Appendix 5.5 (Continued)

Hydrology (Part 11 of 15)

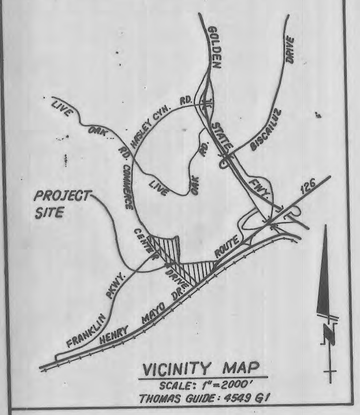


Appendix K- As-Built Drawings

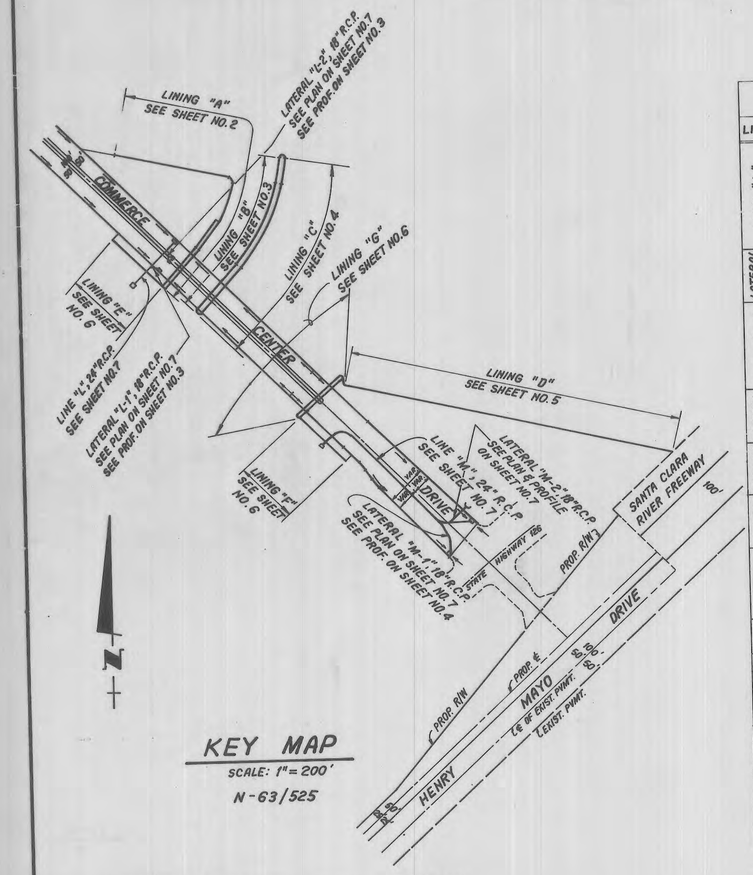
Castaic Creek P.D. No. 2298 (Unit III)

PACE

STORM DRAIN PLANS IN
D.S. No.485 P.D. No.2298 (UNIT III)



VICINITY MAP
SCALE: 1"=2000'
THOMAS GUIDE: 4549 G1



KEY MAP
SCALE: 1"=200'
N-63/525

NPDES NOTES

ATTACHMENT A

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES*

The following is intended as an attachment for construction and grading plans and represent the minimum standards of good housekeeping which must be implemented on all construction sites regardless of size.

☐ Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.

☐ Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.

☐ Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.

☐ Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.

☐ Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.

☐ Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.

☐ Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

☐ Other_____

B. The following BMPs as outlined in, but not limited to, the Best Management Practice Handbook, California Stormwater Quality Task Force, Sacramento, California, 1993, or the latest revised edition, may apply during construction (additional measures may be required if deemed appropriate by County):

CA001 - DEWATERING OPERATIONS
CA002 - PAVING OPERATIONS
CA003 - STRUCTURE CONSTRUCTION AND PAINTING
CA010 - MATERIAL DELIVERY AND STORAGE
CA012 - SPILL PREVENTION AND CONTROL
CA020 - SOLID WASTE MANAGEMENT
CA021 - HAZARDOUS WASTE MANAGEMENT
CA023 - CONCRETE WASTE MANAGEMENT
CA030 - VEHICLE AND EQUIPMENT CLEANING
CA031 - VEHICLE AND EQUIPMENT FUELING
CA032 - VEHICLE AND EQUIPMENT MAINTENANCE
CA040 - EMPLOYEE/SUBCONTRACTOR TRAINING
ESC01 - SCHEDULING
ESC02 - PRESERVATION OF EXISTING VEGETATION
ESC10 - SEEDING AND PLANTING
ESC11 - MULCHING
ESC20 - GEOTEXTILES AND MATS
ESC21 - DUST CONTROLS
ESC22 - TEMPORARY STREAM CROSSING
ESC23 - CONSTRUCTION ROAD STABILIZATION
ESC24 - STABILIZED CONSTRUCTION ENTRANCE
ESC30 - EARTH DIKE
ESC31 - TEMPORARY DRAINS AND SWALES
ESC32 - SLOPE DRAIN
ESC40 - OUTLET PROTECTION
ESC41 - CHECK DAMS
ESC50 - SILT FENCE
ESC51 - STRAW BALE BARRIERS
ESC52 - SAND BAG BARRIER
ESC53 - BRUSH OR ROCK FILTER
ESC54 - STORM DRAIN INLET PROTECTION

HYDRAULIC ELEMENTS

LINE	STATION	Q_{50} IN C.F.S	SECTION	S.F.	VELOCITY IN FT./SEC.	DEPTH IN FEET
LINE "L"	5+14.00 TO 5+35.00	12.0	24"R.C.P	0.3225	12.7	0.61
	5+35.00 TO 5+50.00	6.0	24"R.C.P	0.3225	16.8	0.70
	5+50.00 TO 6+37.00	6.0	24"R.C.P	0.0100	5.9	0.89
LATERAL "L-1"	1+02.00 TO 1+35.60	6.0	18"R.C.P	0.1601	15.5	0.95
LINE "M"	4+98.50 TO 5+37.08	10.0	24"R.C.P	0.0020	3.18	9.00'
	5+37.08 TO 9+33.42	10.0	24"R.C.P	0.0020	3.18	7.17'
	9+33.42 TO 10+44.18	5.0	24"R.C.P	0.0004	1.75	4.76'
LATERAL "M-1"	1+02.00 TO 2+01.91	5.0	18"R.C.P	0.0023	2.83	4.51
LATERAL "M-2"	1+01.41 TO 1+34.59	NGL.	18"R.C.P	—	—	—
LATERAL "L-2"	1+01.00 TO 1+22.75	NGL.	18"R.C.P	—	—	—
CASTAIC CREEK	BEGINNING TO END OF LININGS C,D,F & G	50.700	NATURAL CHANNEL WITH 1½:1 SIDE SLOPES	0.0188	10.81	14.9
HASLEY CYN. CREEK	BEGINNING TO END OF LINING E		NATURAL CHANNEL WITH 1½:1 SIDE SLOPES			
	BEGINNING TO STA 10+50.00	50.700		0.0188	10.81	14.9
	LININGS A & B	9.700	NATURAL CHANNEL WITH 1½:1 SIDE SLOPES	0.0272	6.89	4.4
	STA. 10+50.00 TO END OF LININGS A & B					

NGL.- NEGLIGIBLE

BENCH MARK CL 3976
LACRD BM
ROBM TAG IN C.B. 4 FT. N. B.C.R. TO FT. N.
AND 32 FT. E. CL INT. OLD ROAD AND
HASLEY CYN. ROAD OFF-RAMP

NEWHALL QUAD (1983) ELEV. 1065.685

GENERAL NOTES(Cont'd)

21. ALL BACKFILL AND FILLS OUTSIDE OF STREET RIGHT OF WAY SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557-78 METHOD "D" UNLESS OTHERWISE SPECIFIED. THIS SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER. THE CERTIFICATION SHALL BE SUBMITTED TO THE DIRECTOR OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF WORK BY THE COUNTY.

22. ALL BACKFILL AND FILLS WITHIN STREET RIGHT OF WAY SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 306-1.3.4 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED AND INSPECTED BY THE DEPARTMENT. CONTRACTOR SHALL NOTIFY THE INSPECTOR AT LEAST 24 HOURS IN ADVANCE FOR SOIL TESTING AS REQUIRED BY THE INSPECTOR.

23. PIPE BEDDING SHALL BE:
IN ACCORDANCE WITH LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD DRAWING NO 3092 UNLESS OTHERWISE NOTED. THE BEDDING MATERIAL PLACED FROM THE BOTTOM OF THE PIPE TO 1 FOOT OVER THE TOP OF THE PIPE SHALL BE SAND, CRUSHED AGGREGATE, OR NATIVE FREE-DRAINING GRANULAR MATERIAL AND SHALL HAVE A SAND EQUIVALENT OF 20 OR GREATER.

24. PIPE SHALL BE EMBEDDED 5 INCHES INTO ALL STRUCTURES INCLUDING INLET AND OUTLET HEADWALLS, UNLESS OTHERWISE SPECIFIED.

25. UNLESS OTHERWISE SPECIFIED IN THE PROFILE ON THESE PLANS, THE PIPE SHALL BE MANUFACTURED WITH A MINIMUM CONCRETE COVER OVER THE STEEL IN THE INVERT OF 0.75 INCHES FOR R.C.P. UP TO 96 INCHES IN DIAMETER AND 1.25 INCHES FOR PIPE GREATER THAN 96 INCHES IN DIAMETER.

26. ALL CATCH BASINS WITHIN THE DEDICATED STREET RIGHTS-OF-WAY SHALL BE CONSTRUCTED PER THE STREET PLANS.

27. THE CONTRACTOR SHALL PROVIDE TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS A SYSTEM FOR CONTRIBUTORY DRAINAGE TO BE OPERABLE AT ALL TIMES UNTIL THIS STORM DRAIN SYSTEM IS ACCEPTED FOR MAINTENANCE. THIS MAY HAVE TO BE DESIGNED BY A CIVIL ENGINEER.

28. ALL REFERENCES ON THIS PLAN TO THE COUNTY ENGINEER, ROAD DEPARTMENT, OR FLOOD CONTROL DISTRICT SHALL APPLY TO THE APPROPRIATE ELEMENTS OF THE DEPARTMENT OF PUBLIC WORKS.

29. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.

30. WHERE THE UTILITIES ARE INDICATED ON THE DRAWINGS TO BE SUPPORTED, SAID SUPPORTS SHALL BE IN ACCORDANCE WITH STANDARD PLANS FOR CONSTRUCTION NO. 224, UNLESS OTHERWISE INDICATED.

31. ALL OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES SHALL BE SEALED WITH 8 INCHES OF BRICK AND MORTAR OR 6 INCHES OF CONCRETE, UNLESS OTHERWISE SHOWN.

32. MANHOLES NO.1,2,3, AND 4, SHALL USE THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION NO. 630 FOR THE "FRAME AND COVER" AND NO 635 FOR THE "STANDARD DROP STEP".

33. THIS STORM DRAIN WILL NOT BE ACCEPTED FOR MAINTENANCE UNTIL THE STREETS HAVE BEEN PAVED. MANHOLES BROUGHT TO GRADE AND THE SYSTEM CLEANED TO SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS.

34. THE LATEST REVISED STANDARD PLAN OR DRAWING SHALL BE USED UNLES OTHERWISE SPECIFICALLY NOTED.

35. A NPDES PERMIT FROM THE REGIONAL WATER QUALITY CONTROL BOARD IS REQUIRED BEFORE ANY DISCHARGE OF NON-STORM WATER INTO THE STORM DRAIN IS ALLOWED.

GENERAL NOTES:

1. A PERMIT SHALL BE OBTAINED AND A DEPOSIT PAID TO THE DEPARTMENT OF PUBLIC WORKS AT THE PERMIT COUNTER, 900 SOUTH FREMONT AVENUE 8-TH FLOOR, ALHAMBRA AT LEAST 72 HOURS PRIOR TO STARTING WORK UNDER THIS CONTRACT. COPIES OF ALL OTHER REQUIRED PERMITS, SUCH AS FLOOD CONTROL DISTRICT AND ROAD EXCAVATION, MUST BE FILED WITH THE PERMIT APPLICATION.
2. WHEN WORK IS WITHIN A CONTRACT CITY, THE CONTRACTOR MUST CONTACT THE DIRECTOR OF PUBLIC WORKS OF THAT CITY TO DETERMINE THE LOCATION TO PAY THE INSPECTION DEPOSIT.
3. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE LISTED AT THE "APPLICATION FOR STORM DRAIN CONSTRUCTION INSPECTION FORM 1" TO ARRANGE FOR AN ACCEPTABLE CONSTRUCTION START DATE.
4. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION TO THE ACCURACY OF THE LOCATION, OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY, PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL SHEETS.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION". INCLUDING SUPPLEMENTS AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DIRECTOR OF PUBLIC WORKS.
6. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS" AS SHOWN IN LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS STD. 6008-0.
7. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. MEAN SEA LEVEL DATUM OF 1929, UNLESS OTHERWISE INDICATED.
8. NO CONCRETE SHALL BE PLACED UNTIL THE FORMS AND REINFORCING STEEL HAVE BEEN PLACED, INSPECTED AND APPROVED.
9. ALL STRUCTURAL CONCRETE SHALL BE PORTLAND CEMENT CONCRETE WITH AN ULTIMATE 28 DAY COMPRESSIVE STRENGTH OF 4000 p.s.i. UNLESS OTHERWISE NOTED.
10. TRANSVERSE REINFORCEMENT AND TRANSVERSE JOINTS SHALL BE PLACED AT RIGHT ANGLES (OR RADIAL) TO THE CONDUIT CENTER LINE EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
11. ALL STEEL ADJACENT TO FACE OF CONCRETE SHALL HAVE 2" CLEARANCE UNLESS OTHERWISE SPECIFIED.
12. REINFORCEMENT SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE STEEL, PER A.S.T.M. A-615-GRADE 60.
13. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "MANUAL OF STANDARD PRACTICE".
14. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER LINE OF STEEL UNLESS OTHERWISE NOTED.
15. ALL STEEL THAT IS TO BE CONTINUOUS SHALL HAVE A MINIMUN LAP OF 30 BAR DIAMETERS OR 18" WHICHEVER IS GREATER.
16. ALL CONSTRUCTION JOINTS IN THE FOOTING OF SLABS AND WALLS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED.
17. ALL EXPOSED EDGES SHALL BE FINISHED WITH A 3/4" CHAMFER.
18. UNLESS OTHERWISE SHOWN, CONCRETE DIMENSIONS SHALL BE MEASURED VERTICALLY OR HORIZONTALLY AND AND PARALLEL OR AT RIGHT ANGLES (OR RADIAL) TO THE CENTER LINE OF CONSTRUCTION.
19. CONCRETE BACKFILL IS REQUIRED WHEN THE THE PIPE HAS LESS THAN ONE FOOT OF COVER. THE CONCRETE BACKFILL SHALL CONSIST OF 1:3:5 MIX, PORTLAND CEMENT CONCRETE POURED FROM WALL TO WALL OF TRENCH AND FROM BOTTOM OF TRENCH TO A MINIMUM OF 4 INCHES OVER THE TOP OF THE PIPE.
20. ALL PIPES SHALL BE PLACED IN TRENCH IN NATURAL GROUND AND/OR COMPACTED FILL. THE GROUND LEVEL BEFORE THE TRENCHING SHALL BE AT LEAST 3 FEET ABOVE THE TOP OF THE PIPE ELEVATION, OR AT FINISH SURFACE ELEVATION, WHICHEVER IS LESS. ALL BACKFILLS IN EASEMENTS SHALL BE COMPACTED TO THE DENSITY REQUIRED BY THE GRADING PLAN.

RIPRAP NOTES

1. ROCKS FOR GROUTED RIPRAP SHALL BE GOOD QUALITY RIVER RUN ROCK. THE SMALLEST DIMENSIONS SHALL EXCEED 6 INCHES AND THE LARGEST DIMENSION SHALL NOT EXCEED 24 INCHES. THE LARGEST DIMENSION SHALL NOT EXCEED 4 TIMES THE SMALLEST DIMENSION.
2. THERE SHALL BE A GROUT BED OF AT LEAST 2 INCHES BENEATH THE FIRST LAYER OF ROCK. ALL THE VOIDS BETWEEN THE ROCKS SHALL BE FILLED WITH GROUT. MAXIMUM SPACING BETWEEN ROCKS SHALL BE 2 INCHES.
3. SURFACE ROCKS SHALL BE IMBEDDED FROM 1/2 TO 2/3 OF THEIR MAXIMUM DIMENSION.

NOTE: CONCRETE MAY BE SUBSTITUTED FOR THE GROUT.

PRIVATE ENGINEERS NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING.

REGISTERED CIVIL ENGINEER No. 42690 _____ DATE _____

LIST OF STANDARDS

	L.A.C.D.P.W.	A.P.W.A.
1. M.H. NO.1	PER	(321-0)
2. CURB OPENING CATCH BASIN	PER	300-0
3. STANDARD M.H. SHAFT	PER	(324-0)
4. M.H. FRAME AND COVER	PER	630-0
5. STEEL STEP	PER	635-0
6. C.B. MANHOLE FRAME AND COVER	PER	312-0
7. C.B. REINFORCEMENT	PER	309-0
8. MONOLITHIC C.B. CONNECTION	PER	308-0
9. C.B. FACE PLATE ASSEMBLY		
10. AND PROTECTION BAR	PER	310-0
11. FRAME AND GRATING FOR C.B.	PER	311-0
12. LOCAL DEPRESSION AT C.B.	PER	313-0
13. J.S. NO.2	PER	(331-0)
14. CHAIN LINK FENCE AND GATES	PER	600-0
15. PIPE BEDDING	PER	3092-0
16. SAFETY REQUIREMENTS	PER	6008-0
17. CONCRETE COLLAR	PER	380-1

NO.	REVISION	REVISED BY	APPROVED BY	DATE

REGISTERED PROFESSIONAL ENGINEER JOHN SAARKISSIAN No. 42690 Exp. 3-31-99 CIVIL STATE OF CALIFORNIA

Exp. 12-31-98 CIVIL STATE OF CALIFORNIA

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: _____ R.C.E. NO 42690

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS

LAND DEVELOPMENT DIVISION
APPROVED BY: Ronald D. Anderson for ASSISTANT DEPUTY DIRECTOR DATE: 4-13-98
CHECKED BY: _____ R.C.E. NO 45691 DATE: 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 1 OF 9 SHTS

W.O. 1020-252-A

STORM DRAIN PLANS IN
D.S. NO. 485 P.D. NO. 2298 (UNIT III)

PROFILE OF LINING "A"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'

TOP OF LINING CURVE DATA				
NO	Δ	R	L	T
C1	92°33'08"	16.00'	25.85'	16.73'

PLAN OF LINING "A"
SCALE: 1"=40'

SEE SHEET NO. 9 FOR GRADING & EASEMENT DATA

NO.	REVISION	REVISED BY	APPROVED BY	DATE

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

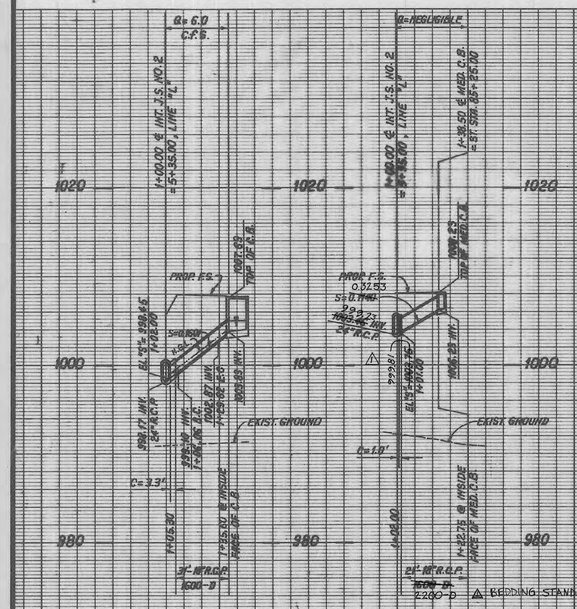
COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION R.C.E. NO. 23391 DATE: 4-18-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 2 OF 9 SHTS

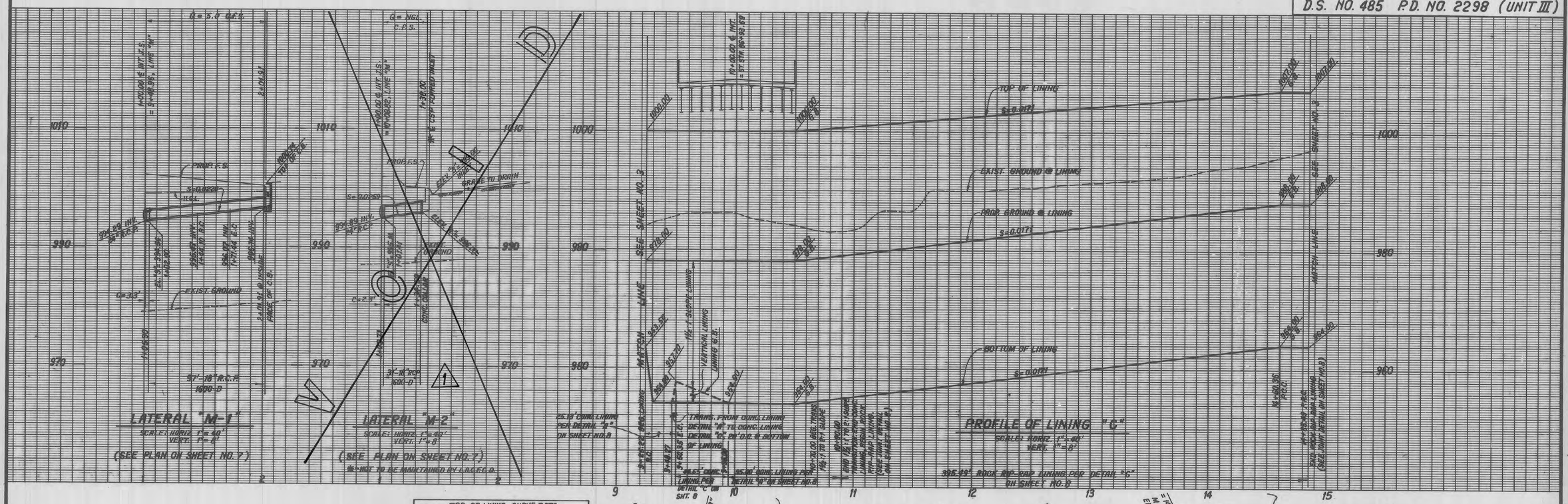
W.O. 1020-252-A

GM Jr (213) 699-8440 P.D. SHEET NO. 2 DATE 6-85

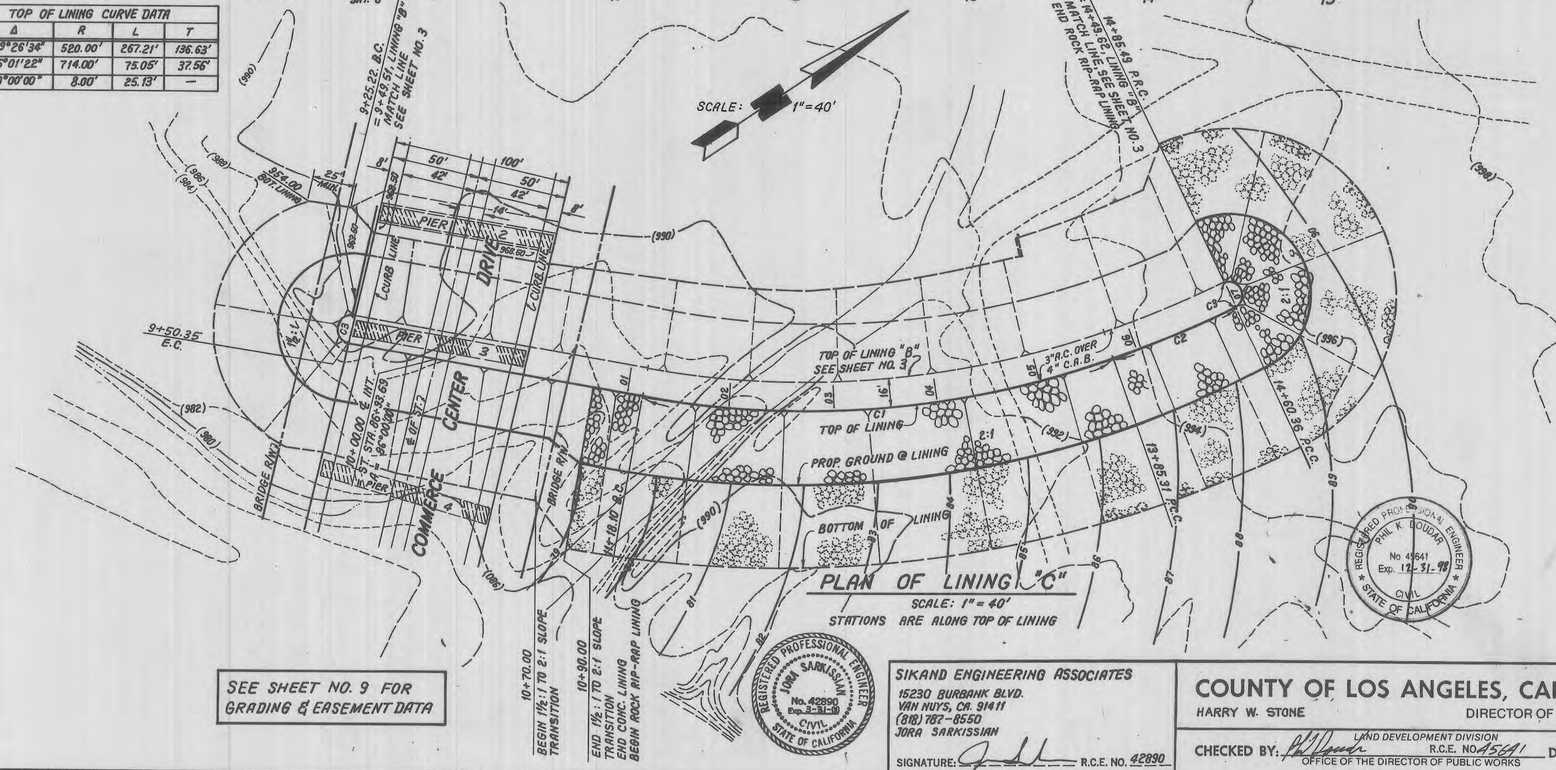
STORM DRAIN PLANS IN
D.S. NO. 485 P.D. NO. 2298 (UNIT III)


Q= 6.0 C.F.S.
Q=NEGLIGIBLE
1+00.00 ℄ INT. J.S. NO. 2
= S1°35'00" E, LINE "L"
1+35.00 ℄ INT. J.S. NO. 2, LINE "L"
= S1°35'00" E
A=35.59
R=1425.00
1+35.59 ℄ REC. C.B.
=21+39.35=25.00
PROP. F.G.
EL. 1006.69
EL. 998.65
1+08.20
SHLROP
EXIST. GROUND
PROP. F.G.
0.02.55
S=0.1961
223.27
HGHT. 1.79
24" R.C.P.
EL. 1005.23 INT.
EL. 1004.62
1+08.20
EL. 1003.89 INT.
1+08.20
998.17 INT.
1+08.20
24" R.C.P.
1+08.20
998.17 INT.
1+08.20
24" R.C.P.
1+08.20
1+08.20
1+08.20

STORM DRAIN PLANS IN
D.S. NO. 485 P.D. NO. 2298 (UNIT III)



TOP OF LINING CURVE DATA				
NO.	Δ	R	L	T
C1	29°26'34"	520.00'	267.21'	136.63'
C2	06°01'22"	714.00'	75.05'	37.56'
C3	180°00'00"	8.00'	25.13'	—



SEE SHEET NO. 9 FOR GRADING & EASEMENT DATA

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	VOIDED LAT. "M-2" PROFILE.	42890		7/1/99

REGISTERED PROFESSIONAL ENGINEER
PHIL K. DOUDAR
No. 45641
Exp. 12-31-98
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
LINA SARKISSIAN
No. 42890
Exp. 3-31-00
CIVIL
STATE OF CALIFORNIA

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 782-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

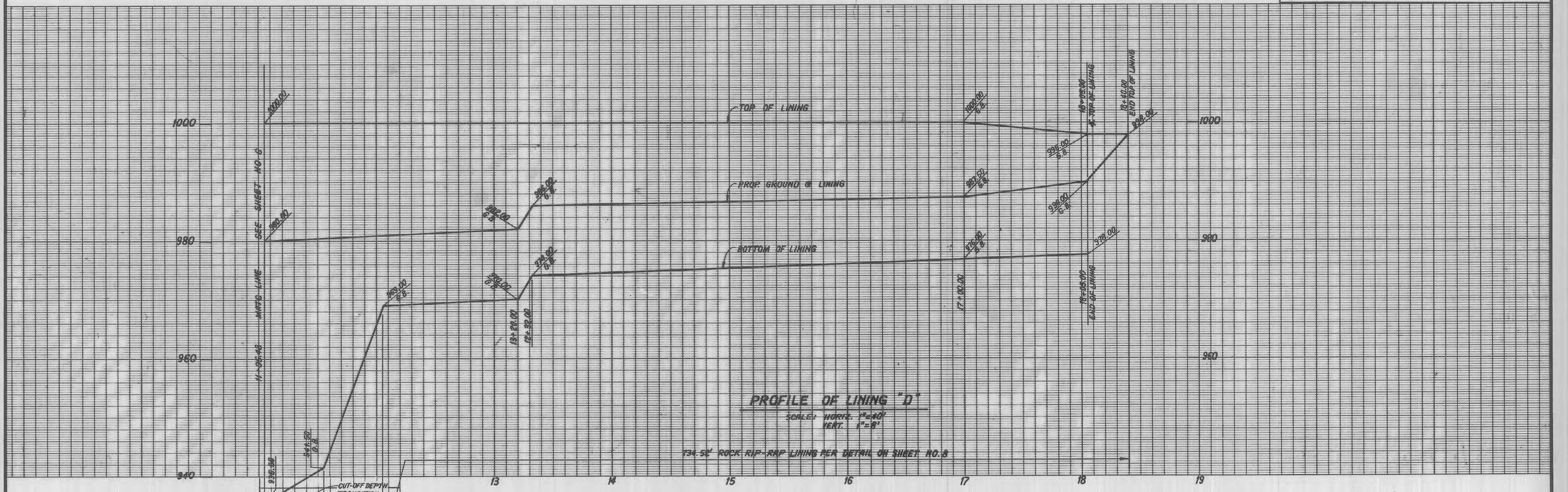
COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE
DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION R.C.E. NO. 45641 DATE: 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 4 OF 9 SHTS

G.M. Jr. (213) 699-8440 P.D. SHEET NO. 2 DATE 6-85

W.O. 1020-252-A

STORM DRAIN PLANS IN
D.S. NO. 485 P.D. NO. 2298 (UNIT III)



PLAN OF LINING "D"
SCALE: 1"= 40'

NO.	REVISION	REVISED BY	APPROVED BY	DATE

REGISTERED PROFESSIONAL ENGINEER
JORA SARKISSIAN
No. 42890
Exp. 3-31-00
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PHIL K. DOLGAR
No. 45641
Exp. 12-31-98
CIVIL
STATE OF CALIFORNIA

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

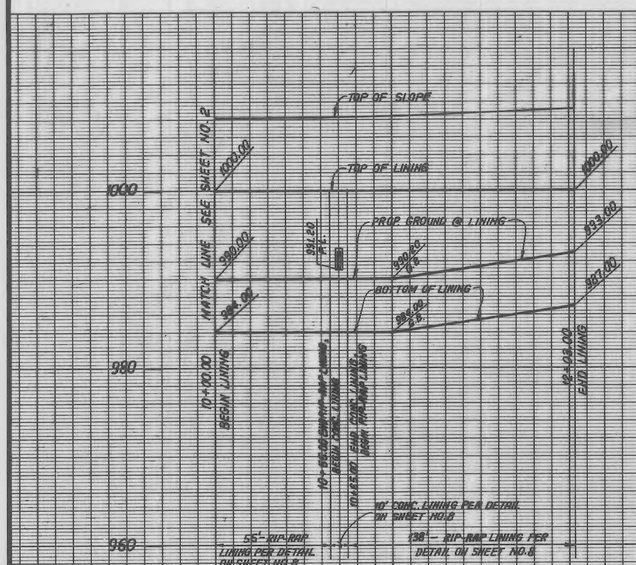
COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE — DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION
R.C.E. NO. 45641 DATE: 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 5 OF 9 SHTS

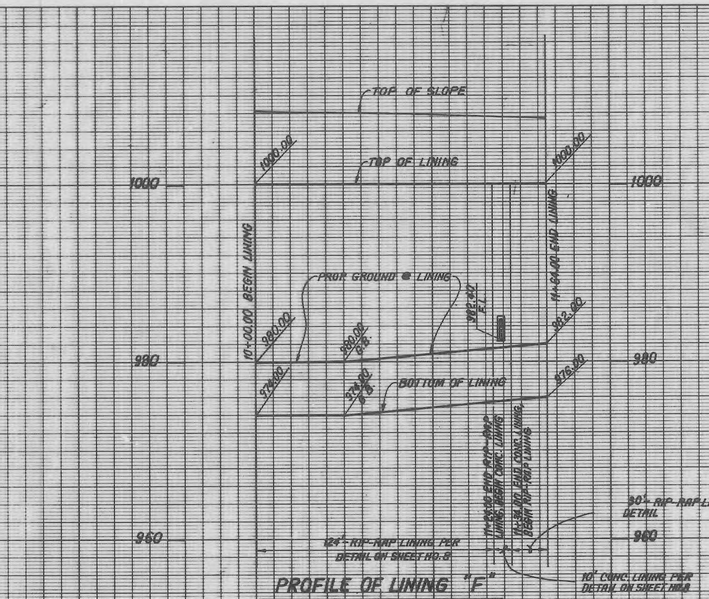
W.O. 1020-252-A

G M Jr (213) 699-8440 P.D. SHEET NO. 2 DATE 6-85

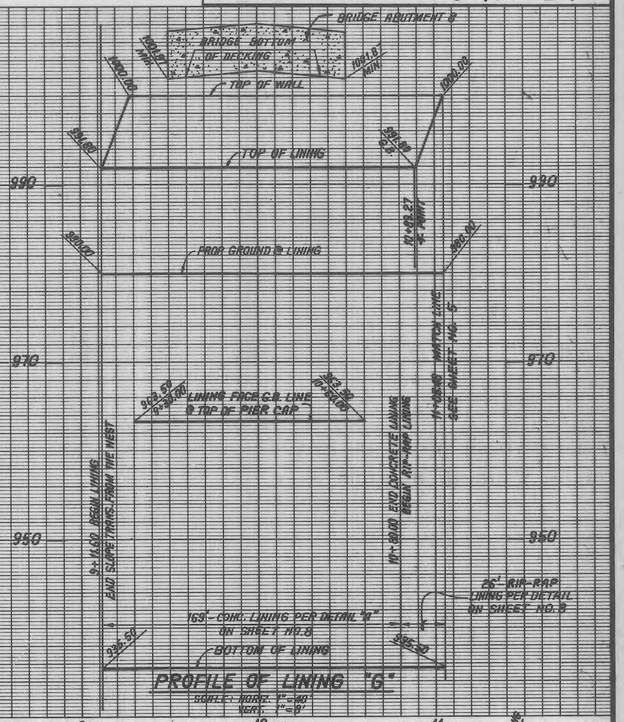
STORM DRAIN PLANS IN
D.S. NO. 485 P.D. NO. 2298 (UNIT III)



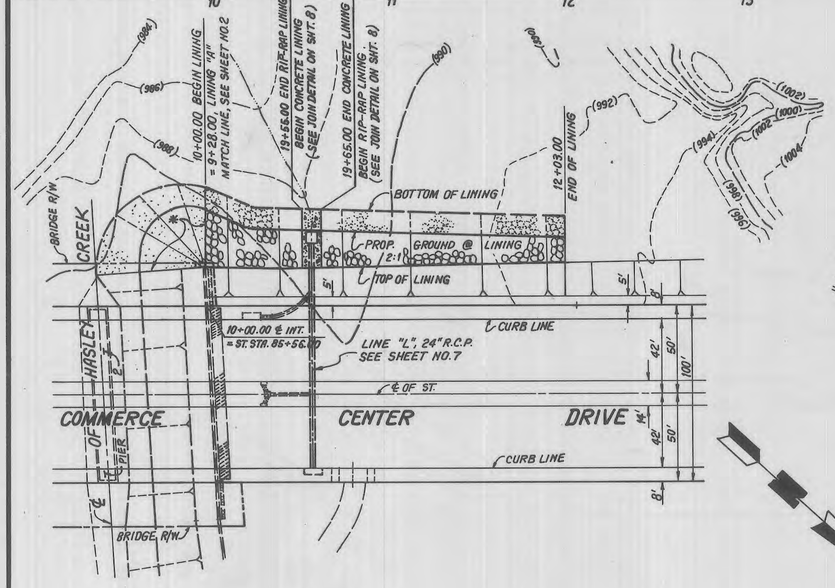
PROFILE OF LINING "E"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'



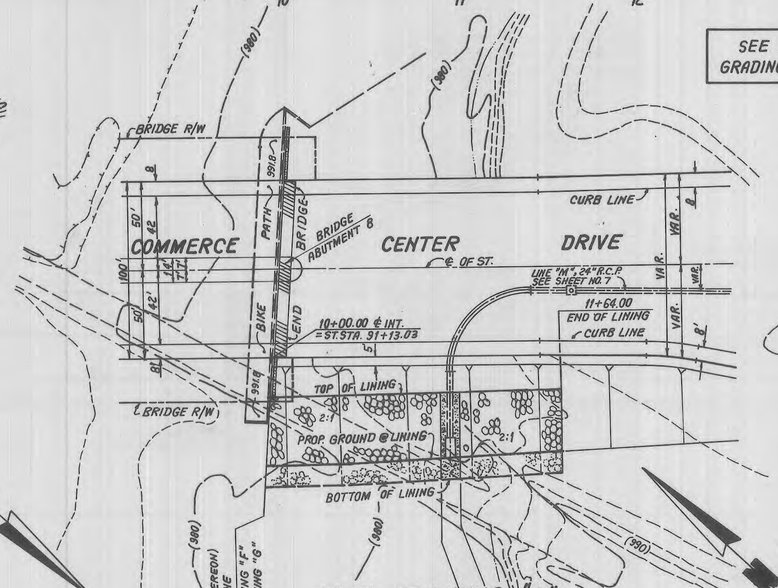
PROFILE OF LINING "F"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'



PROFILE OF LINING "G"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'



PLAN OF LINING "E"
SCALE: 1"=40'

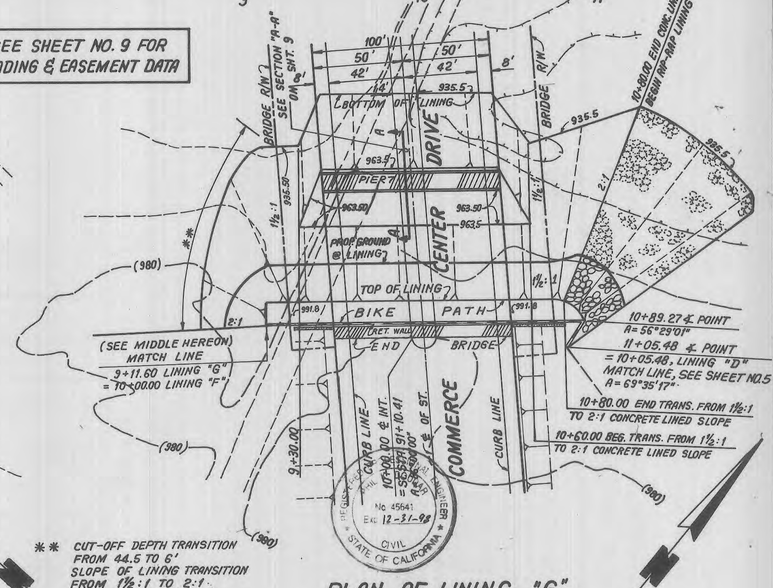


PLAN OF LINING "F"
SCALE: 1"=40'

10+96.00 END RIP-RAP LINING
BEGIN CONCRETE LINING
(SEE JOIN DETAIL ON SHT. 8)

11+06.00 END CONCRETE LINING
BEGIN RIP-RAP LINING
(SEE JOIN DETAL ON SHT. 8)

SEE SHEET NO. 9 FOR GRADING & EASEMENT DATA



** CUT-OFF DEPTH TRANSITION FROM 44.5 TO 6'
SLOPE OF LINING TRANSITION FROM 1½:1 TO 2:1

PLAN OF LINING "G"
SCALE: 1"=40'

NO.	REVISION	REVISED BY	APPROVED BY	DATE

* CUT-OFF DEPTH TRANSITION FROM 18' TO 6'
SLOPE OF LINING TRANSITION FROM 1½:1 TO 2:1
CONCRETE LINING.

