CITY OF RIVERSIDE, CALIFORNIA

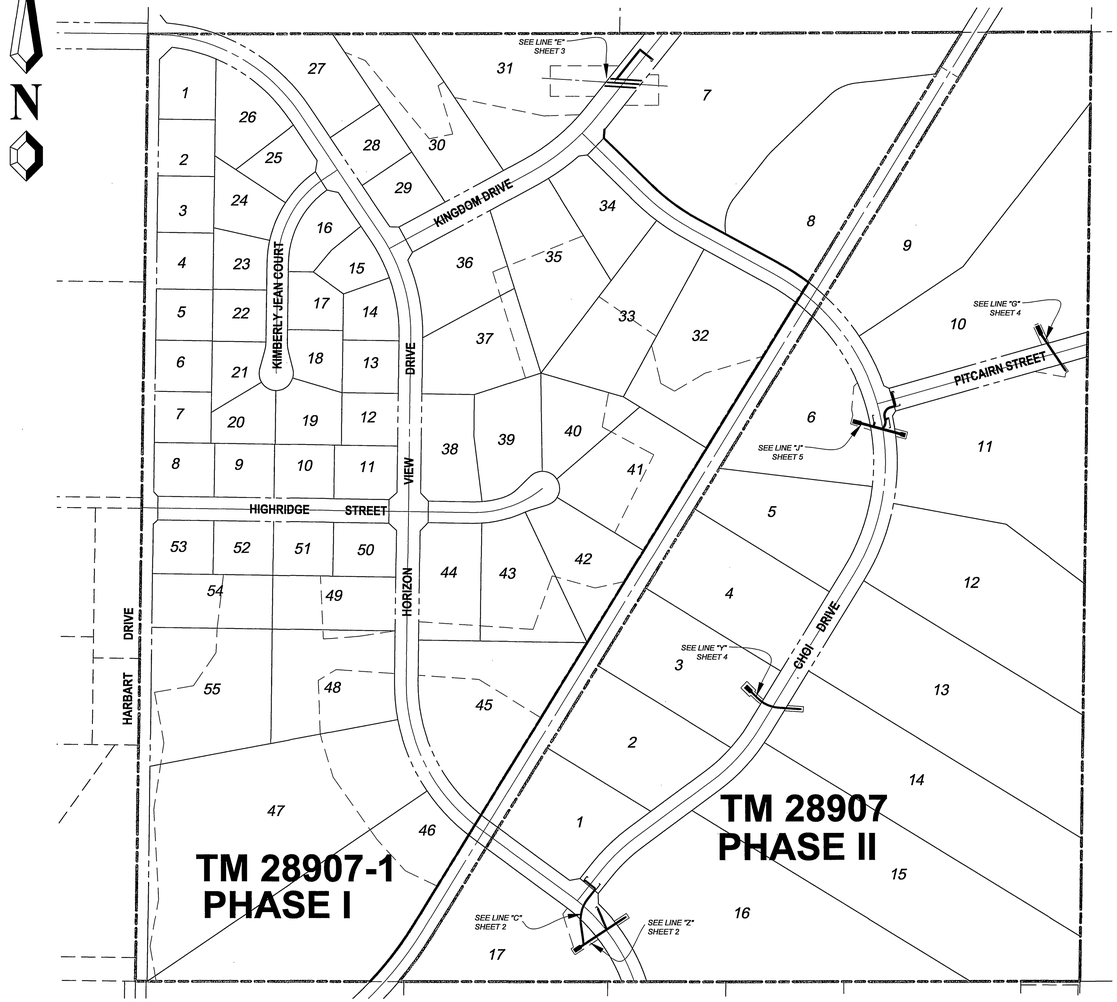
STORM DRAIN PLANS

FOR

TRACT NO. 28907

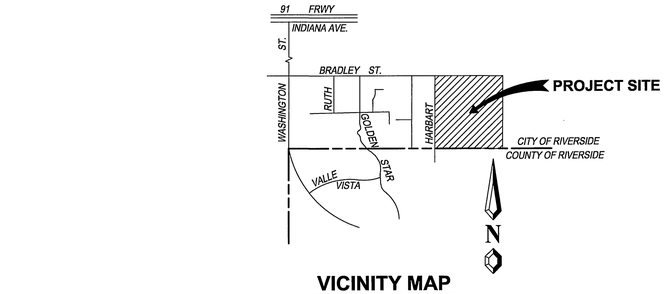
GENERAL NOTES

1. NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHTS-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.
2. 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.
3. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RIVERSIDE DEPARTMENT OF PUBLIC WORKS, STANDARD DRAWINGS, ITS SUPPLEMENTAL NOTES AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CURRENT EDITION.
4. 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.
5. QUANTITIES SHOWN ARE FOR INFORMATION ONLY AND THE CITY OF RIVERSIDE IS NOT RESPONSIBLE FOR THEIR ACCURACY.
6. 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.
7. ALL FLAGGED ELEVATIONS SHALL BE STAKED IN THE FIELD BY THE PRIVATE ENGINEER.
8. ANY TRAFFIC CONTROL STRIPING OBLITERATED AND/OR BADLY WORN DURING CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR WITHIN FIVE DAYS AFTER NOTIFICATION FROM THE CITY INSPECTORS.
9. FINAL STRIPING FOR TRAFFIC CONTROL AND/OR PAVEMENT MARKING TO BE THE RESPONSIBILITY OF THE DEVELOPER.
10. THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA), PHONE #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.
11. BEFORE THE RIP-RAP AT THE OUTLET OF ANY DRAINAGE STRUCTURE IS ACCEPTED BY THE CITY, IT SHALL BE TESTED UNDER FLOWS AS CLOSE AS POSSIBLE TO DESIGN CONDITIONS WITH WATER OBTAINED FROM FIRE HYDRANTS IN THE IMMEDIATE AREA.
12. PIPE BEDDING IS TO BE CONSTRUCTED PER CITY OF RIVERSIDE STANDARD DRAWING NO. 452; CASE II.



INDEX MAP

SCALE: 1"=200'

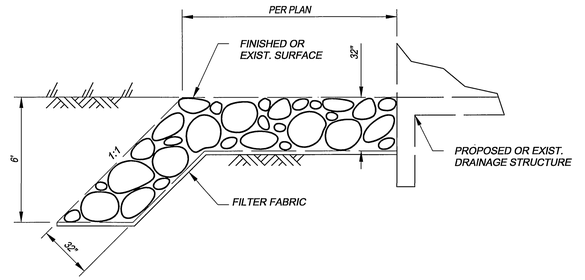


VICINITY MAP

N.T.S.

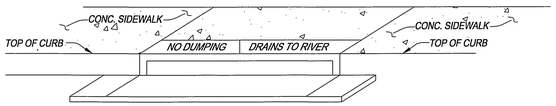
SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET, NOTES & INDEX MAP
2 - 7	STORM DRAIN PLANS



29 **¼ TON GROUTED RIP-RAP DETAIL**

N.T.S.



CATCH BASIN STENCHING DETAIL

N.T.S.

(A) STENCILS TO HAVE 2" LETTERS AS FOLLOWS:
NO DUMPING
DRAINS TO RIVER

(B) PLACE BOTH STENCILS CENTERD WITHIN THE CATCHBASIN OPENING AND WITHIN THE TOP OF CURB.

(C) SPRAY BOTH STENCILS WITH WHITE PAINT.

(D) REMOVE STENCILS WHEN PAINT IS DRY.

NOTICE TO CONTRACTOR:

CONTRACTOR AGREES 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, THE ENGINEER, AND THE CITY OF RIVERSIDE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF OWNER, ENGINEER, OR CITY OF RIVERSIDE.

EXISTING UNDERGROUND UTILITIES ARE AS PER AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION AND ELEVATION IN THE FIELD

BENCH MARK DESCRIPTION:

POINT ID: GPS-69
ELEVATION: 1083.685 ELEVATION: 0 ELEVATION: 0 ELEVATION: 0
DATE LVLD: 1998 DATE LVLD: 0 DATE LVLD: 0 DATE LVLD: 0
REFERENCE: LL45/69
DATUM: 1929 ADJUSTMENT YEAR: 1971
2ND ORDER POINT
DESCRIPTION:
G.P.S. POINT 69 - A 2 1/2" BRASS DISK STAMPED "CITY OF RIVERSIDE GPS STATION 69 - 1991" SET IN THE NORTH END OF A CATCH BASIN 1' EAST OF THE EAST CURB OF WASHINGTON STREET AND 3' SOUTH OF THE BCR AT THE SOUTHEAST CURB RETURN OF WASHINGTON STREET AND BRADLEY STREET.
(COMBINED LEVELS - R.B.F. AND CITY) MISC. LEVEL WORK

ESTIMATE OF QUANTITIES

NO.	STORM DRAIN CONSTRUCTION NOTES	QTY.	UNITS
(1)	INST. 18" R.C.P. (SEE PROFILE FOR D-LOAD)	458	L.F.
(2)	INST. 24" R.C.P. (SEE PROFILE FOR D-LOAD)	484	L.F.
(4)	INST. 36" R.C.P. (SEE PROFILE FOR D-LOAD)	110	L.F.
(10)	INSTALL 10' W x 6' H CAST-IN-PLACE REINFORCED CONCRETE DOUBLE BOX CULVERT PER DETAILS ON SHEET 7	88	L.F.
(20)	CONST. CATCH BASIN PER CITY OF RIVERSIDE STD. DWG. NO. 405	126	EA.
(24)	CONST. J.S. PIPE TO RCB PER A.P.W.A. STD. PLAN 334-1	1	EA.
(25)	CONST. J.S. "B" PER CITY OF RIVERSIDE STD. DWG. NO. 421	5	EA.
(26)	CONST. CONCRETE COLLAR PER CITY OF RIVERSIDE STD. DWG. NO. 424	2	EA.
(27)	CONST. C.S.P. INLET PER CITY OF RIVERSIDE STD. DWG. NO. 412	3	EA.
(28)	CONST INLET/OUTLET HEADWALL PER DETAIL ON SHEET NO. 5	5	EA.
(29)	CONST. RIP-RAP PER DETAIL ON SHEET 1	2100	SQ. FT.
(32)	CONST. RETAINING WALL PER DETAIL ON SHEET 8	2	EA.

