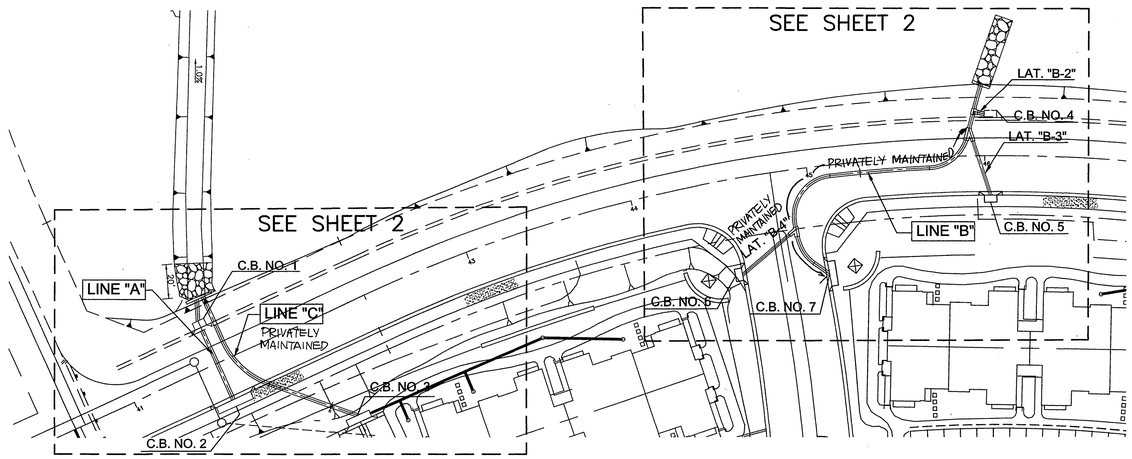
MISSION GROVE APARTMENTS
STORM DRAIN IMPROVEMENT PLANS



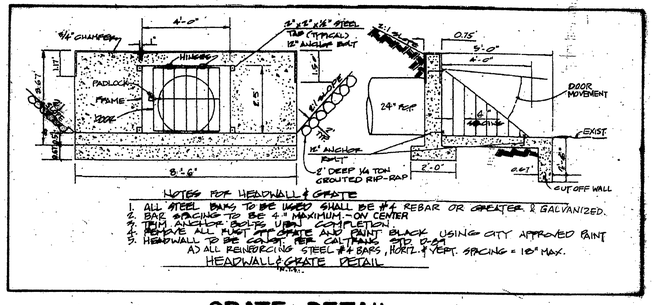
INDEX MAP
1"=40'

CONSTRUCTION NOTES

	CONSTRUCTION NOTES	QUANTITIES
1	CONSTRUCT 24" RCP (D-2000)	371 LF
2	CONSTRUCT 36" RCP (D-1250)	56 LF
3	CONSTRUCT CATCH BASIN PER CITY OF RIVERSIDE STD. DWG. NO 405. W AND V AS NOTED ON PLAN	7 EA
4	CONSTRUCT JUNCTION STRUCTURE "B" PER CITY OF RIVERSIDE STD. DWG. NO 421	3 EA
5	CONSTRUCT CONCRETE COLLAR PER CITY OF RIVERSIDE STD. DWG. NO. 424.	1 EA
6	CONSTRUCT TIMBER BULKHEAD PER CITY OF RIVERSIDE STD. DWG. NO. 456.	1 EA.
7	CONSTRUCT STANDARD PIPE BEDDINGS PER CITY OF RIVERSIDE STD. DWG. NO. 452. BEDDING CASE AS NOTED.	——
8	CONSTRUCT HEADWALL PER CALTRANS STD. DWG D-89 PER DETAIL ON THIS SHEET	4 C.Y.
9	CONSTRUCT 1/4 TON GROUTED RIVER ROCK AS SHOWN ON PLAN.	110 C.Y.
10	CONSTRUCT TRASH RACK PER DETAIL ON THIS SHEET.	2 EA.
11	CONSTRUCT FOSSIL FILTER CONTAMINANT ABSORBING THROUGH APPARATUS PER DETAIL ON THIS SHEET	2 EA.