REGISTERED PROFESSIONAL ENGINEER JORA SARKISSIAN No. 42890 Exp. 3-31-00 CIVIL STATE OF CALIFORNIA

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE
DIRECTOR OF PUBLIC WORKS

CHECKED BY: _____ LAND DEVELOPMENT DIVISION
R.C.E. NO. 45641 DATE: 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

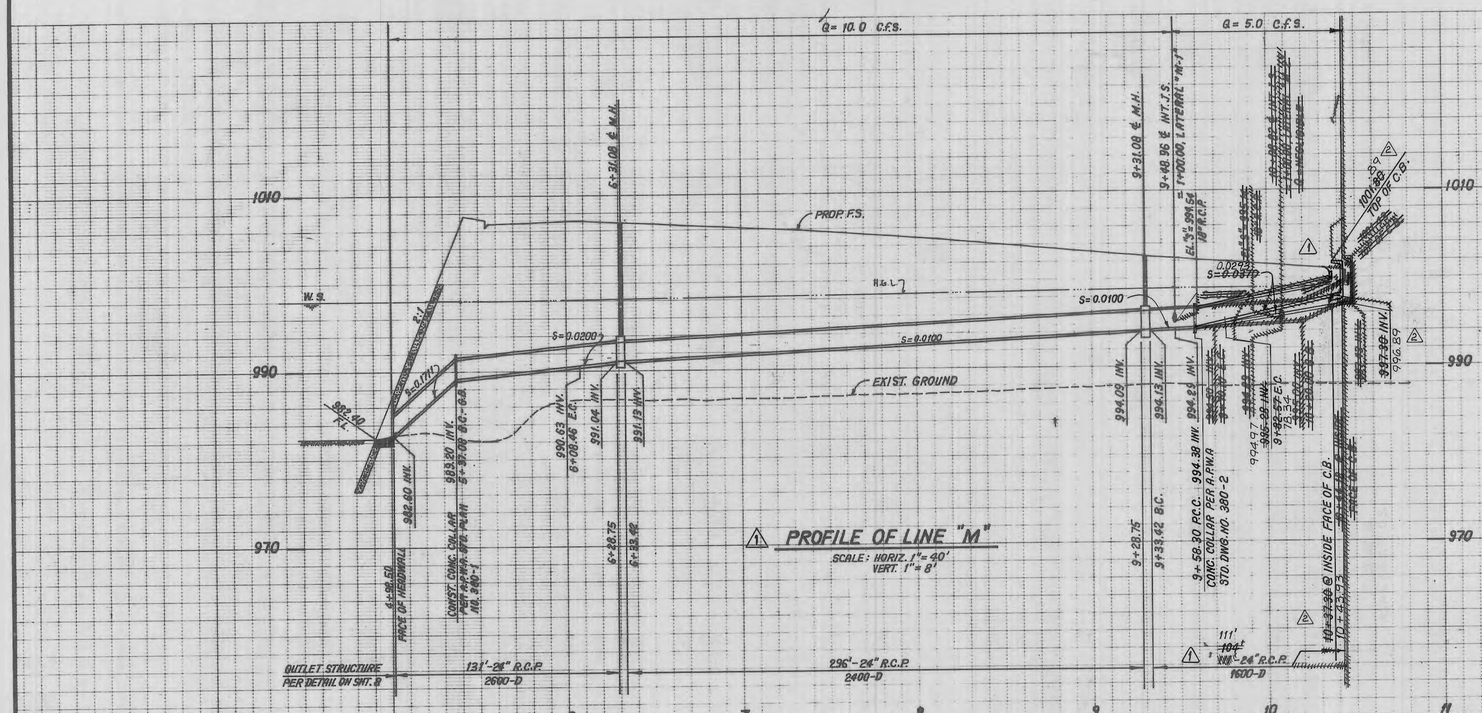
REGISTERED CIVIL ENGINEER No. 45641 Exp. 12-31-98 CIVIL STATE OF CALIFORNIA

SHT 6 OF 9 SHTS

W.O. 1020-252-A

G M Jr (213) 699-8440 P.D. SHEET NO. 2 DATE 6-85

STORM DRAIN PLANS IN D.S. 485 P.D. NO. 2298 (UNIT III)



℄ STORM DRAIN CURVE DATA				
⬡	△	R	L	T
1	23° 34' 49"	45.00'	18.52'	9.39'
2	67° 18' 32"	45.00'	52.86'	29.96'
3	19° 46' 50"	45.00'	15.54'	7.85'
~~4~~	~~26° 55' 36"~~	~~45.00'~~	~~21.15'~~	~~10.77'~~
5	34° 48' 32"	45.00'	27.34'	14.11'
6	60° 00' 00"	22.50'	23.56'	12.99'
7	11° 54' 13"	45.00'	9.34'	4.69'
8	~~61° 47' 52"~~	~~22.50'~~	~~24.27'~~	~~13.47'~~
1/2	51° 02' 11"		20.04'	10.74'

PLAN OF LINE "M"
SCALE: 1"=40'

~~* NOT TO BE MAINTAINED BY L.A.C.F.C.D.~~

NO	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED LINE "L" & "M" PLAN & PROFILE ELIMINATED LATERAL "M-2"	42890		7/7/98
2	REVISED LINE "M" PLAN & PROFILE	S. KHALIL		12/1/98
3	REVISED LINE "L" PROFILE AND ADDED PROPOSED (2)-18" SEWER CROSSING	RCE 51913		11/1/07

ALLIANCE ENGINEERING
1148 FARADAY AVE
CARLSBAD, CA 92008
760-431-3936

FOR 3 ONLY

PLANS PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD., VAN NUYS, CALIF. 91411, TEL. (818) 787-8550
JORA SARKISSIAN
SIGNATURE: R.C.E. NO. 42890

COUNTY OF LOS ANGELES, CALIFORNIA
"HOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: R.C.E. NO. 45641 DATE: 4-13-98

SHT 7 OF 9 SHTS

W O K89-2

STORM DRAIN PLANS IN D.S. NO. 485 P.D. NO. 2298 (UNIT III)

STRUCTURAL NOTES

GENERAL:

1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER OF BAR AND SHALL BE TWO INCHES UNLESS OTHERWISE SHOWN.
2. CONCRETE DIMENSIONS SHALL BE MEASURED HORIZONTALLY OR VERTICALLY ON THE PROFILE, AND PARALLEL TO OR AT RIGHT ANGLES (OR RADIALLY) TO CENTERLINE OF CONDUIT ON THE PLAN EXCEPT AS OTHERWISE SHOWN.
3. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", 1971 EDITION, SECTION 7.1.
4. PLACING OF REINFORCEMENT SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", 1971 EDITION, SECTION 7.3
5. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 30 INCHES OF MANHOLE OR JUNCTION STRUCTURE OPENING.
6. 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.
7. THE TRANSVERSE REINFORCING STEEL SHALL TERMINATE ONE AND ONE-HALF INCHES FROM THE CONCRETE SURFACES UNLESS OTHERWISE SHOWN ON THE STRUCTURAL DETAILS.
8. EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE ROUNDED OR BEVELLED.
9. NO SPLICES IN TRANSVERSE STEEL REINFORCEMENT WILL BE PERMITTED OTHER THAN SHOWN ON THE DRAWING WITHOUT APPROVAL OF THE ENGINEER. NO MORE THAN TWO SPLICES WILL BE PERMITTED IN ANY LONGITUDINAL BAR BETWEEN TRANSVERSE JOINTS. SPLICES SHALL BE STAGGERED.
10. LONGITUDINAL STEEL SHALL BE LAPPED 20 BAR DIAMETERS AT SPLICES. TRANSVERSE STEEL SHALL BE LAPPED 30 BAR DIAMAETERS AT SPLICES.
11. LONGITUDINAL STEEL SHALL BE CONTINOUS AND EXTEND THROUGH ALL CONSTRUCTION JOINTS.
12. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, TRANSVERSE JOINT KEYWAYS (IN SLABS AND WALLS), AS DETAILED FOR LONGITUDINAL KEYWAYS AT THE BASE OF THE WALLS, SHALL BE PLACED AT THE END OF EACH POUR, BUT THE SPACING THEREOF 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.
13. UNLESS OTHERWISE SHOWN ON THE 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 THE OUTSIDE OF THE CURVE FOR DOUBLE BARREL BOXES. STRAIGHT BARS AND L-BARS IN WALLS SHALL BE SPACED AS SHOWN FOR THE TYPICAL SECTIONS. WITH THE SPACING MEASURED BETWEEN THE VERTICAL LEGS OF BARS.
14. AT THE BEGINNING AND ENDING OF ALL POURS, A CURTAIN OF REINFORCEMENT COMPOSED OF B. C. C2. D. CW, F, G. AND H BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT.
15. THE VERTICAL WALL STEEL IN INTERIOR WALLS AND IN THE INTERIOR FACE OF EXTERIOR WALLS MAY BE SPLICED AT THE CONSTRUCTION JOINT AT THE BASE OF THE WALL. THE SPLICES SHALL BE 20 BAR DIAMETERS IN LENGTH.
16. IN ALL SECTIONS LAP C AND C2 BARS. THE VERTICAL LENGTH OF C AND C2 BARS HAS BEEN CALCULATED FOR A FOUR INCH STARTER WALL. IF THE HEIGHT OF THE STARTER WALL IS VARIED, THE VERTICAL LENGTH OF THE C AND C2 BARS SHALL BE VARIED CORRESPONDINGLY SO AS TO MAINTAIN A 30 DIAMETER LAP BETWEEN THE TWO BARS. THE LAPS SHALL BE BASED ON THE SMALLER BARS.
17. CONCRETE QUANTITITES ARE BASED ON A SIX-BY-SIX INCH FILLET AND THE STEEL QUANTITIES DO NOT INCLUDE ANY OPTIONAL SPLICES.
18. IF WALL THICKNESS IS SIX INCHES PLACE REINFORCEMENT AT THE CENTERLINE OF THE WALL.
19. THE DESIGN OF BOX SECTIONS IDENTIFIED BY A NUMERICAL VALUE IS BASED ON A WIDTH OF TRENCH EQUAL TO THE OUTSIDE WIDTH OF THE CONDUIT PLUS THREE FEET. WHEN THE COVER IS EQUAL TO 10 FEET OR LESS THE TRENCH WIDTH IS UNRESTRICTED. WHEN THE COVER IS GREATER THAN 10 FEET AND THE TRENCH WIDTH IS GREATER THAN THE OUTSIDE WIDTH OF THE CONDUIT PLUS 3 FEET FOR A DISTANCE IN EXCESS OF 10 FEET AN ALTERNATE SECTION SHALL BE USED AS INDICATED BELOW
   - A. WHEN THE DEPTH OF COVER IS LESS THAN 18 FEET, SECTIONS WITH THE SUFFIX "B" SHALL BE USED.
   - B. WHEN THE DEPTH OF COVER IS GREATER THAN 18 FEET AND:
     1. THE TRENCH WIDTH IS LESS THAN THE OUTSIDE WIDTH OF THE CONDUIT PLUS 6 FEET, SECTIONS WITH SUFFIX "A" SHALL BE USED.
     2. THE TRENCH WIDTH IS GREATER THAN THE OUTSIDE WIDTH OF CONDUIT PLUS 6 FEET, SECTIONS WITH THE SUFFIX "A" SHALL BE USED

R. C. RECTANGULAR CHANNEL

1. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 30 INCHES OF INLETS.
2. TRANSVERSE JOINTS SHALL BE PLACED AT THE JUNCTION OF RECTANGULAR OPEN CHANNEL SECTIONS WITH CLOSED CONDUIT SECTIONS. THE JOINT SHALL NOT BE KEYED AND SHALL HAVE A THREE-EIGHTS-INCH LAYER OF EXPANSION JOINT MATERIAL IN WALLS AND INVERT
3. ALL RECTANGULAR OPEN CHANNEL WALLS SHALL BE FENCED IN ACCORDANCE WITH APWA STANDARD DRAWING 600-O EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
4. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, IN CURVED SECTIONS, THE MAXIMUM SPACING OF BARS SHALL NOT EXCEED THAT SHOWN ON THE TYPICAL SECTIONS. STEEL SHALL BE PLACED RADIALLY FROM THE MAXIMUM SPACING.
5. AT THE BEGINNING AND ENDING OF ALL POURS, A COMPLETE CURTAIN OF REINFORCEMENT COMPOSED OF B1, B4, AND B7 BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT.
6. LONGITUDINAL STEEL SHALL TERMINATE TWO INCHES FROM TRANSVERSE CONSTRUCTION JOINTS.

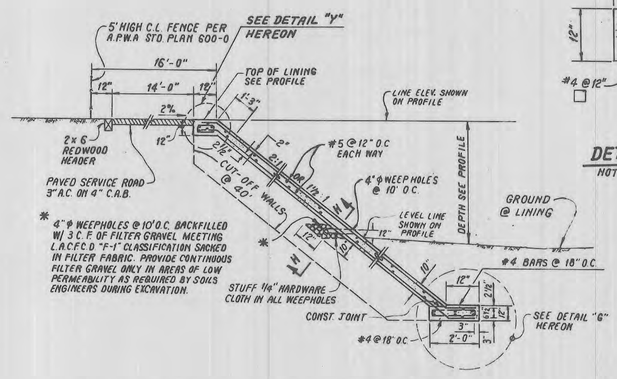
STRUCTURAL DESIGN CRITERIA

LIVE LOAD
H_{20} - S16-44 unless otherwise noted

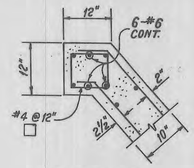
DEAD LOAD
Earth load per Marston's formula: w = 110 p.c.f
Ku = Ku' = 0.150
Bd = Outside width of box plus 3 feet
Side earth 37 p.s.f. per foot of depth
Internal water pressure: 62.4 p.s.f. per foot of depth
Weight of concrete: 150 p.c.f.

ALLOWABLE STRESSES
fc' = 4000 p.s.i. at 28 days
fc = 1800 p.s.i.
fs = 24000
n = 8
shear and bond stresses per A.C.I. 318-63

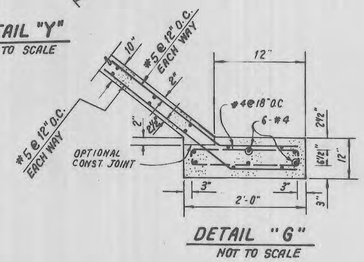
NO	REVISION	REVISED BY	APPROVED BY	DATE



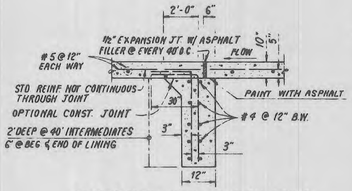
CONCRETE LINING DETAIL "A"
NOT TO SCALE



DETAIL "Y"
NOT TO SCALE



DETAIL "G"
NOT TO SCALE

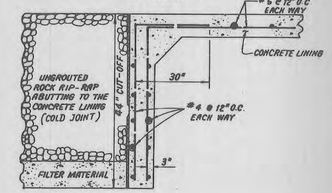


SECTION "H-H" EXPANSION JOINT
CUT-OFF WALL

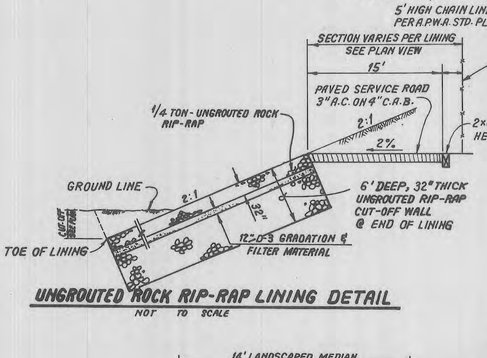
NOTE EXPANSION JOINT SHALL BE SPACED @ 40' INTERVALS



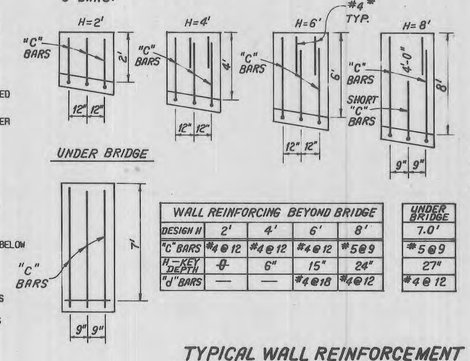
⚠ CONCRETE LINING-UNGROUTED ROCK RIP-RAP JOIN DETAIL
NOT TO SCALE



⚠ SECTION "A-A"
NOT TO SCALE



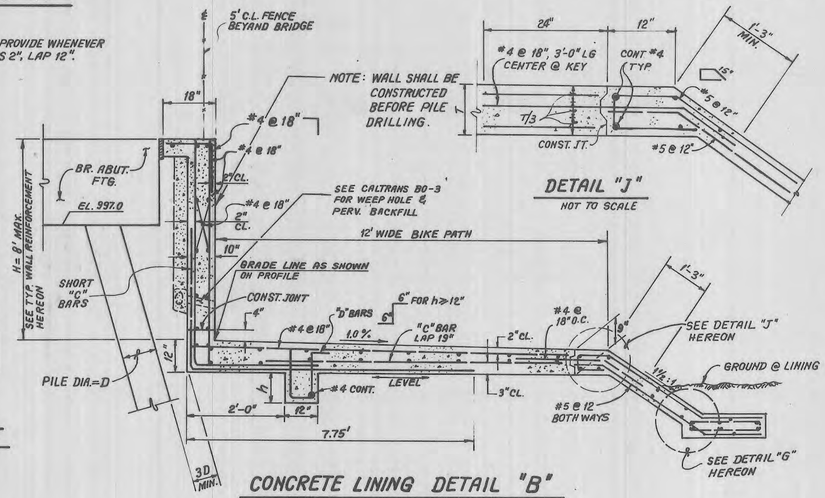
UNGROUTED ROCK RIP-RAP LINING DETAIL
NOT TO SCALE



WALL REINFORCING BEYOND BRIDGE				
DESIGN H	2'	4'	6'	8'
"C" BARS	#4@12	#4@12	#4@12	#5@9
H-SEE DEPTH	-0-	6"	15"	24"
"J" BARS	—	—	#4@18	#4@12

UNDER BRIDGE
7.0'
#5@9
27"
#4@12

TYPICAL WALL REINFORCEMENT
NOT TO SCALE



CONCRETE LINING DETAIL "B"
NOT TO SCALE

DETAIL "J"
NOT TO SCALE



CONST. MOD. C.B. PER A.P.W.A. STD. PLAN 304-1 OR EQUAL, V=VAR. SEE PLAN

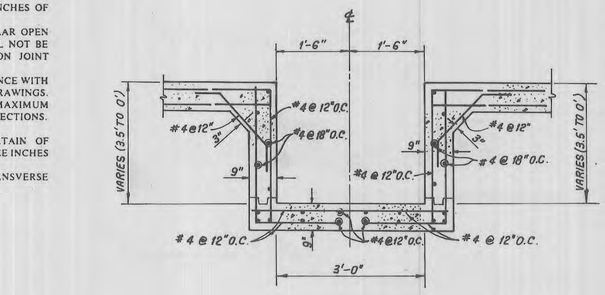
CONST. MOD. C.B. PER A.P.W.A. STD. PLAN 300-1 (TYP.), W= 12' & V= 18', B= 12". MAX. SPACING= 1000' W/6" STD. COVER PER ALHAMBRA FDRY. CO. STD. A-2025 OR EQUAL.

NOTE: ALL DIMENSIONS ARE TYPICAL

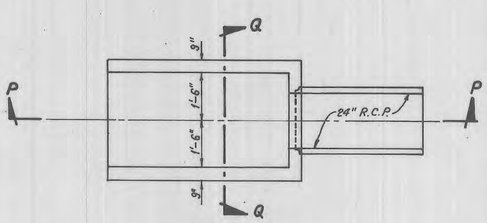
SECTION A-A
NOT TO SCALE

NOT TO BE MAINTAINED BY L.A.C.F.C.D.

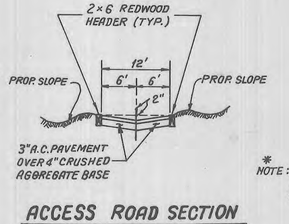
MEDIAN CATCH BASIN DETAIL
NOT TO SCALE



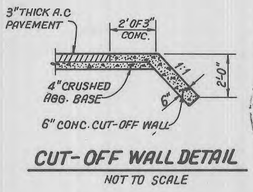
SECTION Q-Q
NOT TO SCALE



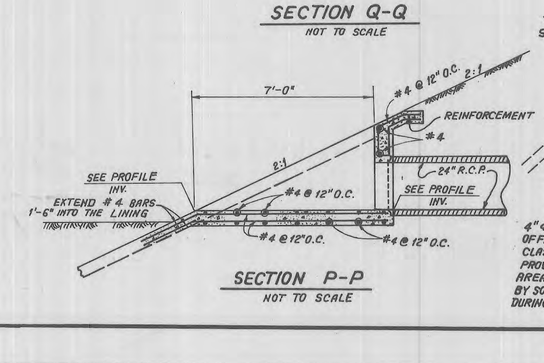
OUTLET STRUCTURE DETAIL FOR LINES "L" & "M"
NOT TO SCALE



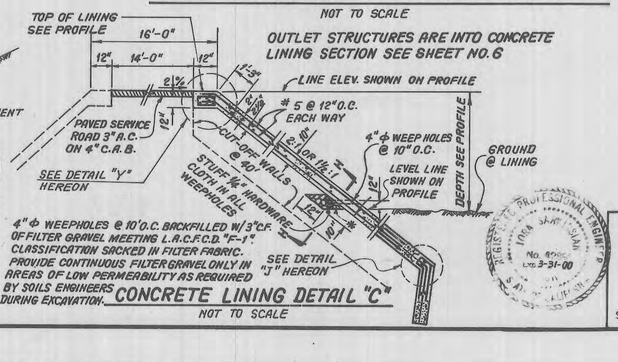
ACCESS ROAD SECTION
NOT TO SCALE



CUT-OFF WALL DETAIL
NOT TO SCALE



SECTION P-P
NOT TO SCALE



CONCRETE LINING DETAIL "C"
NOT TO SCALE

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
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(818) 787-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE — DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION R.C.E. NO. 45641 DATE 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

STORM DRAIN PLANS IN D.S. NO. 485 P.D. No. 2298 (UNIT III)

* EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES.

SCALE: 1"=60'

EASEMENT DATA

T NO.	DIRECTION	DISTANCE
1.	S. 40°42'51" W	85.81'
2.	N. 73°57'46" W	40.24'
3.	N. 16°02'12" E	40.00'
4.	N. 45°25'14" E	8.43'
5.	N. 45°25'14" E	20.00'
6.	N. 79°06'38" E	54.08'
7.	N. 74°00'15" E	52.83'
8.	N. 48°25'14" E	10.30'
9.	S. 23°27'24" E	23.43'
10.	S. 16°20'56" W	40.00'
11.	S. 49°51'40" W	11.28'
12.	N. 72°53'09" W	19.00'
13.	S. 45°25'14" W	19.65'
14.	S. 41°34'46" E	14.01'
15.	S. 16°20'56" W	26.00'
16.	S. 73°39'04" E	44.00'
17.	S. 16°20'56" W	26.00'
18.	S. 73°39'04" E	70.00'
19.	S. 35°49'21" E	33.35'
20.	S. 60°44'13" W	56.74'
21.	S. 40°39'43" E	7.79'
22.	N. 16°20'56" E	34.56'
23.	N. 16°20'56" E	34.56'
~~24.~~	~~S. 48°25'14" W~~	~~163.32'~~
~~25.~~	~~S. 48°25'14" W~~	~~113.32'~~
~~26.~~	~~S. 48°25'31" E~~	~~76.00'~~
27.	S. 48°25'14" W	109.31'
28.	S. 48°25'14" W	108.59'
29.	S. 44°10'19" E	16.02'

EASEMENT CURVE DATA

C NO.	DELTA	RADIUS	LENGTH	TANGENT
1.	100°14'12"	111.00'	194.19'	132.84'
2.	005°37'02"	847.00'	83.04'	41.55'
3.	026°27'15"	273.91'	126.47'	64.38'
4.	048°07'38"	250.00'	209.99'	111.64'
5.	044°29'23"	87.00'	67.55'	35.58'
6.	003°44'54"	564.00'	36.90'	18.46'
7.	069°39'23"	90.00'	109.42'	62.62'
8.	044°09'28"	73.00'	56.26'	29.61'
9.	034°50'53"	104.00'	63.25'	32.64'
10.	000°55'03"	992.00'	15.89'	7.94'

EASEMENT CURVE DATA (CON'T.)

C. NO.	DELTA	RADIUS	LENGTH	TANGENT
11	59°15'34"	42.00'	43.44'	23.89'
12.	59°15'34"	58.00'	59.99'	32.99'
13	27°11'16"	58.00'	27.52'	14.05'
14	27°11'16"	42.00'	19.93'	10.16'

⊙ - 13 L.F. - 12" P.V.C. AND C.S.P. INLET PER A.P.W.A. STD. PLAN NO. 351-1, CASE 1, INLET ELEV. = 999.00 (NOT TO BE MAINTAINED BY THE LACFCD)

SECTION "A-A"

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

SECTION "B-B"

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

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED EASEMENT DATA. REVISED N'LY CURB LOC. @ C.C.D. & HWY. 126 & GRADING.	42890	B. Hamat	3/5/99

REGISTERED PROFESSIONAL ENGINEER — JORA SARKISSIAN — No. 42890 Exp. 9-31-00 — CIVIL — STATE OF CALIFORNIA

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA 91411
(818) 787-8550
JORA SARKISSIAN
SIGNATURE: _____ R.C.E. NO. 42890

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE — DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION R.C.E. NO. 45641 DATE: 4-13-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

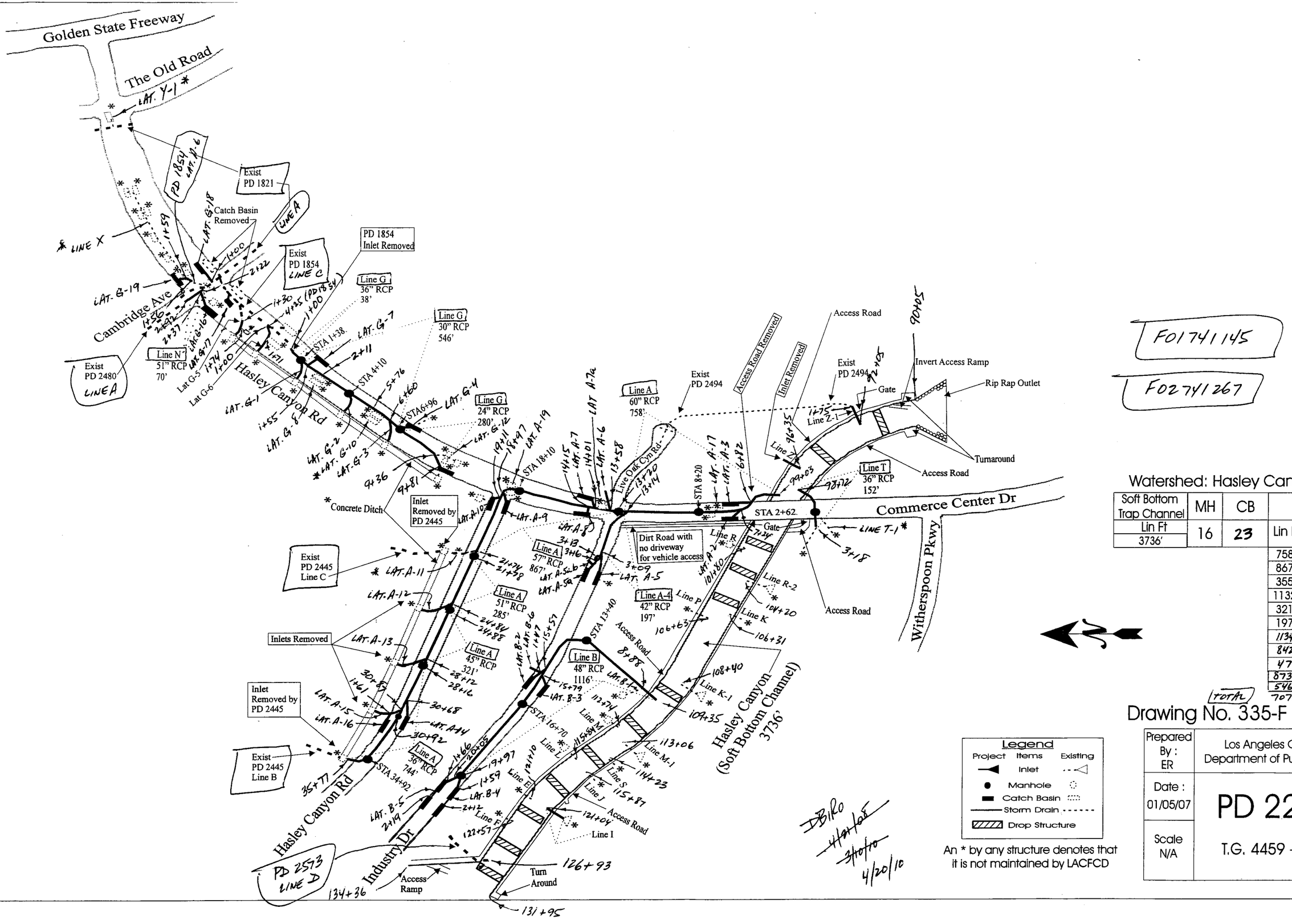
SHT 9 OF 9 SHTS

W.O. 1020-252-A

GM JP (213) 699-8440 F.D. SHEET NO. 3 DATE 6-15-

Appendix K- As-Built Drawings

Hasley Canyon Creek PD 2262


Golden State Freeway
The Old Road
LAT. Y-1 *
PD 1854 LAT. Y-6
Exist PD 1821
LAT. G-18
Catch Basin Removed
LINE A
LINE X
1+59
1+00
2+22
LAT. G-19
Cambridge Ave
PD 1854 Inlet Removed
Exist PD 1854 LINE C
Line G 36" RCP 38'
1+56
2+42
2+37
LAT. G-16
LAT. G-17
Exist PD 2480 LINE A
Line N 51" RCP 70'
1+74
1+00
Lat G-5
Lat G-6
1+71
i+30
4+25 (PD1854)
1+00
STA 1+38.
LAT. G-7
2+11
Line G 30" RCP 546'
STA 4+10
5+76
6+60
STA6+96
LAT. G-4
Line G 24" RCP 280'
LAT. G-1
i+55
Hasley Canyon Rd
LAT. G-8
LAT. G-2
LAT. G-10
LAT. G-3
9+36
9+81
LAT. G-12
19+11
18+97
LAT. A-19
STA 18+10
14+15
LAT. A-7
14+01
LAT. A-6
13+58
Live Oak Cyn Rd
13+20
13+14
Line A 60" RCP 758'
Exist PD 2494
Access Road Removed
Inlet Removed
Access Road
90+05
Exist PD 2494
92+05
Invert Access Ramp
Gate
Rip Rap Outlet
1+35
Line Z-1
96+35
Line Z
Turnaround
Access Road
Line T 36" RCP 152'
99+03
93+72
STA 8+20
LAT. A-17
LAT. A-3
6+82
STA 2+62.
Commerce Center Dr
LINE T-1 *
Gate
7+24
3+18
Line R
Dirt Road with no driveway for vehicle access
Concrete Ditch
Inlet Removed by PD 2445
LAT. A-10
LAT. A-9
LAT. A-8
3+13
3+16
3+09
Line A 57" RCP 867'
LAT. A-5b
LAT. A-5a
LAT. A-5
LAT. A-2
101+80
Line R-2
104+20
Exist PD 2445 Line C
LAT. A-11
21+74
21+58
Line A 51" RCP 285'
LAT. A-12
24+84
24+88
Line A-4 42" RCP 197'
Line P
106+63
Line K
106+31
Access Road
Witherspoon Pkwy
Inlets Removed
LAT. A-13
Line A 45" RCP 321'
28+12
28+16
STA 13+40
Access Road
8+88
Line B 48" RCP 1116'
LAT. B-2
LAT. B-6
1+47
15+57
LAT. B-1
LAT. B-3
15+79
112+74
108+40
Line K-1
109+35
Inlet Removed by PD 2445
LAT. A-15
LAT. A-16
1+61
30+63
30+68
LAT. A-14
30+92
Line M
115+68
Line M-1
113+06
Hasley Canyon (Soft Bottom Channel) 3736'
STA 16+70
Line L
121+10
114+23
Line S
115+87
Exist PD 2445 Line B
Line A 36" RCP 744'
14+66
20+03
19+97
1+59
LAT. B-4
2+12
Line E
Line J
121+04
Access Road
Line I
LAT. B-5
2+19
Line F
122+57
126+93
Turn Around
Hasley Canyon Rd
Industry Dr
PD 2573 LINE D
134+36
Access Ramp
131+95
Legend
Project Items
Existing
Inlet
Manhole
Catch Basin
Storm Drain
Drop Structure
An * by any structure denotes that it is not maintained by LACFCD
Watershed: Hasley Canyon
Soft Bottom Trap Channel
Lin Ft
3736'
MH
16
CB
23
RCP
Lin Ft
Dia
758' 60"
867' 57"
355' 51"
1132' 48"
321' 45"
197' 42"
1134' 36"
842' 30"
47' 27"
873' 24"
546' 18"
TOTAL 7072'
Drawing No. 335-F 33.1-.23
Prepared By : ER
Los Angeles County Department of Public Works
Date : 01/05/07
PD 2262
Scale N/A
T.G. 4459 - G5,6
DBilo 4/14/10 3/10/10 4/20/10
F01741145
F02741267

STORM DRAIN PLANS IN P.M. 18229 P.D. No. 2262

LIST OF STANDARDS (CONT'D)

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

1. JUNCTION STRUCTURE NO. 2	PER 3031-0
2 PIPE CONNECTION TO EXIST. STORM DRAIN	" 3035-0

LIST OF STANDARDS

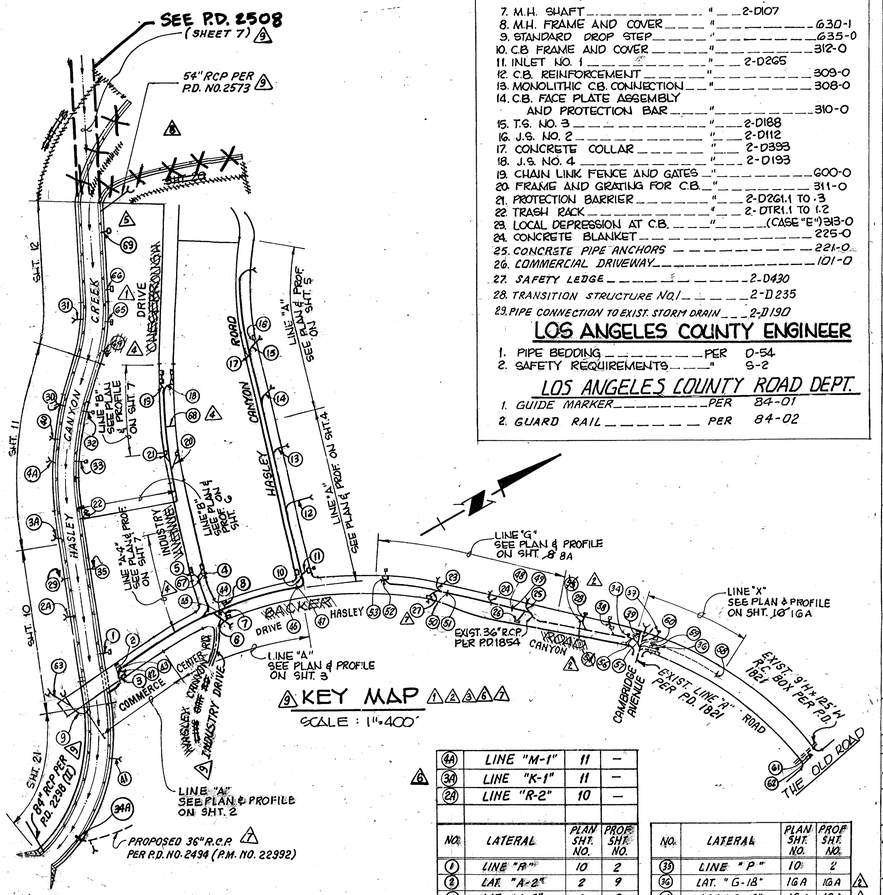
		L.A.C.F.C.D	A.P.W.A.
1. M.H. NO. 1	PER	2-D102	
2. M.H. NO. 2	"	2-D184	
3. M.H. NO. 4	"	2-D113	
4. CURB OPENING CATCH BASIN	"		300-0
7. M.H. SHAFT	"	2-D107	
8. M.H. FRAME AND COVER	"		630-1
9. STANDARD DROP STEP	"		635-0
10. C.B. FRAME AND COVER	"		312-0
11. INLET NO. 1	"	2-D265	
12. C.B. REINFORCEMENT	"		309-0
13. MONOLITHIC C.B. CONNECTION	"		308-0
14. C.B. FACE PLATE ASSEMBLY AND PROTECTION BAR	"		310-0
15. T.G. NO. 3	"	2-D188	
16. J.S. NO. 2	"	2-D112	
17. CONCRETE COLLAR	"	2-D338	
18. J.S. NO. 4	"	2-D193	
19. CHAIN LINK FENCE AND GATES	"		600-0
20. FRAME AND GRATING FOR C.B.	"		311-0
21. PROTECTION BARRIER	"	2-D261.1 TO .3	
22 TRASH RACK	"	2- D781.1 TO 1.2	
23. LOCAL DEPRESSION AT C.B.	"	(CASE "E")	313-0
24. CONCRETE BLANKET			225-0
25. CONCRETE PIPE ANCHORS			221-0
26. COMMERCIAL DRIVEWAY			101-0
27. SAFETY LEDGE		2-D420	
28. TRANSITION STRUCTURE NO1		2-D235	
29. PIPE CONNECTION TO EXIST. STORM DRAIN		2-D190	

LOS ANGELES COUNTY ENGINEER

1. PIPE BEDDING	PER	D-54
2. SAFETY REQUIREMENTS	"	S-2

LOS ANGELES COUNTY ROAD DEPT.

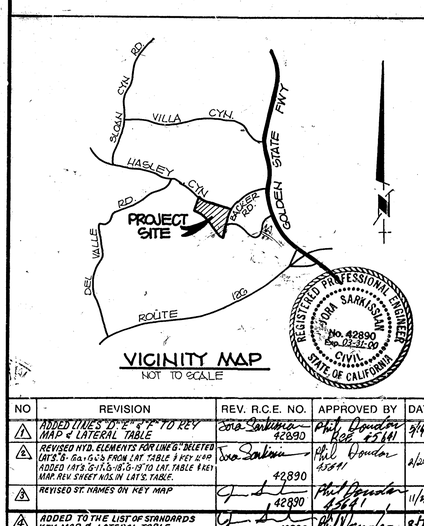
1. GUIDE MARKER	PER	84-01
2. GUARD RAIL	PER	84-02



6 (A4)	LINE "M-1"	11	–
(30)	LINE "K-1"	11	–
(24)	LINE "R-2"	10	–

NO.	LATERAL	PLAN SHT. NO.	PROF SHT. NO.
(1)	LINE "A"	10	2
(2)	LAT. "A-2"	2	9
(3)	LAT. "A-3"	2	9
(4)	LAT. "A-5a"	7	7
(5)	LAT. "A-5"	7	9
(6)	LAT. "A-6"	3	3
(7)	LAT. "A-7"	3	3
(8)	LAT. "A-8"	3	3
2 (9)	LINE "F"	2	18 18A
(10)	LAT. "A-9"	4	4
(11)	LAT. "A-10"	4	4
(12)	LAT. "A-11"	4	9
(13)	LAT. "A-12"	4	9
(14)	LAT. "A-13"	5	5
(15)	LAT. "A-15"	5	9
(16)	LAT. "A-16"	5	9
(17)	LAT. "A-14"	5	5
(18)	LAT. "B-5"	7	7
(19)	LAT. "B-4"	7	6
(20)	LAT. "B-3"	6	6
(21)	LAT. "B-2"	6	6
(22)	LAT. "B-1"	6	6
(23)	LAT. "G-3"	8BA	9
(24)	LAT. "G-2"	8BA	8BA
(25)	LAT. "G-1"	8BA	8BA
2 (26)	LAT. "G-7"	8BA	9
(27)	LAT. "G-8"	8BA	9
(28)	LAT. "G-6"	18	18
(29)	LINE "K"	10	13
(30)	LINE "J"	11	13
(31)	LINE "I"	12	12
(32)	LINE "L"	11	2
(33)	LINE "M"	11	2
4 (34)	LAT. "G-17"	18A	18A
4 (A4)	LINE "M-1"	21	21

NO.	LATERAL	PLAN SHT. NO.	PROF SHT. NO.
(35)	LINE "P"	10	2
(36)	LAT. "G-18"	16A	16A
(37)	LAT. "G-19"	16A	16A
(38)	LAT. "G-5"	18 18A	18 18A
(39)	LAT. "G-16"	18 18A	2 18A
(40)	LINE "S"	11	18 18A
(41)	LINE "Z"	21	22
(42)	LAT. "A-17"	2	19
(43)	LAT. "A-18"	2	19
(44)	LAT. "A-7a"	3	19
(45)	LAT. "A-7b"	3	19
(46)	LAT. "A-19"	3	22
(47)	LAT. "A-20"	3	22
(48)	LAT. "G-8"	8BA	18 18A
(49)	LAT. "G-9"	8BA	18 18A
(50)	LAT. "G-10"	8BA	18 18A
(51)	LAT. "G-11"	8BA	19
(52)	LAT. "G-12"	8BA	19
(53)	LAT. "G-13"	8BA	19
(54)	LAT. "G-6a"	18	22
(55)	LAT. "G-6b"	18	22
(56)	LAT. "G-14"	18 18A	19
(57)	LAT. "G-15"	18 18A	19
(58)	LAT. "X-1"	16	9
(59)	LAT. "X-2"	16	9
(60)	LAT. "X-3"	16	19
(61)	LAT. "Y-1"	16	16
(62)	LAT. "Y-2"	16	16
(63)	LINE "T-1"	2	13
(64)	LINE "D"	12	12
(65)	LINE "E"	12	12
(66)	LINE "F"	12	2
(67)	LATERAL "A-5ab"	7	–
(68)	LATERAL "B-6"	7	–
(69)	LINE "Q"	12	5



NO	REVISION	REV. R.C.E. NO.	APPROVED BY	DATE
1	ADDED LINES D, E & F TO KEY MAP & LATERAL TABLE	42890	Phil Dowdle 45641	7/1/91
2	REVISED HYD. ELEMENTS FOR LINE "S" DELETED LAT'S. 5a, 6a, 6b FROM LAT. TABLE & KEY MAP ADDED LAT'S. 6-17, 6-18 & 6-19 TO LAT. TABLE & KEY MAP. REV. SHEET NOS. IN LAT'S. TABLE.	42890	Phil Dowdle 45641	2/24/92
3	REVISED ST. NAMES ON KEY MAP	42890	Phil Dowdle 45641	11/4/94
4	ADDED TO THE LIST OF STANDARDS KEY MAP & LATERAL TABLE.	42890	Phil Dowdle 45641	8/7/95
5	REMOVED EXISTING LINING TO TIE-IN TO P.D. 2508	Bruce Phillips 38535		5/12/04

SHEETS 8, 16 & 18 SUPERCEDED WITH SHEETS 8A, 16A & 18A.