REGISTERED PROFESSIONAL ENGINEER — GARY A. MARTIN — No. 50318 Exp. 6/30/05 — CIVIL — STATE OF CALIFORNIA

UNDERGROUND SERVICE ALERT
CALL BEFORE YOU DIG
Call:Toll FREE
1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG
"CAUTION": Remember that the USA Center notifies only those utilities belonging to the center. There could be other utilities present at the work site. The center will inform you of whom they will notify.

CITY OF RIVERSIDE
WATER SYSTEM
(FOR SHTS: 1 - 6)
APPROVED BY: [signature]
DATE: 10/10/03

CITY OF RIVERSIDE BUSINESS TAX CERTIFICATE No. 109986 EXP. 2/7/04

19 Spectrum Pointe Drive • Suite 609
Lake Forest, CA 92630
(949) 599-0870
(949) 599-0880 Fax
MYERS & ASSOCIATES
Civil Engineering, Inc.
PLANNING • ENGINEERING • SURVEYING

APPROVED BY: [signature] R.C.E. No. 50318 DATE: 10/1/03
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	[signature]	10/14/03
PARK DEPARTMENT	—	—
TRAFFIC DIVISION	—	—
STREET SERVICES	[signature]	10/16/03

APPROVED BY [signature] CITY ENGINEER DATE 12/23/03

STORM DRAIN PLAN & PROFILE
TRACT NO. 28907
INDEX MAP

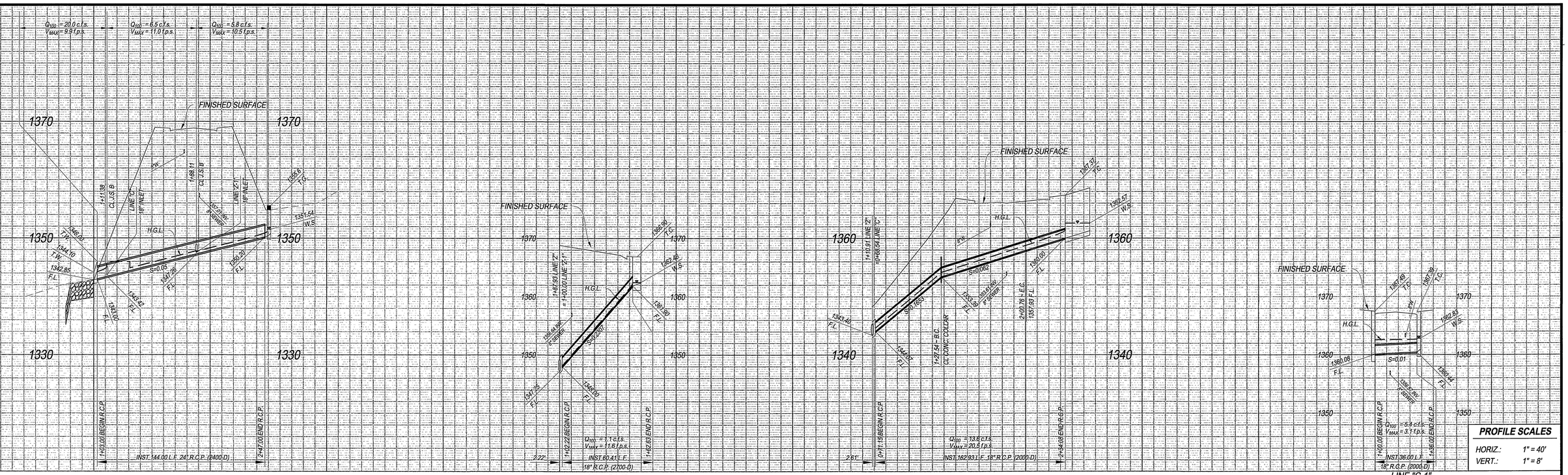
SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 1 OF 8

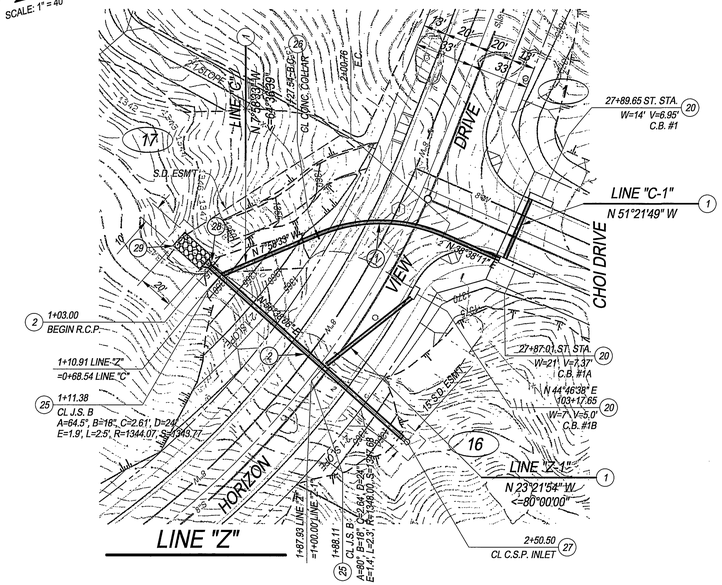
Dwg. Revision Date: 08/21/2003 BY: nvn PLOT DATE: 09/04/2003

P:\02-0069-02 TR 28907 FINAL ENGINEERING\IMPROVEMENTS\STORM DRAIN\TRACT 28907\SHT01.DWG
INDEXED 12-30-03 GM

Job No. 02-0069-02 Bin No. XXX Doc No. XXX CITY OF RIVERSIDE STREET PLAN & PROFILE



SCALE: 1" = 40'



CONSTRUCTION NOTES

1. INST. 18" R.C.P. (SEE PROFILE FOR D-LOAD)
2. INST. 24" R.C.P. (SEE PROFILE FOR D-LOAD)
20. CONST. CATCH BASIN PER CITY OF RIVERSIDE STD. DWG. NO. 405
25. CONST. J.S. B PER CITY OF RIVERSIDE STD. DWG. NO. 421
26. CONST. CONCRETE COLLAR PER CITY OF RIVERSIDE STD. DWG. NO. 424
27. CONST. C.S.P. INLET PER CITY OF RIVERSIDE STD. DWG. NO. 412
28. CONST. INLET/OUTLET HEADWALL PER DETAIL ON SHEET 5
29. CONST. RIP-RAP PER DETAIL ON SHEET 1

DATA TABLE

	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	46°36'44"	90.00	73.22	38.77

REGISTERED PROFESSIONAL ENGINEER
GARY A. MARTIN
No. 50318
Exp. 6/30/05
CIVIL
STATE OF CALIFORNIA

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TWO WORKING DAYS
BEFORE YOU DIG
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BENCH MARK DESCRIPTION:

POINT ID: GPS-69
ELEVATION: 1083.685 DATE LVLD: 1998
ELEVATION: 0 DATE LVLD: 0
ELEVATION: 0 DATE LVLD: 0
ELEVATION: 0 DATE LVLD: 0
REFERENCE: LL45/69
DATUM: 1929 ADJUSTMENT YEAR: 1971
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MYERS & ASSOCIATES
Civil Engineering, Inc.
PLANNING • ENGINEERING • SURVEYING

APPROVED BY: [signature] DATE: 10/1/03
R.C.E. No. 50318

J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER		
PARK DEPARTMENT		
TRAFFIC DIVISION		
STREET SERVICES		

APPROVED BY: [signature] CITY ENGINEER
DATE 11/21/03

STORM DRAIN PLAN & PROFILE TRACT NO. 28907

LINE "C" & "Z"