STORM DRAIN NOTES

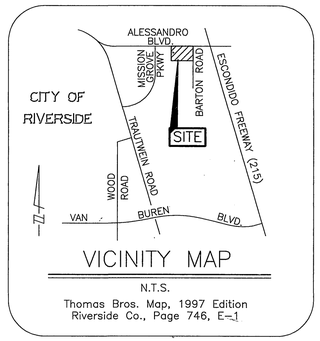
1. Quantities shown are for information only and the City of Riverside is not responsible for their accuracy.
2. Construction shall be in accordance with City of Riverside Dept. of Public Works Standard Drawings, its supplemental notes and the Standard Specifications for Public Works Construction, Current 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 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 designed conditions with water obtained from fire hydrants in the immediate areas.
10. All flagged elevations shall be staked in the field by the private engineer.
11. Contractor agrees that he shall assume sole and complete responsibilit 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 hol the owner and the engineer harmless from any and all liability, real o 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. 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.



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

HEADWALL & GRATE DETAIL

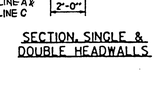
GRATE DETAIL (6)



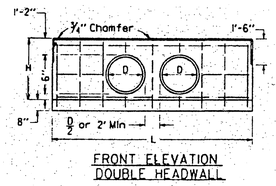
VICINITY MAP
N.T.S.
Thomas Bros. Map, 1997 Edition
Riverside Co., Page 746, E-1

D	H'	SINGLE L	SINGLE Steel LB	SINGLE Conc CY	DOUBLE L	DOUBLE Steel LB	DOUBLE Conc CY
12"	2'-8"	5'-0"	35	0.60	8'-0"	50	0.94
15"	2'-8"	6'-0"	40	0.75	9'-6"	60	1.17
18"	3'-2"	7'-0"	50	0.9	10'-6"	75	1.35
24"	3'-5"	7'-6"	60	1.02	11'-6"	90	1.52
24"	3'-8"	8'-6"	75	1.20	12'-6"	100	1.72
27"	3'-8"	9'-6"	85	1.39	14'-0"	115	2.00
30"	4'-2"	10'-0"	85	1.52	15'-0"	126	2.21
33"	4'-5"	11'-0"	100	1.73	16'-0"	130	2.42
36"	4'-8"	12'-0"	105	1.95	17'-0"	145	2.65
39"	4'-11"	12'-6"	130	2.09	18'-0"	170	2.88
42"	5'-2"	13'-6"	140	2.34	19'-0"	185	3.13
45"	5'-5"	14'-6"	150	2.60	20'-0"	195	3.38
48"	5'-8"	15'-0"	160	2.75	21'-0"	200	3.64
51"	5'-11"	16'-0"	180	3.03	22'-6"	225	4.02
54"	6'-2"	17'-0"	190	3.31	23'-6"	240	4.30

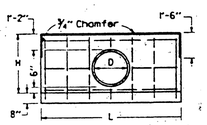
STRAIGHT HEADWALLS



SECTION, SINGLE & DOUBLE HEADWALLS



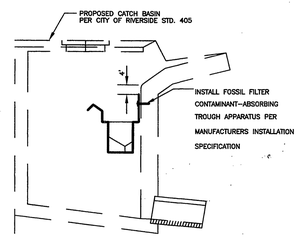
FRONT ELEVATION
DOUBLE HEADWALL



FRONT 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)



FOSSIL FILTER DETAIL
N.T.S

CITY OF RIVERSIDE
PUBLIC UTILITIES DEPT- ELECTRIC
OVERHEAD & UNDERGROUND.
APPROVED BY — DATE 7-21-99

REVIEWED BY W.M.W.D.
SHEETS 1 THROUGH 2
FOR NON-INTERFERENCE
COMPLIANCE ONLY
CIVIL ENGINEER RCE #46212 — 5/17/99

Underground Service Alert
Call: TOLL FREE
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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:
TECK C. LOH
REGISTERED CIVIL ENGINEER NO. 50293
EXPIRATION DATE: 6-30-01
DATE: 5/6/99