HYDRAULIC ELEMENTS

LINE	STATION	Q25 IN C.F.S.	CONDUIT SIZE	S.F.	VELOCITY IN FT./SEC.	PN. IN FT.
LINE "A"	5+43.50 TO 5+53.50	206.1	5'W x 5'H R.C. BOX	.0723	21.6 ⊛	1.94
	5+53.50 TO 6+82.10	206.1	60"	.0723	25.2 ⊛	2.17
	6+82.10 TO 7+24.00	204.3	60"	.0723	23.4 ⊛	2.28
	7+24.00 TO 8+20.00	202.5	60"	.0723	23.6 ⊛	4.06
	8+20.00 TO 13+13.90	202.5	60"	.0059	11.6	4.15
	13+13.90 TO 13+58.48	156.4	57"	.0047	8.8	⊙
	13+58.48 TO 14+01.19	154.8	57"	.0045	8.6	⊙
	14+01.19 TO 14+15.41	152.8	57"	.0045	8.6	⊙
	14+15.41 TO 18+10.00	151.3	57"	.0044	8.5	⊙
	18+10.00 TO 18+97.17	151.3	57"	.0043	8.5	⊙
	18+97.17 TO 19+10.89	145.5	57"	.0039	8.2	⊙
	19+10.89 TO 19+12.89	138.6	57"	.0037	7.8	⊙
	19+12.89 TO 19+57.40	138.6	57"	.0037	7.8	⊙
	19+57.40 TO 21+74.00	138.6	57"	.0190	17.7	2.19
	21+74.00 TO 24+84.47	130.3	51"	.0232	19.1	2.26
	24+84.47 TO 28+12.43	106.3	45"	.0265	15.2	2.27
	28+12.43 TO 30+68.29	62.7	36"	.0259	9.8	2.55
	30+68.29 TO 30+77.36	58.0	36"	.0070	8.2	⊙
	30+77.36 TO 30+87.43	58.0	36"	.0259	8.7	2.68
	30+87.43 TO 31+19.52	31.0	36"	.0020	4.4	⊙
	31+19.52 TO 31+28.62	31.0	36"	.0259	4.6	2.76
	31+28.62 TO 32+12.22	31.0	36"	.0259	11.2	1.24
	32+12.22 TO 35+76.80	31.0	36"	.0166	7.0	1.81
LINE "B"	8+58.00 TO 8+68.00	98.0	4'W x 4'H R.C. BOX	.0027	5.8	⊙
	8+68.00 TO 8+88.00	92.0	48"	.0038	7.3	⊙
	8+88.00 TO 13+11.52	85.8	48"	.0033	6.8	⊙
	13+11.52 TO 13+54.85	85.8	48"	.0107	7.2	3.58
	13+54.85 TO 15+56.77	85.8	48"	.0114	9.1	2.81
	15+56.77 TO 15+79.10	76.2	48"	.0114	6.9	3.30
	15+79.10 TO 16+19.84	63.0	48"	.0114	5.9	3.19
	16+19.84 TO 18+10.00	63.0	48"	.0100	13.8	1.57
	18+10.00 TO 19+92.35	63.0	48"	.0190	12.0	1.75
LINE "G"	1+00.00 TO 1+38.67 (1+38.67)	~~36.1~~ 36.1	~~36"~~ 36"	~~.0213~~ .0213	~~12.3~~ 12.3	~~1.36~~ 1.36
	1+38.67 TO 1+55.56 (1+55.56)	~~34.1~~ 29.23	~~30"~~ 30"	~~.0223~~ .0223	~~12.9~~ 13.0	~~1.33~~ 1.31
	1+55.56 TO 2+90.00	~~34.8~~ 31.23	~~30"~~ 30"	.0300	~~14.3~~ 16.4	~~1.15~~ 1.04
	2+90.00 TO 4+10.00	31.23	30"	.0300	16.4	1.04
	4+10.00 TO 4+14.66	31.23	30"	.0509	7.8	1.91 0.99
	4+14.66 TO 6+59.53	19.95 18.6	30"	.0021	3.8	0.87
	6+59.53 TO 6+96.07	18.6	30"	.0412	10.4	0.95 0.99
	6+96.07 TO 9+00.00	14.3	30"	.0412	8.2	0.94 0.87
	9+00.00 TO 9+80.75	9.0	24"	.0173	5.5	1.07
	9+83.42 TO 9+90.92	7.2	12"	.0408	9.2	⊙
LAT. "A-2"	1+04.25 TO 1+50.00	3.1	24"	.1839	3.8	0.62
LAT. "A-3"	1+02.60 TO 1+28.02	3.1	24"	.4713	3.8	0.62
LINE "A-4"	1+04.50 TO 2+72.27	72.2	42"	.0051	7.5	⊙
	2+72.27 TO 3+08.55	72.2	42"	.0133	8.1	3.1
LAT. "A-5a"	1+07.45 TO 1+56.28	42.0	36"	.0244	11.9	2.1
LAT. "A-5"	1+01.86 TO 1+53.00	30.2	30"	.0350	12.7	1.9
LAT. "A-6"	1+02.45 TO 1+32.99	3.7	24"	.0005	1.8	⊙
	1+32.99 TO 1+86.09	3.7	24"	.0869	11.4	0.67
LAT. "A-7"	1+02.26 TO 1+16.72	2.3	24"	.0001	0.73	⊙
	1+16.72 TO 1+49.36	2.3	24"	.1363	3.5	0.53
LAT. "A-8"	1+02.13 TO 1+13.52	2.3	24"	.0001	0.7	⊙
	1+13.52 TO 1+38.00	2.3	24"	.1801	3.5	0.53

33. MANHOLES NO. 1, 2, 3, AND 4, SHALL USE THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION 630-1 FOR THE " FRAME AND COVER " AND 635-0 FOR THE "STANDARD DROP STEP ".

CHANNEL STRUCTURAL NOTES

SEE SHEET NO. 19

HYDRAULIC ELEMENTS (CONTINUED)

LAT. "A-9"	1+02.45 TO 1+52.22	9.0	27"	.0008	2.3	⊙
LAT. "A-10"	1+02.17 TO 1+43.73	10.9	24"	.0023	3.5	⊙
	1+46.90 TO 1+53.90	6.4	12"	.0429	10.6	⊙
LAT. "A-11"	1+03.18 TO 1+65.00	13.0	36"	.0300	24.6 ⊛	0.56
	1+65.00 TO 2+49.39	13.0	36"	.3639	25.8 ⊛	1.15
LAT. "A-12"	1+04.00 TO 1+70.00	31.0	30"	.0591	22.7 ⊛	0.80
	1+70.00 TO 1+80.58	31.0	30"	.2566	20.1 ⊛	0.88
	1+80.58 TO 2+01.18	31.0	30"	.2566	7.8	1.90
LAT. "A-13"	1+02.53 TO 2+00.00	52.0	36"	.0300	14.5	2.35
LAT. "A-14"	1+01.59 TO 1+14.86	6.8	24"	.0009	2.5	⊙
	1+14.86 TO 1+36.77	6.8	24"	.0804	4.8	0.93
LAT. "A-15"	1+03.00 TO 1+46.31	37.0	30"	0.0081	7.5	⊙
	1+46.31 TO 1+61.14	37.0	30"	0.0328	8.6	2.06
	1+61.14 TO 1+72.14	29.9	30"	0.0053	6.1	⊙
LAT. "A-16"	1+01.44 TO 1+06.68	10.3	24"	.0020	3.3	⊙
	1+06.68 TO 1+06.83	10.3	24"	.1966	3.3	1.97
	1+06.83 TO 1+14.41	10.3	24"	.1966	5.5	1.15
LAT. "B-1"	1+02.31 TO 1+14.56	6.2	18"	.0035	3.5	⊙
	1+14.56 TO 1+40.00	6.2	18"	.2786	18.3	0.71

CONTINUED ON SHT. 13 & 22

⊙ INDICATES FULL FLOW

⊛ ADDITIONAL ½" INVERT COVER IS REQUIRED. SEE NOTE NO. 25

CHANNEL HYDRAULIC DATA SEE SHEET NO. 22

REGISTERED PROFESSIONAL ENGINEER BRUCE M. PHILLIPS No. 038535 Exp. 3-31-05 CIVIL STATE OF CALIFORNIA

PACE PACIFIC ADVANCED CIVIL ENGINEERING 17520 NEWHOPE STREET, SUITE 200 FOUNTAIN VALLEY, CA 92708 PH (714) 481-7300 FAX (714) 481-7299

REGISTERED PROFESSIONAL ENGINEER DOUG FARMER No. 49041 Exp. 09-30-06 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER RONALD R. HORN No. 16913 Exp. 6-30-95 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER ROBERT J. GALLAGHER No. 328 Exp. 12-31-93 GEOTECHNICAL STATE OF CALIFORNIA

Soil Engineering aspects of this plan are approved. R. T. FRANKIAN & ASSOCIATES by _____ 1/24/90

BENCH MARK: CL. 3976
L.A.C.R.D. B.M.
R.D.B.M. TAG IN C.B. 4 FT. N. BCR. TO FT. N. & 32 FT. E. ℄ INT. OLD ROAD & HASLEY CYN. RD. OFF-RAMP.
NEWHALL QUAD (1983) ELEV. 1065.685

GENERAL NOTES (Cont'd)

21. ALL BACKFILL AND FILLS WITHIN STREET RIGHT OF WAY SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 308-1.3.4. OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED AND INSPECTED BY THE DEPARTMENT. CONTRACTOR SHALL NOTIFY THE INSPECTOR AT LEAST 24 HOURS IN ADVANCE FOR SOIL TESTING AS REQUIRED BY THE INSPECTOR.

22. PIPE BEDDING SHALL BE :
IN ACCORDANCE WITH LOS ANGELES COUNTY ENGINEER CASE Ad BEDDING PER STANDARD DRAWING D-54 UNLESS OTHERWISE NOTED. THE BEDDING MATERIAL PLACED FROM THE BOTTOM OF THE PIPE TO 1 FOOT OVER THE TOP OF THE PIPE SHALL BE SAND, CRUSHED AGGREGATE, OR NATIVE FREE-DRAINING GRANULAR MATERIAL AND SHALL HAVE A SAND EQUIVALENT OF 20 OR GREATER.

23. ALL PIPES SHALL BE PLACED IN TRENCH IN NATURAL GROUND AND/OR COMPACTED FILL. THE GROUND LEVEL BEFORE THE TRENCHING SHALL BE AT LEAST 3 FEET ABOVE THE TOP OF THE PIPE ELEVATION, OR AT FINISH SURFACE ELEVATION, WHICHEVER IS LESS.

24. PIPE SHALL BE EMBEDDED 5 INCHES INTO ALL STRUCTURES INCLUDING INLET AND OUTLET HEADWALLS, UNLESS OTHERWISE SPECIFIED.

25. PIPE AS SPECIFIED IN PROFILE ON THESE PLANS SHALL BE MANUFACTURED WITH AN ADDITIONAL CONCRETE THICKNESS OVER THE INVERT REINFORCEMENT.

26. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. MEAN SEA LEVEL DATUM OF 1929, UNLESS OTHERWISE INDICATED.

27. ALL CATCH BASINS WITHIN THE DEDICATED STREET RIGHTS-OF-WAY SHALL BE CONSTRUCTED PER THE STREET PLANS.

28. THE CONTRACTOR MAY HAVE TO HAVE DESIGNED BY A CIVIL ENGINEER AND SHALL PROVIDE TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS A SYSTEM FOR CONTRIBUTORY DRAINAGE TO BE OPERABLE AT ALL TIMES UNTIL THIS STORM DRAIN SYSTEM IS ACCEPTED.

29. ALL REFERENCES ON THIS PLAN TO THE COUNTY ENGINEER, ROAD DEPARTMENT, OR FLOOD CONTROL DISTRICT SHALL APPLY TO THE APPROPRIATE ELEMENTS OF THE DEPARTMENT OF PUBLIC WORKS.

30. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.

31. WHERE THE UTILITIES ARE INDICATED ON THE DRAWINGS TO BE SUPPORTED, SAID SUPPORTS SHALL BE IN ACCORDANCE WITH STANDARD PLAN NO. 224-0, UNLESS OTHERWISE INDICATED.

32. ALL OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES SHALL BE SEALED WITH 8 INCHES OF BRICK AND MORTAR OR 6 INCHES OF CONCRETE, UNLESS OTHERWISE SHOWN.

33. MANHOLES NO. 1, 2, 3, AND 4, SHALL USE THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION 630-1 FOR THE " FRAME AND COVER " AND 635-0 FOR THE "STANDARD DROP STEP ".

GENERAL NOTES:

1. A PERMIT SHALL BE OBTAINED AND A DEPOSIT PAID TO THE DEPARTMENT OF PUBLIC WORKS AT THE PERMIT COUNTER, 900 SOUTH FREMONT AVENUE 8TH FLOOR, ALHAMBRA AT LEAST 72 HOURS PRIOR TO STARTING WORK UNDER THIS CONTRACT. COPIES OF ALL OTHER REQUIRED PERMITS, SUCH AS FLOOD CONTROL DISTRICT AND ROAD EXCAVATION, MUST BE FILED WITH THE PERMIT APPLICATION.
2. WHEN WORK IS WITHIN A CONTRACT CITY, THE CONTRACTOR MUST CONTACT THE DIRECTOR OF PUBLIC WORKS OF THAT CITY TO DETERMINE THE LOCATION TO PAY THE INSPECTION DEPOSIT.
3. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE LISTED ON THE "APPLICATION FOR STORM DRAIN CONSTRUCTION INSPECTION FORM I " TO ARRANGE FOR AN ACCEPTABLE CONSTRUCTION START DATE.
4. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION TO THE ACCURACY OF THE LOCATION, OR THE EXISTANCE OR NON-EXISTANCE OF ANY UNDERGROUND UTILITY, PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL SHEETS.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1988 EDITION," INCLUDING SUPPLEMENTS AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DIRECTOR OF PUBLIC WORKS.
6. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.41 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS, AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS "AS SHOWN ON LOS ANGELES COUNTY ENGINEER STANDARD S-2.
7. THIS STORM DRAIN WILL NOT BE ACCEPTED FOR MAINTENANCE UNTIL THE STREETS HAVE BEEN PAVED, MANHOLES BROUGHT TO GRADE AND THE SYSTEM CLEANED TO SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS.
8. TRANSVERSE REINFORCEMENT AND TRANSVERSE JOINTS SHALL BE PLACED AT RIGHT ANGLES (OR RADIAL) TO THE CONDUIT CENTERLINE EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
9. ALL STEEL ADJACENT TO FACE OF CONCRETE SHALL HAVE 2 1/2" CLEARANCE UNLESS OTHERWISE SPECIFIED.
10. REINFORCEMENT SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE STEEL, PER A.S.T.M. A-615-GRADE 60.
11. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "MANUAL OF STANDARD PRACTICES".
12. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTERLINE OF STEEL UNLESS OTHERWISE NOTED.
13. ALL STEEL THAT IS TO BE CONTINUOUS SHALL HAVE A MINIMUM LAP OF 30 BAR DIAMETERS OR 18" WHICHEVER IS GREATER.
14. NO CONCRETE SHALL BE PLACED UNTIL THE FORMS AND REINFORCING STEEL HAVE BEEN PLACED, INSPECTED AND APPROVED.
15. ALL STRUCTURAL CONCRETE SHALL BE PORTLAND CEMENT CONCRETE WITH AN ULTIMATE 28 DAY COMPRESSIVE STRENGTH OF 3250 psi UNLESS OTHERWISE NOTED. VENEER LINING SHALL BE 4000 psi MIN.
16. ALL CONSTRUCTION JOINTS IN THE FOOTING OF SLABS AND WALLS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED.
17. ALL EXPOSED EDGES SHALL BE FINISHED WITH A 3/4" CHAMFER.
18. UNLESS OTHERWISE SHOWN, CONCRETE DIMENSIONS SHALL BE MEASURED VERTICALLY OR HORIZONTALLY AND PARALLEL OR AT RIGHT ANGLES (OR RADIAL) TO THE CENTER LINE OF CONSTRUCTION.
19. THE INSPECTOR SHALL HAVE THE OPTION TO REQUIRE CONCRETE BACKFILL DURING CONSTRUCTION WHEN THE PIPE HAS LESS THAN ONE FOOT OF COVER. THE CONCRETE BACKFILL SHALL CONSIST OF 1:3:5 MIX, PORTLAND CEMENT CONCRETE POURED FROM WALL TO WALL OF TRENCH AND FROM BOTTOM OF TRENCH TO A MINIMUM OF 4 INCHES OVER THE TOP OF THE PIPE.
20. ALL BACKFILL AND FILLS OUTSIDE OF STREET RIGHT OF WAY SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM SOIL COMPACTION TEST D 1557-78 METHOD "D" UNLESS OTHERWISE SPECIFIED. THIS SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER. THE CERTIFICATION SHALL BE SUBMITTED TO THE DIRECTOR OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF WORK BY THE COUNTY.

PF519156

RIPRAP NOTES

1. ROCKS FOR GROUTED RIPRAP SHALL BE GOOD QUALITY BROKEN CONCRETE AND/OR RIVER RUN ROCK. THE SMALLEST DIMENSIONS SHALL EXCEED 3 INCHES AND THE LARGEST DIMENSION SHALL NOT EXCEED 18 INCHES. THE LARGEST DIMENSION SHALL NOT EXCEED 4 TIMES THE SMALLEST DIMENSION.
2. THERE SHALL BE A GROUT BED OF AT LEAST 2 INCHES BENEATH THE FIRST LAYER OF ROCK. ALL THE VOIDS BETWEEN THE ROCKS SHALL BE FILLED WITH GROUT. MAXIMUM SPACING BETWEEN ROCKS SHALL BE 2 INCHES.
3. SURFACE ROCKS SHALL BE IMBEDDED FROM 1/2 TO 2/3 OF THEIR MAXIMUM DIMENSION

NOTE: CONCRETE MAY BE SUBSTITUTED FOR THE GROUT.

RECEIVED DEC 13 2005 PROCESSING CENTER LAND DEVELOPMENT DIVISION

PRIVATE ENGINEERS NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING.

Ronald R. Horn
REGISTERED CIVIL ENGINEER No. 16913

01/30/89
DATE

NO.	REVISIONS (CON'D)	REV. R.C.E. NO.	APPROVED BY	DATE
6	ADDED LATERAL NO. 69 (LINE "A") TO KEY MAP.		B. Thompson	11/94
6	ADDED LATERALS 2A, 3A, 4A (LINES "R-2", "K-1" AND "M-1") TO KEY MAP.	42890	Phil Dowdle 45641	7/1/91
7	ADDED LATERAL 34A (LINE "Z-1") AND REVISED LATERAL "G-1".	42890	M. Fadia	8/3/11
8	REVISED KEY MAP ADDED 84" RCP & 54" INLET IN CHANNEL AND U/S CHANNEL CONSTRUCTION REFERENCE	RCE NO. 39440	M. Daly	12/6/05

COUNTY OF LOS ANGELES, CALIFORNIA

THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

LAND DEVELOPMENT DIVISION

APPROVED BY: M. C. Datuowler DATE: _____
ASSISTANT DEPUTY DIRECTOR

CHECKED BY: Vijay Padiam R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550

SIGNATURE: Ronald R. Horn R.C.E. NO. 16913

SHT 4 OF 23 SHTS

1020-1-23-03

DRN 335-F 335-1-23

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

LINE "L"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN ON SHT. 11)

LINE "M"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN ON SHT. 11)

✳ — NOT TO BE MAINTAINED BY L.A.C.F.C.D.

LINE "F"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN ON SHT. 12)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.

PROFILE OF LINE "A"
SCALE: HORIZ. 1"=40' VERT. 1"=8'

PROVIDE ½" ADDITIONAL INVERT COVER PER NOTE 25 ON SHT. NO. 1

SEE SHEET NO. 3

LINE "P"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN ON SHT. 10)

LINE "R"
SCALE: HORIZ. 1"=20'; VERT. 1"=8'
(SEE PLAN ON SHT. 10)

℄ STORM DRAIN CURVE DATA				
○	△	R	L	T
1	73°44'23"	45.00'	57.92'	33.75'
2	33°15'36"	45.00'	26.17'	13.47'
3	40°24'47"	45.00	31.74'	16.56
4	64°26'01"	90.00	101.21'	56.71'

EASEMENT CURVE DATA			
No	DELTA	RADIUS	LENGTH
C1	20°40'37"	85.00'	30.68'
C2	25°41'23"	95.00'	42.60'
C3	69°51'43"	39.00'	47.55'
C4	74°44'08"	51.00'	66.52'
C5	00°15'53"	850.00'	3.93'
C6	48°44'04"	25.00'	21.26'

EASEMENT TABLE		
No	BEARING	LENGTH
D1	N00°21'31"E	12.58'
D2	N00°21'31"E	53.25'
D3	N64°04'30"W	13.30'
D4	N00°21'31"E	47.51'
D5	N89°38'29"W	2.05'
D6	N40°54'25"W	104.00'
D7	N89°38'29"E	25.91'

PF519157

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REMOVED RUBBER GASKET PIPE FROM PROFILE OF LINE "A"	Sika Sukkar 42890	R.C.E. 42447	11/6/92
2	ADDED PROFILE FOR LINE "F"	Sika Sukkar 42890	[illegible] 12890	5/4/93
3	REVISED ST. NAME FROM BACKER ROAD TO COMMERCE CENTER DRIVE	[illegible] 42890	[illegible] 12890	11/8/94
4	REVISED PROFILE S.D. LINE "M"	[illegible] 42890	[illegible]	11/22/95
5	REVISED PROFILES S.D. LINE "L" & LINE "F"	[illegible] 42890	B. Hernandez	10/10/96

NO	REVISION	REVISED BY	APPROVED BY	DATE
6	ADDED MEDIAN C.B. @ ST. STA. 43+55.00	[illegible] 42890	[illegible]	8-13-98
7	REMOVED S.D. EASEMENT LINE & ADD'L DATA, PILOT CHANNEL & STRUCT. NOS. & ETC.	[illegible] 42890	[illegible]	9/21/98

LEGEND:
✳ NOT TO BE MAINTAINED BY L.A.C.F.C.D.
~~VARIABLE WIDTH EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES~~
~~SERVICE ROAD & CUT-OFF WALL PER DETAIL ON SHT. NO. 4~~
~~CONCRETE SLAB PER DETAIL ON SHT. NO. 5~~

PLAN OF LINE "A"
SCALE: 1"=40'

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by [signature] date 10/1/20

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA, 91411
(818) 787-8580
SIGNATURE: [signature] R.C.E. NO. 19913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

CHECKED BY: [signature] LAND DEVELOPMENT DIVISION R.C.E. NO. 37440 DATE: 10/23/20
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 2 OF 23 SHTS

STORM DRAIN PLANS IN
PM. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

Q_{25}= 202.5 c.f.s. | Q_{25}= 156.4 c.f.s. | Q_{25}= 154.2 c.f.s. | Q_{25}= 152.8 c.f.s. | Q_{25}= 151.3 c.f.s.

SEE SHEET NO. 2

10+00.74 B.C. MATCH LINE

10+20.74 ℄ INT. J.S. NO. 4

1097.37 INV. 8" P.V.C.

PROP. F.S. OVER STORM DRAIN ℄

H.G.L.

S=0.0059

EXIST. GROUND

1095.25 INV.

313' - 60" R.C.P. 1800-D

13+13.90 ℄ INT. M.H. NO. 4

1095.09 INV.

13+13.40

13+22.90

EL "S"=1096.00 42" R.C.P.

1095.17 INV.

1088.55 INV. 12" V.C.P. PER P.C. 10942

EL "C"=1095.75 24" R.C.P.

1095.35 INV.

13+58.48 ℄ INT. J.S. NO. 2 = 1+00.00 LINE "A-4" LAT "A-6"

13+61.00

EL "S"=1096.95 24" R.C.P.

1095.63 INV.

14+01.19 ℄ INT. J.S. NO. 2 = 1+00.00 LAT. "A-7"

14+15.41 ℄ INT. J.S. NO. 2 = 1+00.00 LAT. "A-8"

14+29.00

EL "S"=1097.00 24" R.C.P.

48' RUBBER GASKET PIPE

PROFILE OF LINE "A"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'

18+10.00 M.H. NO. 4

18+99.19 ℄ INT. J.S. NO. 4 = 1+00.00 LAT. "A-19"

SEE SHEET NO. 4

1097.57 INV.

1097.60 INV.

1093.38 INV.

1102.60 INV. 6" P.V.C.

18+07.66

18+12.33

18+37.89 M.C.C. MATCH LINE

485' - 57" R.C.P. 1400-D

28'- 57" R.C.P. 1400-D

Q_{25}=23 c.f.s.

1+00.00 ℄ INT. J.S. NO. 2 = 14+01.19 LINE "A"

1+08.45 ℄ INT. J.S. NO. 4 = 1+00.00 LAT. "A-7"

1107.87 TOP OF C.B.

F.S.

H.G.L.

S=0.0196

EXIST. GROUND

1103.37 INV.

EL "S"=1096.95 57" R.C.P.

1102.26

1092.25 INV. 6" P.V.C.

1096.56 INV. 57" R.C.P.

C=1.8'

1+04.06

1+49.36 ℄ INSIDE FACE OF C.B.

46'- 24" R.C.P. 1800-D

LATERAL "A-7"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

Q_{25}=27 c.f.s.

1+00.00 ℄ INT. J.S. NO. 2 = 14+15.41 LINE "A"

1107.96 TOP OF C.B.

F.S.

H.G.L.

S=0.0180

EXIST. GROUND

1103.46 INV.

EL "S"=1097.00 57" R.C.P.

1102.13

1095.63 INV. 57" R.C.P.

1088.80 INV. 21" V.C.P.

C=1.5'

1+03.63

1+38.00 ℄ INSIDE FACE OF C.B.

35'-24" R.C.P. 1800-D

LATERAL "A-8"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

℄ STORM DRAIN CURVE DATA

○	Δ	R	L	T
1	09°00'38"	2004.00'	313.16'	157.90'
2	01°16'29"	2004.00'	44.58'	22.29'
3	01°13'16"	2004.00'	42.71'	21.36'
4	00°24'23"	2004.00'	14.22'	7.11'
5	12°04'44"	2004.00'	422.48'	212.03'

10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 1

COMMERCE CENTER DRIVE

~~A=01°16'00" R=1950.00' L=43.11' A=57°24'45" R=2700' L=2706' A=18°42'27" R=400' L=130.56'~~

~~EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES~~

SEE SHEET NO. 7

INDUSTRY DRIVE ~~AVENUE~~

~~LOS ANGELES COUNTY~~

14+01.19 ℄ INT. J.S. NO. 2
CONST. J.S. NO. 2 PER LACFCD STD. DWG. NO. 2-D112 Δ=70° R=24', C=1.9', D=57"
LATERAL "A-7", 1+00.00
(SEE PROFILE HEREON)

ST. STA. 37+12.29 ℄ C.B. W=7'
CONST. C.B. PER APWA. STD. PLAN NO. 200-0, W=7.00', V=4.5', L.D. PER A.P.W.A. STD. PLAN NO. 313-0 CASE "E", H=2'.

ST. STA. 37+28.00 ℄ MEDIAN CURB INLET PER DETAIL ON SHT. NO. 17

ST. STA. 37+28.00 ℄ MED. C.B. PER DETAIL ON SHT. 17. T.G. EL. = 1108.20 F.L. EL. = 1105.20

1+38.00 @ INSIDE FACE OF C.B.

LAT. "A-8"-24" R.C.P. SEE PROFILE HEREON

1+08.45 ℄ INT. J.S. NO. 4
CONST. J.S. NO. 4 PER 2-D193 A=90°00'00" LAT. "A-7"=1+00.00 (SEE PROFILE ON SHT. 19)

18+00.00 M.H. NO. 2
CONST. M.H. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-D164

ST. STA. 33+00.00 ℄ MED. C.B. CONST. MED. C.B. PER DETAIL ON SHT. 17. T.G. EL. 1104.75 F.L. EL. 1104.75

HASLEY CANYON ROAD

10+20.74 ℄ INT. J.S. NO. 4
CONSTRUCT J.S. NO. 4 PER L.A.C.F.C.D. STD. PLAN NO. 2-D193, R=90°00'00", INV. 6" P.V.C. = 1097.37, LATERAL = 6" P.V.C. SCH 40

18" V.C.P. SEWER PER P.C. 10942

℄ OF 60" R.C.P.

℄ OF STREET

18" V.C.P. SEWER

21" V.C.P. SEWER PER P.C. 10942

℄ OF 57" R.C.P.

LAT. "A-6"-24" R.C.P. SEE PROFILE HEREON

LAT. "A-7"-24" R.C.P. SEE PROFILE ON SHT. 19

LAT. "A-7"-6" P.V.C. SCH. 40 (ASTM D1785) (SEE PROFILE ON SHT. 19)

1+49.36 @ INSIDE FACE OF C.B.

5'-HIGH C.L. FENCE & 14' DOUBLE DRIVE GATE PER A.P.W.A. STD. PLAN NO. 600-D

CONCRETE ACCESS RAMP PER A.P.W.A. STD. PLAN NO. 403-0

S=1.00%

C=1.8'

(1120)

D.B. (C.Y.)

SEE LEFT HEREON FOR EASEMENT DATA

SEE SHEET NO. 2

10+00.74 B.C. MATCH LINE

13+13.90 ℄ INT. M.H. NO. 4
CONST. M.H. NO. 4 PER L.A.C.F.C.D. STD. DWG. NO. 2-D118 Δ=30°00'00" R=42', C=5.5', D=57", D_2=60" LINE "A-4", 1+00.00
(SEE PROFILE ON SHT. 7)

13+58.48 ℄ INT. J.S. NO. 2
CONST. J.S. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-D112 Δ=60°00'00" R=24', C=22', D=57"
LATERAL "A-6", 1+00.00
(SEE PROFILE HEREON)

ST. STA. 41+10.00 ℄ MED. C.B. CONSTRUCT MEDIAN C.B. PER DETAIL ON SHEET NO. 17. T.G. ELEV. = 1102.30, F.L. ELEV. = 1102.30

1+86.09 PLUG END W/ BRICK AND MORTAR

INDUSTRY DRIVE

PLAN OF LINE "A"
SCALE: 1" = 40'

14+16.41 ℄ INT. J.S. NO. 2
CONST. J.S. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-D112 Δ=90° R=24', C=1.5', D=57"
LATERAL "A-8", 1+00.00
(SEE PROFILE HEREON)

ST. STA. 34+89.00 ℄ COMMERCIAL DRIVE CONST. COMMERCIAL DRIVE PER APWA STD. DWG. NO. 110-0, W=40', 16'-12'-12'

R=110'

18+37.89 M.C.C. MATCH LINE (SEE SHT. NO. 4)

ST. STA. 33+00.00 ℄ MED. CURB INLET PER DETAIL ON SHT. 17

USE SHEAR RING PER STD. SPECS. FOR PUBLIC WORKS CONST. SECTION 208-2.2.3.

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.

Ⓔ EASEMENT TO THE L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES

18+29.19 ℄ INT. J.S. NO. 4
CONST. J.S. NO. 4 PER 2-D193 A=45°00'00" LAT. "A-19"=1+00.00
(SEE PROFILE ON SHT. 22)

LAT. "A-19", 6" P.V.C. SCH. 40 (ASTM D1785) (SEE PROFILE ON SHT. 22)

LAT. "A-20", 4" P.V.C. SCH. 40 (ASTM D1785) (SEE PROFILE ON SHT. 22)

HASLEY CYN. RD.

Q_{25}=3.7 c.f.s.

1+00.00 ℄ INT. J.S. NO. 2 = 13+58.48 LINE "A"

1107.96 TOP OF C.B.

F.S.

H.G.L.

S=0.0080

EXIST. GROUND

1104.30 INV.

EL "S"=1097.37 57" R.C.P.

1102.45

1095.56 57" R.C.P.

C=2.2'

1+04.65

1+86.09 ℄ INSIDE FACE OF PLUG END W/ BRICK & MORTAR

82'-24" R.C.P. 1800-D

LATERAL "A-6"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

INLET STRUCTURE SEE DETAIL ON SHT. NO. 16

SEE SHEET NO. 7 FOR UPSTREAM PORTION OF LINE "A"

SEE SHEET NO. 3 FOR DOWNSTREAM PORTION OF LINE "A"

Soil Engineering aspects of this plan are approved. T. T. FRANKLIN & ASSOCIATES

REGISTERED PROFESSIONAL ENGINEER — JOHN SARKISIAN — No. 42890 Exp. 03-31-06 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — RONALD R. HORN — No. 16913 Exp. 6-30-93 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — DOUG FARMER — No. 49841 Exp. 09-30-06 — CIVIL — STATE OF CALIFORNIA

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REV'D. ST. NAMES FROM BROKER RD. TO HASLEY CYN. RD. FROM CYN. RD. TO INDUSTRIAL PARKWAY, CYN. RD. TO LIVE OAK RD.	[illegible] 42890	[illegible]	1/14/94
2	ADDED MEDIAN C.B. TO LINE "A" @ ST. STA. 41+10.00.	[illegible] 42890	[illegible]	8-13-96
3	DELETED INLET STR. @ LAT. "A-6" REV'D PLAN & PROFILE AND EASEMENT.	[illegible] 42890	S. KHALIL	9/25/00
4	CHANGED STREET NAMES.	[illegible] R.C.E. NO. 39440	[illegible]	12/6/09

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550

SIGNATURE: Ronald R Horn R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

CHECKED BY: [illegible] R.C.E. NO. 39440 DATE: 10/23/90
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 3 OF 23 SHTS

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

PROFILE OF LINE "A"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'

LATERAL "A-10" ⚠2
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

⚠2 * NOT TO BE MAINTAINED BY L.A.C.F.C.D.

℄ STORM DRAIN CURVE DATA

	Δ	R	L	T
1	73°51'20"	45.00'	58.01'	33.82'
2	19°05'55"	45.00'	15.00'	7.57'
3	45°00'00"	22.50'	17.67'	9.32'
4	~~60°00'00"~~	~~45.00'~~	~~47.12'~~	~~25.98'~~
⚠3	55°56'46"	45.00'	43.94'	23.90'

⚠2 CUTOFF WALL DETAIL
NOT TO SCALE

⚠2 SECTION A-A
N.T.S.

⚠2 ACCESS ROAD SECTION
NOT TO SCALE

PLAN OF LINE "A"
SCALE: 1"=40'

LATERAL "A-9"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

~~MATCH LINE FOR COMPLETE GRADING OF DEBRIS BASIN, EASEMENT & DEBRIS STORAGE LIMITS SEE SHT NO 11~~

~~⚠2 IRREVOCABLE EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES SEE SHEET NO 11~~

SEE TR. 45084 ⚠2

~~⚠2 6' HIGH CHAINLINK FENCE WITH 16' DOUBLE DRIVE GATE PER MARK 1005-3~~

~~⚠2 12' WIDE A.C. PAVED ACCESS ROAD PER SECTION HEREON~~

~~⚠2 CONC. FACING SLAB PER DETAIL ON SHT. 5~~

~~⚠2 CONC. FACING SLAB PER DETAIL ON SHT. 11~~

⚠2 * NOT TO BE MAINTAINED BY L.A.C.F.C.D.

NO.	REVISION	REVISED BY	APPROVED BY	DATE
⚠1	REVISED TO MAKE CONN. BACK R.C.P. TO HASLEY CYN. RD. & COMMERCE CENTER DR.	42890		11/4/94
⚠2	VOIDED G.B. IN LAT. "A-10" (PLAN & PROFILE). VOIDED INLET SUMP & IN LAT'S "A-11" & "A-12" (PLAN & PROFILES).			12/5/05

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
16230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON, DIRECTOR OF PUBLIC WORKS
CHECKED BY: LAND DEVELOPMENT DIVISION R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 4 OF 23 SHTS

STORM DRAIN PLANS IN
PM. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

Q_{25}=103.3 cfs

Q_{25}=627 cfs

Q_{25}=58.0 cfs

Q_{25}=31.00 cfs

SEE SHEET NO 4

28+12.43 ℄ INT M.H. NO.4
=1400.00 LAT. "A-13"

30+68.29 ℄ INT. J.S. NO.2
=1400.00 LAT. "A-14"

30+85.43 M.H. NO.4
=1400.00 LAT. "A-14"

34+92.20 E.H.K. NO.2

PROP. F.S. OVER STORM DRAIN ℄

EXIST GROUND

HGL

S=0.0259

S=0.0186

S=0.0166

S=0.0225

EL "S"=1121.70
24" RCP

EL "S"=1120.80
36" RCP

1119.93 INV.

1120.00 INV.

1120.75 INV.

1127.20 INV.
30" R.C.P.
1400-D

1127.90 INV.

1130.94 INV. 6.8
32+12.22 B.C.

1135.63 INV.

1135.56 INV.

1135.63 INV.

1136.81 INV.
35+65.22 E.C.

1137.00 INV.

1137.50 INV.

1137.50 INV.

1138.50 INV.

1139.50 TOP OF GRATING

1142.50 TOP OF GRATING

1142.50 TOP OF GRATING

1143.50 TOP OF GRATING

DEBRIS CONE

GRADE TO DRAIN

6" RUBBER GASKET PIPE

24" RUBBER GASKET PIPE

34+94.53 P.C.C.

34+83.86

25+76.80 TOIN PROP 30" RCP PER PD 2445, LINE "B"

INLET STRUCTURE WITH DESILTING WALL & STAND PIPE PER DETAIL ON SHT. 17

28+00.00 MATCH LINE 28+11.93

28+18.03

12'+48" RCP 1400-D

266'-36" R.C.P. 1400-D

395'-36" R.C.P. 1400-D

83'-36" RCP 1400-D

PROFILE OF LINE "A"

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

Q=NEG.

1138.85 TOP OF GRATING

SERVICE ROAD

CHANNEL LINING 1132.53 INV.

CHANNEL BOT. 1131.53 INV.

1128.96 1+00.00

1+45.00 @ INSIDE FACE

1+80.00 @ INSIDE FACE

4.0' MIN.

OUTLET STRUCTURE PER DETAIL OF SHT. 14

25'-18" R.C.P. 1400-D

1136.93 INV.

* LINE "Q"

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

(SEE PLAN ON SHT. NO. 12)

Q_{25}=6.8 cfs

1+00.00 ℄ INT. J.S. NO. 2
=301+68.25 LINE "A"

1135.03 TOP OF C.B.

EXIST. GROUND

F.S.

HGL

S=0.0300

1127.20 INV.
36" R.C.P.

1130.53 INV.

EL "S"=1129.80
1+02.53

EL "S"=1127.70
TANGENT
1+03.53

1+04.29

1+36.77 @ INSIDE FACE OF C.B.

33'-24" R.C.P. 1800-D

LATERAL "A-14"

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

(SEE PLAN HEREON)

℄ STORM DRAIN CURVE DATA

O	Δ	R	L	T
1	08°-57'-23"	1808.00'	282.31'	141.44'
2	90°00'00"	45.00'	70.69'	45.00'
3	30°00'00"	45.00'	23.56'	12.06'
4	30°-00'-00"	45.00'	23.56'	12.06'

EASEMENT QUITCLAIMED PER TR. NO. 45084

28+12.43 ℄ INT. M.H. NO.4 CONST. M.H. NO.4 PER LACFCD STD. DWG. NO. 2-D18 A-90° B-36" C-36" D-36" LATERAL "A-13"=1400.00 (SEE PROFILE HEREON)

SECTION A-A N.T.S.

MATCH LINE FOR COMPLETE GRADING OF DEBRIS BASIN & EASEMENT SEE SHT. NO 17

ST. STA. 21+01.00 ℄ CONST. CURB OPENING PER A.P.W.A. STD. PLAN NO. 200-2 SHEET 2 OF 2 TOP=1138.50 INV.=1130.00

LAT. "A-14"-24" RCP SEE PROFILE HEREON

LAT. "A-13"-36" RCP SEE PROFILE HEREON

℄ OF 36" RCP

℄ OF STREET

HASLEY CANYON ROAD

℄ OF 36" RCP

1+14.41 @ INSIDE FACE OF C.B.

1+36.77 @ INSIDE FACE OF C.B.

LAT. "A-16"-24" RCP SEE PROFILE ON SHT. 9

LAT. "A-15"-36" RCP SEE PROFILE ON SHT. 9

PLUG N'LY END OF I.S. #3

*12" PVC

INLET PER GRADING PLAN

1+80.00 PLUG END OF PIPE

CONSTRUCT DESILTING WALL & STD PIPE PER DETAIL ON SHT. 17

INLET STRUCTURE PER DET. ON SHT 17

28+00.00 MATCH LINE

5' HIGH CHAIN LINK FENCE W/14' DOUBLE DRIVE GATE PER A.P.W.P. 600-0

5' HIGH CHAIN LINK FENCE PER A.P.W.P. 600-0

35+76.80 TOIN PROP 30" RCP PER PD 2445, LINE "B"

35+65.22 E.C.

R=1760' L=426.82' Δ=13°-53'-42"

18' WIDE A.C. PAVED ACCESS ROAD PER SECTION ON SHT NO 4

CONSTRUCT DESILTING WALL AND STAND PIPE PER DETAIL ON SHT. 17

TOP OF WALL = 1134.40
TOP OF WEIR = 1131.40
TOP OF STANDPIPE = 1137.40

DEBRIS STORAGE
REQUIRED STORAGE = 7880 C.Y.
PROVIDED STORAGE = 11898 C.Y.

10' EASEMENT TO LACFCD FOR FLOOD CONTROL PURPOSES PER TR. 45084

VARIABLE EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES

CUT-OFF WALL PER DETAIL ON SHT. 4

CONCRETE FACING PER DETAIL HEREON

DEBRIS STORAGE
REQUIRED STORAGE = 4081 C.Y.
PROVIDED STORAGE = 4081 C.Y.

INLET STRUCTURE PER DETAIL ON SHT NO 17

CONSTRUCT DESILTING WALL AND STAND PIPE PER DETAIL ON SHT. 17

TOP OF WALL = 1143.80
TOP OF WEIR = 1140.80
TOP OF STANDPIPE = 1144.60

20+87.43 ℄ INT. M.H. NO.4 CONST. M.H. NO.4 PER LACFCD STD. DWG. NO. 2-D18 A-90° B-30" C-36" D-36" LATERAL "A-15"=1400.00 (SEE PROFILE ON SHT. 9)

19+61.14 ℄ INT. T.S. NO.2 CONST. T.S. NO.2 PER LACFCD STD. DWG. NO. 2-D18 A-90° B-24" C-(90°)-0.36' LAT. "A-16" =1400.00 (SEE PROFILE ON SHT. 9)

ST. STA. 22+28.00 ℄ C.B. NO.2 PER A.P.W.P. STD. PLAN NO. 200-2 SHEET 2 OF 2 W=28.00' V=3.39' L.D. PER A.P.W.P. STD. PLANS NO. 3960 CASE "E" H=2'

ST. STA. 22+28.00 ℄ C.B. NO.2 PER A.P.W.P. STD. PLAN NO. 200-2 SHEET 2 OF 2 W=28.00' V=3.39' L.D. PER A.P.W.P. STD. PLANS NO. 3960 CASE "E" H=2'

PLAN OF LINE "A"

SCALE: 1"=40'

* - NOT TO BE MAINTAINED BY L.A.C.F.C.D.

