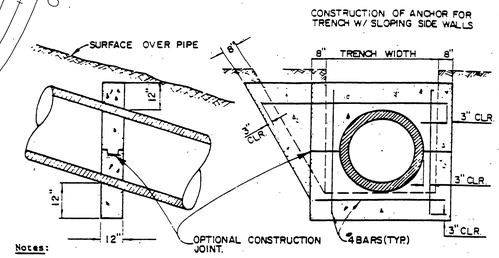
NOTES
1. Concrete shall be 560-C-3250
2. All reinforcing steel # 4 bars. All vertical and horizontal tie bars 18" maximum spacing.

STRAIGHT HEADWALL - TYPE A (CIRCULAR PIPE) (3)



INDEX MAP
SCALE 1"=200'





Notes:
1. Pipe anchors shall be constructed at 7' vertical interval on all slopes of 5:1 or steeper.
2. All reinforcing steel shall be #4 bars.
3. Concrete shall be class 500-C-2500 concrete.

PIPE SLOPE ANCHOR (4)

STORM DRAIN NOTES

1. Quantities shown are for information only and the City of Riverside is not responsible for their accuracy.
2. Construction shall be in accordance with City of Riverside Dept. of Public Works Standard Drawings, its supplemental notes and the Standard Specifications for Public Works Construction, Current Edition.
3. It shall be the responsibility of the contractor to clear the right of way in accordance with the provisions of law as it affects each utility including irrigation lines and appurtenances and at no cost to the City
4. Notice to contractor. The existence and location of any underground utility pipes or structures shown on these plans were obtained by a search of the available records. To the best of our knowledge there are no existing utilities exept as shown on these plans. The contractor is required to take precautionary measures to protect the utility lines shown and any other lines not of record or not shown on these plans.
5. The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the work hereon. In the event of discrepancies arising during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for approval by the City.
6. The contractor shall call in a locations request to UNDERGROUND SERVICE ALERT (USA). Phone No. 1-800-227-2600, two working days before digging No construction permit will be issued by the Public Works Department involving excavation for underground facilities unless the applicant has been provided an Inquiry Identification Number by U.S.A.
7. The developer preparing these plans shall be responsible for preserving or re-establishing and referencing survey monuments destroyed, disturbed or buried as a result of construction shown hereon.
8. All embankment fill shall be compacted to minimum of 90% maximum dry density and shall be of an approved quality.
9. Before the Rip-Rap is accepted, as placed, at the outlet of any drainage structure, it shall be tested under flows as close as possible to desire conditions with water obtained from fire hydrants in the immediate area.
10. All flagged elevations shall be staked in the field by the private engineer.
11. Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify and hold the owner and the engineer harmless from any and all liability, real or alleged, in connection with performance of work on this project, excepting for liability arising from the sole negligence of the owner or the engineer.
12. The concrete cover on the inside of all concrete pipe must be increased to provide a min. of 1.5" over the reinforcing when the design velocities exceed 20 fps. The concrete design strength in these reaches shall be:
    fc = 5000 psi. for velocities exceeding 20 fps. and
    fc = 6000 psi. for velocities exceeding 30 fps.
13. All rip-rap will be natural river-rock, not blasted rock.
14. Grout will be color treated to blend into the natural surrounding terrain.
15. All drainage features including grates, trash racks, headwalls. will be color treated to blend in with the natural surrounding terrain.
16. No person shall perform any construction activity or install any objects within the public right-of-way or easements of the City of Riverside without a valid Construction Permit or, a Street Opening Permit or an encroachment permit issued by the City's Public Works Department.