SCALE: AS SHOWN

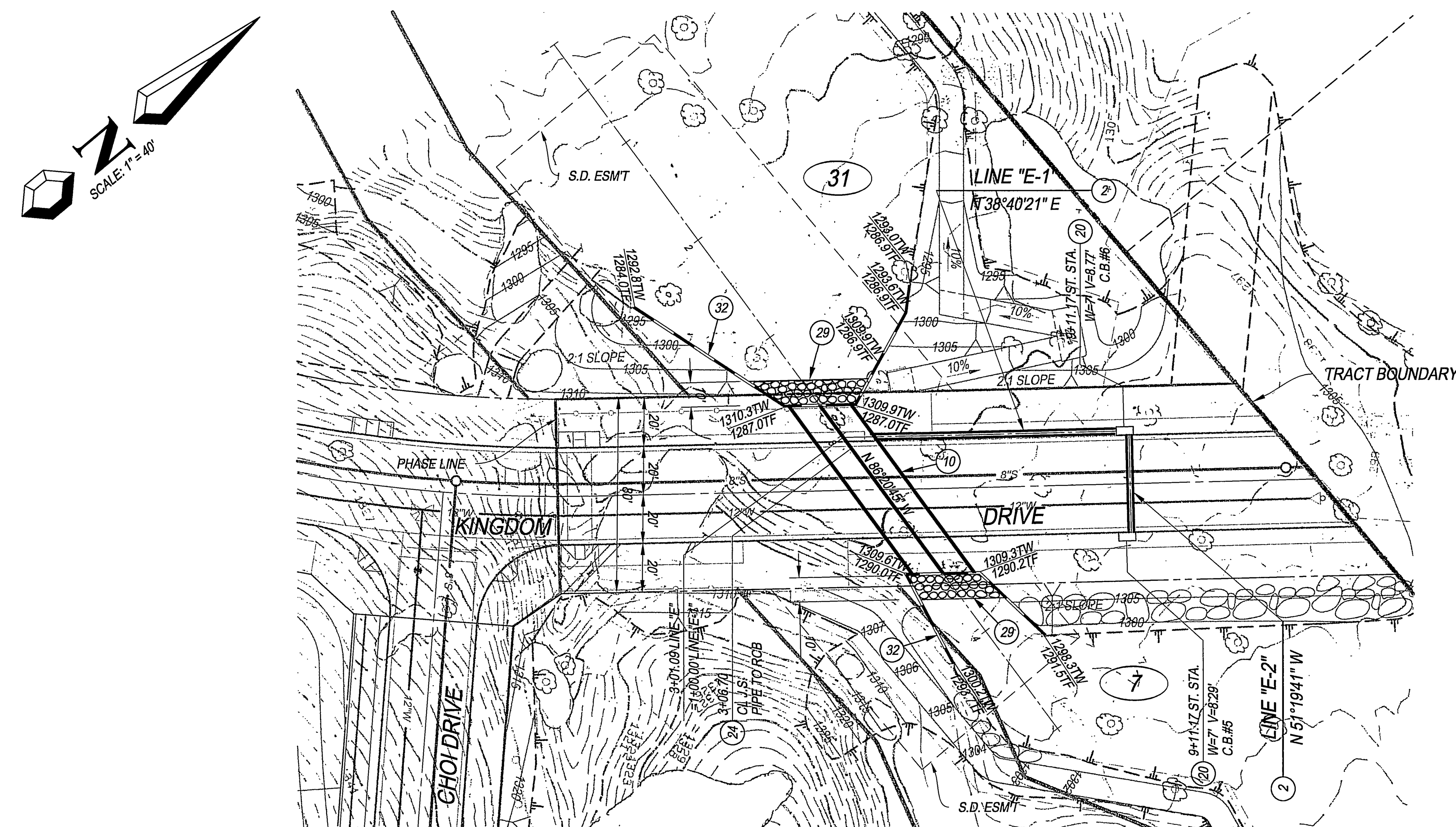
ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 2 OF 8

Dwg. Revision Date: 08/21/2003 BY: nvn PLOT DATE: 09/04/2003

P:\02-0069-02 TR 28907 FINAL ENGINEERING\IMPROVEMENTS\STORM DRAIN\TRACT 28907\SHT02.DWG

INDEXED 12-30-03 GH

Job No. 02-0069-02 Bm No. XXX Doc No. XXX CITY OF RIVERSIDE STORM DRAIN PLAN & PROFILE



LINE "E"

REGISTERED PROFESSIONAL ENGINEER
GARY A. MARTIN
No. 50318
Exp. 6/30/05
CIVIL
STATE OF CALIFORNIA

CONSTRUCTION NOTES

- (2) INST. 24" R.C.P. (SEE PROFILE FOR D-LOAD)
- (10) INSTALL 10' W x 6' H CAST-IN-PLACE REINFORCED CONCRETE DOUBLE BOX CULVERT PER DETAILS ON SHEET 7
- (20) CONST. CATCH BASIN PER CITY OF RIVERSIDE STD. DWG. NO. 405
- (24) CONST. J.S. PIPE TO RCB PER A.P.W.A. STD. PLAN 334-1
- (29) CONST. RIP-RAP PER DETAIL ON SHEET 1
- (32) CONST. RETAINING WALL PER DETAIL ON SHEET 8

BENCH MARK DESCRIPTION:

POINT ID: GPS-69
ELEVATION: 1083.685 | ELEVATION: 0 | ELEVATION: 0 | ELEVATION: 0
DATE LVLD: 1998 | DATE LVLD: 0 | DATE LVLD: 0 | DATE LVLD: 0
REFERENCE: LL45/69
DATUM: 1929 ADJUSTMENT YEAR: 1971
2ND ORDER POINT
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(COMBINED LEVELS - R.B.F. AND CITY) MISC. LEVEL WORK

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MAYERS & ASSOCIATES
Civil Engineering, Inc.
PLANNING • ENGINEERING • SURVEYING

APPROVED BY: [signature] DATE: 10/1/03
R.C.E. No. 50318
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	[initials]	10/16/03
PARK DEPARTMENT	—	—
TRAFFIC DIVISION	—	—
STREET SERVICES	[initials]	10/1/03

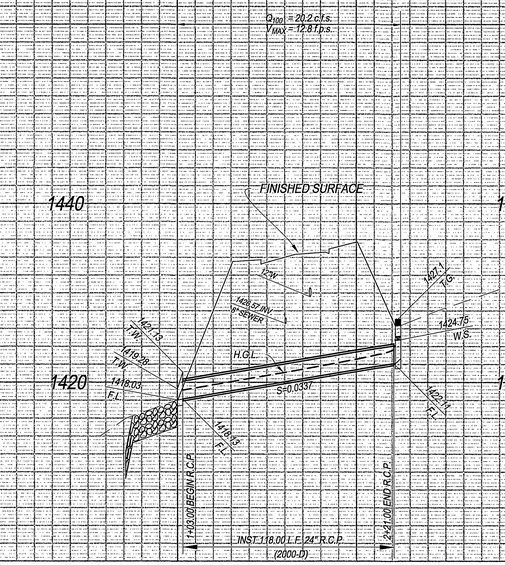
APPROVED BY [signature]
CITY ENGINEER
DATE 12/22/03

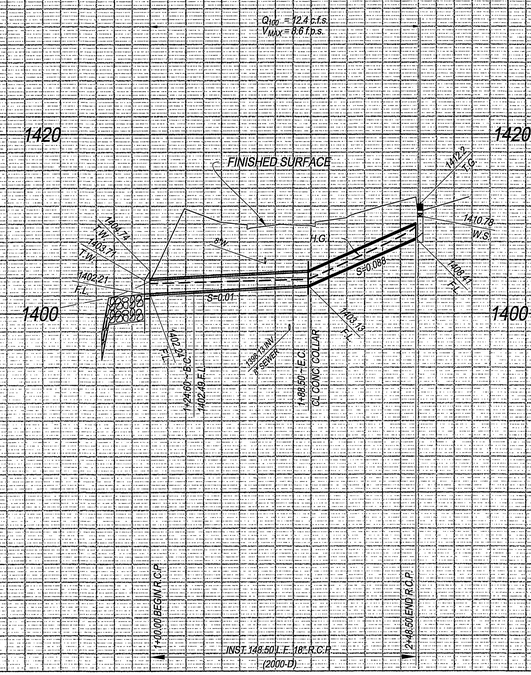
STORM DRAIN PLAN & PROFILE
TRACT NO. 28907
LINE "E"

SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 3 OF 8

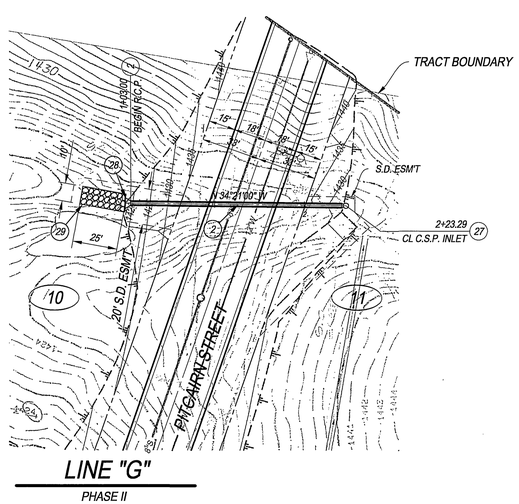
Job No. 02-0069-02 Bin No. XXX Doc No. XXX CITY OF RIVERSIDE STORM DRAIN PLAN & PROFILE

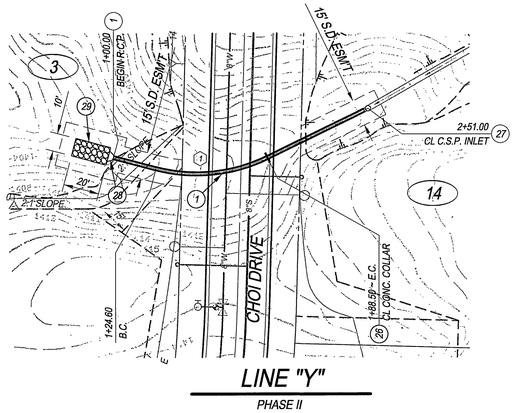




PROFILE SCALES

HORIZ.:	1" = 40'
VERT.:	1" = 8'





CONSTRUCTION NOTES

1. INST. 18" R.C.P. (SEE PROFILE FOR D-LOAD)
2. INST. 24" R.C.P. (SEE PROFILE FOR D-LOAD)
26. CONST. CONCRETE COLLAR PER CITY OF RIVERSIDE STD. DWG. NO. 424
27. CONST. C.S.P. INLET PER CITY OF RIVERSIDE STD. DWG. NO. 412
28. CONST. INLET/OUTLET HEADWALL PER DETAIL ON SHEET 5
29. CONST. RIP-RAP PER DETAIL ON SHEET 1

REGISTERED PROFESSIONAL ENGINEER
GARY A. MARTIN
No. 50318
Exp. 6/30/05
CIVIL
STATE OF CALIFORNIA

LINE "Y" DATA TABLE

	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	40°40'59"	90.00	63.90	33.37

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BENCH MARK DESCRIPTION:

POINT ID: GPS-69
ELEVATION: 1083.685 *ELEVATION: 0* *ELEVATION: 0* *ELEVATION: 0*
DATE LVLD: 1998 *DATE LVLD: 0* *DATE LVLD: 0* *DATE LVLD: 0*
REFERENCE: LL45/69
DATUM: 1929 *ADJUSTMENT YEAR: 1971*
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(949) 599-0870
(949) 599-0880 Fax