Q_{25}=52.0 c.f.s.

1+00.00 ℄ INT. M.H. NO.4 =28+12.43 LINE "A"

INLET PER GRADING PLAN

EXIST. GROUND

F.S.

H.G.L.

S=0.0300

VARIES

CONST. 6" THICK CONCRETE OR GUNITE REINFORCED WITH #5 BARS EACH WAY @ 18"O.C.

CONCRETE FACING SLAB DETAIL

N.T.S.

1130

1120

1110

DEBRIS CONE

1120.75 INV. 36" R.C.P. U/S
1120.00 INV. 45° R.C.P.

EL "S"=1120.80
1+02.53

1121.40 INV.
1+22.58 B.C.

1122.11 INV.
1+46.14 E.C.

1122.12 INV.

1+80.00 PLUG END OF PIPE

C=5.1'

1+07.63

73'-36" RCP 1400-D

INLET STRUCTURE PER DET. ON SHT 17

LATERAL "A-13"

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

(SEE PLAN HEREON)

Soil Engineering Investigation of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
Date 9/6/90

REGISTERED PROFESSIONAL ENGINEER
DOUG FARMER
No. 49041
Exp. 09-30-06
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEERS
JOAN SARKISIAN
No. 42890
Exp. 3-31-00
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
RONALD R. HORN
No. 16913
Exp. 6-30-99
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
ROBERT J. GALLAGHER
No. 323
Exp. 12-31-93
GEOTECHNICAL
STATE OF CALIFORNIA

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REMOVED RUBBER GASKET PIPE FROM PROFILE OF LINE "A"	42890	RCE 45441	11/26/90
2	ADDED LINE "Q" PROFILE, ADDED NOTE "NOT TO BE MAINTAINED BY LACFCD".	42890		12/6/96
3	ELIMINATED LINE "Q" PROFILE.	42890		4/1/97
4	VOIDED INLET STA'S OF LATS "A-15" & "A-16" & LINE "B" ADDED GRADING INLET ("A-13") 12" PIPE IN BACK OF C.B. (LAT "A-16") & MISC.	RCE No. 43041		12/5/05

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8850
SIGNATURE: Ronald R. Horn R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA

THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS

CHECKED BY: Doug Farmer LAND DEVELOPMENT DIVISION R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 5 OF 23 SHTS

1020-187.03

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

LATERAL "B-1"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.

38"-18"RCP 2400-D — GRATING BASIN PER GRADING PLAN

PROFILE OF LINE "B"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'

LATERAL "B-2"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN ON SHT. 7)

LATERAL "B-3"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN ON SHT. 7)

SEE SHT. NO. 11

SEE SHT. NO. 10

PLAN OF LINE "B"
SCALE: 1" = 40'

℄ STORM DRAIN CURVE DATA				
	Δ	R	L	T
①	90°00'00"	45.00'	70.69'	45.00'
②	0°24'08"	2506.00'	17.59'	8.80'

LATERAL "B-4"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN ON SHT. 7)

PF519161

Soil Engineering Aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ Date 10/1/90

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED FINISHED SURFACE OF LINE "B" ON PLAN & PROFILE.	42830	42830	10/4/93
2	REVISED ST. NAME FROM AVE. CHESEBROUGH TO INDUSTRY DRIVE.	42830	42830	1/4/94
3	ADD 30 CONNECTION AT STA. 14+46.95 OF LAT. B-2	42830	42830	3/12/96

3-31-96

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BOULEVARD
VAN NUYS, CALIFORNIA 91411
(818) 787-8550
SIGNATURE: Ronald R. Thom R.C.E. NO. 16913

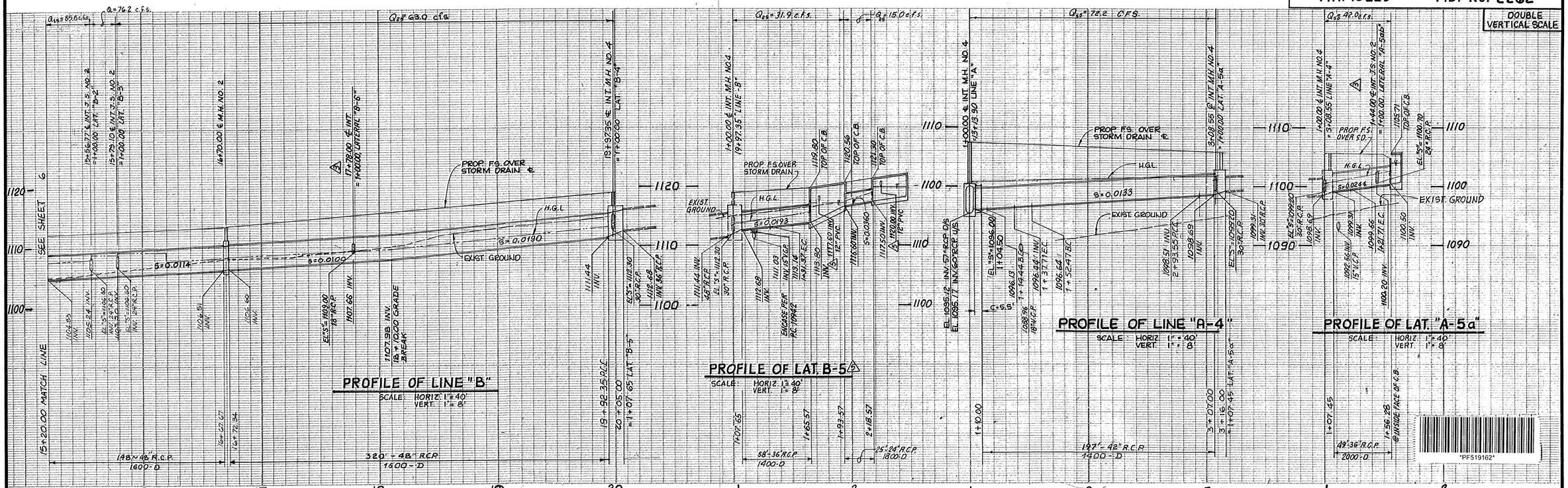
COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION
R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 6 OF 23 SHTS

1020-187-03

STORM DRAIN PLANS IN
PM. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE


PROFILE OF LINE "B"
SCALE: HORIZ. 1"=40' VERT. 1"=8'
PROFILE OF LAT B-5
SCALE: HORIZ. 1"=40' VERT. 1"=8'
PROFILE OF LINE "A-4"
SCALE: HORIZ. 1"=40' VERT. 1"=8'
PROFILE OF LAT. "A-5a"
SCALE: HORIZ. 1"=40' VERT. 1"=8'
PROP. F.S. OVER STORM DRAIN ℄
EXIST. GROUND
H.G.L.
SEE SHEET 6
15+20.00 MATCH LINE
19+92.35 P.C.C.
19+97.35 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 13+13.90 LINE "A"
3+08.55 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. A-5a"
1+00.00 ℄ INT. M.H. NO. 4
= 3+08.55 LINE "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LINE "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LINE "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5a"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5a2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-6"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-3"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-1"
16+70.00 ℄ M.H. NO. 2
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-6"
15+56.77 ℄ INT. J.S. NO. 2
= 1+00.00 LAT. "B-2"
15+79.10 ℄ INT. J.S. NO. 2
= 1+00.00 LAT. "B-3"
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-5"
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-4"
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-3"
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-2"
16+70.00 ℄ INT. M.H. NO. 2
= 1+00.00 LATERAL "B-1"
Q=76.2 c.f.s.
Q=85.6 c.f.s.
Q=63.0 c.f.s.
Q=31.9 c.f.s.
Q=15.0 c.f.s.
Q=76.2 C.F.S.
Q=42.0 c.f.s.
S=0.0114
S=0.0100
S=0.0150
S=0.0193
S=0.0133
S=0.0256
S=0.0380
15+56.77 ℄ INT. J.S. NO. 2
CONST. J.S. NO. 2 PER L.A.C.F.C.D.
STD. DWG. NO. 2-D112, A=30°00'00"
B=24'-0", C=48'-4", I=2.00%
LATERAL "B-6" = 1+00.00
(SEE PROFILE ON SHT. 6)
15+79.10 ℄ INT. J.S. NO. 2
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
LAT. "B-3"-24" R.C.P. SEE PROFILE ON SHT. G
ST. STA. 23+13.00 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O, W=28.00', V=4.20'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 22+57.35 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=5.21'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 23+15.45 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=4.75'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 23+37.52 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=4.55'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 23+89.85 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=4.75'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 23+91.56 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=3.30'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 23+37.28 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=3.96'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 22+57.35 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=5.21'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
ST. STA. 22+57.35 ℄ C.B. W=28'
CONST. C.B. PER A.P.W.A. STD. PLAN NO. 300-O W=28.00', V=5.21'/S, L.D. PER A.P.W.A. STD. PLAN NO. 313-O CASE "E", H=2"
19+92.35 ℄ INT. M.H. NO. 4
CONST. M.H. NO. 4 PER L.A.C.F.C.D. STD. DWG. NO. 2-D113, A=32°19'30"
B=30", C=45", D=48"
LATERAL "B-4" = 1+00.00
(SEE PROFILE ON SHT. G)
LATERAL "B-5" = 1+00.00
(SEE PROFILE HEREON)
16+70.00 ℄ M.H. NO. 2
CONST. M.H. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-D114
1+00.00 ℄ INT. M.H. NO. 4
19+97.35 "LINE "B"
1+00.00 ℄ INT. M.H. NO. 4
19+92.35 "LINE "B"
1+00.00 ℄ INT. M.H. NO. 4
= 13+13.90 LINE "A"
3+08.55 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. A-5a"
1+00.00 ℄ INT. M.H. NO. 4
= 3+08.55 LINE "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LINE "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LINE "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5a"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5a2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-6"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-3"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LATERAL "B-1"
EXIST. GROUND
PROP. F.S. OVER STORM DRAIN ℄
PROP. F.S. OVER S.D.
TOP OF C.B.
EL. 1095.12 INV. 57" RCP D/S
EL. 1095.17 INV. 60" RCP U/S
EL. 1096.00 ℄ INT. M.H. NO. 4
EL. 1095.20 INV. 30" R.C.P.
EL. 1099.91 INV. 30" R.C.P.
EL. 1098.51 INV.
2+93.55 P.C.C.
1098.69 INV.
1098.96 18" R.C.P.
1096.13
1+74.44 B.C.
1096.24 INV.
1+37.71 E.C.
1096.64
1+52.47 B.C.
1098.56 INV.
1099.30 INV.
1+21.71 E.C.
1100.60 INV.
1103.20 INV.
1+56.28 @ INSIDE FACE OF C.B.
1+07.45
3+07.00
3+16.00
1+07.45 LAT. "A-5a"
1+10.00
1+07.65
1+65.57
1+93.57
2+18.57
1+07.65 LAT. "B-5"
1+31.37 E.C.
1+58.53 @ INSIDE FACE OF C.B.
1+65.57 @ INSIDE FACE OF C.B.
1+77.84 @ INSIDE FACE OF C.B.
1+95.10 @ INSIDE FACE OF C.B.
1+00.00 ℄ INT. M.H. NO. 4
= 13+13.90 LINE "A"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "A-5a"
1+00.00 ℄ INT. M.H. NO. 4
= 3+08.55 LINE "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "A-5a2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-6"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "A-5"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "A-4"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-3"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-2"
1+00.00 ℄ INT. M.H. NO. 4
= 1+00.00 LAT. "B-1"
148'-48" R.C.P. 1600-D
320'-48" R.C.P. 1600-D
58'-36" R.C.P. 1400-D
25'-24" R.C.P. 1800-D
127'-42" R.C.P. 1400-D
49'-36" R.C.P. 2000-D
30" R.C.P.
42" R.C.P.
48" R.C.P.
18" R.C.P.
24" R.C.P.
36" R.C.P.
12" P.V.C.
12" PVC
18" R.C.P. @ 0.88%
12" P.V.C. (NOT TO BE MAINTAINED BY L.A.C.F.C.D.)
@ INSIDE FACE OF C.B.
@ INSIDE FACE OF C.B.
@ INSIDE FACE OF C.B.

STORM DRAIN PLANS IN
P.M. NO. 18229 P.D. No. 2262

PROFILE OF LINE "G"

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

LATERAL "G-1"

SCALE HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

LATERAL "G-2"

SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)

℄ STORM DRAIN CURVE DATA				
CV	Δ	R	L	T
1	47°19'27"	45.00'	37.17'	19.72'
3	01°02'56"	1996.00'	36.54'	18.27'
4	05°56'18"	1996.00'	206.87'	103.53'
5	48°55'41"	45.00'	38.43'	20.47'
7	60°00'00"	22.50'	23.56'	12.99'
8	60°00'00"	45.00'	47.12'	25.98'
9	59°02'59"	45.00'	46.38'	25.49'
10	16°17'31"	22.50'	6.40'	3.22'

DEBRIS STORAGE
REQUIRED STORAGE = 239.0 C.Y.
PROVIDED STORAGE = 281.0 C.Y.

DEBRIS STORAGE
REQUIRED STORAGE = 597.0 C.Y.
PROVIDED STORAGE = 611.0 C.Y.

PLAN OF LINE "G"
SCALE: 1"=40'

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REMOVED RUBBER GASKET PIPE FROM PROFILE & LINE "G"	Sikand Engineering 42890	P. Lincoln RCE 43241	1/16/95

SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CALIF. 91411
(818) 787-8550
SIGNATURE: Ronald R. Horn R.C.E. NO. 16913

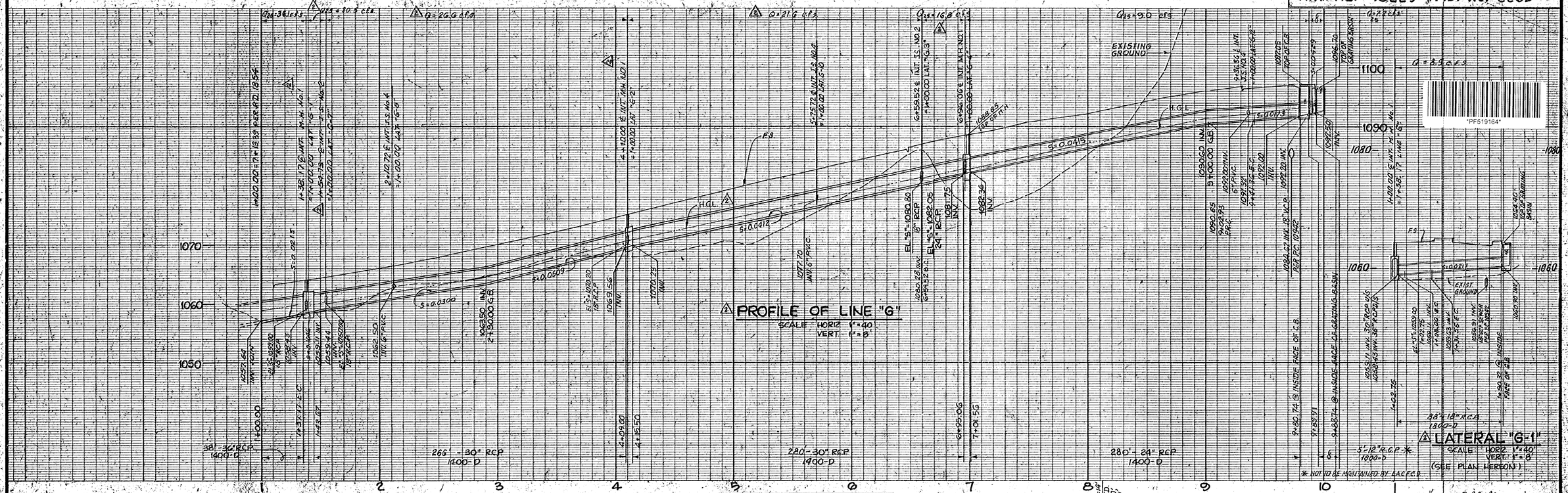
COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS
CHECKED BY: Tito Cadena R.C.E. NO. 39440 DATE: 10/25/95
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 8 OF 23 SHTS

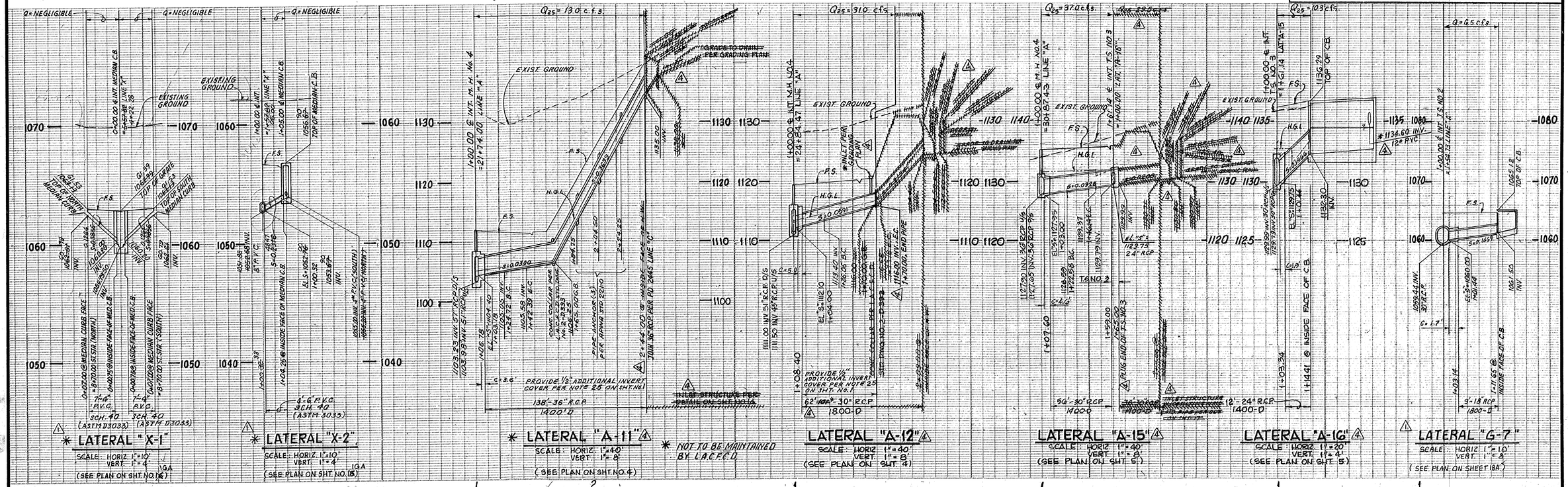
SHEET 8 WAS SUPERSEDED BY 8A

1020-197-03

STORM DRAIN PLANS IN
P.M. NO. 18229 P.D. No. 2262


PROFILE OF LINE "G"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
LATERAL "G-1"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN HEREON)
* NOT TO BE MAINTAINED BY LACFCD
EXISTING GROUND
H.G.L.
F.S.
EXIST. 36" R.C.P. PER P.D. 1854
EXIST. 18" R.C.P. PER P.D. 1854 PLUG END W/BRICK & MORTAR
EXIST. 10" R.C.P. WATER LINE
1+00.00 P.R.C. = 1+13.39 PER P.D. 1854, CUT EXIST. 36" R.C.P. & REMOVE INTERFERING PORTION & JOIN.
1+08.00 B.C.
1+31.56 E.C.
1+12.00 B.C.
1+59.18 E.C.
1+59.49 E.C.
1+13.11 B.C.
1+90.32 @ INSIDE FACE OF GRATING BASIN
1+41.82 @ INSIDE FACE OF GRATING BASIN
1+59.05 @ INSIDE FACE OF C.B.
9+80.74 @ INSIDE FACE OF U.F.C.B.
9+88.74 @ INSIDE FACE OF GRATING BASIN
9+36.36 ℄ INT. T.S. NO.4
1+69.03 @ INSIDE FACE OF GRATING BASIN
CONC. LINED DITCH PER GRADING PLAN
GRATING BASIN PER GRADING PLAN
HASLEY ℄ OF ST.
CANYON ROAD
℄ OF 30" R.C.P.
℄ OF 24" R.C.P.
LAT. G-1, 18" R.C.P. SEE PROF. HEREON
LAT. G-2, 18" R.C.P. (SEE PROF. HEREON)
LAT. G-3, 18" R.C.P. (SEE PROFILE ON SHT. 9)
LAT. G-4, 24" R.C.P. (SEE PROFILE ON SHT. 9)
LAT. G-9, 4" P.V.C. SCH. 40 (ASTM D 3033) (SEE PROF. ON SHT. 18A)
LAT. G-10, 6" P.V.C. SCH. 40 (ASTM D 3033) (SEE PROF. ON SHT. 18A)
LAT. G-11, 4" P.V.C. SCH. 40 (ASTM D 3033) (SEE PROF. ON SHT. 19)
LAT. G-12, 6" P.V.C. SCH. 40 (ASTM D 3033) (SEE PROFILE ON SHT. 19)
LAT. G-13, 4" P.V.C. SCH. 40 (ASTM D 3033) (SEE PROFILE ON SHT. 19)
CUT THE EXIST. 18" R.C.P. PER P.D. 1854 & REMOVE THE INTERFERING PORTION OF PIPE FOR CONST. OF NEW CURB & GUTTER
EXIST. C.B. TO BE REMOVED / ABANDONED
CONSTRUCT M.H. NO. 1 PER L.A.C.F.C.D. STD. DWG. NO. 2-0102, A=30°, B=18°, T=4.00, D=30°, L.A.T.=15°-7"=+0.00 (SEE PROFILE HEREON)
CONST. C.B. PER L.A.C.F.C.D. STD. DWG. NO. 2-0102, A=30°, B=18°, T=4.00, D=30°, L.A.T.=15°-7"=+0.00 (SEE PROFILE ON SHT. 9)
CONST. T.S. NO. 1 PER L.A.C.F.C.D. STD. DWG. NO. 2-0193, A=68°59'01", L.A.T.=10°-00.00 (SEE PROFILE ON SHT. 9)
CONST. T.S. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-0193, A=68°59'01", L.A.T.=10°-00.00 (SEE PROFILE ON SHT. 9)
CONST. T.S. NO. 4 PER L.A.C.F.C.D. STD. DWG. NO. 2-0193, A=68°59'01", L.A.T.=10°-00.00 (SEE PROFILE ON SHT. 9)
CONST. M.H. NO. 1 PER L.A.C.F.C.D. STD. DWG. NO. 2-0102, A=30°, B=18°, T=4.00, D=30°, L.A.T.=15°-7"=+0

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262


Q=NEGLIGIBLE
EXISTING GROUND
EXIST. GROUND
F.S.
H.G.L.
TOP OF GRATE
TOP OF SOUTH MEDIAN CURB
TOP OF NORTH MEDIAN CURB
TOP OF MEDIAN C.B.
TOP OF C.B.
INV.
INSIDE FACE OF MEDIAN C.B.
INSIDE FACE OF MED. C.B.
INSIDE FACE OF C.B.
GRATING BASIN PER GRADING PLAN
GRADE TO DRAIN PER GRADING PLAN
INLET PER GRADING PLAN
INLET STRUCTURE PER DETAIL ON SHT. 8A
PROVIDE 1/2" ADDITIONAL INVERT COVER PER NOTE 25 ON SHT. INL
PIPE ANCHOR PER APWA STD. 224-2
CONC. COLLAR PER APWA STD. 250-2
SEE DETAIL 2 ON SHT. 8A
Q25= 13.0 c.f.s.
Q25= 31.0 c.f.s.
Q25= 37.0 c.f.s.
Q25= 103 c.f.s.
Q= 6.5 c.f.s.
1+00.00 ℄ INT. M.H. NO. 6 =21+74.00 LINE "A"
1+00.00 ℄ INT. M.H. NO. 4 =24+84.41 LINE "A"
1+00.00 ℄ INT. M.H. NO. 3 =30+87.43 LINE "A"
1+00.00 ℄ INT. T.S. NO. 3 =11+61.14 LINE "A-15"
1+00.00 ℄ INT. J.S. NO. 2 =17+56.13 LINE "A"
1+00.00 ℄ INT. T.S. NO. 2 =24+24.00 LINE "A"
1+00.00 ℄ INT. J.S. NO. 4 =6+82.10 LINE "A"
1+00.00 ℄ INT. M.H. NO. 4 =31+08.55 LINE "A-4"
1+00.00 ℄ INT. J.S. NO. 3 =6+59.52 LINE "G"
1+00.00 ℄ INT. M.H. NO. 5 =6+96.69 LINE "G"
1+00.00 ℄ INT. M.H. NO. 6 =1+55.86 LINE "G"
1+00.00 ℄ MEDIAN C.B. LINE "X"
1+00.00 ℄ INT. LINE "A"
1+05.00 ℄ MEDIAN C.B.
1+22.28 LINE "X"
1+00.00 ℄ INT. LINE "A"
1+00.00 ℄ INT. LINE "G"
1+00.00 ℄ INT. LINE "A-15"
1+00.00 ℄ INT. LINE "A"
1+00.00 ℄ INT. LINE "A-4"
1+00.00 ℄ INT. LINE "G"
1+00.00 ℄ INT. LINE "A"
1+00.00 ℄ INT. LINE "A"
1+00.00 ℄ INT. LINE "A

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

Q_{25} = 12,300 c.f.s.

SEE SHEET NO. 21 — MATCH LINE 97+00.00

98+71.72 ℄ INT. CHANNEL = 1+00.00 LINE "A"

99+03.45 ℄ INT. CHANNEL = 1+00.00 LINE "A"

℄ OF BAKER ROAD

101+80.00 ℄ INT. CHANNEL = 1+00.00 LINE "A" **

104+20.00 ℄ INT. CHANNEL = 1+00.00 LINE "A" **

106+03.00 ℄ INT. CHANNEL = 1+00.00 LINE "B" **

106+31.00 ℄ INT. CHANNEL = 1+00.00 LINE "C" **

106+63.00 ℄ INT. CHANNEL = 1+00.00 LINE "D" **

SEE SHEET NO. 11 — MATCH LINE 108+00.00

EXISTING GROUND AT ℄

EXISTING FLOW LINE PROFILE

TOP OF LINING (A)

INVERT OF CHANNEL (B)

BOTTOM OF LINING (C)

TRANSITION ON NORTH LINING

TRANSITION ON SOUTH LINING

DROP STRUCTURE (TYPICAL) PER DETAIL ON SHT. NO. 15

322'- CHANNEL LINING T=10" PER SECTION ON SHT. 14

428'- CHANNEL LINING T=10" PER SECTION ON SHT. 14

326'- CHANNEL LINING T=10" PER SECTION ON SHT. 14

402'- CHANNEL LINING T=10" PER SECTION ON SHT. 14

** 74'- CHANNEL LINING W/DROP STRUCTURE PER SECTION ON SHT. 15

PROFILE OF CHANNEL LINING

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

LINING CURVE DATA				
NO.	Δ	R	L	T
①	08°50'49"	850.00'	131.25'	65.75'
②	11° 21' 40"	866.00'	171.72'	86.14'
③	08°50'49"	909.00'	140.38'	70.32'

EASEMENT TABLE		
No.	BEARING	LENGTH
D1	S 00°21'51" E	15.00'
D2	N 89°38'09" W	2.05'
D3	N 40°54'25" W	104.00'
D4	N 89°38'09" W	27.71'
~~D5~~	~~N 25°55'32" E~~	~~30.00'~~
~~D6~~	~~N 64°04'30" W~~	~~55.00'~~

REGISTERED PROFESSIONAL ENGINEER DOUG FARMER No. 49041 Exp. 09-30-06 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOHN SARKISSIAN No. 42890 Exp. 3-31-96 CIVIL STATE OF CALIFORNIA

TYP. DETAIL FOR BOTH ENDS
NOT TO SCALE

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	ADDED 30' GUARD RAIL & 16' DOUBLE DRIVE GATE W/ PLAN	[illegible] 42890	[illegible]	2/04/91
2	REVISED ST. NAME FROM BACKER RD. TO COMMERCE CENTER DRIVE.	42890	[illegible]	1/1/94
3	REVISED GRADING ON SOUTH SIDE PER P.M. 19784-01 ADDED LINES "S2", & "T" & "T1" AND REVISED R.C.P. SIZES & ELEVATIONS	42890	[illegible]	5/1/96
4	ADDED WALL PER GRADING PLAN ON ELY & WLY SIDE OF BRIDGE, WIDEN ACCESS RD., & DRIVE GATE ETC. ON SIDE OF BRIDGE.	[illegible] R.C.E. NO. 49041	[illegible]	12/8/00

PLAN OF CHANNEL LINING
SCALE: 1" = 40'

HASLEY CANYON CREEK

COMMERCE CENTER DRIVE (ROADWAY)

LOT 1 | LOT 2 | LOT 3 | LOT 4

LOT LINE

(P.M. 19784-01)

150' WIDE EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES

BRIDGE PERMIT PER SEPARATE PERMIT

BRIDGE PIER PER SEPARATE PERMIT

30' GUARD RAIL PER L.A.C.R.D. 84-02

KEYSTONE WALL PER GRADING PLAN

5' HIGH CHAIN LINK FENCE WITH 14' DOUBLE DRIVE GATE PER A.P.W.A. STD. DWG. NO. G00-0

5' HIGH CHAIN LINK FENCE PER A.P.W.A. STD. DWG. NO. G00-0

16' WIDE A.C. PAVED ACCESS ROAD PER SECTION ON SHT. 4

16' PAVED SERVICE ROAD PER DETAIL ON SHT. 14

3" A.C. PAVEMENT OVER 4" C.A.B.

LINE "T" 18" R.C.P. (SEE PLAN ON SHT. No. 2 & PROFILE ON SHT. No. 18)

LINE "R" 18" R.C.P. (SEE PROFILE ON SHT. 2)

LINE "R" 24" R.C.P. S=0.0200

LINE "R-2" 24" R.C.P. S=0.0200

LINE "A" 36" R.C.P. (SEE PROFILE ON SHT. 13)

LINE "P" 18" R.C.P. (SEE PROFILE ON SHT. NO. 2)

18" PLUG W/ BRICK & MORTER

1+76.00 ℄ GRATING BASIN 1095.83 T.G. 1091.33 INV. (OUT)

1+55.97 @ INSIDE FACE OF HEADWALL

1+31.59 @ INSIDE FACE OF HEADWALL

1+53.76 @ INSIDE FACE OF HEADWALL

2+18.00 INSIDE FACE OF H.W.

2+15.00 ℄ INSIDE FACE OF GRATING BASIN

2+00.00 @ INSIDE FACE OF GRATING BASIN

98+71.72 ℄ INT. CHANNEL = 1+00.00 LINE "A"

99+03.45 ℄ INT. CHANNEL = 1+00.00 LINE "A"

101+80.00 ℄ INT. CHANNEL = 1+00.00 LINE "A"

104+20.00 ℄ INT. CHANNEL = 1+00.00 LINE "A"

106+03.00 ℄ INT. CHANNEL = 1+00.00 LINE "B"

106+31.00 ℄ INT. CHANNEL = 1+00.00 LINE "C"

106+63.00 ℄ INT. CHANNEL = 1+00.00 LINE "D"

℄ OF CHANNEL

℄ OF STREET

R.S.T. R/W

GRATING BASIN PER GRADING PLAN

10' SANITARY SEWER EASEMENT PER P.C. 10942

VARIABLE WIDTH EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES, TO BE ACQUIRED BY SEPARATE INSTRUMENT.

16' WIDE EASEMENT TO THE L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES

16' WIDE A.C. PAVED ACCESS ROAD PER SECTION ON SHT. No. 4

EASEMENT QUITCLAIMED PER [illegible]

EASEMENT QUITCLAIMED PER P.M. NO. 19784-01

EASEMENT CURVE DATA			
DELTA	RADIUS	LENGTH
C1	48°44'04"	25.00'	21.26'
C2	66°38'40"	42.00'	48.85'
C5	30°23'28"	25.00'	13.26'
C6	30°23'28"	10.00'	5.30'
C7	85°10'31"	42.50'	63.16'
C8	85°10'31"	27.50'	40.88'

REGISTERED PROFESSIONAL ENGINEER RONALD R. HORN No. 16813 Exp. 6-30-93 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER ALBERT L. GALLIGHER No. 328 Exp. 12-31-93 GEOTECHNICAL STATE OF CALIFORNIA

Soil Engineering aspects of this plan are approved.
R. F. FRANKLIN & ASSOCIATES
by [signature] dated 10/1/90

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.
(*) INLET STRUCTURE PER DETAIL ON SHT. NO. 14
(*) OUTLET STRUCTURE PER DETAIL ON SHT. 14
(**) DROP STRUCTURE AND RIPRAP PER DET. ON SHT. NO. 15
(1) CONSTRUCT DROP INLET CATCH BASIN PER GRADING PLAN, P.M. 19784-01 & JOIN WITH STORM DRAIN PIPE.

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: [signature] R.C.E. NO. 16813

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS
CHECKED BY: [signature] AND DEVELOPMENT DIVISION, R.C.E. NO. 39460 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT. 10 OF 23 SHTS

PF519166

1020-187-03

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

PROFILE OF CHANNEL LINING

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

PLAN OF CHANNEL LINING

SCALE: 1"= 40'

LINING	CURVE	DATA		
NO.	Δ	R	L	T
①	25°06'20"	1425.00'	624.40'	317.29'
②	25°06'20"	1484.00'	650.25'	330.93'
③	25°06'20"	1368.00'	598.55	304.16'

NO.	REVISION	REVISED BY	APPROVED BY	DATE
4	ADDED EASEMENT DATA FOR NORTH SIDE OF CHANNEL.	R.C.E. No. 49041		10/5/06
1	REVISED S.D. LINE "M"	42890		10/22/99
2	REVISED LINE "L" LOCATION FROM & IN ℄ STA. 115+93.00 TO STA. 115+84.64	42890		11/1/99
3	REVISED GRADING ON SOUTH SIDE PER P.M. 19784-01, ADDED LINES "K-1" & "M-1", REVISED LINES "S" & "J", DELETED EASEMENT DATA TABLES & MISC.	42890		5/11/99

3 EASEMENT TABLE

NO.	BEARING	LENGTH
D1	N33°34'42"E	48.00'
D2	N42°55'40"E	48.00'
D3	N45°56'06"E	50.00'
D4	N42°30'20"E	50.00'

3 EASEMENT CURVE DATA

NO.	DELTA	RADIUS	LENGTH
C1	4° 16' 56"	1500.00'	113.00'
C2	2° 40' 26"	1500.00'	70.00'
C3	3° 56' 03"	1500.00'	103.00'
C4	1° 31' 41"	1500.00'	40.00'

✱ NOT TO BE MAINTAINED BY L.A.C.F.C.D.

✱✱ INLET STRUCTURE PER DETAIL ON SHT. NO. 14

✱✱✱ DROP STRUCTURE & RIPRAP PER DETAIL ON SHT. NO. 15.

✱✱✱ OUTLET STRUCTURE PER DETAIL ON SHT. 14

✱✱✱✱ CUT-OFF WALL PER DETAIL ON SHT. 4

△1 - CONSTRUCT DROP INLET CATCH BASIN PER GRADING PLAN, P.M. NO. 19784-01 & JOIN WITH STORM DRAIN PIPE

△2 - CONSTRUCT GRATING BASIN PER GRADING PLAN, P.M. NO. 19784-01

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ date 10/4/00

PREPARED BY:
GIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: _____ R.C.E. NO. 42890

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
CHECKED BY: _____ R.C.E. NO. 39440 DATE: 10/23/00
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

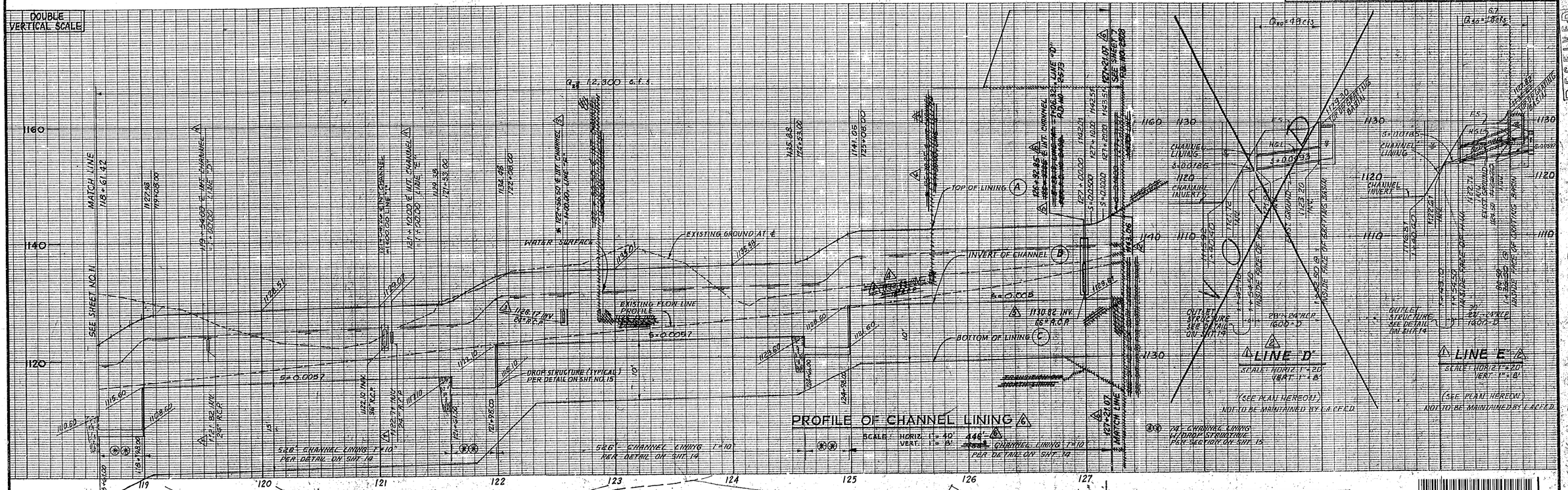
SHT 11 OF 23 SHTS

1020-187-03

REVISION

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE


SEE SHEET NO. 11
MATCH LINE
118+61.42
119+54.00 ℄ INT. CHANNEL "D"
Δ=7°44'24" R=850.00' L=114.86'
Δ=19°48'40" R=850.00' L=293.90'
Δ=5°38'11" L=39.99'
121+53.00
121+28.00
Q25 12,300 c.f.s.
121+56.50 ℄ INT. CHANNEL "D" AND "E"
121+00.00 ℄ INT. CHANNEL "E"
1129.38
1134.38
1135.63
1141.05
125+08.00
WATER SURFACE
EXISTING GROUND AT ℄
EXISTING FLOW LINE PROFILE
S=0.0057
1126.17 INV. 66" R.C.P.
1121.10 INV. 54" R.C.P.
1122.71 INV. 54" R.C.P.
DROP STRUCTURE (TYPICAL) PER DETAIL ON SHT. NO. 15
52Ø CHANNEL LINING 1"=10' PER DETAIL ON SHT. 14
TOP OF LINING (A)
INVERT OF CHANNEL (B)
BOTTOM OF LINING (C)
S=0.008
1130.82 INV. 66" R.C.P.
PROFILE OF CHANNEL LINING
SCALE: HORIZ. 1"=40' VERT. 1"=8'
446' CHANNEL LINING 1"=10' PER DETAIL ON SHT. 14
Q50=49cfs
Q25=18cfs
LINE "D"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN HEREON)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.
OUTLET STRUCTURE SEE DETAIL ON SHT. 14
20'W x 9'H RCB (600'-0")
24" CHANNEL LINING W/DROP STRUCTURE PER SECTION ON SHT. 15
LINE "E"
SCALE: HORIZ. 1"=20' VERT. 1"=8'
(SEE PLAN HEREON)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.
OUTLET STRUCTURE SEE DETAIL ON SHT. 14
20'W x 9'H RCB (600'-0")
24" CHANNEL LINING W/DROP STRUCTURE PER SECTION ON SHT. 15
CHANNEL LINING S=.00785
CHANNEL INVERT
S=.00393
S=.00785
CHANNEL LINING
CHANNEL INVERT
EXISTING GROUND
INSIDE FACE OF EARTHEN BERM
INSIDE FACE OF CHANNEL
TOP OF BERM
1122.71
1123.20
1122.71
1122.20
1116.33
1120.20
1122.21
1116.83
1120.70
1122.21
1116.83
1120.70
1122.71
1117.33
1121.20
1122.71
1117.33
1121.20
1122.71
1117.33
1121.20

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

Q_{25} = 12,300 c.f.s.