CONSTRUCTION NOTES

1. CONSTRUCT 24" R.C.P. (D-2000) WITH CASE II PIPE BEDDING PER CITY STD. 452.
2. CONSTRUCT CATCH BASIN PER CITY OF RIV. STD. 405
3. CONSTRUCT CALTRANS HEADWALL D-89 PER DETAIL ON THIS SHEET.
4. CONSTRUCT PIPE SLOPE ANCHOR PER DETAIL ON ON THIS SHEET.
5. CONSTRUCT 1/4 TON GROUTED RIP-RAP.
6. CONSTRUCT GRATE PER DETAIL ON THIS SHEET.
7. CONSTRUCT CONCRETE COLLAR PER CITY OF RIV. STD. 424

CITY OF RIVERSIDE
PLANNING DEPT.
APPROVED BY Helen A. Belcher 8-17-98 DATE

Underground Service Alert
Call: TOLL FREE 1 - 800 227 - 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE
CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

REGISTERED PROFESSIONAL ENGINEER — TEDK C. LOH No. 50293 Exp. 6-30-01 CIVIL — STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF: Ted Loh
REGISTERED CIVIL ENGINEER NO. 50293
EXPIRATION DATE: 6-30-01 DATE: 7-16-97

CBG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING — PLANNING — SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 - 5234 FAX (909) 683 - 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 4-8-98

SCALE: AS SHOWN
DATE: APRIL 1997
BENCH MARK: GB-A
P.K. NAIL @ TAG IN BASE OF LIGHT STANDARD IN MEDIAN STRIP OF COUNTRY CLUB DRIVE WEST OF C.L. CANYON CREST DRIVE. ELEV. = 1068.06

MARK	REVISIONS	APPR.	DATE

DESIGNED BY T.C.L. DRAWN BY S.L.C. CHECKED BY D.J.E.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PARK DEPARTMENT	—	—
TRAFFIC DIVISION	—	—
DEP. P.W. DIRECTOR		
STREET SERVICES		

APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 9-1-98

TRACT 25486-4
STORM DRAIN PLAN
TITLE SHEET
FOR: CHRISTIAN BERGUM & ASSOCIATES

PROJECT NO. D-653
SHEET 1 OF 2
FILE NO.: 1033-001

INDEXED 9-28-98 GH

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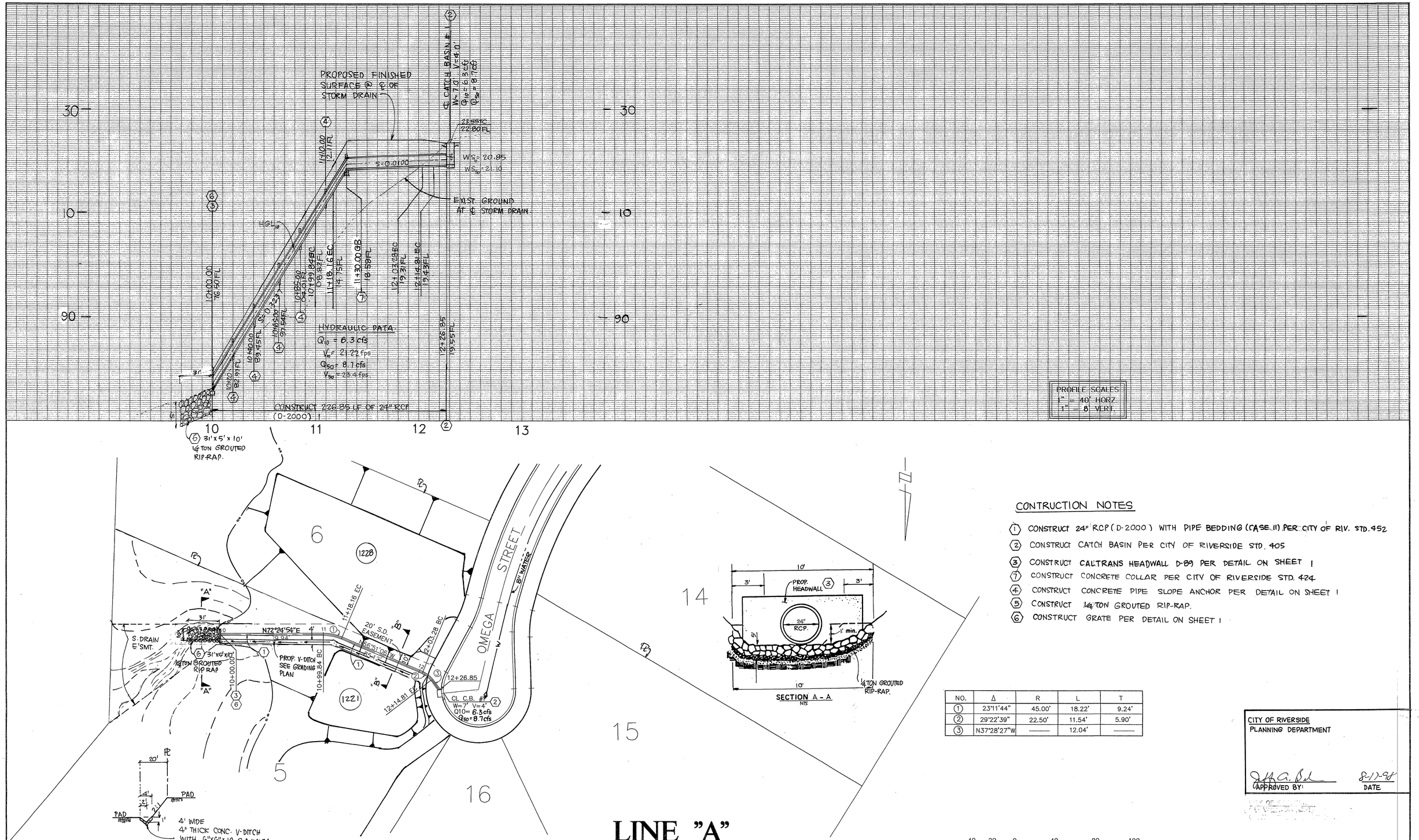
PLOT DATE: 6-17-97