APPROVED BY: _____ R.C.E. No. 50318 DATE: 10/1/03

J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER		
PARK DEPARTMENT		
TRAFFIC DIVISION		
STREET SERVICES		

APPROVED BY: _____ CITY ENGINEER
DATE 12/22/03

STORM DRAIN PLAN & PROFILE TRACT NO. 28907 LINE "G" & "Y"

ACCOUNT No.
DRAWING NUMBER **D-736**
SHEET 4 OF 8

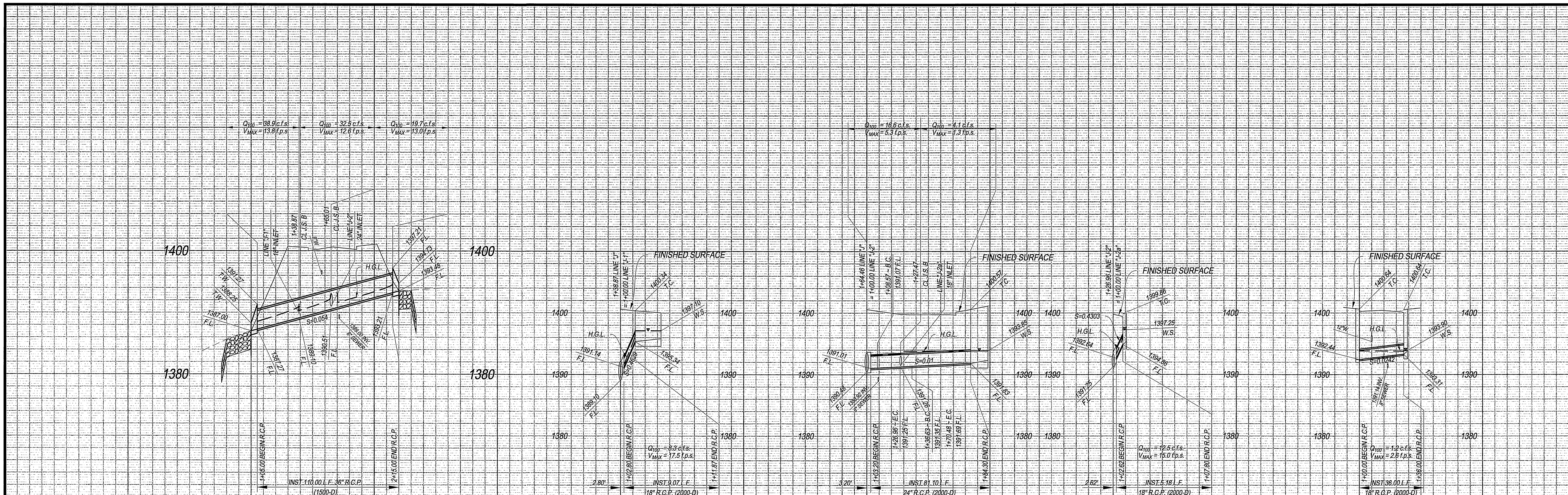
SCALE: AS SHOWN

Dwg. Revision Date: **08/21/2003** BY: **nvn** PLOT DATE: **09/04/2003**

P:\02-0069-02 TR 28907 FINAL ENGINEERING\IMPROVEMENTS\STORM DRAIN\TRACT 28907\SHT04.DWG

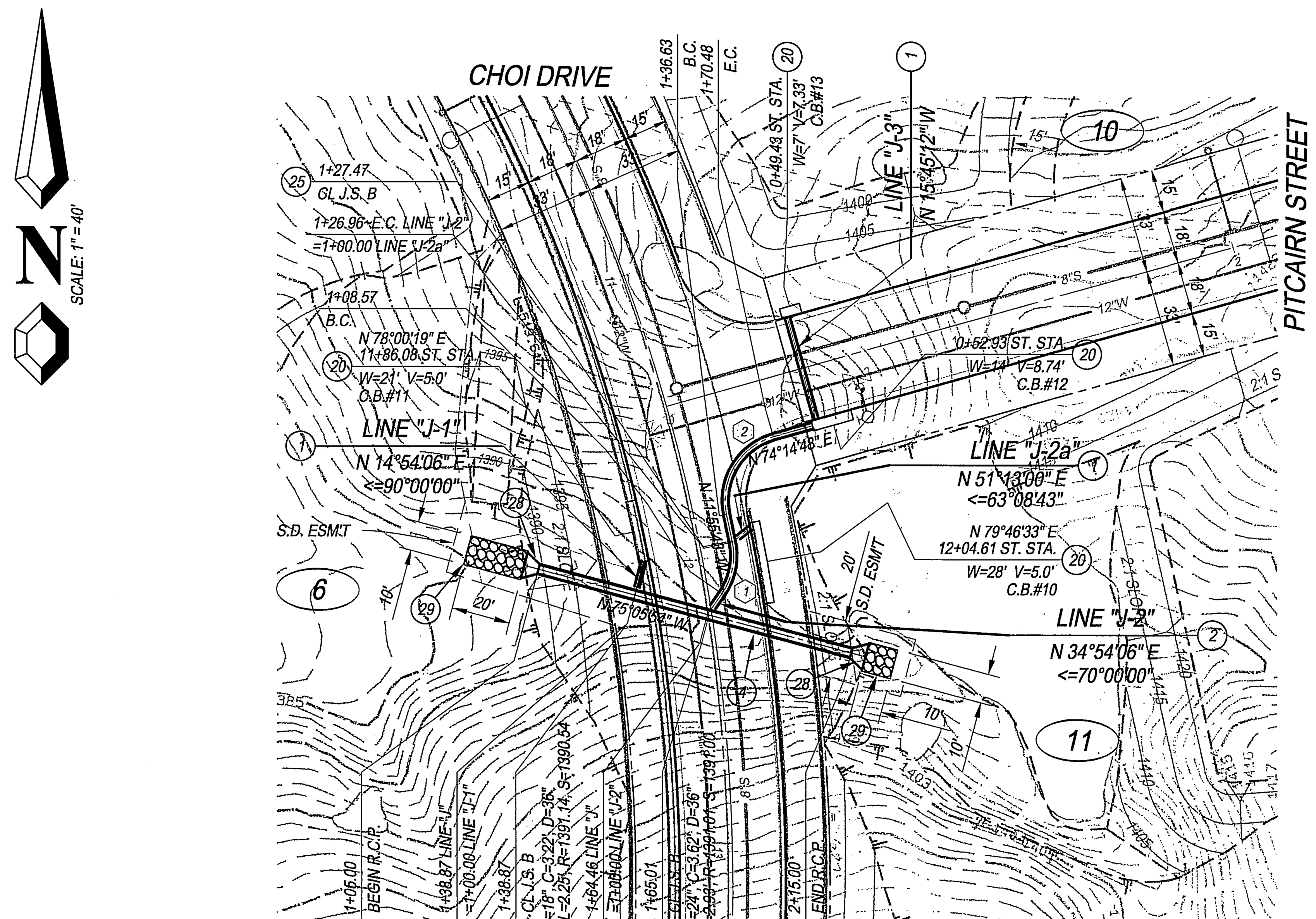
INDEXED 12-30-03 GM

Job No. 02-0069-02 Bin No. XXX Doc No. XXX CITY OF RIVERSIDE STORM DRAIN PLAN & PROFILE



PROFILE SCALES

HORIZ.:	1" = 40'
VERT.:	1" = 8'



LINE "J"
PHASE II

CONSTRUCTION NOTES

- (1) INST. 18" R.C.P. (SEE PROFILE FOR D-LOAD)
- (2) INST. 24" R.C.P. (SEE PROFILE FOR D-LOAD)
- (4) INST. 36" R.C.P. (SEE PROFILE FOR D-LOAD)
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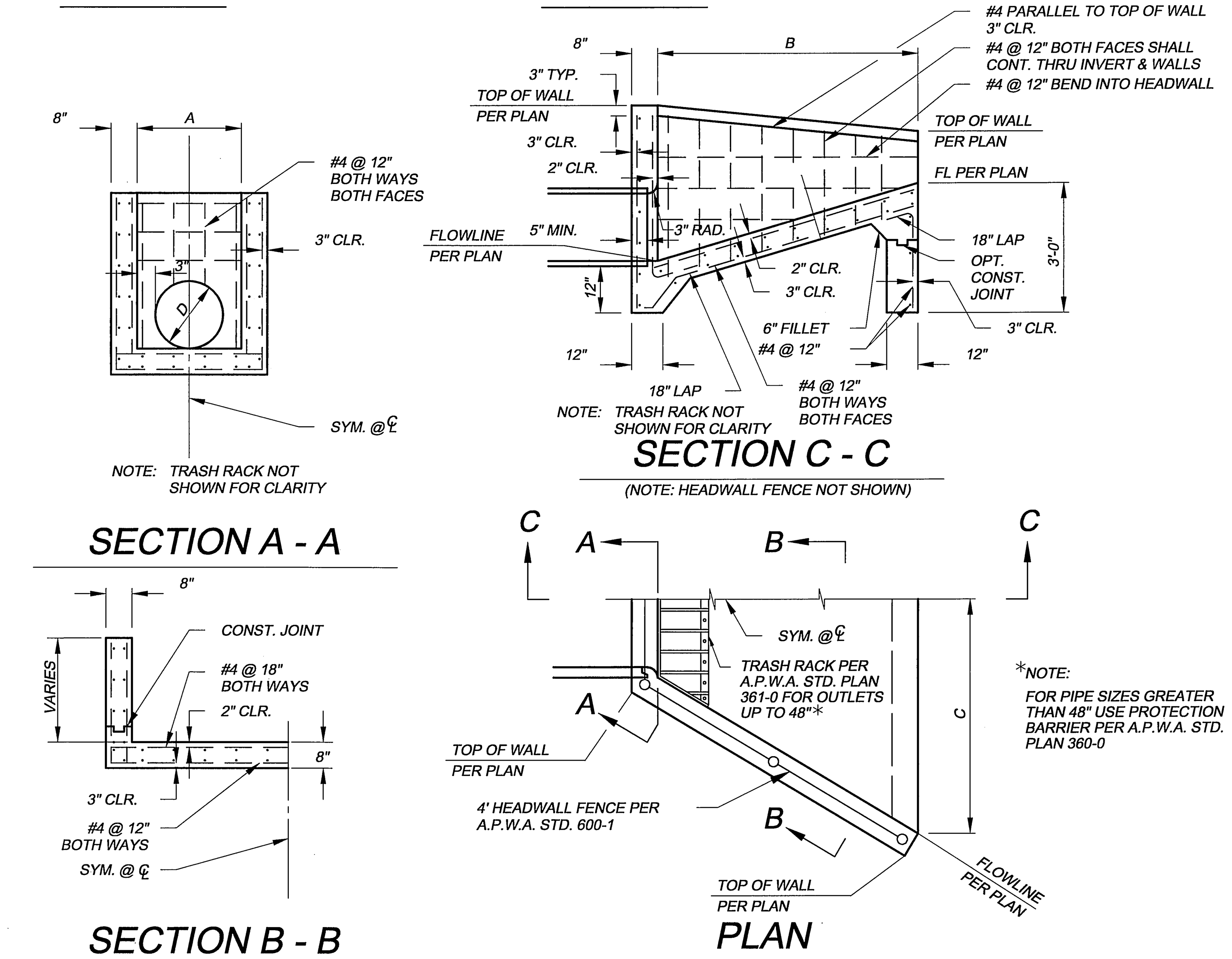
- (25) CONST. J.S. B PER CITY OF RIVERSIDE STD. DWG. NO. 421
- (28) CONST. INLET/OUTLET HEADWALL PER DETAIL HEREON
- (29) CONST. RIP-RAP PER DETAIL ON SHEET 1