SEE P.D. 2508 FOR TIE-IN TO SOIL CEMENT CHANNEL

A TOP OF LINING

B PROP GRADE @ SOUTH LINING

C BOTTOM OF LINING

EXIST. GROUND @ SOUTH LINING

WATER SURFACE

STA 127 + 21.11 = STA 127 + 70.00 (N 37° 45' 38" E 48.89')

STA 127 + 70.00 = STA 128 + 80.00 (N 37° 45' 38" E 1092.21')

STA 128 + 80.00 = STA 131 + 72.00 (N 37° 45' 38" E 292.00')

STA 131 + 72.00 = STA 131 + 94.95 (N 37° 45' 38" E 22.95')

131+94.95 END OF SOUTH LINING

PROFILE OF SOUTH LINING
SCALE: HORIZ. 1"=40'
VERT. 1"=8'

** 37'± CHANNEL LINING W/ DROP STRUCTURE PER SECTION ON SHT. 15

428'± LEVEE LINING T=10" PER DETAIL ON SHT. 14

LINING CURVE DATA				
NO.	Δ	R	L	T
①	14°21'41"	64.00'	16.04'	8.06'

EASEMENT CURVE DATA			
NO	DELTA	RADIUS	LENGTH
C1	14°21'41"	80.00'	2005'

EASEMENT QUITCLAIMER PER P.D. NO. 2508 SHT. 7

EASEMENT TABLE		
NO	BEARING	LENGTH
D1	N23°59'39"E	40.00'
D2	N48°59'39"E	40.00'
D3	N46°00'21"W	40.00'

150' WIDE EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES

~~6' HIGH CHAIN LINK FENCE PER APWA STD DWG NO. 600-2~~

SEE P.D. 2508 FOR TIE-IN TO SOIL CEMENT CHANNEL

3" A.C. OVERLAY OVER 4" C.A.B. (TURN AROUND)

15' PAVED SERVICE ROAD PER DET. ON SHT. 14

~~S 46°00'21" W 498.89'~~

~~SEE SECTION L-L ON SHT. NO. 23~~

~~VARIABLE WIDTH EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES~~

L = 781.55'

N 37° 45' 38" E

LAND OF SOUTH LINING

SEE SHEET NO. 20 FOR NORTH LINING

PLAN OF SOUTH LEVEE LINING
SCALE: 1"=40'

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED HYDRAULIC ELEMENT FOR LAT'S. "G-1" & "G-2", "G-3" & "G-4", "G-5" & "G-6", & "G-7" & "G-16"	Jose Sarkissian 42890	Phil Condon 6581	2/10/93
2	REVISED PROFILES OF LINES "J" & "K", DELETED INLET STRUCTURES OF LINES "J" & "K"	42890	BKmurat	7/6/98
3	PORTION OF EXISTING CONCRETE LINER TO BE REMOVED (SEE P.D. 2508)	Jose Sarkissian 42890		5/16/04
4	VOIDED PLAN & PROFILE OF SOUTH LEVEE LINING.	R.C.E. No. 39941		8/19/05

REGISTERED PROFESSIONAL ENGINEER — DOUG FARMER — No. 49041 — Exp. 09-30-06 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — JOSE SARKISSIAN — No. 42890 — Exp. 3-31-05 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — BRUCE M. PHILLIPS — No. 039635 — Exp. 3-31-05 — CIVIL — STATE OF CALIFORNIA

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17620 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
PH (714) 481-7289 FAX (714) 481-7299

Soil engineering aspects of this plan are approved.
R.T. FRANKIAN & ASSOCIATES
by _____ date 10-1-90

REGISTERED PROFESSIONAL ENGINEER — CARROLL J. GALLAGHER — No. 325 — Exp. 6-30-93 — GEOTECHNICAL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — RONALD R. HORN — No. 16913 — Exp. 6-30-93 — CIVIL — STATE OF CALIFORNIA

Q 0.850 = 6.4 c.f.s.

1400.00 SHIFT ANGLE WITH SAFETY LEDGE

2+62.62 ℄ LINE "T-1"

PROPOSED F.S. PER GRADING PLAN

F.S.

FILL ABANDONED PIPE WITH SAND SLURRY

H.G.L.

S=0.0100

GRADE TO DRAIN PER GRADING PLAN

EXIST. GROUND

EL. 1115.80 INV.
EL. 1115.90 INV.

1077.49 INV. 36"ø C.M.P.
1075.82 INV. 36"ø R.C.P.

1077.95 INV.

1+28.00

C=35'

1400-D

1400-D

1+30.00 ℄ PLUG END W/ BRICK & MORTAR

2+36.00 ℄ CONCRETE PLUG END W/ BRICK & MORTAR

1+78.00 ℄ PLUG END W/ BRICK & MORTAR

ADDITIONAL 1½" CONC. COVER OVER INVERT STEEL PER NOTE 25 ON SHT. NO. 1

131'-18" R.C.P. 3300-D

* LINE "T-1"
SCALE: HORIZ. 1"=40'
VERT. 1"=8'
(SEE PLAN ON SHT. 2)

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.

28.9 Q_{25} = 30.2± c.f.s.

MODIFIED PROTECTION BARRIER PER DETAIL ON SHT. NO. 23

CHANNEL LINING

S=0.0361

W.S.

S=0.0146

S=0.0485

EXIST. GROUND

PROP. F.S.

H.G.L.

GRADE TO DRAIN PER GRADING PLAN

CHANNEL INVERT

116.85' INV.

EL. 1115.80 INV.
EL. 1115.90 INV.

1109.09
1+40.40

1+57.31 ℄ INSIDE FACE OF HEADWALL

1+67.31 EL. 1116.26 INV.

1+67.31 EL. 1116.26 INV.

1+78.00 ℄ PLUG END OF R.C.P. W/ BRACK & MORTAR

1+78.00 ℄ INSIDE FACE OF HEADWALL

** DROP INLET PER GRADING PLAN, P.M. NO. 19784-01

ADDITIONAL 1½" CONC. COVER AS REQ'D

INLET STRUCTURE PER DETAIL ON SHT. 14

36" RCP

1400-D

5 T.S. NO.1 PER 2-D235

5'-3'-0"W x 3'-0"H R.C. BOX PER DETAIL ON SHT. NO. 23

OUTLET STRUCTURE SEE DETAIL ON SHT. 14

2 LINE "J"
SCALE: HORIZ. 1"=20'
VERT. 1"=8'
(SEE PLAN ON SHT. 11)
(NOT TO BE MAINTAINED BY LACFCD)

CONTINUED FROM SHT. 1

HYDRAULIC ELEMENTS

LINE	STATION	Q25 IN c.f.s.	CONDUIT SIZE	S.F.	VELOCITY IN FT./SEC	DN. IN FT.
LAT. "B-2"	1+04.00 TO 1+09.92	16.6	24"	.0054	5.3	⊙
	1+09.92 TO 1+77.84	16.6	24"	.0413	6.7	1.47
LAT. "B-3"	1+04.00 TO 1+14.38	12.1	24"	.0029	3.9	⊙
	1+14.38 TO 1+55.10	12.1	24"	.0540	5.9	1.25
LAT. "B-4"	1+03.74 TO 1+58.53	37.7	30"	.0365	8.7	2.08
	1+86.53 TO 2+11.53	19.0	24"	.0200	7.2	1.57
LAT. "G-1"	~~02.75~~ 90.32 ~~1+03.00~~ TO ~~1+87.00~~	~~8.9~~ ~~7.6~~	~~18"~~ ~~30"~~	~~.0217~~ ~~.0214~~	~~9.0~~ ~~9.3~~	~~1.16~~ ~~0.92~~
LAT. "G-2"	1+02.50 TO ~~1+62.07~~ 81.82	~~21.8~~ 8.0	~~30"~~ 18"	.0026 .0277	~~4.4~~ 9.6	1.1 ⊙
	~~1+62.07 TO 1+80.00~~	~~21.8~~	~~30"~~	~~.0095~~	~~4.5~~	~~2.36~~
LAT. "G-3"	1+02.50 TO ~~1+77.43~~ 69.63	7.1	18"	.0225 .0402	~~5.5~~ 10.5	1.03
LAT. "G-4"	1+02.25 TO 1+59.05	15.4	24"	.0343	6.5	1.42
LAT. "G-5"	1+01.~~69~~ 73 TO 1+40.00	7.5 ~~5.0~~	18"	.0051 .0033	4.2 ~~3.4~~	⊙
	1+40.00 TO ~~1+75.80~~ 2+19.45	~~6.0~~ 7.5	18"	.0033 .0051	~~3.4~~ 4.2	⊙
LAT. "G-6"	1+01.73 TO ~~1+81.13~~ 2+22.12	7.6 ~~6.0~~	18" ~~30"~~	.0081 .0003	4.2 ~~1.4~~	⊙
LAT. "G-7"	1+01.44 TO ~~1+43.00~~ 11.65	6.5	18"	.1469 .0236	11.6 ~~8.2~~	0.99
LAT. "G-16"	03.01 TO ~~1+65.00~~ 62.91	6.3	24"	.0332 .0008	9.1 ~~2.01~~	1.65 ⊙

⊙ INDICATES FULL FLOW

CONTINUED TO SHEET 22

PF519169

2 NEG. Q_{25} = ~~40.7~~ 37.0 c.f.s.

EXIST. GROUND

PROP. F.S.

H.G.L.

MODIFIED PROTECTION BARRIER PER DETAIL ON SHT. NO. 23

CHANNEL LINING

W.S.

S=0.0146

S=0.0485

CHANNEL INVERT

1095.22
1+40.40

1095.11
1+49.15

1095.15
1+78.00

1095.89
1+78.00

1+55.97 EL. 1095.55 INV.

1+55.97 EL. 1095.89 INV.

INSIDE FACE OF HEADWALL

1+78.00 ℄ PLUG END OF R.C.P. W/ BRACK & MORTAR

13' 36"RCP 1400-D

INLET STRUCTURE PER DETAIL ON SHEET 14

5 T.S. NO.1 PER 2-D235

5'-3'-0"W x 3'-0"H R.C. BOX PER DETAIL ON SHT. NO. 23

OUTLET STRUCTURE PER DETAIL ON SHEET 14

** DROP INLET PER GRADING PLAN, P.M. NO. 19784-01

2 LINE "K"
SCALE: HORIZ. 1"=20'
VERT. 1"=8'
(SEE PLAN ON SHT. 10)
(NOT TO BE MAINTAINED BY LACFCD)

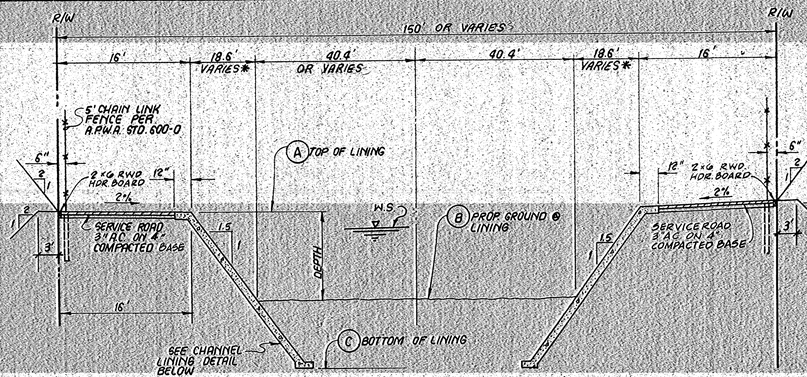
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8650
SIGNATURE: Ronald R. Horn R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

CHECKED BY: Fred Gadea R.C.E. NO. 39590 DATE: 10/23/90
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

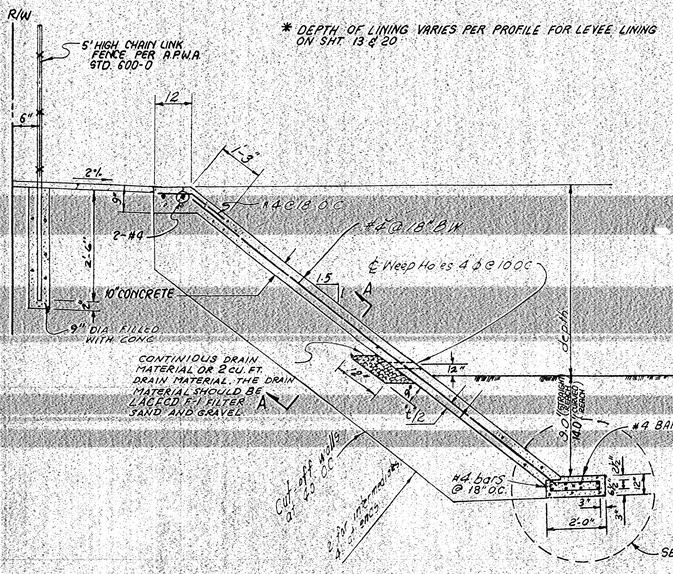
SHT 13 OF 23 SHTS

1020-187-03



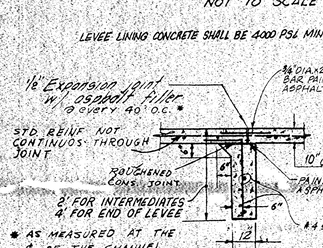
TYPICAL SECTION FOR CHANNEL LINING
NOT TO SCALE

* DEPTH OF LINING VARIES PER PROFILE FOR LEVEE LINING ON SHT. 13 & 20

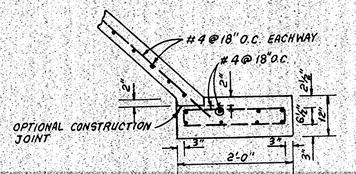


CHANNEL LINING DETAIL
NOT TO SCALE

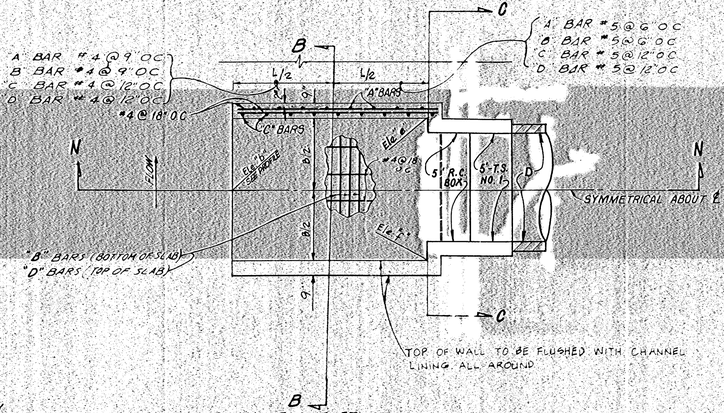
LEVEE LINING CONCRETE SHALL BE 4000 PSI MIN.



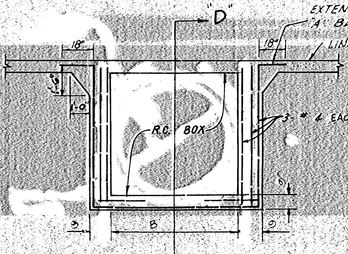
SECTION-A-A
CUT OFF WALL
WITH EXPANSION JOINT
NOT TO SCALE



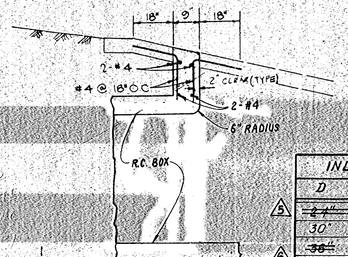
DETAIL "B"
NO SCALE



PLAN OF OUTLET STRUCTURE
NO SCALE

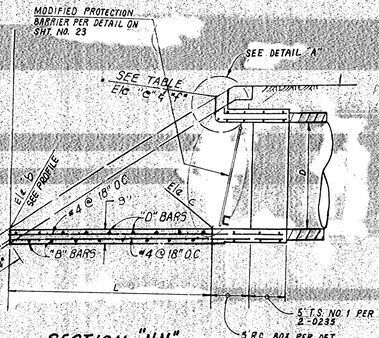


SECTION "CC"
NO SCALE

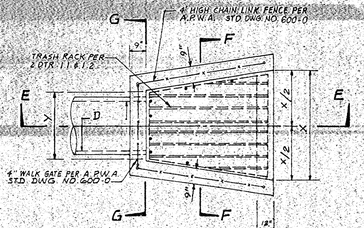


HEADWALL REINFORCEMENT
DETAIL "A"
NO SCALE

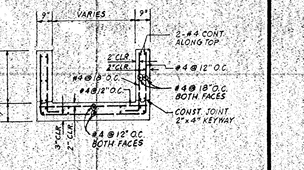
INLET STRUCTURE TABLE			
D	X	Y	Z
~~6"~~	~~1'-0"~~	~~3'-0"~~	~~3'-0"~~
30"	8'-0"	4'-0"	6'-0"
~~36"~~	~~8'-0"~~	~~4'-6"~~	~~10'-0"~~
~~48"~~	~~12'-0"~~	~~5'-6"~~	~~12'-0"~~



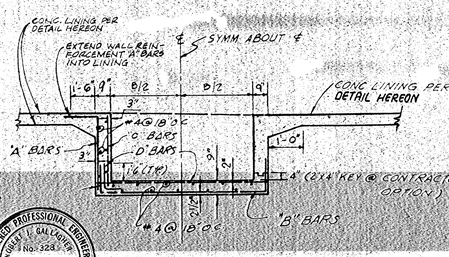
SECTION "NN"
NO SCALE



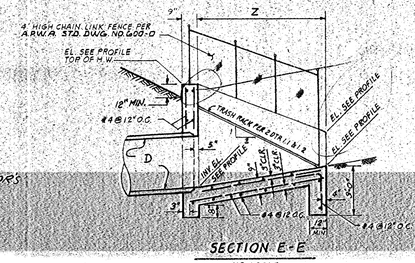
PLAN OF INLET STRUCTURE
NO SCALE



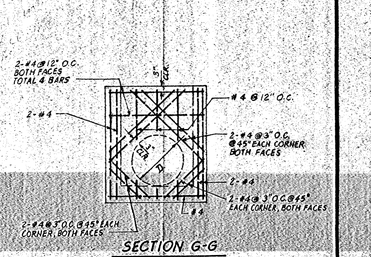
SECTION F-F
NO SCALE



SECTION B-B
NO SCALE



SECTION E-E
NO SCALE



SECTION G-G
NO SCALE

OUTLET STRUCTURES									
Line	℄ Intersection Channel Sta.	"D"	"L"	"B"	El "a"	El "e"	El "f"	Slope
"A"	99 + 03.45	5'W x 5'H R.C. BOX	11.14'	7'-0"	1072.34	1078.79	1078.83	0.0178
"B"	109 + 34.88	4'W x 4'H R.C. BOX	8.31'	6'-0"	1097.60	1103.02	1103.06	0.0144
"I"	121 + 04.26	4'W x 4'H R.C. BOX	8.40'	6'-0"	1120.61	1126.08	1126.12	0.0131
"J"	115 + 87.00	5'W x 5'H R.C. BOX	8.84'	5'-0"	1115.90	1120.35	1120.38	0.0146
"K"	106 + 31.00	5'W x 5'H R.C. BOX	6.84'	5'-0"	1095.21	1099.65	1099.68	0.0146
"L"	115 + 69.00	18" R.C.P.	4.65'	3'-6"	1114.10	1117.09	1117.11	0.0215
"M"	112 + 74.00	18" R.C.P.	4.65'	3'-6"	1108.50	1111.49	1111.51	0.0215
"P"	106 + 63.00	18" R.C.P.	4.65'	3'-6"	1096.00	1098.99	1099.01	0.0215
"R"	101 + 80.00	18" R.C.P.	4.65'	3'-6"	1082.10	1085.09	1085.11	0.0215
"S"	114 + 22.50	3'W x 3'H R.C. BOX	6.84'	5'-0"	1109.10	1114.55	1114.57	0.0132
"T"	98 + 71.72	3'W x 3'H R.C. BOX	6.84'	5'-0"	1072.55	1076.98	1077.01	0.0219
"Z"	96 + 35.00	3'W x 3'H R.C. BOX	8.55'	6'-0"	1073.65	1079.23	1079.27	0.0120
~~"D"~~	~~119 + 54.00~~	~~24" R.C.P.~~	~~5.40'~~	~~4'-0"~~	~~1121.82~~	~~1125.31~~	~~1125.35~~	~~0.0185~~
"E"	121 + 10.00	24" R.C.P.	5.40'	4'-0"	1122.71	1126.20	1126.22	0.0185
"F"	122 + 86.00	24" R.C.P.	5.40'	4'-0"	1126.17	1129.66	1129.68	0.0185
"R-2"	104+20.00	24" R.C.P.	5.40'	4'-0"	1091.04	1094.53	1094.55	0.0185
"K-1"	108+40.00	24" R.C.P.	5.40'	4'-0"	1098.28	1101.77	1101.79	0.0185
"M-1"	113+06.00	24" R.C.P.	5.40'	4'-0"	1110.51	1114.00	1114.02	0.0185
"Z-1"	92+04.63	3'W x 3'H R.C. BOX	6.84'	5'-0"	1068.46	1070.91	1070.94	0.0219

NO	REVISION	REVISED BY	APPROVED BY	DATE
6	DELETED INLET STRUCTURE DETAIL FOR D=36" & 48"	R.C.E. NO. 49041		12/8/05
5	DELETED INLET STR. FOR D=24"	42890	S. KHALIL	9/25/00
4	ADDED OUTLET STRUCTURE FOR LINES "D", E, & F.	42890	Prof. Engineer 45041	9/4/97
3	VOIDED OUTLET STRUCTURE DETAIL OF LINE "D".	42890	Prof. Engineer	9/4/97
2	ADDED OUTLET STRUCTURES FOR LINES "R-2", "M-1" & "K-1".	42890		7/1/96
1	ADDED OUTLET STRUCTURE FOR LINE "Z-1".	42890		3/3/97
	DELETED INLET STR. FOR D=24"	42890		

REGISTERED PROFESSIONAL ENGINEER — DOUG FARMER — No. 49041 — Exp. 09-30-06 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — JOGA SARKISSIAN — No. 42890 — Exp. 9-31-97 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — KISHAN U. GALGALEY — No. 328 — Exp. 12-31-93 — GEOTECHNICAL — STATE OF CALIFORNIA

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ date 10-1-90

REGISTERED PROFESSIONAL ENGINEER — RONALD R. HOWN — No. 16913 — Exp. 6-30-93 — CIVIL — STATE OF CALIFORNIA

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Hown R.C.E. NO. 16913

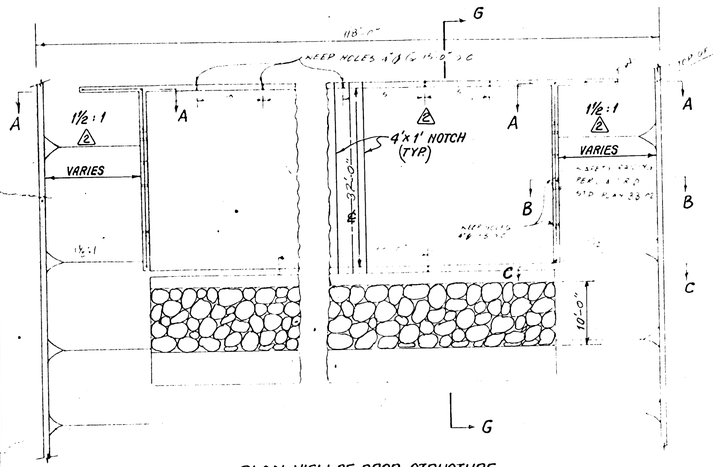
COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS
CHECKED BY: Vicky Eclea LAND DEVELOPMENT DIVISION R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 14 OF 23 SHTS

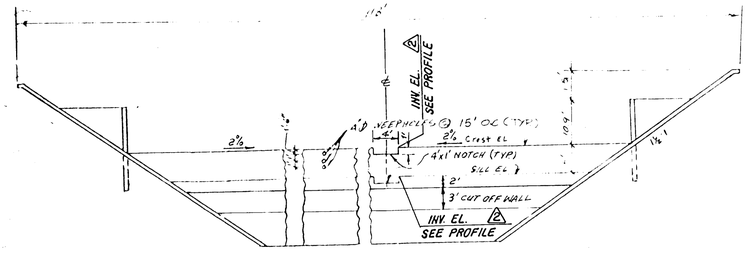
PF519170

1020-137-03

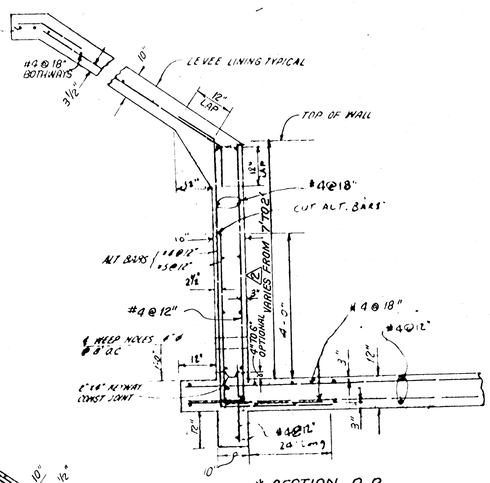
STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262



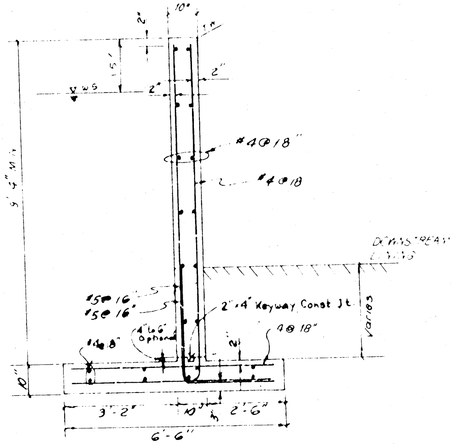
PLAN VIEW OF DROP STRUCTURE
NO SCALE



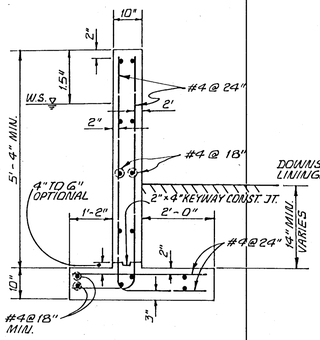
ELEVATION - LOOKING UPSTREAM
NO SCALE



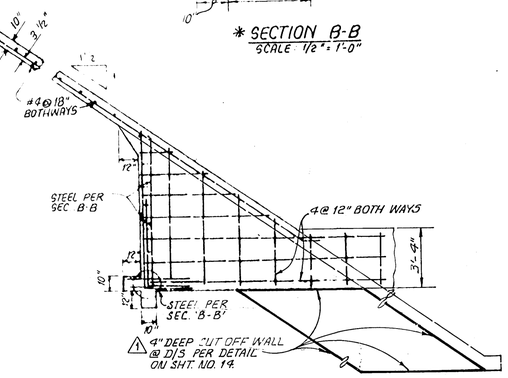
* SECTION B-B
SCALE: 1/2" = 1'-0"



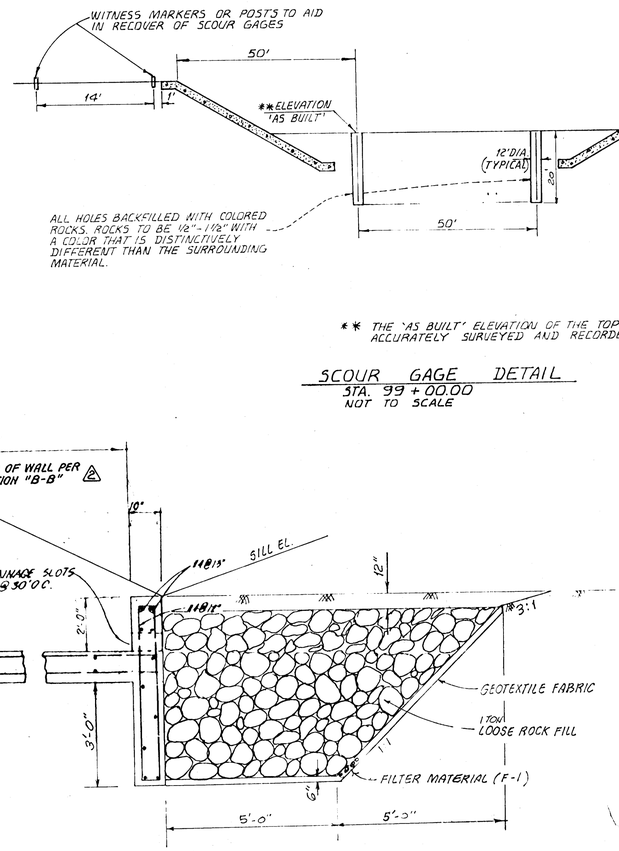
* SECTION F-F
SCALE: 1/2" = 1'-0"



* SECTION E-E
SCALE: 1/2" = 1'-0"

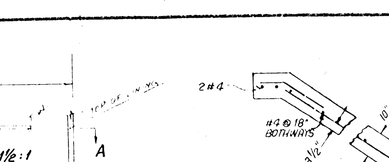


SECTION C-C
SCALE: 1/4" = 1'-0"



SECTION G-G
NO SCALE

SECTION A-A
SCALE: 1/4" = 1'-0"



* SECTION D-D
SCALE: 1/2" = 1'-0"

WITNESS MARKERS OR POSTS TO AID IN RECOVER OF SCOUR GAGES

ALL HOLES BACKFILLED WITH COLORED ROCKS. ROCKS TO BE 12"-1½" WITH A COLOR THAT IS DISTINCTIVELY DIFFERENT THAN THE SURROUNDING MATERIAL.

** THE 'AS BUILT' ELEVATION OF THE TOP OF EACH SCOUR GAGE IS TO BE ACCURATELY SURVEYED AND RECORDED ON 'AS BUILT DRAWINGS'

SCOUR GAGE DETAIL
STA. 99 + 00.00
NOT TO SCALE

* PROVIDE ONE COAT OF ASPHALTIC PAINT BETWEEN CHANNEL LINING AND RET. WALL

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	ADDED CUTOFF WALL FOR UPSTREAM & DOWNSTREAM OF DROP STRUCTURES MOVED SECTION "E-E" TO WHERE IT IS SHOWN.	42890		
2	REVISED PLAN VIEW, ELEVATION LOOKING 1/2 & SECTION "B-B" AS SHOWN	42890		

3-31-92

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Horn RCE NO 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: [signature] ASST. DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS
R.C.E. NO. 39440 DATE: 10/23/90

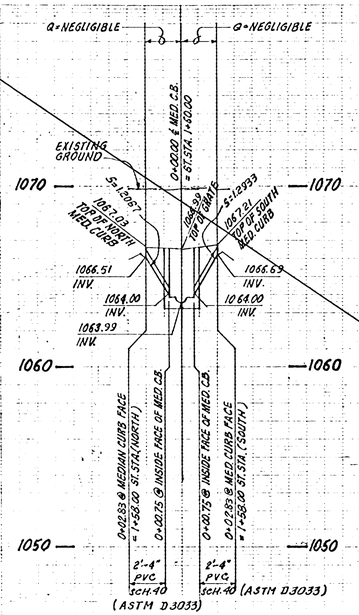
I, [signature] Engineer in responsible charge of this plan and revisions, for SIKAND ENGINEERING ASSOCIATES, hereby state that this plan and revisions were prepared by me or under my direction and date 10-1-90

SHT 15 OF 25 SHTS

1020-187-03

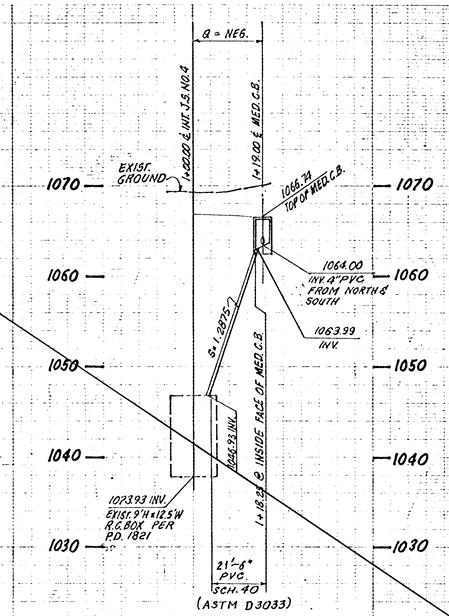
"PF519171"

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262



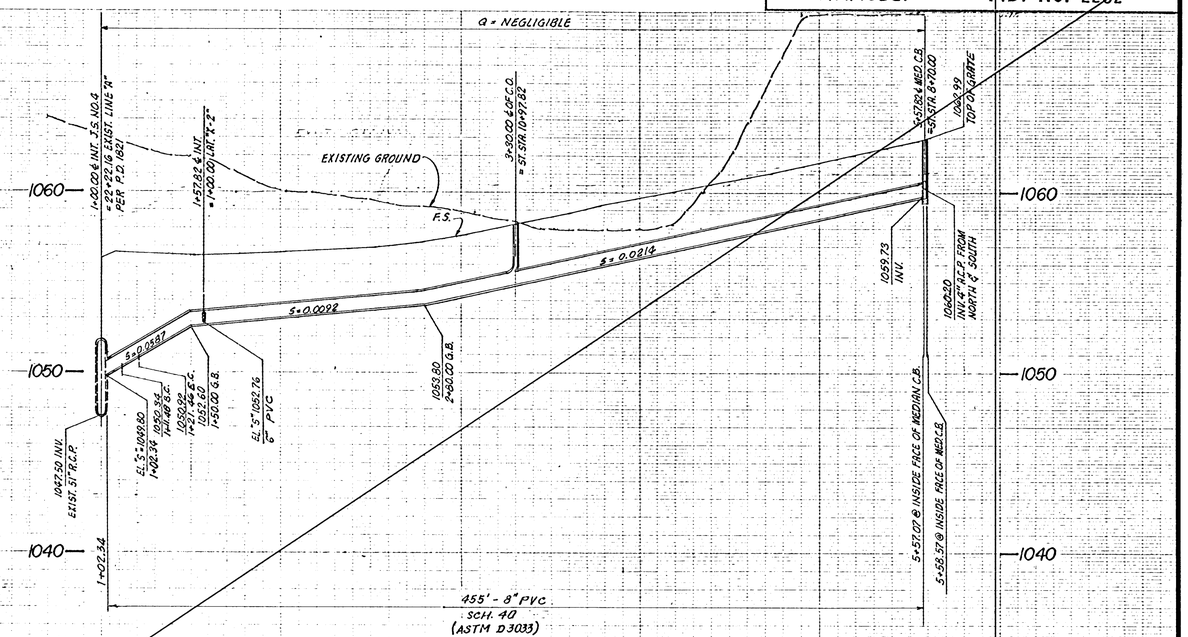
PROFILE OF LAT "Y-2"

SCALE: HORIZ. 1"= 4'
VERT. 1"= 4'
(SEE PLAN HEREON)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.



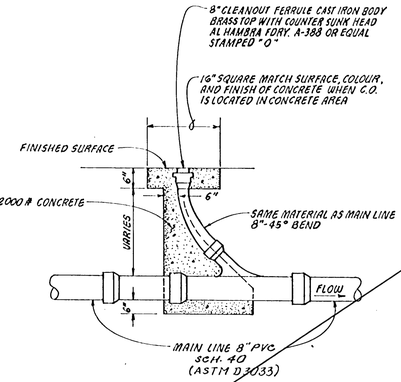
PROFILE OF LAT. "Y-1"

SCALE: HORIZ. 1"= 20'
VERT. 1"= 8'
(SEE PLAN HEREON)
NOT TO BE MAINTAINED BY L.A.C.F.C.D.



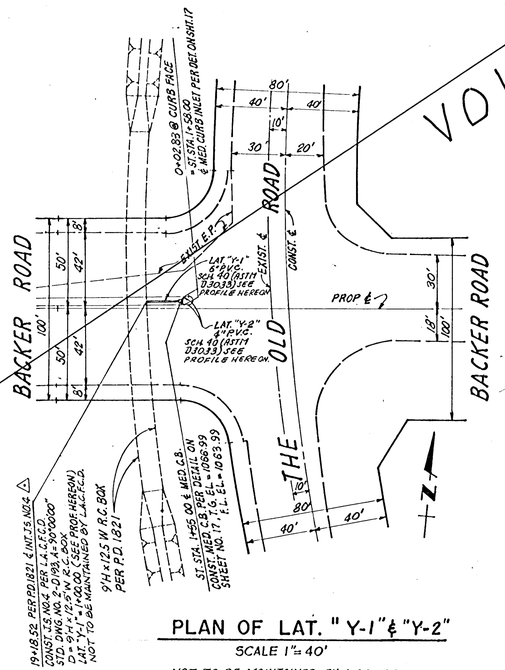
PROFILE OF LINE "X"

SCALE: HORIZ. 1"= 40'
VERT. 1"= 4'
NOT TO BE MAINTAINED BY L.A.C.F.C.D.



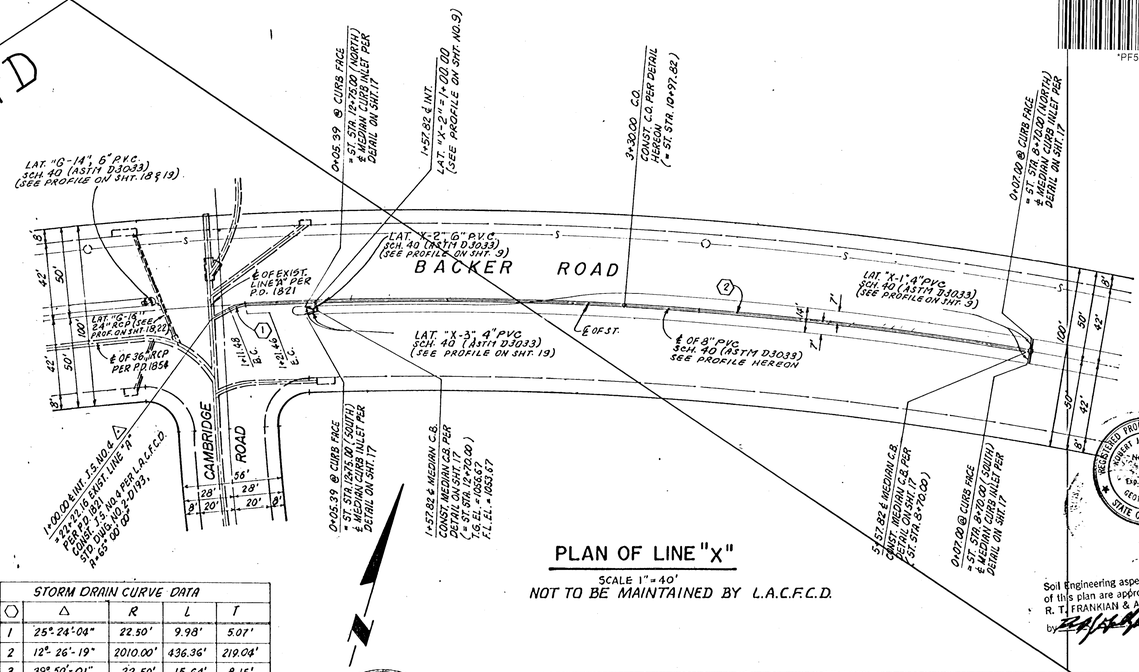
CLEANOUT DETAIL

NOT TO SCALE
NOT TO BE MAINTAINED BY L.A.C.F.C.D.



PLAN OF LAT. "Y-1" & "Y-2"

SCALE 1"= 40'
NOT TO BE MAINTAINED BY L.A.C.F.C.D.
△ USE SHEAR RING PER STD. SPECS. FOR PUBLIC WORKS CONSTRUCTION SECTION 208-2.2.3.



PLAN OF LINE "X"

SCALE 1"= 40'
NOT TO BE MAINTAINED BY L.A.C.F.C.D.