CONTRUCTION NOTES

1. CONSTRUCT 24" RCP (D-2000) WITH PIPE BEDDING (CASE II) PER CITY OF RIV. STD. 452
2. CONSTRUCT CATCH BASIN PER CITY OF RIVERSIDE STD. 405
3. CONSTRUCT CALTRANS HEADWALL D-89 PER DETAIL ON SHEET 1
7. CONSTRUCT CONCRETE COLLAR PER CITY OF RIVERSIDE STD. 424
4. CONSTRUCT CONCRETE PIPE SLOPE ANCHOR PER DETAIL ON SHEET 1
5. CONSTRUCT ½ TON GROUTED RIP-RAP.
6. CONSTRUCT GRATE PER DETAIL ON SHEET 1

NO.	Δ	R	L	T
1	23°11'44"	45.00'	18.22'	9.24'
2	29°22'39"	22.50'	11.54'	5.90'
3	N37°28'27"W	———	12.04'	———

CITY OF RIVERSIDE
PLANNING DEPARTMENT

APPROVED BY: 8-17-98 DATE

LINE "A"

Underground Service Alert
Call: TOLL FREE 1 – 800 227 – 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

REGISTERED PROFESSIONAL ENGINEER — TECK C. LOH No. 50293 Exp. 6-30-01 CIVIL — STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 50293
EXPIRATION DATE: 6-30-01 DATE: 7-15-97

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING – PLANNING – SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 – 5234 FAX (909) 683 – 5301

CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 4-8-98

SCALE: 1"=40' DATE: JUNE 1997

BENCH MARK: G8-A P.K. NAIL & TAG IN BASE OF LIGHT STANDARD IN MEDIAN STRIP OF COUNTRY CLUB DRIVE 60' ± WEST OF ℄ CNAYON CREST DRIVE. ELEV. = 1068.06

MARK	REVISIONS	APPR.	DATE

DESIGNED BY TCL DRAWN BY TCL CHECKED BY TCL

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

	BY	DATE
APPROVED BY		
PRINCIPAL ENGR.		8/14/98
PARK DEPARTMENT	—	—
TRAFFIC DIVISION	—	—
DEP. P.W. DIRECTOR		8/31/98
STREET SERVICES		9-1-98

APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 9-1-98

TRACT NO 25486-4
STORM DRAIN PLAN
LINE A
FOR: CHRISTIAN BERGUM & ASSOCIATES

PROJECT NO. D-653
SHEET 2 OF 2
FILE NO.: 1033-001

INDEXED 9-28-98 GH

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PLOT DATE: 6-17-97