*NOTE:
FOR PIPE SIZES GREATER THAN 48" USE PROTECTION BARRIER PER A.P.W.A. STD. PLAN 360-0

DIMENSIONS

LINE	A	B	C	D
"J"	3.5'	5.0'	4.5'	36"
"G"&"Z"	2.5'	3.0'	3.0'	24"
"Y"	2.0'	3.0'	3.0'	18"

(28) INLET/OUTLET HEADWALL DETAIL
N.T.S.

DATA TABLE

	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	46°49'48"	22.50	18.39	9.74
2	86°10'31"	22.50	33.84	21.05

BENCH MARK DESCRIPTION:

POINT ID: GPS-69
ELEVATION: 1083.685 ELEVATION: 0 ELEVATION: 0 ELEVATION: 0
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REGISTERED PROFESSIONAL ENGINEER GARY A. MARTIN No. 50318 Exp. 6/30/05 CIVIL STATE OF CALIFORNIA

19 Spectrum Pointe Drive • Suite 609
Lake Forest, CA 92630
(949) 599-0870
(949) 599-0880 Fax
MAYERS & ASSOCIATES
Civil Engineering, Inc.
PLANNING • ENGINEERING • SURVEYING

APPROVED BY: SMT DATE: 10/1/03
R.C.E. No. 50318
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER	AH	10/16/03
PARK DEPARTMENT	—	—
TRAFFIC DIVISION	—	—
STREET SERVICES	KG	10/1/03

APPROVED BY [signature] CITY ENGINEER
DATE 12/22/03

STORM DRAIN PLAN & PROFILE
TRACT NO. 28907
LINE "J"

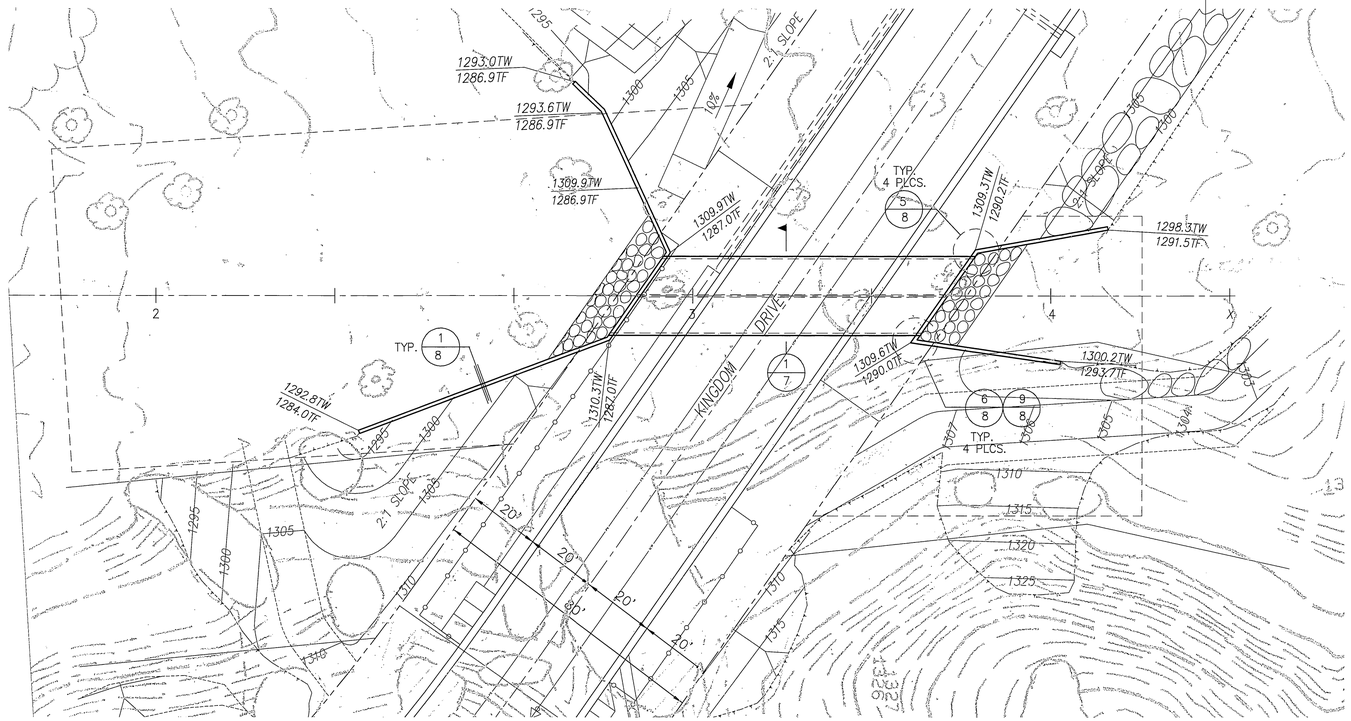
SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 5 OF 8

Job No. 02-0069-02 Bin No. XXX Doc No. XXX CITY OF RIVERSIDE STORM DRAIN PLAN & PROFILE

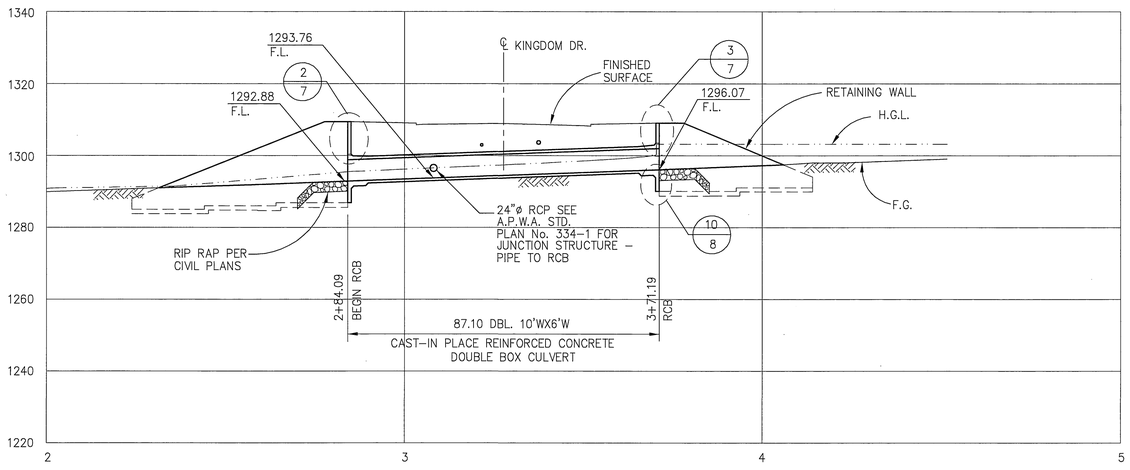
Dwg. Revision Date: **08/21/2003** BY: **nvn** PLOT DATE: **09/04/2003**

P:\02-0069-02 TR 28907 FINAL ENGINEERING\IMPROVEMENTS\STORM DRAIN\TRACT 28907\SHT05.DWG
INDEXED 12-30-03 GH



PLAN

SCALE: 1"=20'-0"



SECTION

SCALE: 1"=20'-0"

STRUCTURAL NOTES:

1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO THE NEAREST EDGE OF THE BAR AND SHALL BE TWO INCHES CLEAR UNLESS OTHERWISE SHOWN.
2. THE RC BOX CONDUIT DIMENSIONS SHALL BE MEASURED IN A HORIZONTAL AND VERTICAL DIRECTION ABOUT THE CENTERLINE OF THE STRUCTURE. OFFSET DIMENSIONS SHALL BE AT RIGHT ANGLES, OR RADIALLY FROM THE CENTERLINE.
3. REINFORCEMENT DETAILS SHALL CONFORM TO CHAPTER SEVEN OF ACI CODE 318-95.
4. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 30 INCHES OF OPENINGS FOR MANHOLES, JUNCTION STRUCTURES, OR SIDE INLETS.
5. TRANSVERSE CONSTRUCTION JOINTS IN WALLS AND SLABS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED. TRANSVERSE CONSTRUCTION JOINTS SHALL BE NORMAL OR RADIAL TO THE CENTERLINE OF CONSTRUCTION.
6. THE TRANSVERSE REINFORCING STEEL SHALL TERMINATE TWO INCHES FROM THE CONCRETE SURFACES. UNLESS OTHERWISE SHOWN.
7. EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE ROUNDED, BEVELED, OR CHAMFERED.
8. REFER TO SHEET 7 FOR ADDITIONAL INFORMATION.
9. ALL LAP SPLICES SHALL CONFORM TO ACI CODE 318-95. LONGITUDINAL STEEL SHALL BE LAPPED 45 BAR DIAMETERS AT SPLICES.
10. LONGITUDINAL STEEL SHALL BE CONTINUOUS AND EXTEND THROUGH ALL CONSTRUCTION JOINTS, UNLESS OTHERWISE SHOWN.
11. TRANSVERSE CONSTRUCTION JOINT KEYWAYS (IN BOTH SLABS AND WALLS) SHALL BE PLACED AT THE END OF EACH POUR, BUT THE SPACING THEREOF SHALL NOT EXCEED 50 FEET NOR BE LESS THAN 10 FEET, MEASURED ALONG THE CENTERLINE OF CONSTRUCTION.
12. TRANSVERSE BARS SHALL BE PLACED PARALLEL TO JOINTS WITH EXISTING RCB. STRAIGHT TRANSVERSE BARS IN THE TOP AND BOTTOM SLABS SHALL BE PLACED AS SHOWN ON THE TYPICAL SECTION. SPACING SHALL BE AT THE CENTERLINE OF CONSTRUCTION.STRAIGHT BARS AND 'L' SHAPED BARS IN THE WALLS SHALL BE SPACED AS SHOWN ON THE TABLE AND MEASURED BETWEEN THE VERTICAL LEGS OF THE BARS.
13. AT THE BEGINNING AND END OF ALL POURS, A CURTAIN OF REINFORCEMENT COMPOSED OF B, C, C_2, D, F, G, AND H BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT, MAINTAIN 1.5" CLEARANCE FROM KEY OF CONSTRUCTION JOINT.
14. D BARS MAY BE SPLICED AT THE LONGITUDINAL CONSTRUCTION JOINTS AT THE BASE OF THE WALL. THE LAP SPLICE SHALL BE 45 BAR DIAMETERS IN LENGTH.
15. THE VERTICAL LENGTHS OF THE C AND C_2 BARS ARE CALCULATED BASED ON A 4 INCH HIGH STARTER WALL AND ARE LAP SPLICED TOGETHER SHOULD THIS STARTER WALL DIMENSION CHANGE, THE VERTICAL LENGTHS OF C AND C_2 BARS MUST BE REVISED ACCORDINGLY, MAINTAINING A 45 BAR DIAMETER LAP SPLICE LENGTH BETWEEN THE TWO BARS. THIS ALSO APPLIES TO THE C AND C_2 BARS IF THE VERTICAL LENGTH OF C = C_2.
16. IF H AND/OR G BARS ARE NOT SPECIFIED, #4 TRANSVERSE BARS SHALL BE ADDED AT 36 INCH SPACING TO SUPPORT THE LONGITUDINAL BARS.
17. TWO LONGITUDINAL BARS SHALL BE PLACED AT EACH CORNER LOCATION AS SHOWN ON THE DETAIL. THE REMAINING LONGITUDINAL BARS SHALL BE EQUALLY SPACED BETWEEN THE CORNER BARS WITH A MAXIMUM SPACING OF 18 INCHES IN EACH FACE OF THE SLABS AND WALLS, AND NEED NOT CORRESPOND TO THE NUMBER OR LOCATION SHOWN ON THE DETAIL. SEE THE TABLE FOR LONGITUDINAL BAR TOTALS.

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REGISTERED PROFESSIONAL ENGINEER — HUNG MINH, No. 50318, Exp. 6/30/04, STRUCTURAL ENGINEER, STATE OF CALIFORNIA

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19 Spectrum Pointe Drive • Suite 609
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APPROVED BY: H.M.L. DATE: 10/1/03
R.C.E. No. 50318
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: H.M. DRAWN BY: C.S.C. CHECKED BY: H.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

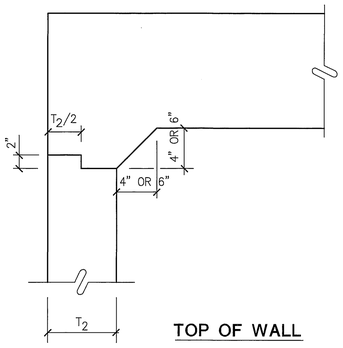
APPROVED BY	BY	DATE	APPROVED BY
PRINCIPAL ENGINEER			CITY ENGINEER
PARK DEPARTMENT			
TRAFFIC DIVISION			
STREET SERVICES			DATE 12/22/03

STORM DRAIN PLAN
TRACT NO. 28907
PLAN & PROFILE
STRUCTURAL NOTES

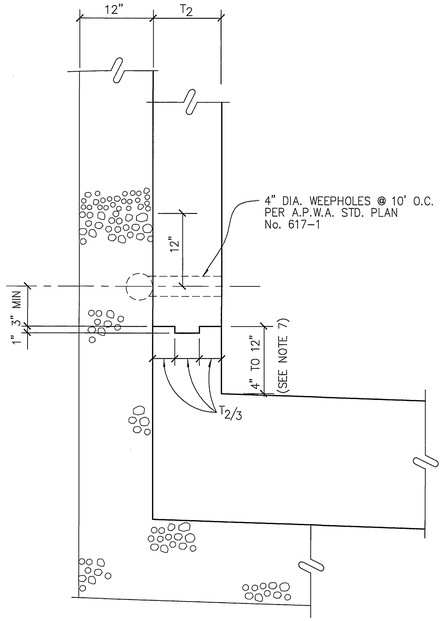
SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 6 OF 8

INDEXED 12-30-03 GH



TOP OF WALL



BASE OF WALL

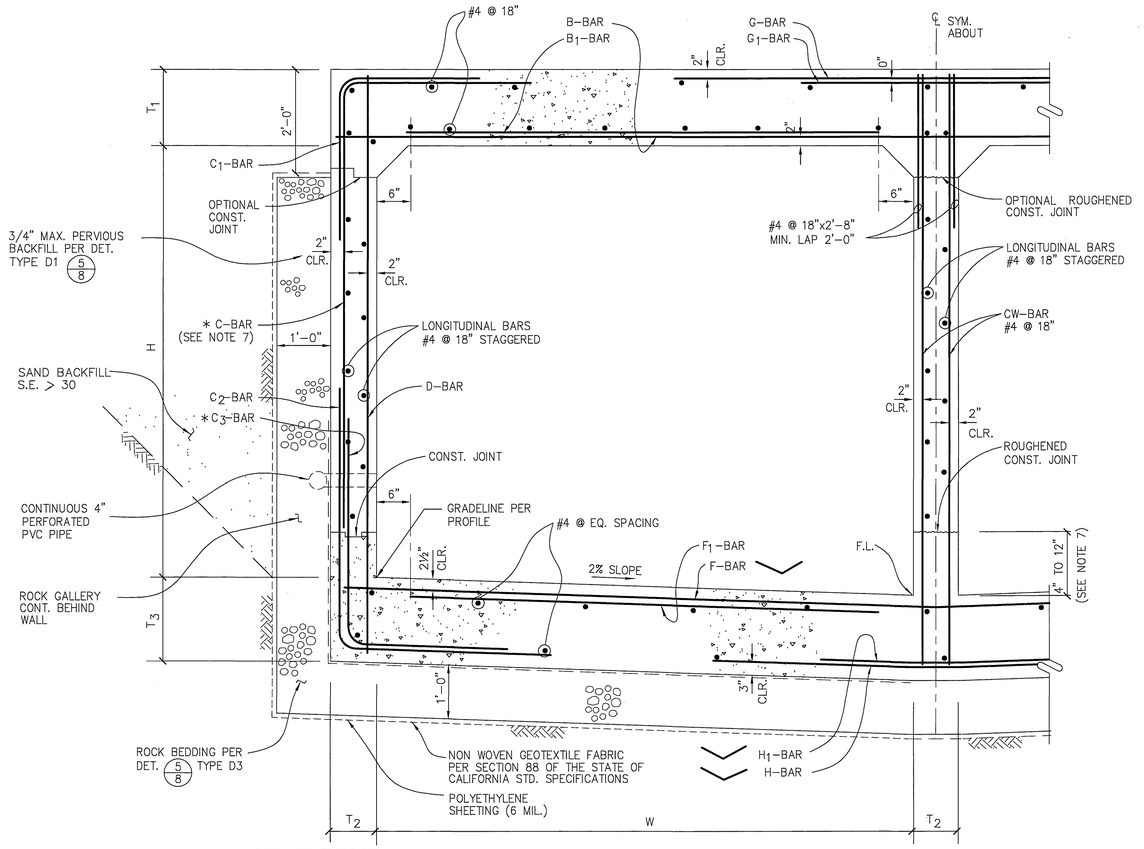
CONSTRUCTION JOINT DETAILS 4

NOT TO SCALE

SCREEN OR SLEVE SIZE	D1	D3
3"		100
1-1/2"	100	90-100
1"		65-100
3/4"	90-100	50-90
3/8"	60-100	0-50
No. 4	5-50	0-10
No. 8	0-10	0-5
No. 16	0-5	
No. 200		