STORM DRAIN CURVE DATA				
○	△	R	L	T
1	25° 24' 04"	22.50'	9.98'	5.07'
2	12° 26' 19"	2010.00'	436.36'	219.04'
3	39° 50' 01"	22.50'	15.64'	8.15'
4	02° 35' 11"	344.00'	15.53'	7.77'
5	50° 59' 39"	22.50'	20.02'	10.73'

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ date 10-1-90

REGISTERED PROFESSIONAL ENGINEER ALBERT J. GALVEZIAN No. 37 Exp. 12-31-93 GEOTECHNICAL STATE OF CALIFORNIA

NO.	REVISION	REVISED BY	APPROVED BY	DATE

REGISTERED PROFESSIONAL ENGINEER RONALD R. NORN No. 16913 Exp. 6-30-93 CIVIL STATE OF CALIFORNIA

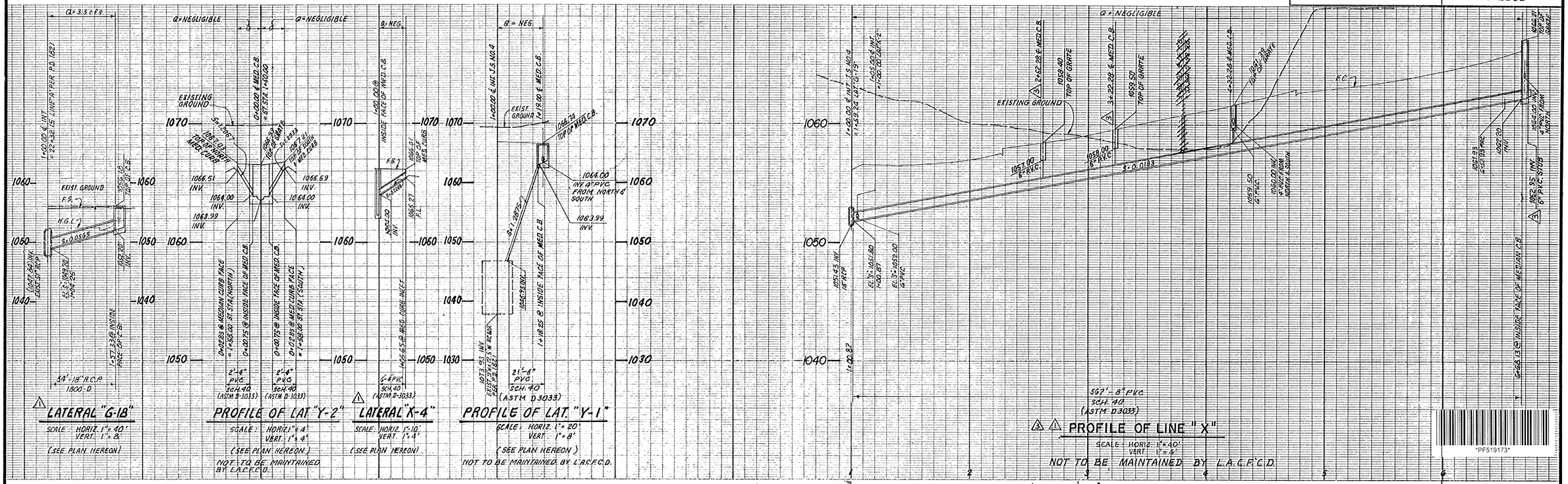
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Norn R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: [illegible] Eades R.C.E. NO. 39780 DATE: 10/29/90
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

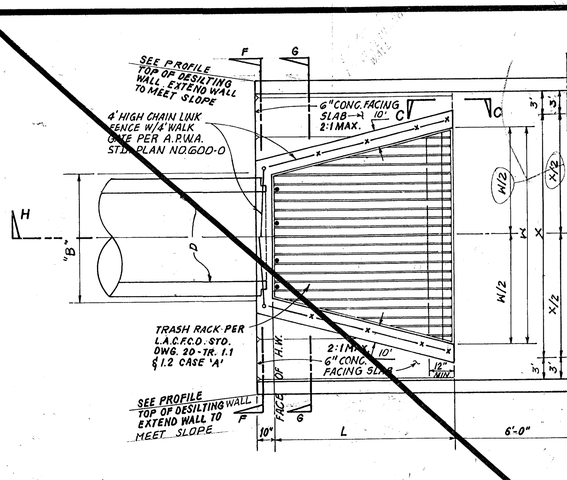
SHT. 16 OF 23 SHTS

SHEET 16 WAS SCANNED BY IEA

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

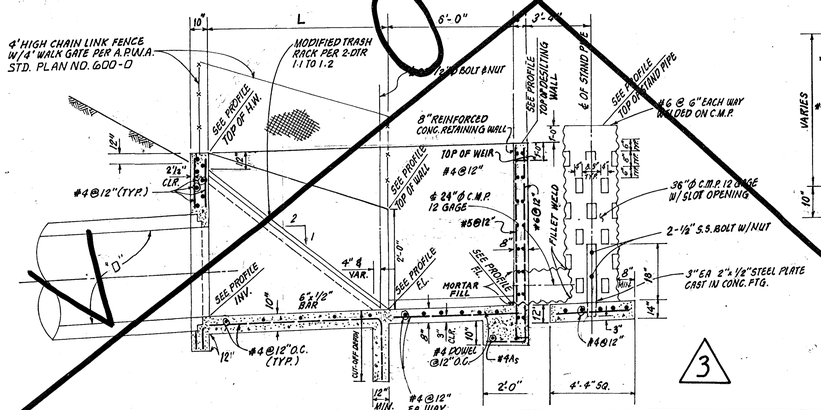

Q=3.3 c.f.s.
Q=NEGLIGIBLE
EXISTING GROUND
F.S.
H.G.L.
EXIST. GROUND
1+00.00 ℄ INT. EXIST. I.S. NO.4 = 22+45 LINE 'A' PER P.D. 1821
1+59.24 ℄ INT. I.S. NO.4 = 1+00.00 LINE "X"
1056.18 TOP OF C.B.
1055.18 TOP OF C.B.
S=0.0311
S=0.0105
S=0.0585
1059.63 INV.
1051.90 INV.
1051.80 INV.
1048.29 INV. EXIST. 36" RCP
1056.51
EXIST. 18" RCP PER P.D. 1854
PROP 47-18" RCP 1800-D
1+56.07 B.C., JOIN SAWCUT EXIST. 18" RCP PER P.D. 1854 AND REMOVE EXIST. C.B. AND INTERFERING PORTION OF 18" RCP AND JOIN
2+03.02 @ INSIDE FACE OF C.B.
1+45.00 @ MED. C.B.
1+67.67 @ MED. C.B.
1+00.00 @ INSIDE FACE OF MED. C.B.
1+00.00 @ MED. C.B.
1+67.67 @ MED. C.B.
1+00.00 @ INSIDE FACE OF MED. C.B.
1+00.00 @ INSIDE FACE OF MED. C.B.
1+00.00 @ MED. SIDE INLET
1+05.65 @ MED. SIDE INLET
1066.51 INV.
1064.00 INV.
1063.99 INV.
1066.69 INV.
1064.00 INV.
1066.27 F.L.
1066.01 TOP OF MED. CURB
1066.39 TOP OF GRATE
1065.39 TOP OF GRATE
1066.74 TOP OF MED. C.B.
1064.00 INV. 4" P.V.C. FROM NORTH & SOUTH
1063.99 INV.
1062.17 INV.
1062.15 INV.
1062.00 INV.
1061.80 INV.
1061.45 INV. 18" RCP
1060.87
1059.50 TOP OF GRATE
1058.40 TOP OF GRATE
1057.00 6" P.V.C.
1058.00 6" P.V.C.
1059.50 6" P.V.C.
1052.00 6" P.V.C.
1050.00 INV. 6" P.V.C. FROM NORTH & SOUTH
1062.35 INV. 6" P.V.C. STUB
1062.20 INV.
1061.93 EXIST. 33" RCP
1064.27 INV. EXIST. 42" RCP
1064.07 TOP OF C.B.
S=1.28%
S=1.28%
S=1.28%

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262



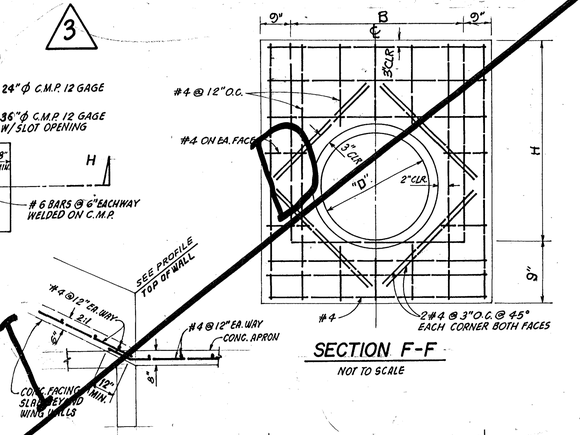
PLAN OF TYPICAL DESILTING INLET STRUCTURE

N. T. S.



SECTION H-H

NOT TO SCALE

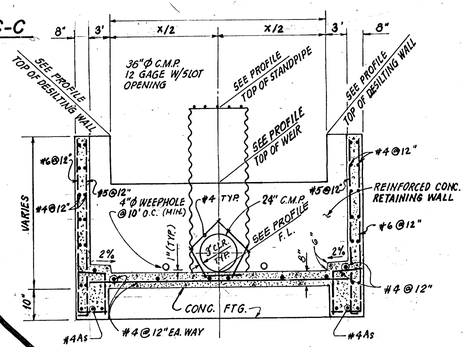


SECTION F-F

NOT TO SCALE

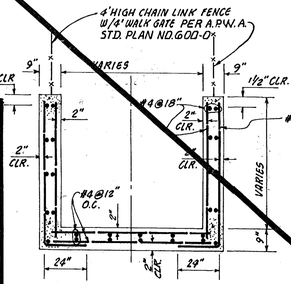
SECTION C-C

NOT TO SCALE



SECTION D-D

NOT TO SCALE

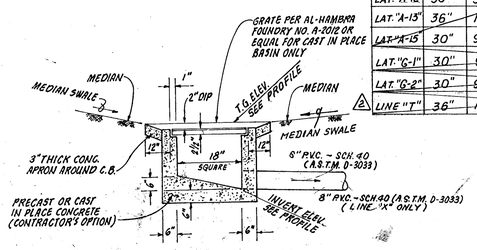


SECTION G-G

NOT TO SCALE

INLET STRUCTURE TABLE

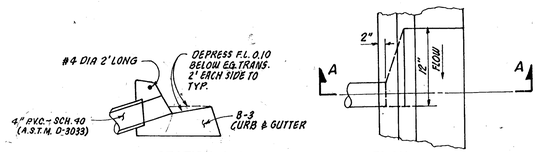
LINE	D	L	B	H	W	X	CUT-OFF
LINE "A"	36"	10'-0"	4'-0"	5'-0"	8'-0"	10'-0"	3'-6"
LAT. "A-12"	30"	9'-0"	3'-6"	5'-0"	7'-0"	10'-0"	3'-0"
LAT. "A-13"	36"	10'-0"	4'-0"	5'-0"	8'-0"	12'-0"	3'-6"
LAT. "A-15"	30"	9'-0"	3'-6"	5'-0"	7'-0"	10'-0"	3'-0"
LAT. "G-1"	30"	9'-0"	3'-6"	5'-0"	7'-0"	8'-0"	3'-0"
LAT. "G-2"	30"	9'-0"	3'-6"	5'-0"	7'-0"	8'-0"	3'-0"
LINE "T"	36"	10'-0"	4'-0"	5'-0"	8'-0"	10'-0"	3'-6"



TYPICAL MEDIAN CATCH BASIN DETAIL

NOT TO SCALE

NOT TO BE MAINTAINED BY L.A.C.F.C.D.



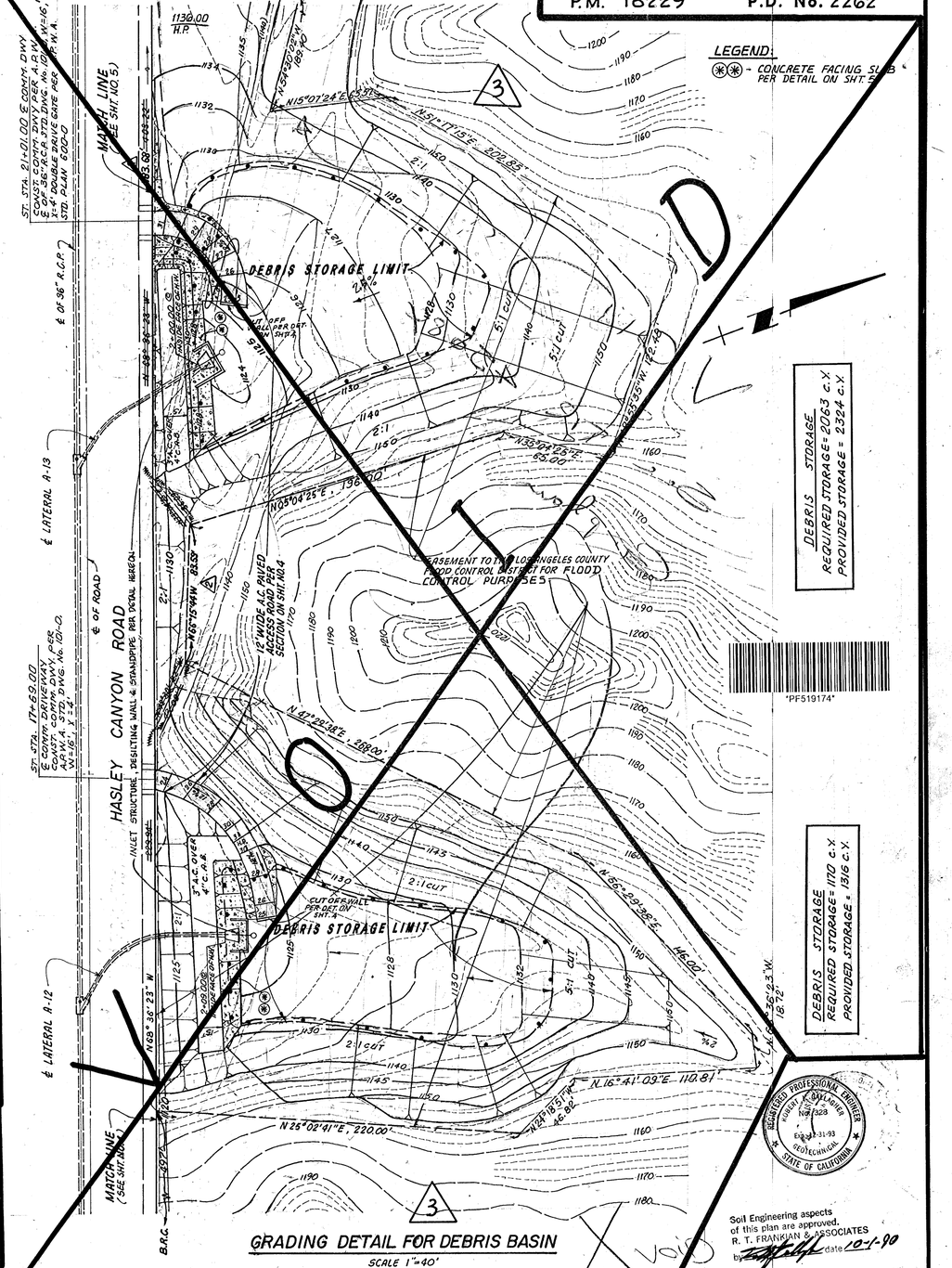
SECTION A-A

PLAN

MEDIAN CURB INLET DETAIL

NOT TO SCALE

NOT TO BE MAINTAINED BY L.A.C.F.C.D.



GRADING DETAIL FOR DEBRIS BASIN

SCALE 1"=40'

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ date 10-1-90

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	DELETED LATERALS "G-1" & "G-2" FROM INLET STRUCTURE TABLE	Sea Sarkissian 42890	Phil Gruder 22511	2/24/92
2	REVISED S.D. EASM'T BDRY, DELETED LINE "T" FROM INLET STRUT. TABLE.	42890		5/21/92
3	VOIDED INLET STRUCTURE DETAILS & GRADING DETAIL FOR DEBRIS BASINS.	R.C.E. No. 49041		12/5/05

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Horn R.C.E. NO. 16213

COUNTY OF LOS ANGELES, CALIFORNIA

THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

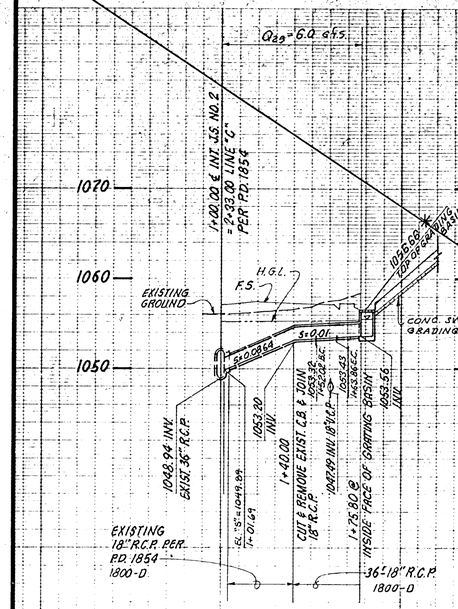
LAND DEVELOPMENT DIVISION
CHECKED BY: [illegible] R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 17 OF 23 SHTS

1020-187-03

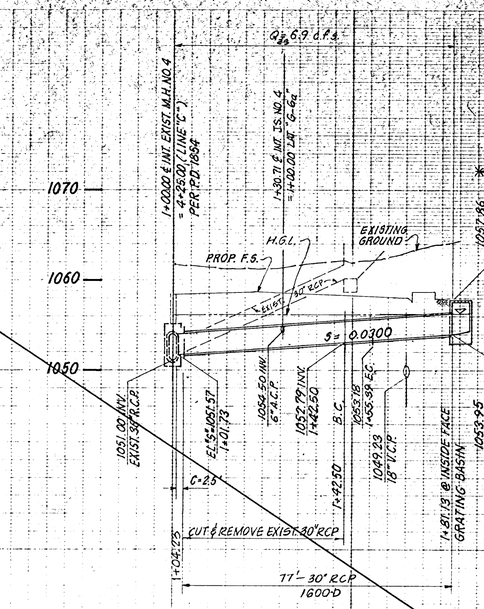
PF519174

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262



LATERAL "G-5"

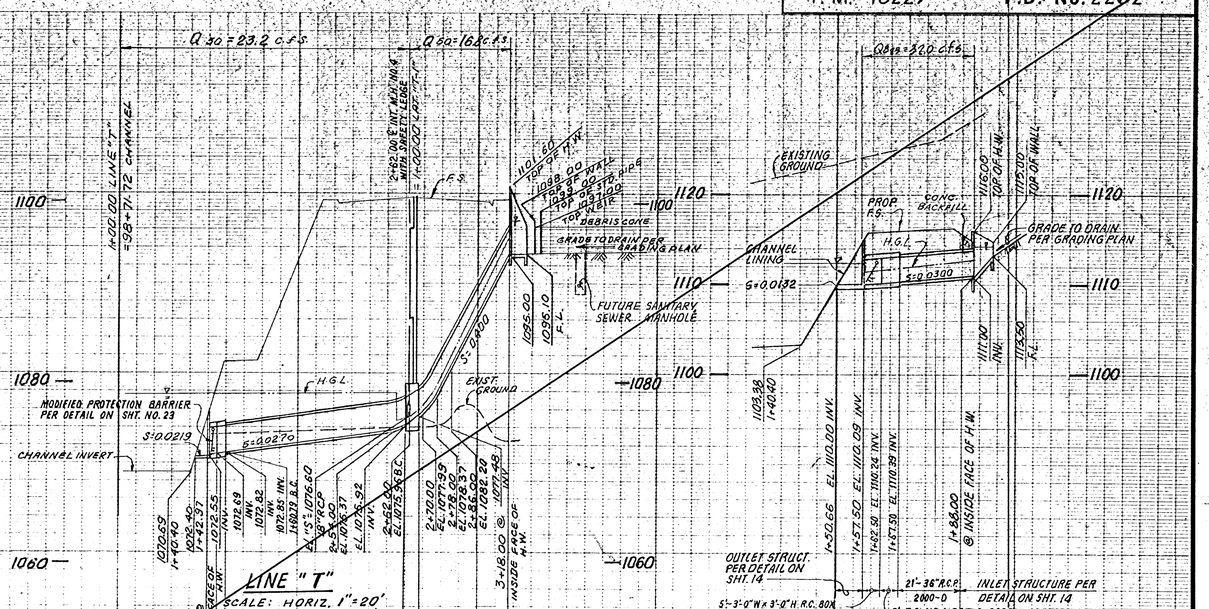
SCALE: HORIZ. 1"=40' VERT. 1"=8'



LATERAL "G-6"

SCALE: HORIZ. 1"=20' VERT. 1"=8'

* NOT TO BE MAINTAINED BY LACFCD



LINE "T"

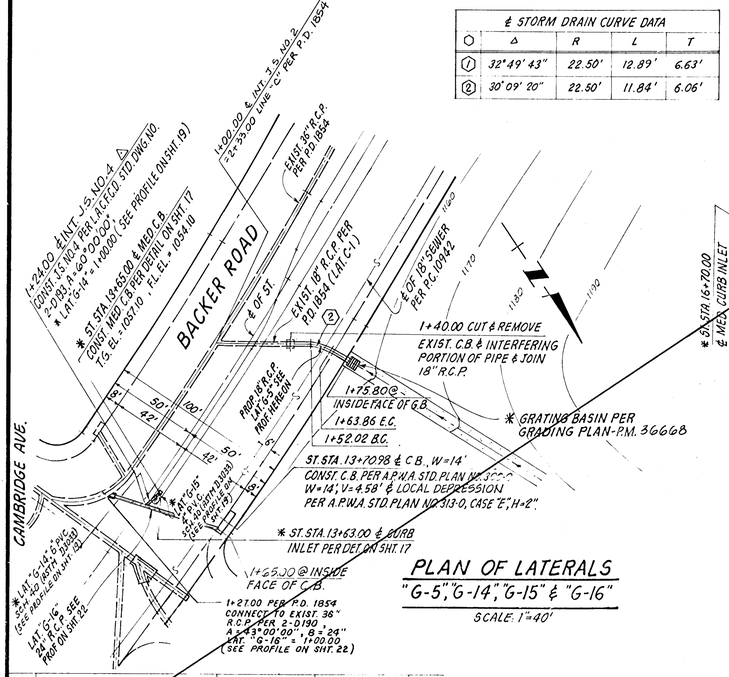
SCALE: HORIZ. 1"=20' VERT. 1"=8' (SEE PLAN ON SHT. 10)

LINE "5"

SCALE: HORIZ. 1"=20' VERT. 1"=8' (SEE PLAN ON SHT. 11)

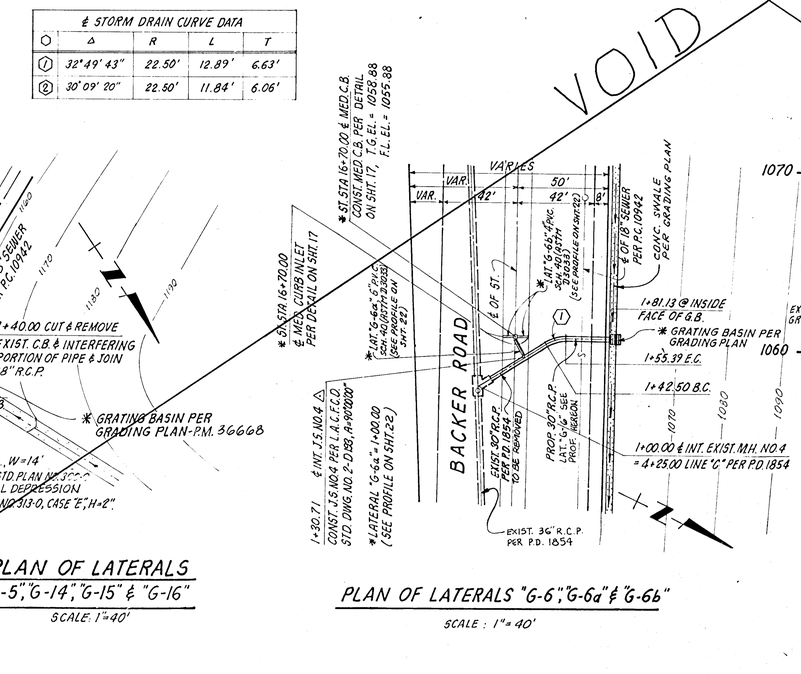
VOID

℄ STORM DRAIN CURVE DATA				
⬡	Δ	R	L	T
①	32°49'43"	22.50'	12.89'	6.63'
②	30°09'20"	22.50'	11.84'	6.06'



PLAN OF LATERALS "G-5", "G-14", "G-15" & "G-16"

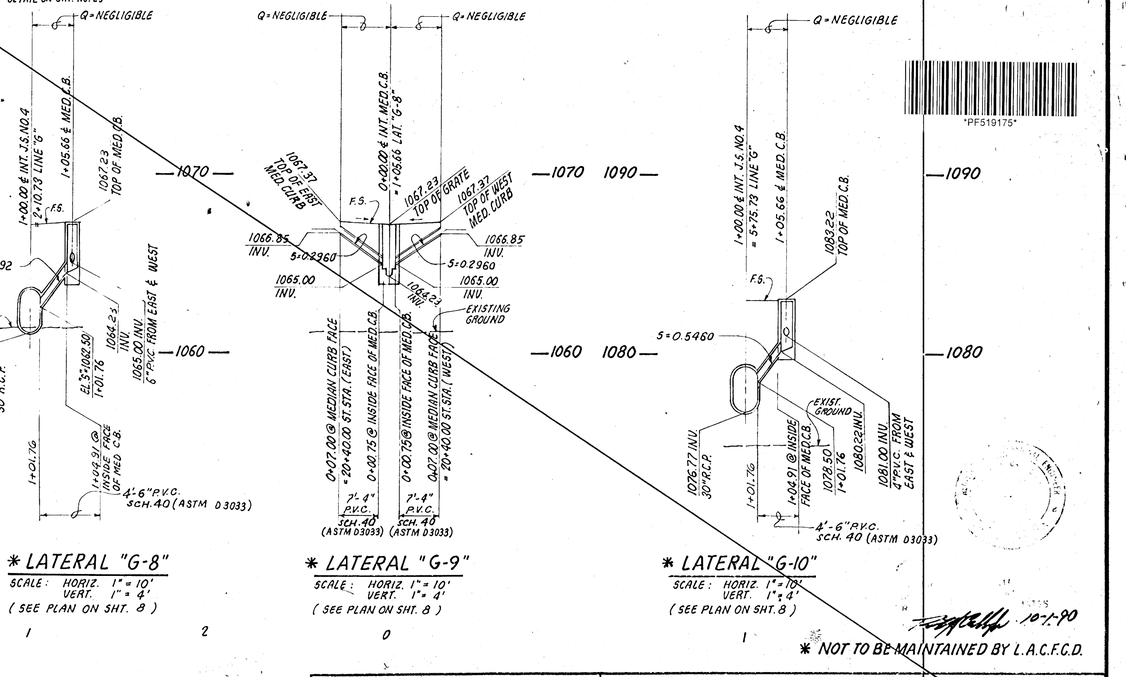
SCALE: 1"=40'



PLAN OF LATERALS "G-6", "G-6a" & "G-6b"

SCALE: 1"=40'

△ USE SHEAR RING PER STD. SPEC. FOR P.W. CONST. SECTION 208-2.2.3



★ LATERAL "G-8"

SCALE: HORIZ. 1"=10' VERT. 1"=4' (SEE PLAN ON SHT. 8)

★ LATERAL "G-9"

SCALE: HORIZ. 1"=10' VERT. 1"=4' (SEE PLAN ON SHT. 8)

★ LATERAL "G-10"

SCALE: HORIZ. 1"=10' VERT. 1"=4' (SEE PLAN ON SHT. 8)

10-1-90

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.

NO.	REVISION	REVISED BY	APPROVED BY	DATE

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald K. Horn R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: Jrp Rodrigo R.C.E. NO. 39460 DATE: 10/23/90
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHEET 12 WAS SUPERSEDED BY 18A

SHT 18 OF 23 SHTS

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

Q = 7.5 c.f.s.

1+00.00 ℄ INT. EXIST. T.S. NO. 2
= 2+33.00 LINE "C" PER P.D. 1854

4 ELEV. "S" = 1053.30 INV. 6" P.V.C. STUB

1+74.00 ℄ INT. J.S. NO. 4

EXIST. GROUND

PROP. F.S.

H.G.L.

S=0.0108

1056.94 ± TOP OF GRATING BASIN

1052.30 INV.

S=0.0221

1048.30 INV. 6" P.V.C. STUB

1048.30 INV. 18" R.C.P.

EXIST. 18" RCP PER P.D. 1854 1800-D

90'-18" R.C.P. 1800-D

4 ⚠ 1 LATERAL "G-5"

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

Q = 7.5 c.f.s.

1+00.00 ℄ INT. EXIST. M.H. NO. 4
= 4+25.00 LINE "C" PER P.D. 1854

4 ELEV. "S" = 1053.73 INV. 6" P.V.C. STUB

1+71.00 ℄ INT. J.S. NO. 4

EXIST. GROUND

EXIST. F.S.

PROP. F.S.

H.G.L.

S=0.0243

1058.10 ± TOP OF GRATING BASIN

EXIST. 30" RCP

CUT & REMOVE EXIST. 30" RCP PER P.D. 1854

1051.00 ± INV. 24" ST. 36" RCP

1052.57 1-52.02 S.C.

1052.70 1-63.86 C.C.

1047.51 INV. 18" R.C. SEWER PER P.C. 10942

1049.83 INV. 18" R.C.P. PER P.C. 10942

118'-18" R.C.P. 1800-D

4 ⚠ 1 LATERAL "G-6"

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

Q = 6.3 c.f.s.

1+00.00 ℄ INT. J.S. NO. 2
(24°08'00" LINE "D" PER P.D. 1854)
= 2+36.53, LINE "H"

1+10.68 ℄ INT. T.S. NO. 4
= 1+00.00 LAT. "S-4"

EXIST. GROUND

F.S.

H.G.L.

S=0.0332

1056.56 TOP OF C.B.

1052.56 INV.

1046.01 ± INV. 24" ST. 36" RCP

1046.08 INV. 18" R.C.P. PER P.C. 10942

1049.08 INV. 18" R.C.P. PER P.C. 10942

52' 60°-24" RCP (400-D)

2-22.12 @ INSIDE FACE OF GRATING BASIN

4 ⚠ 2 LATERAL "G-IG"

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

Q = 2.6 c.f.s.

1+00.00 ℄ INT. J.S. NO. 2
= 1+54.72 LINE "C" PER P.D. 1854

1+10.68 ℄ INT. T.S. NO. 4
= 1+00.00 LAT. "S-4"

EXIST. GROUND

F.S.

1056.42 TOP OF C.B.

S=0.9259

1052.59 INV.

1046.50 INV.

(1046.67 INV. 6" P.V.C.)

2-18" R.C.P. 1800-D

⚠ LATERAL "G-17"

SCALE: HORIZ. 1"=10' VERT. 1"=4'

Q 50 = 23.2 c.f.s.

Q 50 = 16.8 c.f.s.

1+00.00 LINE "T" = 98+71.72 CHANNEL

2+62.00 ℄ INT. MH. NO. 4 WITH SAFETY LEDGE = 1+00.00 LAT. "T-1"

PROP. F.S.

FINISH GRADE PER GRADING PLAN

EXISTING GROUND

GRADE TO DRAIN PER GRADING PLAN

1.0%

CHANNEL LINING

G=0.0132

FUTURE SANITARY SEWER MANHOLE

1095.00

1095.56

MODIFIED PROTECTION BARRIER PER DETAIL ON SHT. NO. 23

CHANNEL INVERT

S=0.0219

S=0.0270

H.G.L.

EXIST. GROUND

1080.69 1+40.40

1078.55 INV. 1072.69 INV. 1072.82 INV. 1072.85 INV. 1076.73 R.C.

EL. 1076.60 18" RCP

EL. 1075.92 EL. 1075.31

2-54.00

2-70.00 EL. 1077.39

2-70.00 EL. 1078.37

2-86.00 EL. 1078.20

2-68.00 EL. 1078.96 C.

3+18.00 @ 1076.60

2+61.50

2+68.00

(INSIDE FACE OF N.W. 1+43.81 ℄)

ADDITIONAL 1/2" CONC. COVER OVER INVERT REQUIRED

OUTLET STRUCT. PER DET. ON SHT. 14

5'-2'-0" W. X 3'-0" H. R.C. BOX PER DETAIL ON SHT. NO. 23

102'-30" R.C.P. 3300-D

5'-T.S. NO. 1 PER 2-D235

50'-36" RCP 3300-D

15" P.V.C. PER GRADING PLAN

INLET STRUC. PER DET. ON SHT. 17

NOT TO BE MAINTAINED BY LACFCD

⚠ LINE "T"

SCALE: HORIZ. 1"=20' VERT. 1"=8'

(SEE PLAN ON SHT. 10)

NEG.

Q 100 = 37.0 c.f.s.

FINISH GRADE PER GRADING PLAN

EXISTING GROUND

DROP INLET **

1+78.00

S=0.0300

CONC. BACKFILL

PROP. F.S.

H.G.L.

S=0.0108

GRADE TO DRAIN PER GRADING PLAN

1110.70 INV. 24" R.C.P.

1110.70 INV.

1109.38 1+40.40

1109.88

1115.00

1115.56

1120

1110

1100

1+78.00 PLUG END OF R.C.P. W/ BRICK & MORTAR

1+78.00 1110.70 INV. 24" R.C.P.

1+57.50 EL. 1110.26 INV.

1+37.50 EL. 1110.39 INV.

1+50.66 EL. 1110.00 INV.

** = DROP INLET PER GRADING INLET, P.M. 19784-01

OUTLET STRUCT. PER DETAIL ON SHT. 14

11' 2-36" R.C.P. 2000-D

INLET STRUCTURE PER DETAIL ON SHT. 14

5'-2'-0" W. X 3'-0" H. R.C. BOX PER DETAIL ON SHT. NO. 23

5'-T.S. NO. 1 PER 2-D235

⚠ LINE "S"

SCALE: HORIZ. 1"=20' VERT. 1"=8'

(SEE PLAN ON SHT. 11)

(NOT TO BE MAINTAINED BY LACFCD)

4 * ST. STA. 15+18.00 ℄ MED C.B.
CONST. MED. C.B. PER DETAIL ON SHEET NO. 17. T.G.=1057.60

1+74.00 ℄ INT. J.S. NO. 4
A=90°00'00", B=6"P.V.C., D=18"R.C.P., ELEV."S"=1053.30 INV.

CONC. LINED DITCH PER GRADING PLAN

VARIES 50' 42' 8'

1+00.00 ℄ EXIST. T.S. NO. 2 = 2+33.00 LINE "C" PER P.D. 1854

EXIST. 18" RCP PER P.D. 1854

1+54.72 PER P.D. 1854 CONNECT TO EXIST. 36" RCP PER P.D. 1854 LAT. 15-1"= 1+00.00

ST. STA. 13+71.83 ℄ C.B. (N.W. 7') CONST. C.B. PER ARMA STD. RUN CUT FOR CONNECTION PER ARMA STD. 313-0

1+00.00 ℄ INT. EXIST. T.S. NO. 2 = 2+33.00 LINE "C" PER P.D. 1854 LAT. 15-1"= 1+00.00

CANYON ROAD

EXIST. 36" RCP PER P.D. 1854

EXIST. C.B. TO BE REMOVED

1+10.68 ℄ INT. T.S. NO. 4 = 1+00.00 LAT. "S-4"

1+03.12 INSIDE FACE OF C.B.

EXIST. 51" RCP PER P.D. 1821

CAMBRIDGE ROAD

EXIST. 18" RCP PER P.D. 1854 TO BE REMOVED & PLUG END W/ 8" BRICK & MORTAR

EXIST. C.B. TO BE REMOVED

HASLEY CANYON ROAD

PROP. 18" RCP (SEE SHT. 18A)

PROP. 8" P.C. LINE "L" (SEE SHT. 23A)

2+36.53 ℄ INT. T.S. NO. 2
CONST. J.S. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-D112, R=44°39'00", B=24', C=30', LAT. "S-16" = 1"=100.00'

1+74.00 ℄ INT. J.S. NO. 4 = 1+00.00 LAT. "S-16"

ST. STA. 13+71.55 ℄ C.B. (N.W. 14') CONST. C.B. PER ARMA STD. RUN NO. 320-0 W/ 4'-6" TRANSITION PER ARMA STD. 313-0

ST. STA. 12+60.00 ℄ CURB INLET PER GRADING PLAN SHT. 17

EXIST. 18" RCP PER P.D. 1854 TO BE REMOVED & PLUG END W/ 8" BRICK & MORTAR

EXIST. C.B. TO BE REMOVED

EXIST. 18" RCP PER P.D. 1854 CONNECT TO EXIST. 18" RCP PER P.D. 1854 LAT. S-16 = 1"=100.00'

EXIST. 18" RCP PER P.D. 1854 CONNECT TO EXIST. 18" RCP PER P.D. 1854 LAT. S-16 = 1"=100.00'

EXIST. 51" RCP PER P.D. 1821

EXIST. 18" VCP SEWER PER P.C. 10942

1062

1060

1070

1080

1090

1100

1110

1120

1130

1140

1150

1160

1170

1180

1190

1200

1210

1220

1230

1240

1250

1260

1270

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1380

1390

1400

1410

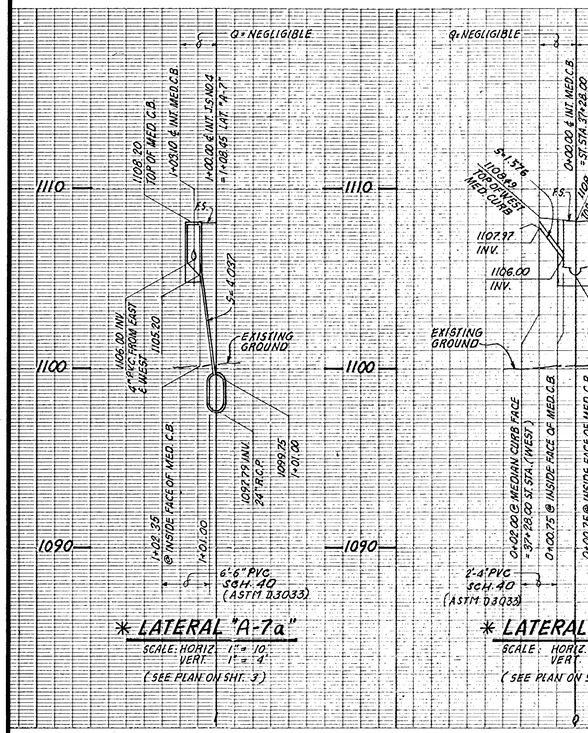
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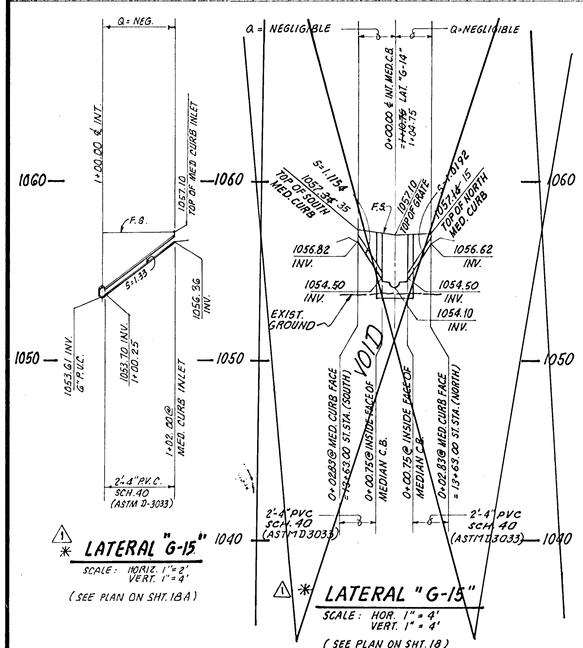
1430

1440

1450

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262





CHANNEL STRUCTURAL NOTES

1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER OF BAR, UNLESS OTHERWISE SHOWN.
2. CONCRETE DIMENSIONS SHALL BE MEASURED HORIZONTALLY OR VERTICALLY ON THE PROFILE AND PARALLEL TO OR AT RIGHT ANGLES (OR RADIALLY) TO CENTERLINE OF CONDUIT ON THE PLAN EXCEPT AS OTHERWISE SHOWN.
3. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," 1983 EDITION, SECT. 7.1 AND 7.2
4. BRACING OF REINFORCEMENT SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", 1983 EDITION, SECT. 7.5.
5. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 30 INCHES OF INLETS.
6. TRANSVERSE JOINTS SHALL BE PLACED AT THE JUNCTION OF RECTANGULAR OPEN CHANNEL SECTIONS WITH CLOSED CONDUIT SECTIONS. THE JOINT SHALL NOT BE KEYED AND SHALL HAVE A THREE-EIGHTS-INCH LAYER OF EXPANSION JOINT MATERIAL IN WALLS AND INVERT.
7. THE TRANSVERSE REINFORCING STEEL TERMINATE ONE AND ONE HALF INCHES FROM THE CONCRETE SURFACES UNLESS OTHERWISE SHOWN ON THE STRUCTURAL DETAILS.
8. EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE ROUNDED OR BEVELED.
9. NO SPLICES IN TRANSVERSE STEEL REINFORCEMENT SHALL BE PERMITTED OTHER THAN SHOWN ON THE DRAWING WITHOUT APPROVAL OF THE ENGINEER. NO MORE THAN TWO SPLICES SHALL BE PERMITTED IN ANY LONGITUDINAL BAR BETWEEN TRANSVERSE JOINTS. SPLICES SHALL BE STAGGERED.
10. LONGITUDINAL STEEL SHALL BE LAPPED 20 BAR DIAMETERS AT SPLICES. TRANSVERSE STEEL SHALL BE LAPPED 30 BAR DIAMETERS AT SPLICES.
11. LONGITUDINAL STEEL SHALL TERMINATE TWO INCHES FROM TRANSVERSE CONSTRUCTION JOINTS.
12. AT THE BEGINNING AND ENDING OF ALL POURS, A COMPLETE CURTAIN OF REINFORCEMENT COMPOSED OF #1, #4 AND #7 BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT.
13. ALL RECTANGULAR OPEN CHANNEL WALLS SHALL BE FENCED IN ACCORDANCE WITH APWA STD. DRAWING NO. 600-0, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
14. UNLESS OTHERWISE SHOWN ON THE DRAWINGS IN CURVED SECTIONS, THE MAXIMUM SPACING OF BARS SHALL NOT EXCEED THAT SHOWN ON THE TYPICAL SECTIONS. STEEL SHALL BE PLACED RADIALLY FROM THE MAXIMUM SPACING.
15. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, TRANSVERSE JOINT KEYWAYS (IN SLABS AND WALLS), SHALL BE PLACED AT THE END OF EACH POUR, BUT THE SPACING THEREOF 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 AND NORMAL OR RADIAL TO THE CENTERLINE OF CONSTRUCTION. NO STAGGERING OF JOINTS SHALL BE PERMITTED.

Soil Engineering aspects of this plan are approved.
R. T. ... ASSOCIATES
by ... date 10-1-90

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED LAT. G-11'S VOIDED & REDRAWN LAT'S "K-3"s "G-14" & "G-15"	42890		2-21-96
2	ADD 6" P.V.C. STUB TO LAT. "G-12"	42890		8-13-96

REGISTERED PROFESSIONAL ENGINEER JOHN SARKISIAN No. 42890 Exp. 3-31-00 CIVIL STATE OF CALIFORNIA

* NOT TO BE MAINTAINED BY L.A.C.F.C.D.

REGISTERED PROFESSIONAL ENGINEER RONALD R. HERN No. 16913 Exp. 6-30-93 CIVIL STATE OF CALIFORNIA

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Hern R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: ... LAND DEVELOPMENT DIVISION R.C.E. NO. 39440 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 19 OF 23 SHTS

STORM DRAIN PLANS IN
TRACT No. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE

SEE P.D. 2508

Q_{25} = 12,300 C.F.S.

A TOP OF LINING
B PROP. GRADE @ NORTH LINING
C BOTTOM OF LINING
EXIST. GROUND @ NORTH LINING
WATER SURFACE

127+50.00 1147.71 S=0.1400
127+70.00 1139.71 S=0.1000
127+80.00 1137.71 S=0.0521
1145.00
1134.77
1129.77
1121.71
1120.00
127+89.07
127+31.07 B.C.
MATCH LINE

1160
1140
1120

1158.00
1158.57
1159.54
1160.45
1160.79
1161.40
1146.00 1311-40.00" JOINT
1132.00 181.12 R.C.P.
1132.00 1324.02 R.C.P.
1140.00
1142.19

VOID

134+33.11 END OF NORTH LINING
135+69.62 END OF NORTH LINING

PROFILE OF NORTH LEVEE LINING
SCALE: HORIZ. 1"=40
VERT. 1"=8

797' LEVEE LINING T=10"
PER DETAIL ON SHT. 14 *

** 37'± DROP STRUCTURE SEE SHT. 13

Q_{25} = 243.7 C.F.S.
22+53.50 ℄ WT. EXIST. M.H. NO. 4 PER P.D. 1821
24+31.95 ℄ WT. J.S. NO. 2
1160.00 12FT. 6-1/2"
EXISTING GROUND
PROP. F.S.
REMOVE EXIST. 51" R.C.P.
H.G.L.
S=0.0100
1070
1050
1058.99 INV.
1049.08 INV.
1049.63 INV.
24+28.05 = 22+53.50 REF. P.D. 1821
SHAPE & REGIME INTERFACING
24+28.05 ± FROM ℄
MIN. CONC. COVER OVER THE STEEL IN THE INV. = 1.75"
EXIST. LINE "A" PER P.D. NO. 1821
70'-51" R.C.P.
1800-0
LINE "A" - 51" R.C.P. PER P.D. 2369

PROFILE OF LINE "N"
SCALE: HORIZ. 1" = 40'
VERT. 1" = 8'

127 128 129 130 131 132 133 134 135 136

SEE P.D. 2508

* USE ONE SIDE CHANNEL LINING DETAIL FOR LEVEE LINING.