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING - PLANNING - SURVEYING
2020 IOWA AVENUE, SUITE 102,. P.O. BOX 52507 RIVERSIDE, CA 92517
TEL (909) 683 - 5234 FAX (909) 683 - 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-00

SCALE: AS SHOWN
DATE: JAN. 1999

BENCH MARK: CITY OF RIVERSIDE "E8-A2"
P.K. NAIL AND TAG ON TOP OF 35 X 50' X 20' HIGH GRANITE BOULDER, 100' W'LY OF TRAUTWEIN ROAD AND 500' N'LY OF JESSE LANE. FB 735/74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C.

FIXED

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
P.W. ENG. MANAGER	TB	8/23/99
PRINCIPAL ENGR.		8/23/99
TRAFFIC DIVISION		
STREET SERVICES		

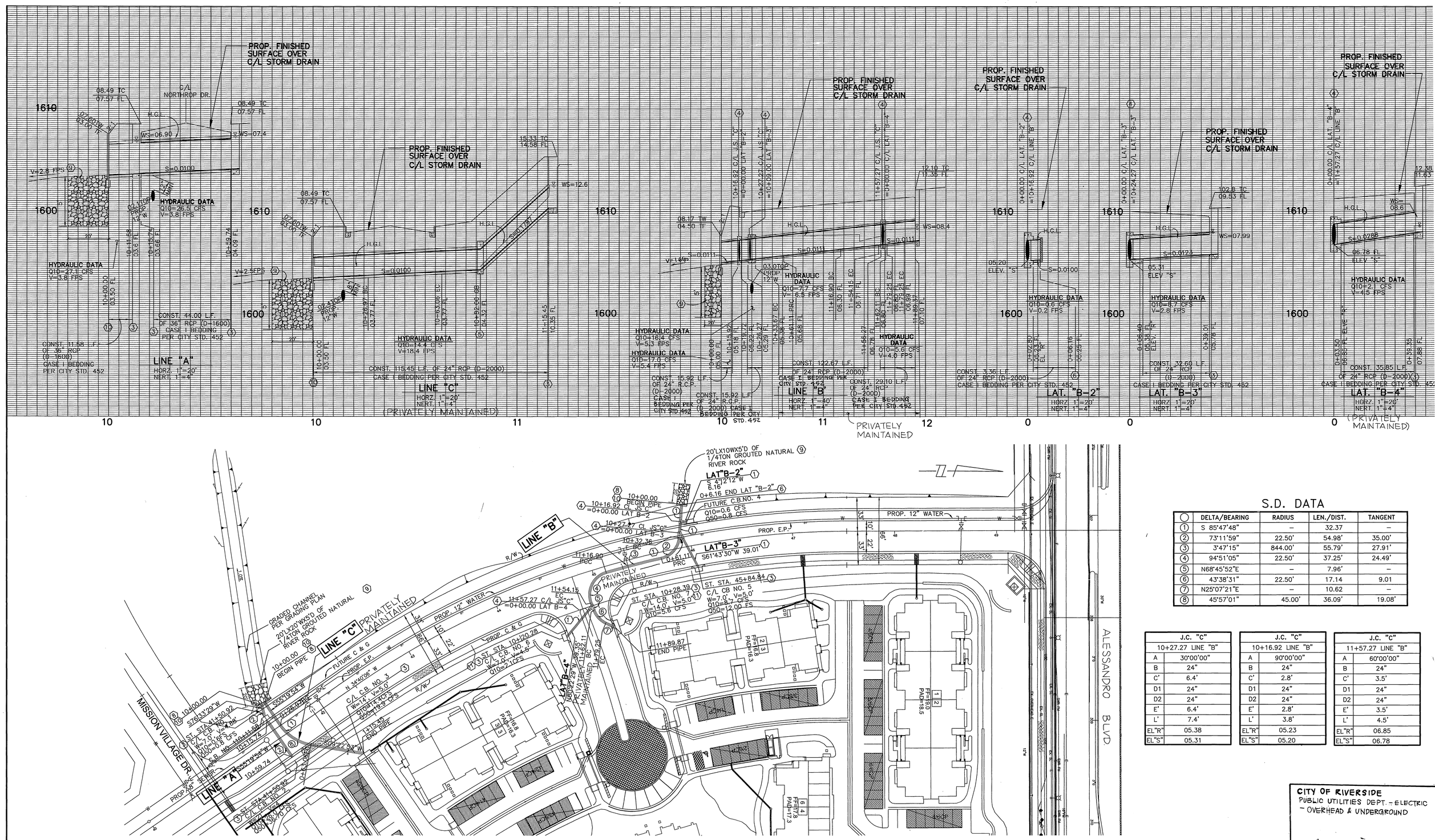
APPROVED BY
DIRECTOR OF PUBLIC WORKS
DATE 8/23/99