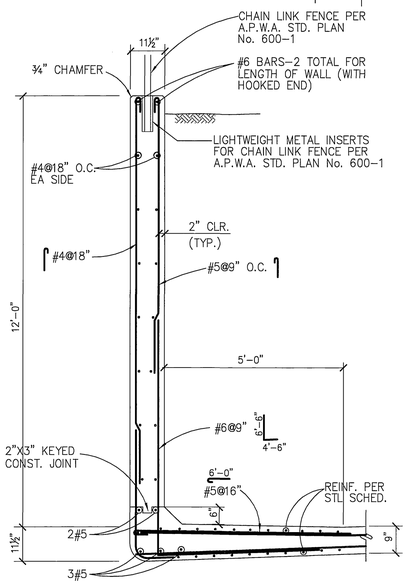
GRADINGS FOR GRAVEL DRAIN MATERIAL PERCENTAGE PASSING SIEVES 5

NOT TO SCALE



TYPICAL R.C. BOX SECTION 1

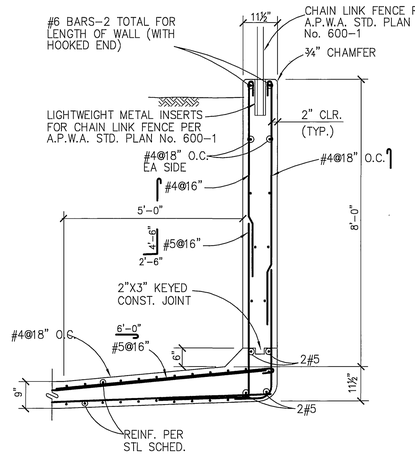
NOT TO SCALE



CHANNEL STA. 2+84.09

PARAPET WALL SECTION 2

3/4"=1'-0"



CHANNEL STA. 3+71.19

PARAPET WALL SECTION 3

3/4"=1'-0"

R.C. BOX SCHEDULE

DESIGN COVER	F	10'-0" MAX.			
WIDTH	W	10'-0"			
HEIGHT	H	6'-0"			
TOP SLAB THICKNESS	T_1	9"			
SIDE WALL THICKNESS	T_2	8"			
BOTTOM SLAB THICKNESS	T_3	9"			
B BARS	BAR No. & SPACING	#4 @ 10½"			
	LENGTH	21'-9"			
B_1 BARS	BAR No. & SPACING	#6 @ 10½"			
	LENGTH	9'-0"			
C BARS	BAR No. & SPACING	#6 @ 10½"			
	HORIZ. LENGTH	5'-0"			
	VERT. LENGTH	6'-0"			
C_1 BARS	BAR No. & SPACING	#4 @ 10½"			
	HORIZ. LENGTH	4'-6"			
	VERT. LENGTH	2'-6"			
C_2 BARS	BAR No. & SPACING	#6 @ 10½"			
	HORIZ. LENGTH	5'-0"			
	VERT. LENGTH	3'-0"			
C_3 BARS	BAR No. & SPACING	#4 @ 10½"			
	HORIZ. LENGTH	4'-6"			
	VERT. LENGTH	5'-0"			
D BARS	BAR No. & SPACING	#4 @ 5"			
	LENGTH	7'-0"			
F BARS	BAR No. & SPACING	#4 @ 10½"			
	LENGTH	21'-9"			
F1 BARS	BAR No. & SPACING	#6 @ 10½"			
	LENGTH	9'-0"			
G BARS	BAR No. & SPACING	#7 @ 10½"			
	LENGTH	13'-0"			
G_1 BARS	BAR No. & SPACING	#6 @ 10½"			
	LENGTH	9'-0"			
H BARS	BAR No. & SPACING	#7 @ 10½"			
	LENGTH	15'-0"			
H_1 BARS	BAR No. & SPACING	#6 @ 10½"			
	LENGTH	11'-0"			

NUMBER LONGITUDINAL REINFORCING BARS #4	
TOP SLAB	30
EXTERIOR WALLS	20
INTERIOR WALLS	10
INVERT SLAB	30
TOTAL	90

APPROXIMATE QUANTITIES	
CONCRETE CU.YDS./LIN. FT.	1.67

R.C. BOX NOTES

1. FOR GENERAL NOTES AND STRUCTURAL NOTES SEE SHT. No. 6.
2. LONGITUDINAL STEEL SHALL BE CONTINUOUS AND EXTEND THROUGH ALL CONSTRUCTION JOINTS.
3. UNLESS OTHERWISE NOTED PROVIDE, TRANSVERSE JOINT KEYWAYS (IN BOTH SLABS AND WALLS), AS DETAILED, TRANSVERSE JOINTS SHALL BE PLACED AT THE END OF EACH POUR , BUT THE SPACING OF JOINTS SHALL NOT EXCEED 50 FEET OR BE LESS THAN 10 FEET. ALL CONSTRUCTION JOINTS IN BOTTOM SLAB, TOP SLAB, AND SIDE WALLS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED.
4. UNLESS OTHERWISE SHOWN ON DETAILS, IN CURVED SECTIONS TRANSVERSE BARS SHALL BE PLACED RADIALLY. STRAIGHT TRANSVERSE BARS IN TOP AND BOTTOM SLABS SHALL BE SPACED AS SHOWN ON THE TYPICAL SECTIONS; SPACING SHALL BE AT THE CENTERLINE OF THE BARREL ON OUTSIDE OF THE CURVE FOR DOUBLE BARREL BOXES. STRAIGHT BARS AND L-BARS IN WALL SHALL BE SPACED AS SHOWN ON TYPICAL SECTIONS, WITH THE SPACING MEASURED BETWEEN THE VERTICAL LEGS OF BARS.
5. AT THE BEGINNING AND ENDING OF ALL POURS, A CURTAIN OF REINFORCEMENT COMPOSED OF B, C, C_2, D, CW, F,G, AND H BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT.
6. THE VERTICAL WALL STEEL IN THE INTERIOR FACE OF EXTERIOR WALLS MAY BE SPLICED AT THE CONSTRUCTION JOINT AT THE BASE OF THE WALL. THE SPLICES SHALL BE 45 BAR DIAMETERS IN LENGTH.
7. IN ALL SECTIONS LAP C AND C_2 BARS. THE VERTICAL LENGTH OF C AND C BARS 2 HAVE BEEN CALCULATED FOR A 4 INCH STARTER WALL. IF THE HEIGHT OF THE STARTER WALL IS VARIED, THE LENGTH OF THE C AND C_2 BARS SHALL BE VARIED CORRESPONDINGLY SO AS TO MAINTAIN A 45 DIAMETER LAP BETWEEN THE TWO BARS. THE LAPS SHALL BE BASED ON THE SMALLER BARS.
8. CONCRETE QUANTITIES ARE BASED ON A 6X6 INCH FILLET AND THE STEEL QUANTITIES DO NOT INCLUDE ANY OPTIONAL SPLICES.
9. BOX INVERT SURFACE SHALL HAVE A STEEL TROWEL FINISH.
10. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED OR BEVELED.

DESIGN LOAD DATA

LIVE LOAD:
240 P.S.F.

DEAD LOAD:
SOIL WEIGHT: 140 P.C.F.
SOIL COVER: 10'-0" MAX.
SIDE EARTH: 42 P.S.F.
CONCRETE WEIGHT: 150 P.C.F.

DESIGN METOD:
W.S.D.

ALLOWABLE STRESSES:
f'c = 3,250 psi AT 28 DAYS
fc = 1,460 psi
fy = 60,000 psi
fs = 24,000 psi
n = 8.8
SHEAR AND BOND STRESSES PER A.C.I. 318-63

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REGISTERED PROFESSIONAL ENGINEER — DUNCAN MONTGOMERY — No. C038150 — Exp. 6/30/04 — STRUCTURAL — STATE OF CALIFORNIA

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APPROVED BY: _____ DATE: 10/1/03
R.C.E. No. 50318
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

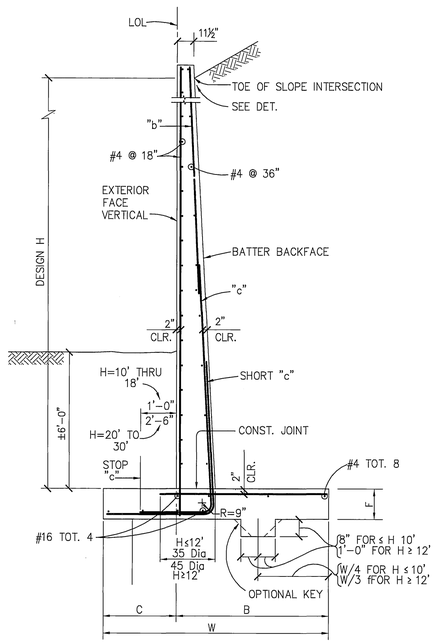
APPROVED BY	BY	DATE
PRINCIPAL ENGINEER		
PARK DEPARTMENT		
TRAFFIC DIVISION		
STREET SERVICES		

APPROVED BY
CITY ENGINEER
DATE 12/22/03

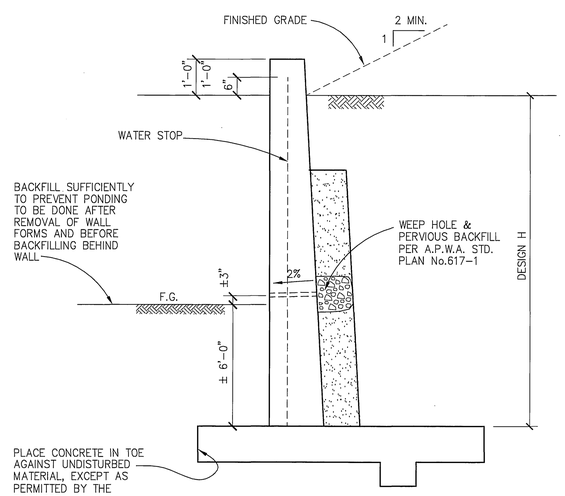
STORM DRAIN PLAN & PROFILE
TRACT NO. 28907
RCB SECTION AND DETAILS
SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 7 OF 8

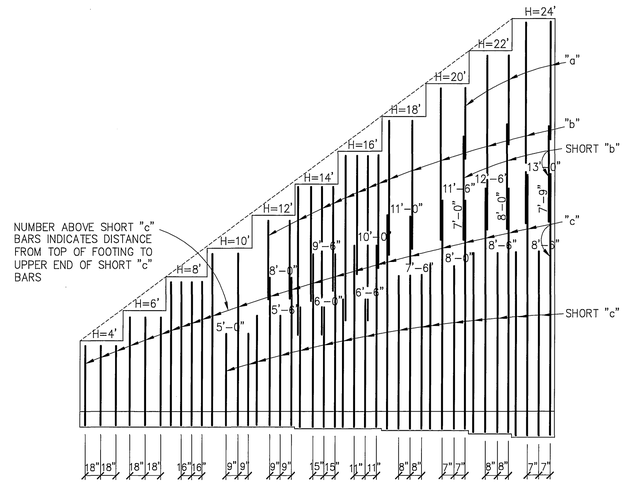
INDEXED 12-30-03 GH



RETAINING WALL SECTION 1
N.T.S.