LINING CURVE DATA

NO	Δ	R	L	T
①	50°45'14"	88.00'	76.18'	40.80'
②	21°52'00"	678.00'	258.98'	131.10
③	59°54'41"	90.00'	94.11'	51.87'

N 37°45'38" E 1.48 G.P.M.
2+36.53 ℄ INT. J.S. NO. 2
2+36.53 ℄ INT. J.S. NO. 2
CONST. J.S. NO. 2 PER L.A.C.F.C.D. STD. DWG. NO. 2-0112, Δ = 44°39'00", R = 24', C = 3.0'; LAT. "G-18" = 1+00.00

ROUGHENED NON-SKID FINISH
CONCRETE CHANNEL PER DET. ON SHT. 14
VARIABLE WIDTH EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES
VARIABLE SLOPE
SLOPE
OUTLET STRUCTURE PER P.D. NO. 2438
16' PAVED SERVICE ROAD
5' HIGH CHAIN LINK FENCE PER A.P.W.A. STD. DWG. NO. 600-0
129+95.00 ℄ INT.
129+72 E.C.
B.C.
15°13'42"
50'
130+10.00 BEGIN INVERT ACCESS RAMP (SEE DETAIL ON SHT. NO. 221)
131+40.00 END INVERT ACCESS RAMP
66" R.C.P. PER P.D. NO. 2438
E. OF CHANNEL
40'±
190'
18.5'
16'
OUTLET STRUCTURE PER P.D. NO. 2438
150' WIDE EASEMENT TO THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR FLOOD CONTROL PURPOSES
MATCH LINE 122+31.02 B.C. SEE SHT. 12 PD 2508
N 42°45'13" W 103.01'
N 7°46'59" W 106.26'
N 16°15'51" E
211.13'
L = 370.18'
3" A.C. PAVEMENT OVER 4" C.A.B.
5' HIGH CHAIN LINK FENCE WITH 30' DOUBLE DRIVE GATE PER A.P.W.A. STD. 600-0
54+43.03 B.C.
54+72 E.C.
54+ R.C.P. PER P.D. 2438
CAMBRIDGE AVE.
HASLEY (DETOUR)
CYN. RD.
CANYON RD.
HASLEY CANYON (ROAD)
56'
VOID

EASEMENT TABLE

NO.	BEARING	LENGTH
D1	N 7°46'59" W	106.26'
D2	~~N 16°15'51" W~~ N 42°45'13" W	~~84.32'~~ 103.01'

EASEMENT CURVE DATA

NO.	DELTA	RADIUS	LENGTH
C1	50°45'14"	70.00'	62.01'
C2	21°59'00"	660.00'	252.85'

PLAN OF NORTH LEVEE LINING ⑥
SCALE: 1" = 40'

PLAN OF LINE "N" ⑤
SCALE: 1" = 40'

VARIES 52' 50' 42' 8'
ROAD DEDICATION PER R.O.S. 1821 PER P.D. 1821 LINE "N"
EXIST. LINE "A" PER P.D. 1821
℄ 51" R.C.P.
BACKER
20' 28' 20' 8'

"PF519178"

PACE
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA. 92708
PH (714) 481-7300 FAX (714) 481-7299

REGISTERED PROFESSIONAL ENGINEER BRUCE M. PHILLIPS No. 038635 Exp. 3-31-05 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOHN S. SIKAND No. 42890 Exp. 3-31-95 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER RONALD R. HORN No. 16913 Exp. 6-30-99 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER DOUG FARMER No. 49041 Exp. 09-30-06 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER ROBERT J. GALLAMORE No. 328 Exp. 12-31-93 GEOTECHNICAL STATE OF CALIFORNIA

Soil Engineering aspects of this plan are approved.
R. T. FRANKIAN & ASSOCIATES
by _____ date 10-1-90

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED NOTE FOR INVERT ACCESS RAMP LANDING.	42890	P. Douglas	4/4/91
2	ADDED PLAN & PROFILE OF LINE "N", PAVED LINING CURVE DATA TABLE TO THE LEFT.	42890	P. Douglas	7/9/91
3	REVISED PLAN & PROFILE OF NORTH LEVEE LINING FROM STA. 135+42.03 TO 134+36.14	42890	49041	9/23/92
4	REVISED PLAN & PROFILE OF NORTH LEVEE LINING DUE TO P.D. NO. 2498 REVISION.	42890		6-7-94
5	PORTION OF EXISTING CONCRETE LINER TO BE REMOVED SEE P.D. 2508 FOR TIE-IN TO SOIL CEMENT CHANNEL.			5/1/95
6	VOIDED PLAN & PROFILE OF NORTH LEVEE LINING.	R.C.E. NO. 49041		12/6/05

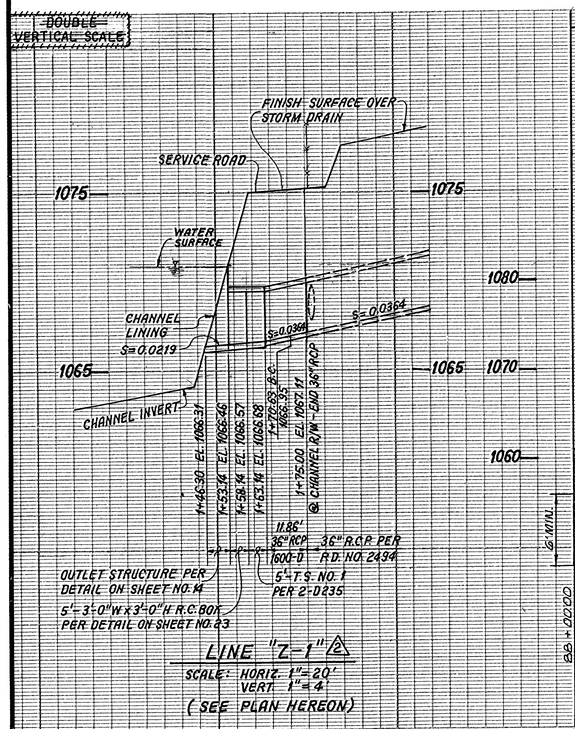
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: _____ R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: _____ LAND DEVELOPMENT DIVISION
R.C.E. NO. 39480 DATE: 10/23/90
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 20 OF 23 SHTS

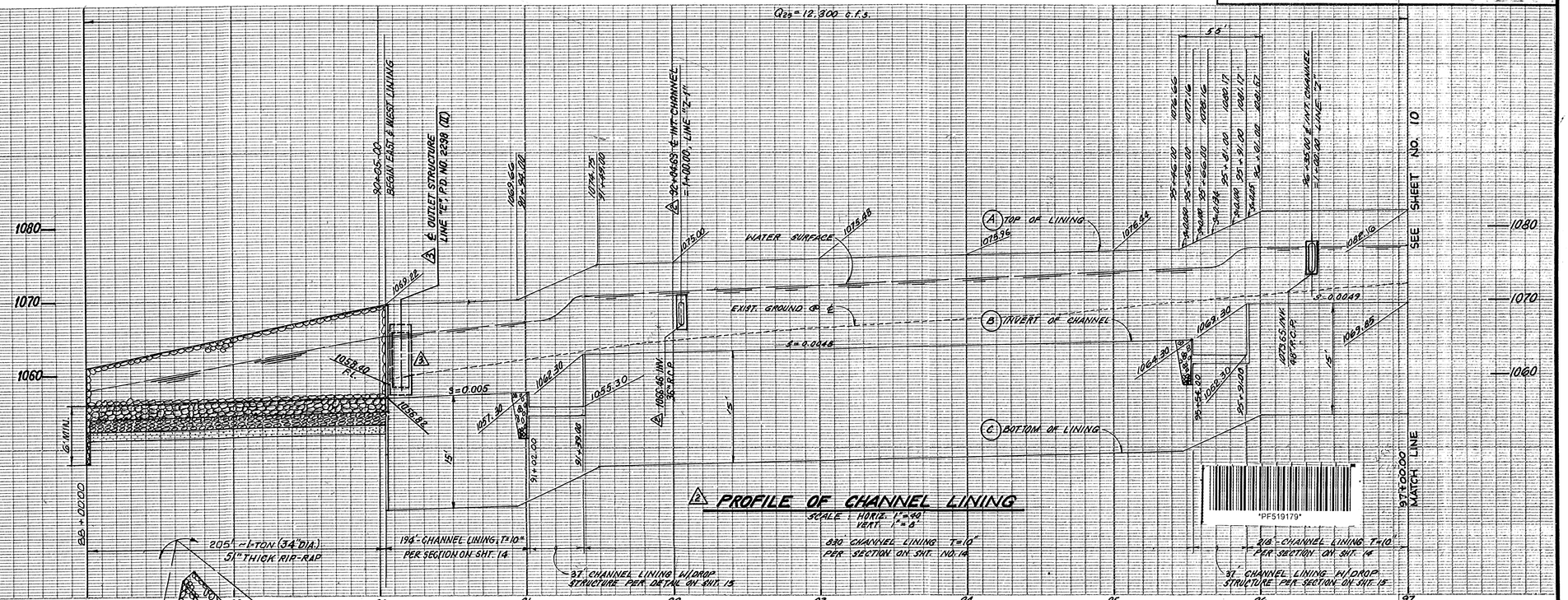
STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262

DOUBLE VERTICAL SCALE



LINE "Z-1" (2)

SCALE: HORIZ. 1"=20'
VERT. 1"=4'
(SEE PLAN HEREON)



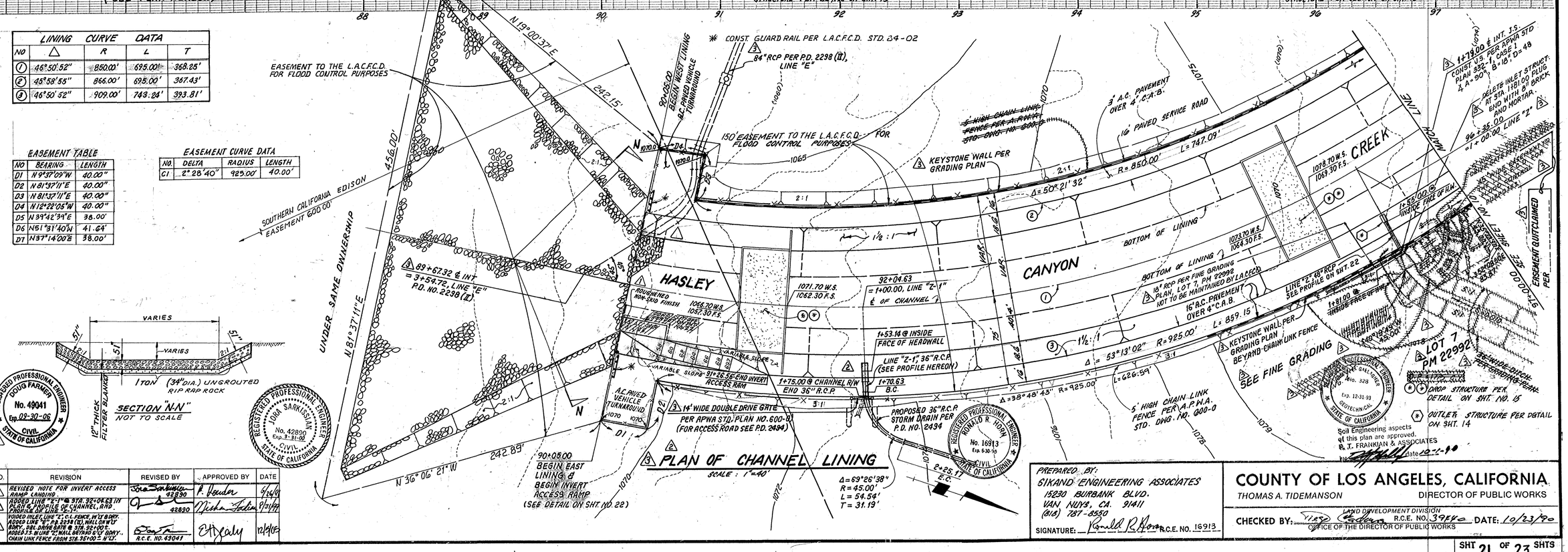
PROFILE OF CHANNEL LINING

SCALE: HORIZ. 1"=40'
VERT. 1"=4'

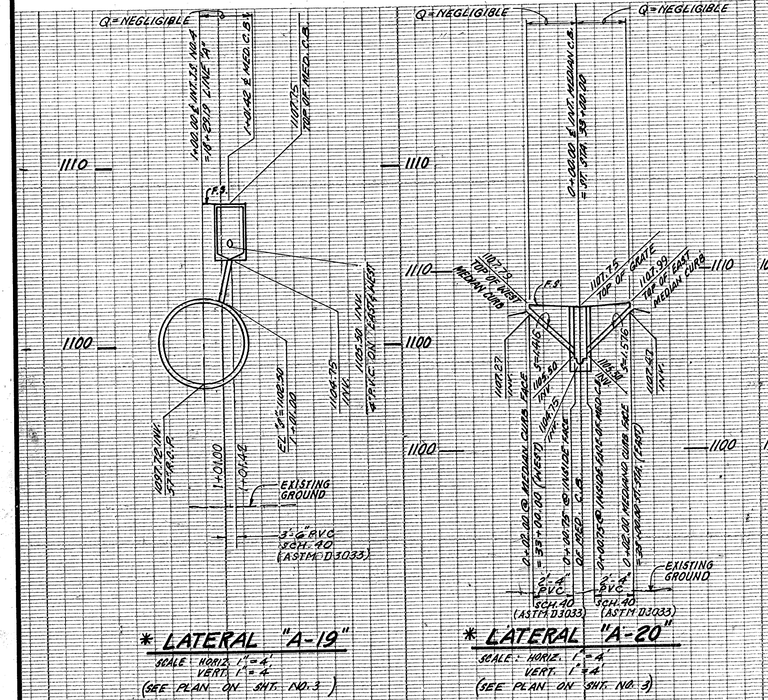
LINING CURVE DATA				
NO	△	R	L	T
(1)	46°50'52"	850.00'	695.00'	368.25'
(2)	45°58'55"	866.00'	695.00'	367.43'
(3)	46°50'52"	909.00'	743.24'	393.81'

EASEMENT TABLE		
NO	BEARING	LENGTH
D1	N 9°37'09"W	40.00'
D2	N 81°37'11"E	40.00'
D3	N 81°37'11"E	40.00'
D4	N 12°22'05"W	40.00'
D5	N 39°42'39"E	38.00'
D6	N 51°31'40"W	41.64'
D7	N 37°14'00"E	38.00'

EASEMENT CURVE DATA			
NO.	DELTA	RADIUS	LENGTH
C1	2°28'40"	925.00'	40.00'


EASEMENT TO THE L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES
N 19°00'37"E
242.15'
90+05.00 BEGIN WEST LINING & P.C. PAVED VEHICLE TURNAROUND
* CONST. GUARD RAIL PER L.A.C.F.C.D. STD. 34-02
(3) 84" RCP PER P.D. 2238 (II), LINE "E"
150' EASEMENT TO THE L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES
SOUTHERN CALIFORNIA EDISON EASEMENT 600.00'
UNDER SAME OWNERSHIP
N 81°37'11"E
456.00'
(3) 89+67.32 ℄ INT. = 3+54.72, LINE "E" P.D. NO. 2238 (II)
HASLEY
CANYON
CREEK
REINFORCED NON-SAND FINISH
1066.70 W.S.
1057.30 F.S.
1071.70 W.S.
1062.30 F.S.
92+04.63 = 1+00.00, LINE "Z-1" ℄ OF CHANNEL
1+53.14 @ INSIDE FACE OF HEADWALL
LINE "Z-1", 36" R.C.P. (SEE PROFILE HEREON)
1+75.00 @ CHANNEL R/W
1+70.63 B.C.
END 36" R.C.P.
VARIABLE SLOPE
91+26.58 END INVERT ACCESS RAMP
A.C. PAVED VEHICLE TURNAROUND
(3) 14' WIDE DOUBLE DRIVE GATE PER APWA STD. PLAN NO. 600-3 (FOR ACCESS ROAD SEE P.D. 2494)
90+08.00 BEGIN EAST LINING & BEGIN INVERT ACCESS RAMP (SEE DETAIL ON SHT. NO. 22)
N 36° 06' 21" W
242.89'
PROPOSED 36" R.C.P. STORM DRAIN PER P.D. NO. 2494
(3) KEYSTONE WALL PER GRADING PLAN
3" A.C. PAVEMENT OVER 4" C.A.B.
16' PAVED SERVICE ROAD
5' HIGH CHAIN LINK FENCE PER A.P.W.A. STD. DWG. NO. 600-0
Δ = 50° 21' 32" R = 850.00' L = 747.09'
Δ = 53° 13' 02" R = 925.00' L = 859.15'
Δ = 38° 48' 43" R = 925.00' L = 626.59'
BOTTOM OF LINING
1078.70 W.S. 1069.30 F.S.
1073.70 W.S. 1064.30 F.S.
16' RCP PER FINE GRADING PLAN, LOT 7, PM 22992 NOT TO BE MAINTAINED BY L.A.C.F.C.D.
16' A.C. PAVEMENT OVER 4" C.A.B.
LINE "Z" 48" RCP SEE PROFILE ON SHT. 22
1+91.00 @ INSIDE FACE OF H.W.
S 44° 18' 45" W 45.00'
KEYSTONE WALL PER GRADING PLAN BEYOND CHAIN LINK FENCE
SEE FINE GRADING
LOT 7 PM 22992
DROP STRUCTURE PER DETAIL ON SHT. NO. 15
OUTLET STRUCTURE PER DETAIL ON SHT. 14
1+79.00 ℄ INT. T.S. CONST. U.S. PER APWA STD PLAN 392-1, CASE 1 Δ A = 90° R = 18' D = 49
DELETE INLET STRUCT. AT STA. 1+00 PLUG END WITH 8" BRICK AND MORTAR.
90+35.00 ℄ = 1+00.00 LINE "Z"
EASEMENT QUITCLAIMED PER
SEE SHEET NO. 10
1+55.00 @ INSIDE FACE OF H.W.
1+79.00 @ INSIDE FACE OF H.W.
1+79.00 @ INSIDE FACE OF H.W.
1+79

STORM DRAIN PLANS IN
P.M. 18229 P.D. No. 2262


Q=NEGLIGIBLE
EXISTING GROUND
3'ø R.C.P. (ASTM C76)
3'ø R.C.P. (ASTM C76)
3'ø R.C.P. (ASTM C76)
EXISTING GROUND
3'ø R.C.P. (ASTM C76)
EXISTING GROUND
3'ø R.C.P. (ASTM C76)
EXISTING GROUND

STRUCTURAL DESIGN CRITERIA

L.A.C.F.C.D. STRUCTURAL DESIGN MANUAL
DATED APRIL 1982

LIVE LOAD

H20 - S16 - 44 UNLESS OTHERWISE NOTED

DEAD LOAD

EARTH LOAD PER MARSTON'S FORMULA: W = 110 PCF
KU = KU' = 0.150
BD = OUTSIDE WIDTH OF BOX PLUS 3 FEET
SIDE EARTH: 37 PSF PER FOOT OF DEPTH
INTERNAL WATER PRESSURE 62.4 PSF PER FOOT OF DEPTH
WEIGHT OF CONCRETE: 150 PSF

ALLOWABLE STRESSES

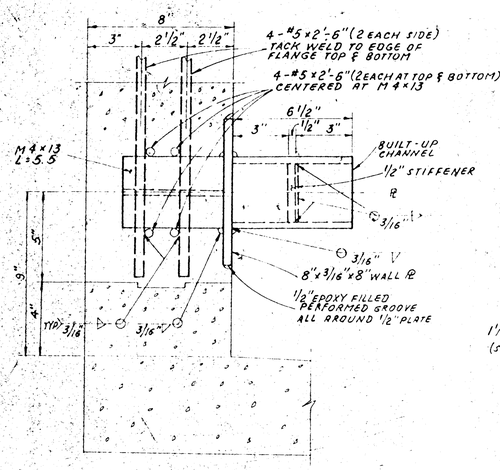
FC' = 4000 PSI AT 28 DAYS
FC = 1800 PSI
FS = 24,000 PSI
N = 8
SHEAR AND BOND STRESSES PER A.C.I. 318-83

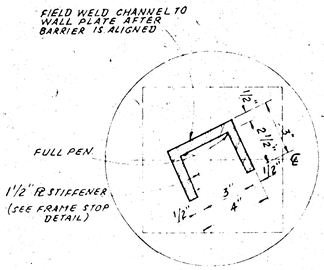
GENERAL STRUCTURAL NOTES:

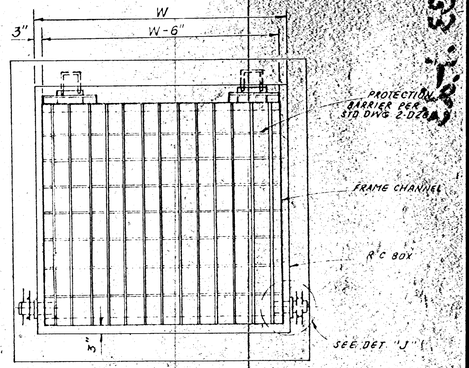
1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER OF BAR, UNLESS OTHERWISE SHOWN.
2. CONCRETE DIMENSIONS SHALL BE MEASURED HORIZONTALLY OR VERTICALLY ON THE PROFILE AND PARALLEL TO OR AT RIGHT ANGLES (OR RADIALLY) TO CENTER LINE OF CONDUIT IN THE PLAN EXCEPT AS OTHERWISE SHOWN.
3. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", 1989 EDITION, SECTIONS 7.1 AND 7.2.
4. PLACING OF REINFORCEMENT SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", 1983 EDITION, SECTION 7.5.
5. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, TRANSVERSE JOINT KEYWAYS (IN SLABS AND WALLS), SHALL BE PLACED AT THE END OF EACH POUR, BUT THE SPACING THEREOF 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 AND NORMAL OR RADIAL TO THE CENTERLINE OF CONSTRUCTION. NO STAGGERING OF JOINTS SHALL BE PERMITTED.
6. TRANSVERSE REINFORCING STEEL SHALL TERMINATE ONE AND ONE-HALF INCHES FROM THE CONCRETE SURFACES UNLESS OTHERWISE SHOWN ON THE STRUCTURAL DETAILS.
7. EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE ROUNDED OR BEVELED
8. NO SPLICES IN TRANSVERSE STEEL REINFORCEMENT SHALL BE PERMITTED OTHER THAN SHOWN ON THE DRAWINGS WITHOUT APPROVAL OF THE ENGINEER. NO MORE THAN 2 SPLICES SHALL BE PERMITTED IN ANY LONGITUDINAL BAR BETWEEN TRANSVERSE JOINTS. SPLICES SHALL BE STAGGERED.
9. LONGITUDINAL STEEL SHALL BE LAPPED 20 BAR DIAMETERS AT SPLICES. TRANSVERSE STEEL SHALL BE LAPPED 30 BAR DIAMETERS AT SPLICES.

PROTECTION BARRIER TABLE

LINE	W	H	L *
"A"	5'	5'	2'-2"
"B"	4'	4'	1'-9"
"J"	4'	4'	1'-9"
"J'"	3'	3'	1'-9"
"K"	3'	3'	1'-9"
"S"	3'	3'	1'-9"
"T"	3'	3'	1'-9"
"Z"	4'	4'	1'-9"
⚠ "Z-1"	3'	3'	1'-9"





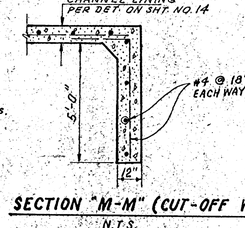


FRAME STOP DETAIL "J"
N.T.S.

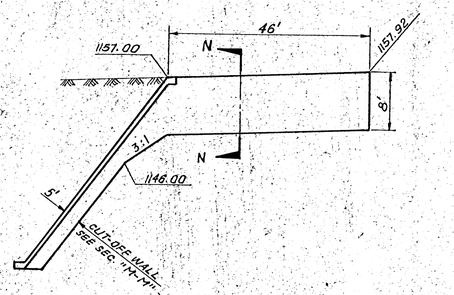
STORM DRAIN PLANS IN
P.M. No. 18229 P.D. No. 2262

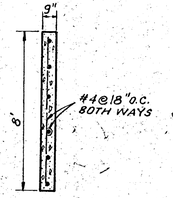
SINGLE R.C. BOX STRUCTURAL NOTES

1. UNLESS OTHERWISE SHOWN ON THE DETAILS, IN CURVED SECTIONS TRANSVERSE BARS SHALL BE PLACED RADIALLY. THE SPACING OF STRAIGHT TRANSVERSE BARS IN TOP AND BOTTOM SLABS SHALL BE MEASURED AT THE CENTERLINE OF CONSTRUCTION. THE SPACING OF STRAIGHT BARS AND L-BARS IN WALLS SHALL BE MEASURED BETWEEN THE VERTICAL LEGS AND BARS.
2. D-BARS MAY BE SPLICED 20 BAR DIAMETERS AT THE LOWER LONGITUDINAL CONSTRUCTION JOINT, AT CONTRACTOR'S OPTION.
3. AT THE BEGINNING AND ENDING OF ALL POURS, A CURTAIN OF REINFORCEMENT COMPOSED OF B, C, C2, D, G AND H BARS SHALL BE PLACED THREE INCHES, FROM THE TRAVERSE CONSTRUCTION JOINT.

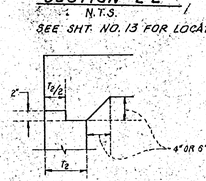


SECTION "M-M" (CUT-OFF WALL)
N.T.S.

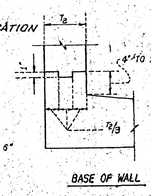




SECTION "L-L"
N.T.S.
SEE SHT. NO. 13 FOR LOCATION

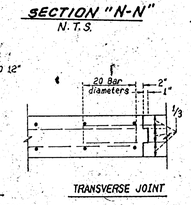


TOP OF WALL

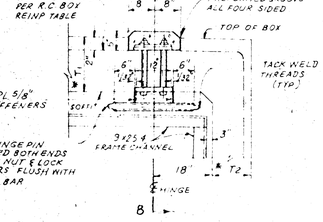


BASE OF WALL

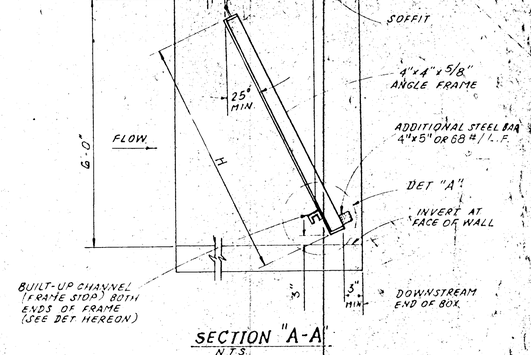
SECTION "N-N"
N.T.S.



TRANSVERSE JOINT

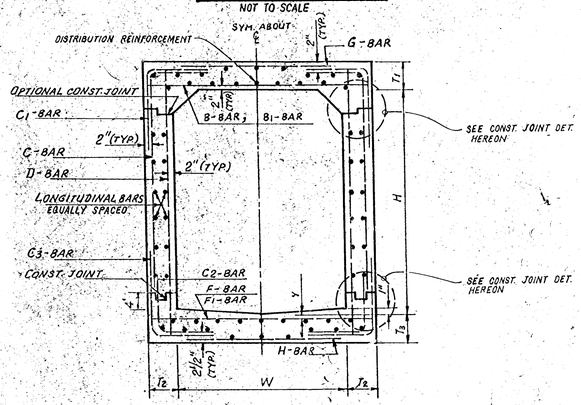


* T1 & T2 PER R.C. BOX DETAIL
ALL HINGE DETAILS FOR BARRIER PER L.A.C.F.C.D. STD. 2-D261.3



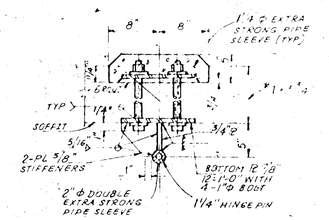
SECTION "A-A"
N.T.S.

CONSTRUCTION JOINT DETAILS
NOT TO SCALE

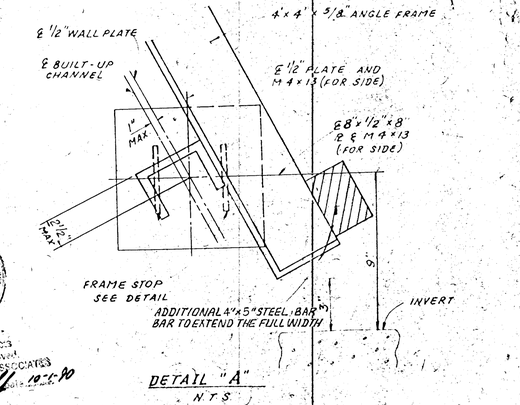


R.C. BOX DETAIL
N.T.S.

NOTE:
ALL LONGITUDINAL BARS SHALL BE #4 @ 18" O.C. EXCEPT BOTTOM FACE OR TOP SLAB WHERE DISTRIBUTION REINFORCEMENT IS REQUIRED.



SECTION "B-B"
N.T.S.



DETAIL "A"
N.T.S.

BOX SECTION		SINGLE R.C. BOX ⚠							
LINE		LINE "A"	LINE "B"	LINE "I"	LINE "J"	LINE "K"	LINE "S"	LINE "T" & "Z"	LINE "Z"
		5.00'W x 5.00'H	4.00'W x 4.00'H	4.00'W x 4.00'H	3.00'W x 3.00'H	3.00'W x 3.00'H	5.00'W x 5.00'H	3.00'W x 3.00'H	4.00'W x 4.00'H
Design Cover		5.00'	5.00'	5.00'	2.00'	2.00'	2.00'	7.00'	3.00'
Width	W	5.00'	4.00'	4.00'	3.00'	3.00'	3.00'	3.00'	4.00'
Height	H	5.00'	4.00'	4.00'	3.00'	3.00'	3.00'	3.00'	4.00'
Top Slab Thickness	T1	6.50"	6.50"	6.50"	6.50"	6.50"	6.50"	6.50"	6.50"
Side Wall Thickness	T2	8.00"	8.00"	8.00"	8.00"	8.00"	8.00"	8.00"	8.00"
Bottom Slab Thickness	T3	7.00"	7.00"	7.00"	7.00"	7.00"	7.00"	7.00"	7.00"
Concrete Cover (3" Min.)	Y	3.00"	3.00"	3.00"	3.00"	3.00"	3.00"	3.00"	3.00"
B Bars	Bar No. & Spacing	#4 @ 17"	#5 @ 20"	#5 @ 20"	#6 @ 14"	#6 @ 14"	#6 @ 14"	#4 @ 17"	#4 @ 14"
	Horiz. Length	6'-1.5"	5'-1.5"	5'-1.5"	4'-1.5"	4'-1.5"	4'-1.5"	4'-1.5"	5'-1.5"
D1 Bars	Bar No. & Spacing	#4 @ 17"							
	Horiz. Length	4'-3.0"							
C Bars	Bar No. & Spacing	#4 @ 14"	#4 @ 14"	#4 @ 14"	#4 @ 10"	#4 @ 10"	#4 @ 10"	#4 @ 14"	#4 @ 14"
	Horiz. Length	2'-4.0"	1'-9.5"	1'-9.5"	2'-5.5"	2'-5.5"	2'-5.5"	1'-4.5"	1'-9.5"
	Vert. Length	4'-11.5"	3'-11.5"	3'-11.5"	2'-11.5"	2'-11.5"	2'-11.5"	2'-11.5"	3'-11.5"
C1 Bars	Bar No. & Spacing								
	Horiz. Length								
	Vert. Length								
C2 Bars	Bar No. & Spacing	#4 @ 14"	#4 @ 14"	#4 @ 14"	#4 @ 10"	#4 @ 10"	#4 @ 10"	#4 @ 14"	#4 @ 14"
	Horiz. Length	1'-10.5"	1'-7.0"	1'-7.0"	1'-3.5"	1'-3.5"	1'-3.5"	1'-3.5"	1'-7.0"
	Vert. Length	2'-0.0"	2'-0.0"	2'-0.0"	2'-0.0"	2'-0.0"	2'-0.0"	2'-0.0"	2'-0.0"
C3 Bars	Bar No. & Spacing								
	Horiz. Length								
	Vert. Length								
D Bars	Bar No. & Spacing	#4 @ 18"	#4 @ 18"	#4 @ 18"	#4 @ 18"	#4 @ 18"	#4 @ 18"	#4 @ 18"	#4 @ 18"
	Vert. Length	5'-10.5"	4'-10.5"	4'-10.5"	3'-10.5"	3'-10.5"	3'-10.5"	3'-10.5"	4'-10.5"
F Bars	Bar No. & Spacing	# 5 @ 20"	# 4 @ 20"	# 4 @ 20"	# 4 @ 16"	# 4 @ 16"	# 4 @ 16"	# 4 @ 15"	# 4 @ 13"
	Horiz. Length	6'-1.5"	5'-1.5"	5'-1.5"	4'-1.5"	4'-1.5"	4'-1.5"	4'-1.5"	5'-1.5"
F1 Bars	Bar No. & Spacing	#4 @ 20"	#4 @ 20"	#4 @ 20"					
	Horiz. Length	4'-2.5"	3'-10.5"	3'-10.5"					
G Bars	Bar No. & Spacing				#4 @ 10"	#4 @ 10"	#4 @ 10"		
	Horiz. Length				1'-6"	1'-6"	1'-6"		
H Bars	Bar No. & Spacing								
	Horiz. Length								
NUMBER LONGITUDINAL REINFORCEMENT #4 BARS									
Top Slab (Includes Distrib.)		11	10	10	7	7	7	8	10
Bottom Slab		11	10	10	8	8	8	8	8
Side Walls		12	8	8	8	8	8	8	8
TOTAL		34	28	28	23	23	23	24	28
QUANTITIES									
Concrete: Cu. Yds./Lin. Ft.		0.53	0.44	0.44	0.34	0.34	0.34	0.34	0.44
Steel: Lbs./Lin. Ft.		51.1	40.4	40.4	41.3	41.3	41.3	32.3	39.7

NO.	REVISION	REVISED BY	APPROVED BY	DATE
⚠	ADDED R.C. BOX & PROTECTION BARRIER FOR LINE "Z-1".		#2890 Mohan Sadhwani	10/1/99

REGISTERED PROFESSIONAL ENGINEER — No. 16913 — Exp. 03-31-00 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — ROBERT T. SIKAND — No. 16913 — STATE OF CALIFORNIA

Soil Engineering aspects of this plan are approved
R. T. SIKAND & ASSOCIATES
10-1-99

PLANS PREPARED BY
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD
VAN NUYS, CA. 91411
(818) 787-8550
SIGNATURE: Ronald R. Kern R.C.E. NO. 16913

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: Tim Sadhwani R.C.E. NO. 39480 DATE: 10/3/99
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

REVISION

SHT 23 OF 23 SHTS

PF519181

Appendix 5.5e

Valencia Commerce Center Flood Tech Report

Valencia Commerce Center - Castaic Creek & Hasley Creek

Flood Technical Report

November 2024

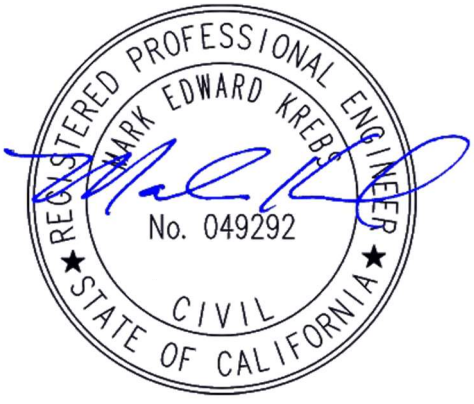
Prepared For:

FivePoint Communities, LLC
25124 Springfield Court
Valencia, CA 91335

Prepared By:

Pacific Advanced Civil Engineering, Inc.
17520 Newhope Street, Suite 200
Fountain Valley, CA 92708





Contact Person:

Andrew Ronnau, PhD, PE
Mark Krebs, PE

PACE #8772E

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Figure 3.27: 10-Year Event Velocity Differential 2017 Approved Project vs. Modified Project - Castaic
Figure 3.28: 20-Year Event 2017 Approved Project Velocity Distribution - Castaic
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Figure 3.47: 20-Year Event Modified Project Floodplain - Hasley
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Figure 3.49: 50-Year Event 2017 Approved Project Floodplain - Hasley
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Figure 3.72: 100-Year Event Velocity Differential 2017 Approved Project vs. Modified Project - Hasley

Appendix

Appendix A – HEC-RAS Hydraulic Models

1 Introduction

The purpose of this technical report is to present the flood-related impacts within the Valencia Commerce Center (VCC) planning area resulting from modifications to the Entrada South and Valencia Commerce Center Project (hereinafter referred to as the Modified Project).[1] In this report, the flood-related impacts of the Modified Project are compared to the impacts associated with the resource management and development facilitated by the approved Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP; hereinafter referred to as the 2017 Approved Project), as studied in the State-certified Environmental Impact Report (EIR; SCH No. 2000011025).

The State-certified EIR analyzed the environmental implications of 3.4 million square feet industrial/business park space on approximately 164 acres, approximately 144 acres of open space, and about 13.7 acres of public facilities within the VCC planning area. No changes to the 3.4 million square footage development parameters are proposed as part of the Modified Project. The incremental changes to the Modified Project, as compared to the 2017 Approved Project analyzed in the State-certified EIR, include additional environmental protections. More specifically, to provide increased environmental protections to waters of the United States and related biological resources within the VCC planning area, the Modified Project involves a reduction in permanent impacts to Hasley Creek and Castaic Creek (although such areas may be temporarily impacted during construction, as analyzed in the State-certified EIR, but would be restored and revegetated after construction based on the Modified Project design) which traverse the VCC planning area, including a reduction of permanent impacts to certain vegetation communities and jurisdictional stream habitat. This environmentally beneficial modification would result in increased open space, restored drainage areas, and additional habitat for species.[2]

For purposes of this analysis, within the VCC planning area, the Modified Project includes design changes to preserve more natural area and limit jurisdictional intrusion in both of the creek systems (i.e., Castaic Creek and Hasley Creek). Under the Modified Project, changes on Castaic Creek consist of revised bank protection design that pulls back away from the existing streambed. Under the Modified Project, changes to the planned Hasley Creek improvements include a completely new alignment to follow the existing streambed more closely, which allows for a wider channel and eliminates eleven 6-foot high drop structures. The Modified Project design changes will maintain substantially more existing streambed, preserve more jurisdictional area, and provide stable systems for conveyance and flood protection through the subject reaches of both Castaic Creek and Hasley Creek. The project area is shown on Figures 1.1 and 1.2.

This technical report is prepared to support the Supplemental EIR by providing analysis, exhibits, and discussion to compare floodplain conditions in Castaic Creek and in Hasley Creek under the Modified Project configuration to the conditions in Castaic Creek and in Hasley Creek in the 2017 Approved Project configuration.

1.1 Study Reaches and Planned Improvements

The study reach for Castaic Creek is located at the confluence with Hasley Creek, bounded by Commerce Center Drive bridge at the downstream end and I-5 at the upstream end.

[1] The Entrada planning area is not discussed in this technical report due to the absence of tributary drainages of environmental relevance to flood-based analysis.

[2] The Modified Project also reflects minor refinements to the impact boundary of the VCC planning area to incorporate limited off-site areas associated with installing planned utility connections and making minor adjacent roadway improvements. The referenced minor roadway improvements are associated with The Old Road, Commerce Center Drive and Live Oak Road. These types of improvements (i.e., utility connections and minor roadway improvements) are consistent with the 2017 Approved Project for the buildout of the VCC planning area.

Existing improvements along Castaic Creek (see Figure 1.2) consist of approximately 1,600 feet of concrete slope lining on the west bank, PD[3] No. 1982, extending from approximately 1,850 feet downstream of the Old Road bridge, to approximately 250 feet downstream of the Old Road bridge. There is approximately 2,000 feet of un-grouted rip-rap bank protection on the east side bank extending from approximately 3,600 feet downstream of the Old Road bridge, to about 1,600 feet downstream of the Old Road bridge, described in PD No. 2441 Unit II, dated May 1998. An existing concrete/rip-rap lined berm, described in PD 2298, Unit III, constructed in 1998 and 1999, extends approximately 420 feet northeast along the streambed from the Commerce Center Drive bridge where Hasley Creek confluences with Castaic Creek.

Under the 2017 Approved Project, approximately 8,500 feet of soil cement bank protection would be installed on the east and west sides of Castaic Creek. The soil cement bank protection on the east bank would extend downstream from the I-5 bridge to the existing rip rap bank protection, PD 2441, and extend downstream from the existing rip rap, to the Commerce Center Drive bridge. The soil cement bank protection on the west bank would extend downstream of from the existing concrete slope lining, PD 1982, to the confluence with Hasley Creek where it will join the existing concrete rip-rap berm, PD 2298, at its downstream limit.

Under the Modified Project, the length of the soil cement bank protection would be the same as in the Approved Project, with the same upstream and downstream limits; however, the planned bank protection alignments on the east and west side of Castaic Creek would be pulled back from the creek bed. Along the west bank of the soil cement bank protection, the bank will extend downstream from the existing concrete slope lining, PD 1982, to the confluence with Hasley Creek where it will turn upstream and join the east bank of Hasley Creek. The revised alignments in the Modified Project conditions would preserve existing jurisdictional streambed areas in Castaic Creek. Figure 1.2 shows the study reach and the alignments for the bank protection under the 2017 Approved Project and the Modified Project.

The study reach for Hasley Creek is along the east side of Commerce Center Drive, extending from the confluence with Castaic Creek at the downstream end, to the outlet of the existing engineered Hasley Creek channel near the intersection of Witherspoon Drive and Commerce Center Drive. Existing improvements on Hasley Creek, constructed prior to the design of either the Approved Project or Modified Project, consist of concrete slope lining on both embankments, extending from approximately 3,200 feet upstream of the Commerce Center Drive bridge to approximately 6,900 feet upstream of the Commerce Center Drive bridge, with a natural bottom, and grade control structures as described in PD 2262.