NORTHROP DRIVE
STORM DRAIN FOR PD-003-978
TITLE SHEET
FROM MISSION VILLAGE DR
TO ALESSANDRO BLVD

FOR: REGIONAL PROPERTIES

PROJECT NO. D-663
SHEET 1 OF 2
FILE NO.: 1004-009

INDEXED 5-2-2000 GH



S.D. DATA

◯	DELTA/BEARING	RADIUS	LEN./DIST.	TANGENT
1	S 85°47'48"	–	32.37	–
2	73°11'59"	22.50'	54.98'	35.00'
3	3°47'15"	844.00'	55.79'	27.91'
4	94°51'05"	22.50'	37.25'	24.49'
5	N68°45'52"E	–	7.96'	–
6	43°38'31"	22.50'	17.14	9.01
7	N25°07'21"E	–	10.62	–
8	45°57'01"	45.00'	36.09'	19.08'

J.C. "C" 10+27.27 LINE "B"	
A	30°00'00"
B	24"
C'	6.4'
D1	24"
D2	24"
E'	6.4'
L'	7.4'
EL"R"	05.38
EL"S"	05.31

J.C. "C" 10+16.92 LINE "B"	
A	90°00'00"
B	24"
C'	2.8'
D1	24"
D2	24"
E'	2.8'
L'	3.8'
EL"R"	05.23
EL"S"	05.20

J.C. "C" 11+57.27 LINE "B"	
A	60°00'00"
B	24"
C'	3.5'
D1	24"
D2	24"
E'	3.5'
L'	4.5'
EL"R"	06.85
EL"S"	06.78

CITY OF RIVERSIDE
PUBLIC UTILITIES DEPT. - ELECTRIC
- OVERHEAD & UNDERGROUND

Bill Maynard 7-21-99
APPROVED BY DATE

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PRIVATE ENGINEERING NOTE

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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: 5/6/99

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING - PLANNING - SURVEYING
2020 IOWA AVENUE, SUITE 102, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 - 5234 FAX (909) 683 - 5301

SCALE: AS SHOWN
DATE: MARCH 1999
BENCH MARK: SEE SHEET 1

MARK	REVISIONS	APPR.	DATE

DESIGNED BY T.C.L. DRAWN BY C.C.\J.W. CHECKED BY D.J.E.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE	APPROVED BY
P.W. ENG. MANAGER	TCB	8/26/99	
PRINCIPAL ENGR.		8/26/99	DIRECTOR OF PUBLIC WORKS
TRAFFIC DIVISION	—	—	
ST. SERVICES		8-10-99	DATE 8/26/99

NORTHROP DRIVE
STORM DRAIN FOR PD-003-978
LINE A, LINE B, LINE C
LAT B-2, LAT B-3 & LAT B-4

FOR: REGIONAL PROPERTIES

PROJECT NO. D-663
SHEET 2 OF 2
FILE NO.: 1004-009

INDEXED 5-2-2000 GH