DESIGN AND DRAINAGE 2
N.T.S.



WALL STEM ELEVATION 3
N.T.S.

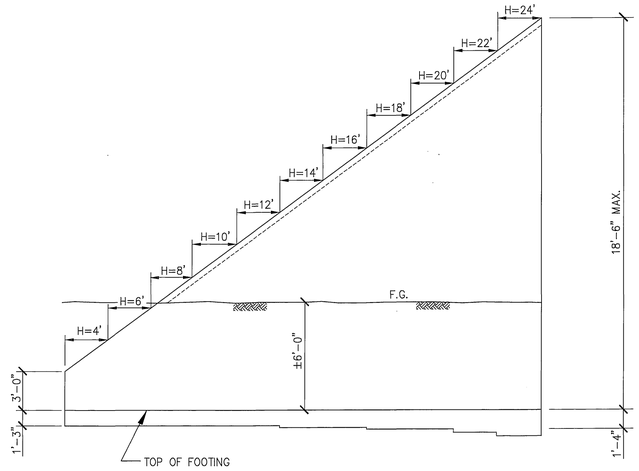
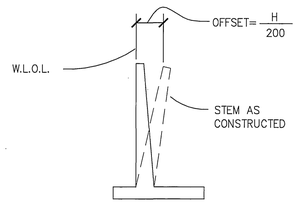


TABLE OF REINFORCING STEEL DIMENSIONS AND DATA												
DESIGN H		4'-0"	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"
FOOTING WIDTH	W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"	8'-0"	9'-0"	10'-0"	11'-5"	13'-7"	15'-3"
TOE WIDTH	C	1'-7"	2'-1"	2'-7"	3'-1"	3'-7"	4'-0"	4'-6"	5'-0"	5'-8"	6'-9"	7'-7"
HEEL WIDTH	B	1'-7"	2'-1"	2'-7"	3'-1"	3'-7"	4'-0"	4'-6"	5'-0"	5'-9"	6'-10"	7'-8"
FOOTING THICKNESS	F	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-7"	1'-11"	2'-3"
BATTER		½":12	½":12	½":12	½":12	½":12	½":12	½":12	½":12	½":12	½":12	⅝":12
"a" BARS										#5 @ 20"	#5 @ 32"	#5 @ 28"
"b" BARS						#4 @ 18"	#5 @ 15"	#6 @ 22"	#6 @ 16"	#8 @ 20"	#8 @ 16"	#8 @ 14"
"c" BARS		#5 @ 18"	#5 @ 18"	#5 @ 16"	#5 @ 9"	#6 @ 9"	#9 @ 15"	#9 @ 11"	#9 @ 8"	#11 @ 10"	#11 @ 8"	#11 @ 7"
"d" BARS		#5 @ 18"	#5 @ 18"	#4 @ 16"	#4 @ 9"	#5 @ 9"	#8 @ 15"	#8 @ 11"	#9 @ 8"	#10 @ 10"	#10 @ 8"	#10 @ 7"

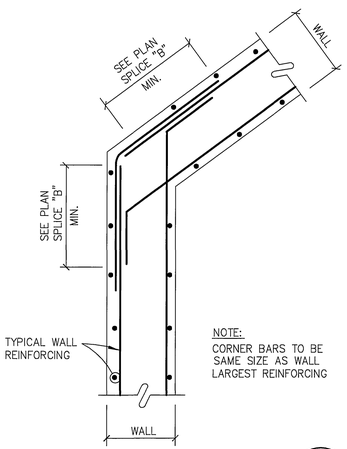
NOTES:

1. DESIGN H MAY EXCEEDED BY 6" BEFORE GOING TO THE NEXT SIZE.
2. DESIGN DATA:
   f'c= 3,250 psi
   fc = 1,300 psi
   fy= 60,000 psi
   fs = 24,000 psi
   n = 9
   EARTH = 120 lb/cf
3. SEE DETAILS ON THIS SHEET FOR ADDITIONAL CONCRETE RETAINING WALL CONSTRUCTION INFORMATION.

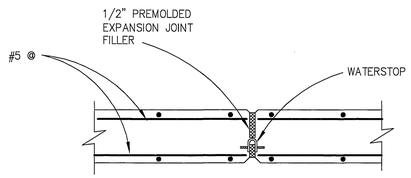


VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER.

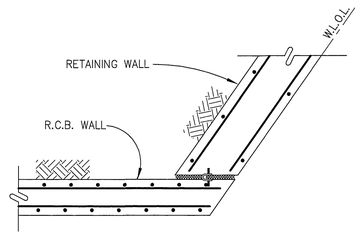
APPROXIMATE WALL OFFSET VALUES 7
N.T.S.



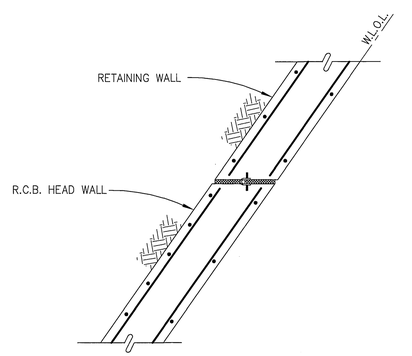
TYPICAL CORNER BAR 5
1"=1'-0"



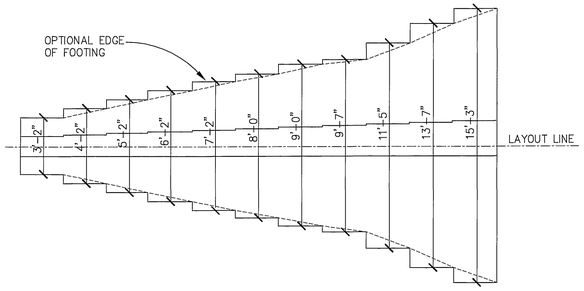
PLAN OF WALL WITH 8
1"=1'-0"



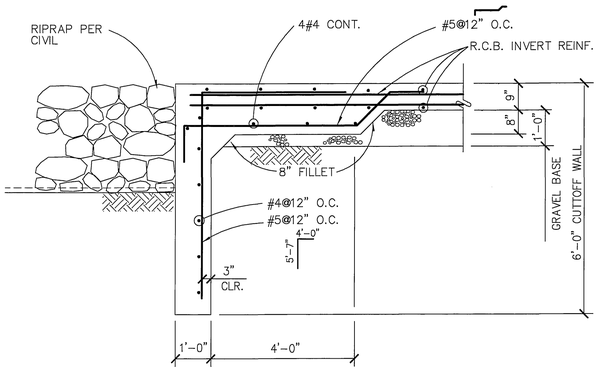
CONSTRUCTION JOINT DETAIL 6
3/4"=1'-0"



CONSTRUCTION JOINT DETAIL 9
3/4"=1'-0"



TYPICAL WALL LAYOUT 4
N.T.S.



CUTOFF WALL DETAIL 10/8
1/2"=1'-0"

UNDERGROUND SERVICE ALERT
Call Toll FREE 1-800-227-2600
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REGISTERED PROFESSIONAL ENGINEER — GLENN MONTGOMERY — No. S024419 Exp. 6/30/04 — STRUCTURAL — STATE OF CALIFORNIA

ARCON STRUCTURAL ENGINEERS, INC.
22421 GILBERTO, SUITE B • RANCHO SANTA MARGARITA, CA 92688
(949) 713-7824 • FAX: (949) 766-1761

MAYERS & ASSOCIATES Civil Engineering, Inc.
19 Spectrum Pointe Drive • Suite 609
Lake Forest, CA 92630
(949) 599-0870
(949) 599-0880 Fax
PLANNING • ENGINEERING • SURVEYING
APPROVED BY: _____ DATE: 10/11/03
R.C.E. No. 50318
J.N. 02-0069-02 FOR:

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: N.V.N. DRAWN BY: N.V.N. CHECKED BY: G.M.

CITY OF RIVERSIDE, CALIFORNIA
PUBLIC WORKS DEPARTMENT

APPROVED BY	BY	DATE
PRINCIPAL ENGINEER		10/14/03
PARK DEPARTMENT		
TRAFFIC DIVISION		
STREET SERVICES		10/15/03

APPROVED BY _____ CITY ENGINEER
DATE 12/19/03

STORM DRAIN PLAN
TRACT NO. 28907
RETAINING WALL SECTION & DETAILS
SCALE: AS SHOWN

ACCOUNT No.
DRAWING NUMBER
D-736
SHEET 8 OF 8

INDEXED 12-30-03 GH