Under the 2017 Approved Project, the planned channel is relatively straight and aligned approximately downslope, resulting in a steep channel profile that requires the numerous grade control structures to maintain a stable channel. The Approved Project channel profile design would require substantial grading and infill over the existing streambed and surrounding overbank areas. The design would consist of approximately 6,500 feet of engineered soft bottom channel with soil cement bank protection on the east and west embankments, and eleven grade control structures, spaced out over the project reach.

The soil cement bank protection on the east side of Hasley Creek would extend from the existing channel bank improvements downstream and merge with the existing concrete rip-rap berm, per PD 2298. The soil cement bank protection on the west side of Hasley Creek would extend from the existing channel bank improvements downstream to the Commerce Center Drive bridge.

Under the Modified Project, the existing natural channel bed of Hasley Creek would be preserved by maintaining the existing sinuous creek alignment. The soil cement bank protection would have the same upstream and downstream extents as in the Approved Project, but the alignments would be revised to follow the existing stream corridor so that the existing natural channel bed area and lengthwise elevation profile would be maintained, thus preserving large amounts of existing jurisdictional area within Hasley Creek. The downstream limits of the east bank will tie into the downstream limits of the Castaic Creek west

[3] PD denotes a Private Drain, a publicly-maintained stormdrain facility that outlets to the creek or publicly-maintained bank protection improvements along the creek.

bank, forming a continuous embankment protection. The Approved Project and Modified Project improvements are shown on Figures 1.2 and 1.3.

Note that the Modified Project design eliminates all eleven of the 6-foot high drop structures present in the Approved Project design. Depending on the precise sediment transport conditions determined during final design, the Modified Project may have up to two grade control structures to prevent headcutting and preserve streambed stability. The proposed grade control structures will be set at the existing grade and buried deep enough to prevent undermining of the structure during peak flows. Because the grade control structures will be below existing grade, the hydraulic results for the Modified Project conditions are the same with or without the two structures.

Valencia Commerce Center

Industry Dr
Alton Way
Hasley Canyon Rd
Wakefield Rd
Quincy St
Castaic Junction
Edison Rd
Live Oak Elementary School
Biscailuz Dr
Witherspoon Pkwy
Avenue Penn
Chase Pl
Avenue Williams
Livingston Ave
The Old Rd
Hancock Pkwy
Castaic Creek
Hasley Creek
Commerce Center Dr
126
5
Newhall Ranch Rd
Avenue Stanford
Henry Mayo Dr
Franklin Pkwy
Travel Vlg
Santa Clara River
Feedr



P:\8772E\6-GIS\Projects\HasleyCreekFTR_2019\HasleyCreekFTR_Landscape_2019.aprx - Vicinity Map

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

VICINITY MAP

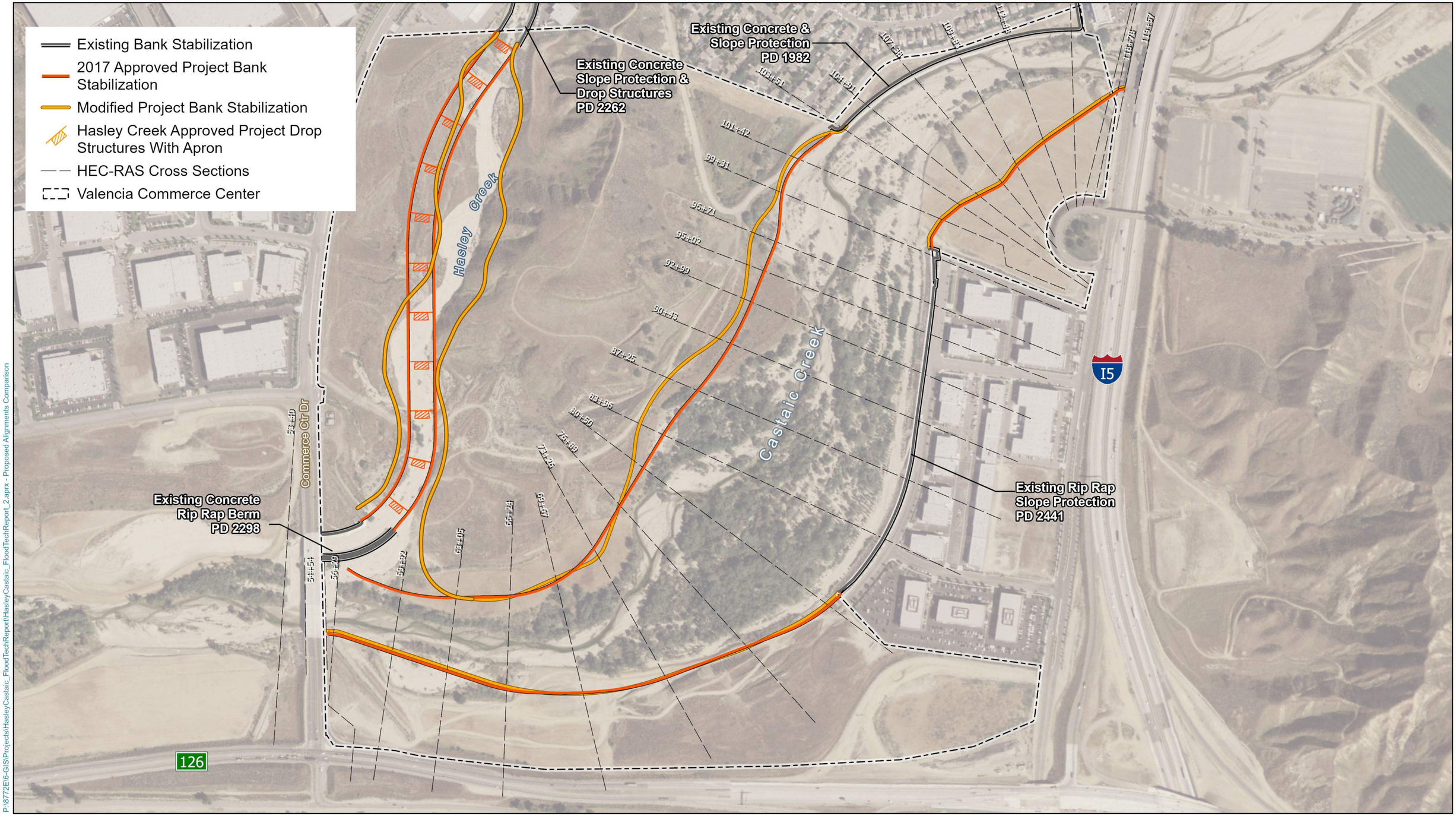
PACE Advanced Water Engineering

0 500 1,000 2,000 Feet

Date: 11/7/2024

Job Number: 8772

Figure 1.1



P:\8772Et6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Proposed Alignments Comparison

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2017 APPROVED PROJECT AND MODIFIED PROJECT BANK PROTECTION ALIGNMENTS

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 1.2



P:\8772E\6-GIS\Projects\HasleyCreekFTR_2019\HasleyCreekFTR_Landscape_2019.aprx - Bank Alignment Comparisons_Landscape

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2017 APPROVED PROJECT vs MODIFIED PROJECT BANK ALIGNMENT COMPARISONS

PACE Advanced Water Engineering

0 100 200 400 Feet

Date: 11/7/2024

Job Number: 8772

Figure 1.3

2 Methodology

This supplemental study compares the 2017 Approved Project's design conditions with the Modified Project design conditions and evaluates changes in the floodplain hydraulics caused by the proposed design revision. To that end, consistent data and techniques were used to model both the 2017 Approved Project design configuration and Modified Project design configuration to compute floodplain hydraulic differentials caused by the Castaic Creek bank protection adjustments, and the Hasley Creek bank alignment modifications. The analyses in the present study use the same existing conditions topography, the same Manning's roughness value coverage scheme, and the same flowrates and boundary conditions, as described in the 2017 State-certified EIR.

The State-certified EIR analyzed the impacts of the 2017 Approved Project using the most up-to-date versions of the HEC-RAS modelling software available at that time. More specifically, the surface model and HEC-RAS geometry models were created with the most up to date version of the Geographic Information Systems (GIS) based HEC-GeoRAS software available at that time. Those same software versions have been superseded and are no longer available to analyze the Modified Project design. To avoid analysis results differentials caused by using different software versions, the Approved Project and Modified Project design configurations were all modelled for purposes of this report using the latest current software packages.

The Castaic Creek approved project condition and modified project condition were analyzed using HEC-RAS version 6.4.1, with model geometries and model results (floodplain extents and velocity distribution) developed with RAS Mapper. RAS Mapper is a module embedded in the HEC-RAS software package that allows users to visualize the combinations of geometric data (terrains, river networks, cross sections, etc.) with simulation results (including water surface depths, velocities, etc.). HEC-GeoRAS is no longer an ESRI supported product, so HEC-RAS Mapper is used to create the floodplain area and velocity mapped results.

The Hasley Canyon Creek analysis was prepared in 2019 using HEC-RAS version 5.1, with model geometries developed with HEC-GeoRAS, version 10.6, which were the most current software options at that time. Hasley Canyon Creek modeling and results were not updated within this report.

For Castaic Creek, the Approved Project conditions hydraulic model geometry, and the Modified Project conditions hydraulic model geometry are both extracted from the same 1999 topographic data. For Hasley Creek, the Approved Project conditions model geometry reflects design infill over the underlying ground, as in the PACE Drainage Concept Report for the Approved Project, and the Modified Project conditions hydraulic model geometry was extracted with newer 2013 topographic data.

The HEC-RAS cross sections alignments in the Modified Project model for Castaic Creek are the same as the cross sections alignments in the Approved Project model because the rough alignment of the creek and bank protection is the same in both conditions. The HEC-RAS cross section alignments in the Modified Project model for Hasley Creek are completely different than the cross section alignments in the Approved Project model because the alignments of Hasley Creek are completely different in the two conditions. The Approved Project and Modified Project topographic workmaps, showing both Castaic Creek and Hasley Creek are shown on Figures 2.1 and 2.2 and Figures 2.3 and 2.4 respectively.

For this report, the GIS coverage layer of Manning's roughness coefficients were estimated by creating polygonal regions over an aerial image and associating each region with an appropriate Manning's value. Table 2-1 shows the variation of Manning's roughness coefficients based on vegetation and how those compare to published values. It is important to note that LACPW bank protection design criteria require use of *n=0.085* and *0.025* for final design of bank protection top and toe elevation, respectively. The roughness values used in the present study are shown in Table 2-1.

Table 2-1: Hydraulic Roughness Coefficients

Vegetation/Land Use	Manning's Roughness Coefficient [used in this study]	Reference Manning's Coefficient (HEC-RAS)	Reference Manning's Coefficient (Chow 1959)
Pavement or Concrete	0.013	0.011 - 0.015	0.011 – 0.015
Soil Cement	0.024		
Sand with no vegetation	0.025	0.023 - 0.030	0.025-0.033
Sand with minimal Growth/Grass Pasture	0.030	0.025-0.033	0.025 – 0.035
Sand with Sporadic Growth/Grass Pasture	0.035 - 0.045	0.035 – 0.065	0.030-0.050
Brush/Heavy Weeds/Light Brush and Trees	0.050	0.050 - 0.080	0.035-0.070
Sporadic trees	0.060	0.050 - 0.080	0.050 – 0.080
Dense trees	0.100	0.080 - 0.120	0.110-0.200

The roughness values on Hasley Creek utilize the same set of values, but include adjustments to roughness values to reflect grade control structures in the Approved Project model and energy dissipation material placements. The Manning's roughness GIS coverage layers in the Approved Project conditions, and the Modified Project conditions, are shown in Figure 2.5 and Figure 2.6.

Hydraulics models of the Approved Project conditions and Modified Project conditions, of Castaic Creek and of Hasley Creek, were developed for the 2-year, 5-year, 10-year, 20-year, 50-year, and 100-year return storm events. The flowrates used in this study follow the hydrology in the State-certified EIR.

Flowrates for the 100-year storm event were obtained from the FEMA FIS study. Flowrates in Castaic Creek and Hasley Creek, for the 2-, 5-, 10-, 20-, and 50-year storm events are not published in the FIS or other county reports. The smaller event data were developed in the Approved Project EIR Flood Technical Report by calculating the ratios of the 100 year in Castaic Creek and in Hasley Creek to the 100 year flowrate for other tributaries to the Santa Clara River. The ratios were used as factors to establish the 2-, 5-, 10-, 20-, and 50-year storm event flowrates in Castaic Creek and a Hasley Creek. The flowrates are shown in Table 2-2.

Table 2-2: Flowrates in Castaic Creek and Hasley Creek

Location	2-year	5-year	10-year	20-year	50-year	100-year
US Castaic Creek	752	2,069	4,701	10,907	14,480	18,805
US Hasley Creek	222	610	1,386	3,216	4,269	5,544

Hydraulic analyses were performed for each of the flowrates, for Castaic Creek and for Hasley, in the Approved project conditions and the Modified Project conditions. The hydraulic analyses were used to develop tables and exhibits documenting the changes to the hydraulic conditions caused by revisions to the planned design.



Note: Castaic Grading Aligned to 1999 Topography
Hasley Grading Aligned to 2006 Topography

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Topographic Workmap 2009

CASTAIC CREEK AND HASLEY CREEK
SUPPLEMENTAL EIR FLOOD TECHNICAL REPORT TO STATE CERTIFIED EIR

2017 APPROVED PROJECT TOPOGRAPHIC WORKMAP

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/15/2019

Job Number: 8772

Figure 2.1

Existing Bank Stabilization
Modified Project Bank Stabilization
Hec-RAS Cross Sections
Index Contour (10')
Intermediate Contour (1')
Valencia Commerce Center

See Figure 2.4

Hasley Creek

Castaic Creek

Note: Castaic Grading Aligned to 1999 Topography
Hasley Grading Aligned to 2013 Topography

P:\8772\E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Topographic Workmap 2019

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

MODIFIED PROJECT TOPOGRAPHIC WORKMAP

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 2.2



P:\8772E\6-GIS\Projects\HasleyCreekFTR_2019\HasleyCreekFTR_Landscape_2019.aprx - Topographic Workmap 2009_Landscape

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2017 APPROVED PROJECT TOPOGRAPHIC WORKMAP

PACE Advanced Water Engineering

0 100 200 400 Feet

Date: 11/7/2024

Job Number: 8772

Figure 2.3



P:\8772E\6-GIS\Projects\HasleyCreekFTR_2019\HasleyCreekFTR_Landscape_2019.aprx - Topographic Workmap 2019_Landscape

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

MODIFIED PROJECT TOPOGRAPHIC WORKMAP

PACE Advanced Water Engineering

0 100 200 400 Feet

Date: 11/7/2024

Job Number: 8772

Figure 2.4

Valencia Commerce Center

Mannings n Values

- 0.013
- 0.024
- 0.025
- 0.026
- 0.03
- 0.032
- 0.035
- 0.04
- 0.045
- 0.05
- 0.06

Hasley Creek

Castaic Creek

Commerce Ctr Dr

I5

126

P:\8772E\6-GIS\Projects\HasleyCreekFTR_2019\HasleyCreekFTR_Landscape_2019.aprx - Mannings 2009

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2017 APPROVED PROJECT PROPOSED MANNINGS

PACE Advanced Water Engineering

0 300 600 1,200 Feet

Date: 11/7/2024

Job Number: 8772

Figure 2.5

Valencia Commerce Center

Mannings N

- 0.013
- 0.025
- 0.03
- 0.035
- 0.04
- 0.045
- 0.05
- 0.06

Hasley Creek

Castaic Creek

Commerce Ctr Dr

I5

126

Maxar

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CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

MODIFIED PROJECT PROPOSED MANNINGS

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 2.6

3 Hydraulic Results and Comparisons

The hydraulic results from HEC-RAS were analyzed in RASMapper to develop plots of floodplain, depths, and velocities. Differentials were developed for each hydraulic result from the 2017 Approved Project conditions model and Modified Project conditions model.

Floodplains extents and floodplain velocity in the Approved Project conditions are compared to the floodplains extents and floodplain velocity in the Modified Project conditions for Castaic Creek and for Hasley Creek. The results for Castaic Creek presented and discussed, and then the results for Hasley Creek are presented and discussed.

3.1 Floodplain Extents – Castaic Creek

The floodplain extents are calculated as the total riverine area that gets inundated to any depth during a storm. The computed floodplain extents consist of the area within the peak flow inundation limit line, that is, any part of the river bed that is touched by the riverine flow. The floodplain extents calculated for each storm event were plotted to display the geographical coverage on floodplain maps, and also quantified to express the total wetted surface of the study reach in acres. These analyses were performed for the spectrum of 2-year through 100-year events. The results are summarized in Table 3-1 below. The floodplain results are graphically presented in Figures 3.1 - 3.18. The detailed results are presented with three figures for each of the storm events analyzed.

Table 3-1: Castaic Creek Floodplain Area Comparison[i]

Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac)	Delta (%)
2 Year	21.4	22.4	1.0	4.7
5 Year	56.4	62.4	6.0	10.6
10 Year	80.9	87.6	6.7	8.3
20 Year	98.8	107.0	8.2	8.3
50 Year	102.9	110.5	7.6	7.4
100 Year	104.1	112.0	7.9	7.6

The first figure for each event depicts the floodplain extents in the Approved Project conditions. The second figure for each event depicts the floodplain extents in the Modified Project conditions. Each of these figures has a table presenting the floodplain areas for each configuration, and differentials in absolute area and by percentage, for all of the analyzed storm events. The event (row) relevant to each figure is highlighted for clarity.

The third figure for each event shows a differential exhibit. The differential exhibit shows areas that are inundated in Approved Project conditions but dry in Modified Project conditions, areas that are dry in Approved Project conditions but inundated in Modified Project conditions, and areas that are inundated in both conditions.

Reflecting the additional environmental protections associated with the Modified Project discussed above, the calculated floodplain area in the Modified Project conditions is larger than the floodplain area in the Approved Project conditions for all of the analyzed storm events. The increased floodplain area is caused by the Modified Project conditions' embankment alignment that preserves more existing streambed. Floodplain area increases range from 4.7% during the 2-year storm event, to 7.6% during the 100-year storm event. The largest relative increase is during the 5-year storm event, during which, the floodplain area is increased by 10.6%. This is expected since the proposed alignment changes avoid jurisdictional floodplain area, which loosely corresponds to the existing 5-year floodplain, so the greatest relative increase is for this specific flood event.

3.2 Flow Velocity Distribution – Castaic Creek

The flow velocity is calculated within HEC-RAS as the approximate streamwise component of velocity across each HEC-RAS cross section. The results are then interpolated, streamwise, to get an approximate point by point velocity field within the floodplain. To summarize these results, the acreage of the river within certain peak velocity ranges are tabulated, for the Approved Project conditions and for the Modified Project conditions models, for each of the analyzed storm events. The results are summarized in Tables 3-2 and 3-3 below, for the 2-year event and for the 100-year event.

Table 3-2: Castaic Creek Velocity Distribution Comparison (2-Year Event)[i]

Ranges (fps)	Approved Project (ac)	Modified Project (ac)	Delta (ac)	Delta (%)
0 – 2	11.8	13.1	1.3	6.1
2 – 4	5.7	5.8	0.1	0.5
4 – 6	3.2	2.9	-0.3	-1.4
6 – 8	0.7	0.6	-0.1	-0.5
8 – 10	0.0	0.0	0.0	0.0
Totals	21.4	22.4	1.0	4.9

Table 3-3: Castaic Creek Velocity Distribution Comparison (100-Year Event)[i]

Ranges (fps)	Approved Project (ac)	Modified Project (ac)	Delta (ac)	Delta (%)
0 – 2	8.9	8.8	-0.1	-0.1
2 – 4	34.0	36.1	2.1	2.0
4 – 6	22.7	29.3	6.6	6.3
6 – 8	18.2	18.3	0.1	0.1
8 – 10	11.1	10.8	-0.3	-0.3
10 – 12	5.3	5.6	0.3	0.2
12 – 15	2.8	2.6	-0.2	-0.2
15 – 18	1.1	0.7	-0.4	-0.4
18 – 21	0.1	0.0	-0.1	-0.1
Totals	104.1	112.0	7.9	7.6

The velocities within the river are also graphically depicted and compared on Figures 3.19 to 3.36, in Approved Project conditions and Modified Project conditions, for the spectrum of analyzed storm events. As was done for the results showing floodplain extents, the velocity results are graphically presented with three figures for each of the analyzed storm events.

The first figure for each event depicts the Approved Project conditions flow velocity distribution. The second figure for each event depicts the Modified Project conditions flow velocity distribution. The first and second figures depicting the velocity distributions for each event also include a table presenting a set of flow velocity ranges, and the area of the floodplain, in Approved Project conditions and in Modified Project conditions, in each range. The tables also depict the differentials in absolute area and by percentage, for each of the analyzed storm events.

The third event figure provides a differential comparison of Approved Project conditions velocity distribution to Modified Project conditions velocity distribution. The areas of floodplain are colorized to depict the magnitude of change in floodplain velocity distribution, point by point. Each figure includes a table showing the total areas of floodplain velocity field distribution change, categorized by ranges of velocity increase and decrease.

For the 2-year event, the change in area of floodplain within the depicted velocity range categories varies from 6.1% (0-2 ft/sec) to -1.4% (4-6 ft/sec), with the total change, summed by velocity range category, equal to 4.9%.

For the 100-year event, the change in area of floodplain within the depicted velocity range categories varies from 6.3% (4-6 ft/sec) to -0.4% (15-18 ft/sec), with the total change, summed by velocity range category, equal to 7.6%.

The velocity distribution change field for the 2-year event shows that all floodplain increases are for areas for which the velocity range is 0-2 ft/sec and 2-4 ft/sec. The areas of velocity ranges greater than 4 ft/sec all decrease in the Modified Project conditions.

The velocity distribution change field for the 100-year event shows that the predominate change, from 2017 Approved Project conditions to Modified Project conditions, is an increase in the floodplain area for which the velocity range is 2-4 ft/sec and 4-6 ft/sec, which is consistent with the enhanced environmental protections associated with the Modified. In addition, the floodplain area for all velocities greater than 12/ft/sec is reduced in Modified Project conditions.

3.3 Floodplain Extents – Hasley Creek

Note that the proposed changes to the Castaic Creek design consist of adjustments to the toe of soil cement bank protection; however, the changes to the Hasley Creek design consist of substantial changes to alignment resulting in gross relocation of the channel area. This fact should be kept in mind when considering the results exhibit for Hasley Creek. The floodplain extents for Hasley Creek, in Approved Project conditions and in Modified Project conditions, are calculated and compared in the same fashion as for Castaic Creek. The results are summarized in Table 3-4 below.

Table 3-4: Hasley Creek Floodplain Area Comparison[i]

Flood Event	Approved Project (ac)	Modified Project Conditions (ac)	Delta (ac)	Delta (%)
2 Year	5.3	4.5	-0.8	-14.9%
5 Year	5.5	6.7	1.2	21.0%
10 Year	5.7	9.1	3.3	58.3%
20 Year	6.0	12.3	6.3	105.6%
50 Year	6.2	13.4	7.2	117.2%
100 Year	6.3	14.5	8.2	128.6%

The floodplain results are graphically presented in Figures 3.37 - 3.54. The results are presented with three figures for each of the storm events analyzed.

As with the Castaic Creek analyses exhibits, for each storm event, there are two figures to depict floodplain extents in Approved Project conditions and floodplain extents in Modified Project conditions.

Unlike the Castaic Creek analyses exhibits, the third figure for each event provides a comparison by juxtaposing the floodplains for the Approved Project conditions and Modified Project conditions. This depiction is appropriate because the two configurations have wholly different alignments. Each of these figures includes a table showing, for each storm event analyzed, the floodplain area in the Approved Project conditions, the floodplain area in the Modified Project conditions, and the change in floodplain area.

Reflecting the additional environmental protections associated with the Modified Project, the calculated floodplain area in the Modified Project conditions is larger than the floodplain area in the Approved Project conditions for all of the analyzed storm events, except the 2-year event. This is because sinuous channel of the Modified Project conditions provides more total floodplain area during all the events that can fill most of the streambed. The 2-year event is more confined, even along the longer proposed alignment, in the existing incised low flow thalweg.

The floodplain area changes range from -14.9% (decrease) during the 2-year storm, to the largest change of 128.6% (increase) during the 100-year event.

3.4 Flow Velocity Distribution – Hasley Creek

The velocity field results for Hasley Creek are summarized in Tables 3-5 and 3-6 below, for the 2-year event and for the 100-year event.

Table 3-5: Hasley Creek Velocity Range Comparison (2-Year Event)[i]

Ranges (fps)	Approved Project (ac)	Modified Project (ac)	Delta (ac)	Delta (%)
0 – 2	0.9	0.7	-0.1	-2.7%
2 – 4	3.4	2.2	-1.2	-23.2%
4 – 6	1.0	1.5	0.5	9.3%
6 – 8	0.0	0.1	0.1	1.8%
Totals	5.3	4.5	-0.8	-14.9%

Table 3-6: Hasley Creek Velocity Range Comparison (100-Year Event)[i]

Ranges (fps)	Approved Project (ac)	Modified Project (ac)	Delta (ac)	Delta (%)
0 – 2	0.3	0.8	0.5	8.6%
2 – 4	0.2	2.1	1.9	29.5%
4 – 6	0.3	2.9	2.6	40.3%
6 – 8	0.7	2.8	2.1	32.7%
8 – 10	1.5	2.8	1.4	21.5%
10 – 12	1.7	2.7	0.9	14.3%
12 – 15	1.7	0.5	-1.2	-18.6%
Totals	6.3	14.5	8.2	128.6%

The velocities within the river are also graphically depicted and compared on Figures 3.55 to 3.72. The velocity results are graphically presented with three figures for each of the analyzed storm events.

The first figure for each event depicts the Approved Project conditions flow velocity distribution. The second figure for each event depicts the Modified Project conditions flow velocity distribution. The first and second figures depicting the velocity distributions for each event also include a table presenting a set of flow velocity ranges, and the area of the floodplain, in Approved Project conditions and in Modified Project conditions, in each range. The tables also depict the differentials in absolute area and by percentage, for each of the analyzed storm events.

The third event figure provides a comparison of the flow velocity distribution fields in Approved Project conditions velocity distribution and Modified Project conditions. Each figure includes a table showing the areas of floodplain, within a set of ranges of velocity. The table includes the change in area, and the relative percent change in area, between Approved Project conditions and Modified Project conditions.

For the 2-year event, the change in area of floodplain within the depicted velocity range categories varies from -23.2% (2-4 ft/sec) to 9.3% (4-6 ft/sec), with the total change, summed by velocity range category, equal to -14.9%.

For the 100-year event, the change in area of floodplain within the depicted velocity range categories varies from -18.6% (12-15 ft/sec) to 40.3% (4-6 ft/sec), with the total change, summed by velocity range category, equal to 128.6%.

3.5 Summary Conclusions

A complete set of hydraulic models were created to compare the changes to the hydraulic conditions in the 2017 Approved Project conditions and proposed Modified Project conditions, on Castaic Creek and on Hasley Creek, during the 2-year, 5-year, 10-year, 20-year, 50-year, and 100-year storm events. The floodplain extents and velocity distribution fields are quantified for each case and differential exhibits and tables depict how revisions to the Modified Project conditions affect those hydraulic results.

From an impact perspective, the Modified Project's changes to the floodplain extents and velocity distribution fields within the VCC planning area's Castaic Creek and Hasley Creek are environmentally beneficial, as the changes serve to preserve substantially more existing streambed, preserve more jurisdictional area, and provide stable systems for conveyance and flood protection through the subject reaches of both Castaic Creek and Hasley Creek. As a result, the Modified Project would not result in a new significant flood impact, when compared to the 2017 Approved Project and the State-certified EIR.

In the Modified Project conditions, reflecting the additional environmental protections associated with the Modified Project, the floodplain area in Castaic Creek is increased for all levels of storm events, with the floodplain area increase ranging from 4.7% to 10.6%. This increase in floodplain area provides for more infiltration, and natural floodplain surface wetting and opportunity for development of riparian vegetation.

In the Modified Project conditions, during the 2-year storm event, there is more area of the Castaic Creek flow field in the low velocity range, 0-2 ft/sec and 2-4 ft/sec, as compared to the Approved Project conditions. The area of flow field at higher velocities, 4 – 6 ft/sec and greater, is reduced in the Modified Project conditions, which indicates a condition of less erosion and less disturbance to vegetation compared to the Approved Project conditions. A similar trend is seen during the 100-year event, for which the greatest change in the flow velocity field between Approved Project conditions and Modified Project conditions is an increase in the balance of flow field area in the 2-4 ft/sec and 4-6 ft/sec range, and a decrease in the flow area at velocities of 12 ft/sec and greater.

The changes to the hydraulic conditions on Castaic Creek are anticipated to reduce erosion and reduce disruption of established vegetation during all storm events, and to increase the frequency and extent of streambed wetting and streambed infiltration through the project reach.

On Hasley Creek, during the 2-year storm event, in Modified Project conditions, there is a decrease of floodplain area compared to Approved Project conditions. This can be attributed to the preservation of the natural channel path and streambed, which include natural low flow incisement that contains the flow during the smallest flow events. The natural low flow incisement was not present in the completely graded Approved Project conditions. For all other storm events, 5-year through 100-year, there is a substantial increase in wetted floodplain area in Modified Project conditions. During the 10-year storm, the Modified Project has more than 50% more wetted streambed area than the Approved Project. During the 50-year storm event, the Modified Project has more than double the wetted streambed area than the Approved Project. These conditions offer a greatly increased opportunity for infiltration and for establishment of riparian vegetation.

During the 2-year event, preserving the naturally existing bedform in Hasley Creek, in Modified Project conditions, causes an increase in the flow field velocity distribution in the 4-6 ft/sec and 6-8 ft/sec range. This is a consequence of keeping the existing low flow incisement that tends to concentrate flows during the smallest events. This is not of environmental concern because the existing riverine behavior is preserved through avoidance practices.

During the 100-year event, the changes to the flow field velocity distribution, in Modified Project conditions, are a reduction of area within the highest velocity range, 12-15 ft/sec. The areas of all other velocity range categories increase, which is expected because the overall flow area has more than doubled, compared to the Approved Project.

[i] Values shown for Delta and Delta % in all tables in this report have been calculated with all available digits before rounding.



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	**21.4**	22.4	1.0	4.7%
5 Year	56.4	62.4	6.0	10.6%
10 Year	80.9	87.6	6.7	8.3%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

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CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2-YEAR EVENT 2017 APPROVED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/7/2024

Job Number: 8772

Figure 3.1



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	**22.4**	1.0	4.7%
5 Year	56.4	62.4	6.0	10.6%
10 Year	80.9	87.6	6.7	8.3%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772\E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2019 2yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2-YEAR EVENT MODIFIED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/8/2024

Job Number: 8772

Figure 3.2



CASTAIC CREEK FLOODPLAIN DIFFERENTIAL (Approved vs Modified)	
Decrease in Floodplain Area (ac)	0.8
Increase in Floodplain Area (ac)	1.8
No Change in Floodplain Area (ac)	20.6

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CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

2-YEAR EVENT
2017 APPROVED PROJECT VS MODIFIED PROJECT

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 3.3



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	22.4	1.0	4.7%
5 Year	**56.4**	62.4	6.0	10.6%
10 Year	80.9	87.6	6.7	8.3%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772\Ei6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2009 5yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

5-YEAR EVENT 2017 APPROVED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/7/2024

Job Number: 8772

Figure 3.4



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	22.4	1.0	4.9%
5 Year	56.4	**62.4**	6.0	10.6%
10 Year	80.9	87.6	6.6	8.2%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772\Ei6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2019 5yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

5-YEAR EVENT MODIFIED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/8/2024

Job Number: 8772

Figure 3.5

Existing Bank Stabilization
Modified Project Bank Stabilization
2017 Approved Project Bank Stabilization
Hec-RAS Cross Sections
Valencia Commerce Center
Decrease in Floodplain Area
Increase in Floodplain Area
No Change in Floodplain

Hasley Creek
Castaic Creek
Commerce Ctr Dr
I5
126

CASTAIC CREEK FLOODPLAIN DIFFERENTIAL (Approved vs Modified)	
Decrease in Floodplain Area (ac)	1.6
Increase in Floodplain Area (ac)	7.6
No Change in Floodplain Area (ac)	54.8

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain Differential 5yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

5-YEAR EVENT 2017 APPROVED PROJECT VS MODIFIED PROJECT

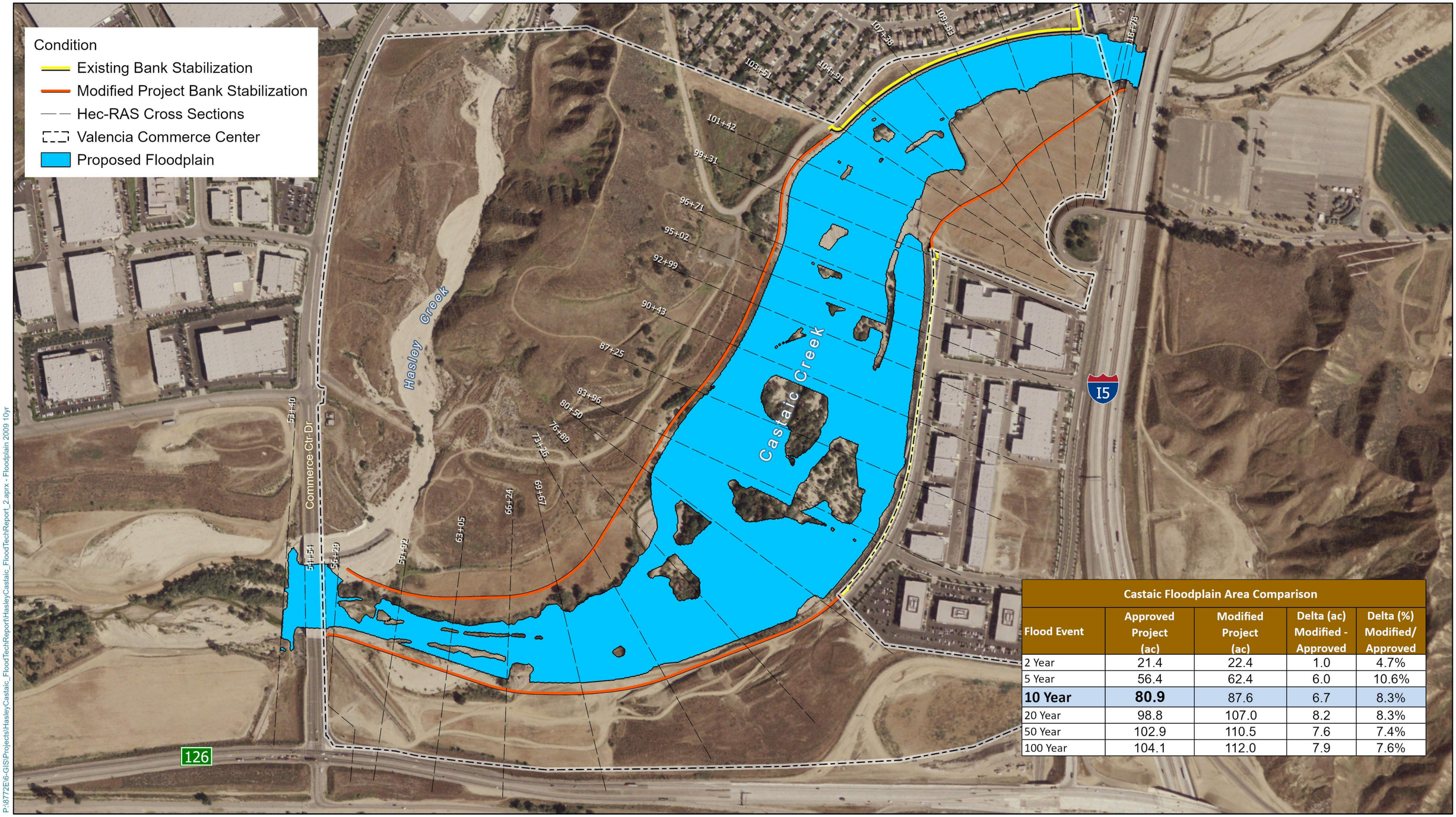
PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 3.6



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	22.4	1.0	4.7%
5 Year	56.4	62.4	6.0	10.6%
10 Year	**80.9**	87.6	6.7	8.3%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2009 10yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

10-YEAR EVENT 2017 APPROVED PROJECT FLOODPLAIN

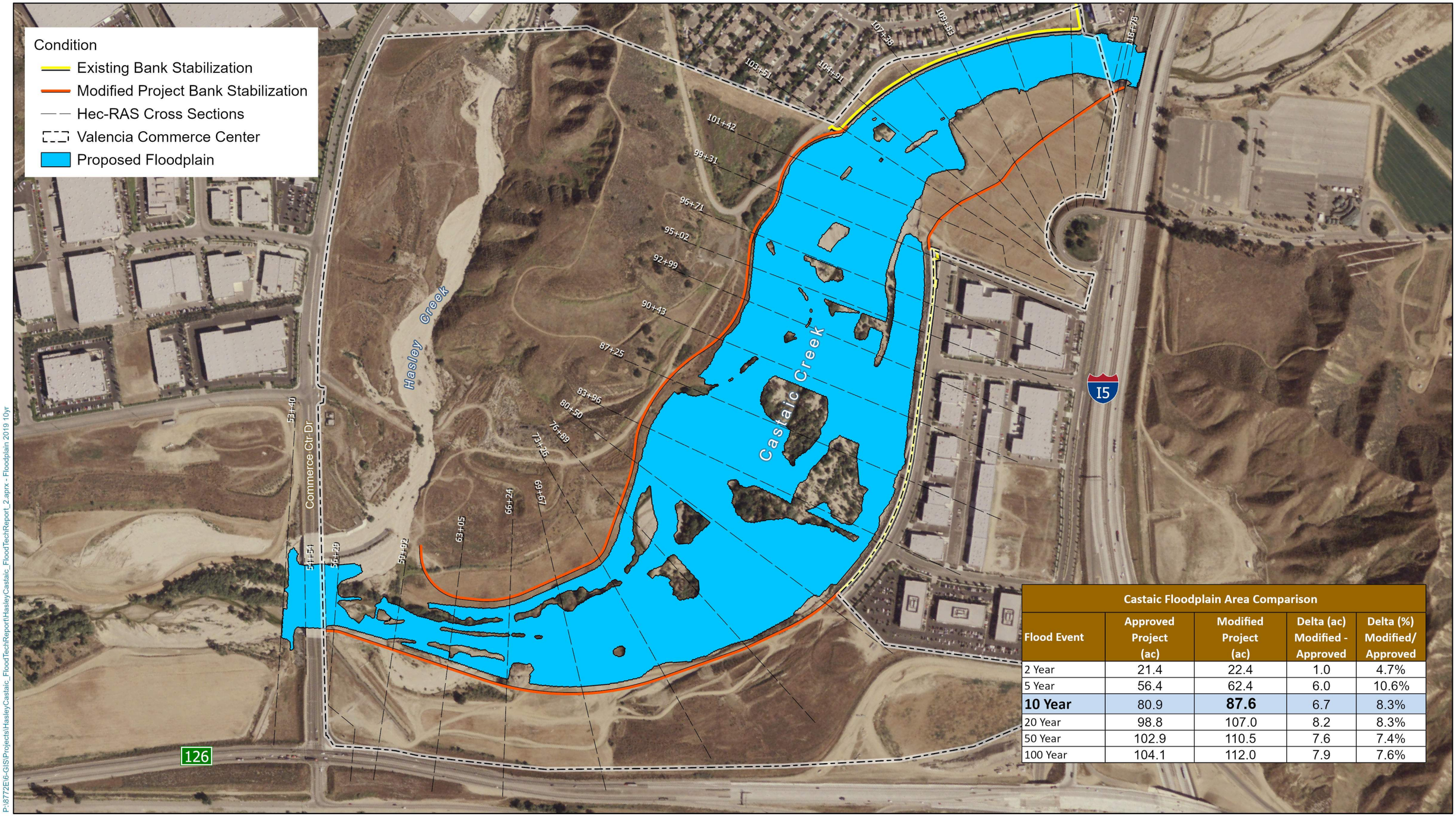
PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/8/2024

Job Number: 8772

Figure 3.7



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	22.4	1.0	4.7%
5 Year	56.4	62.4	6.0	10.6%
10 Year	80.9	**87.6**	6.7	8.3%
20 Year	98.8	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2019 10yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

10-YEAR EVENT MODIFIED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/8/2024

Job Number: 8772

Figure 3.8

Existing Bank Stabilization
Modified Project Bank Stabilization
2017 Approved Project Bank Stabilization
Hec-RAS Cross Sections
Valencia Commerce Center
Decrease in Floodplain Area
Increase in Floodplain Area
No Change in Floodplain

101+42
99+31
96+71
95+02
92+99
90+43
87+25
83+96
80+50
76+89
73+26
69+67
66+24
63+05
59+92
56+29
53+40
51+51
103+51
104+91
107+38
109+83
113+78

Hasley Creek
Castaic Creek
Commerce Ctr Dr
I5
126

CASTAIC CREEK FLOODPLAIN DIFFERENTIAL (Approved vs Modified)	
Decrease in Floodplain Area (ac)	1.9
Increase in Floodplain Area (ac)	8.6
No Change in Floodplain Area (ac)	79.0

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain Differential 10yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

10-YEAR EVENT
2017 APPROVED PROJECT VS MODIFIED PROJECT

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/11/2024

Job Number: 8772

Figure 3.9



Castaic Floodplain Area Comparison				
Flood Event	Approved Project (ac)	Modified Project (ac)	Delta (ac) Modified - Approved	Delta (%) Modified/ Approved
2 Year	21.4	22.4	1.0	4.9%
5 Year	56.4	62.4	6.0	10.6%
10 Year	80.9	87.6	6.6	8.2%
20 Year	**98.8**	107.0	8.2	8.3%
50 Year	102.9	110.5	7.6	7.4%
100 Year	104.1	112.0	7.9	7.6%

P:\8772E\6-GIS\Projects\HasleyCastaic_FloodTechReport\HasleyCastaic_FloodTechReport_2.aprx - Floodplain 2009 20yr

CASTAIC CREEK AND HASLEY CREEK FLOOD TECHNICAL REPORT

20-YEAR EVENT 2017 APPROVED PROJECT FLOODPLAIN

PACE Advanced Water Engineering

0 250 500 1,000 Feet

Date: 11/8/2024

Job Number: 8772

Figure 3.10