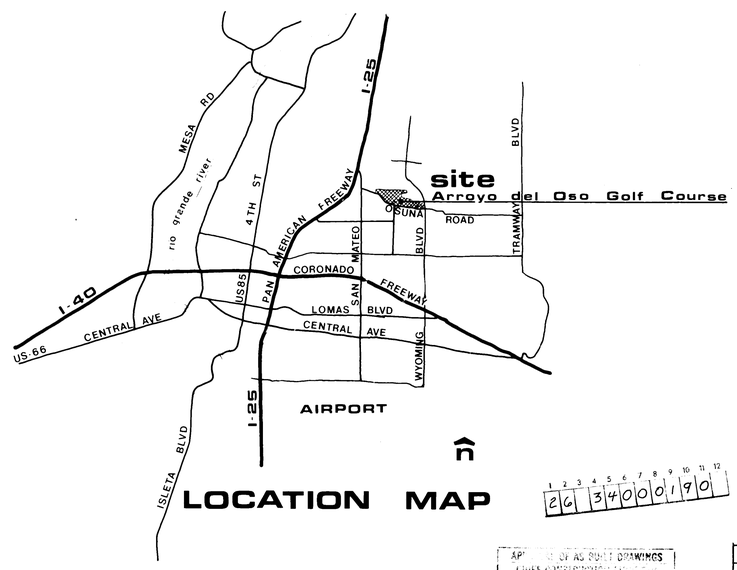
CONSTRUCTION PLANS AND DETAILS FOR

ARROYO DEL OSO GOLF COURSE
ADDITIONAL NINE HOLES
CITY OF ALBUQUERQUE, NM

CONSULTANTS

JOHANNAN HUSTON, INC. ALBUQUERQUE
IRRIGATION ENGINEERING · BOISE



LOCATION MAP

INDEX

TITLE SHEET	TS1
FIELD CONTROL PLAN	FC1
GRADING PLAN	G1
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" 4	GD3
" 5	GD4
" 6	GD5
" " 7 & 9	GD6
CONSTRUCTION DETAILS	CD1
"	CD2
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POND CONNECTIONS	I 2
PLANTING PLAN/SMART PATHS	PP1
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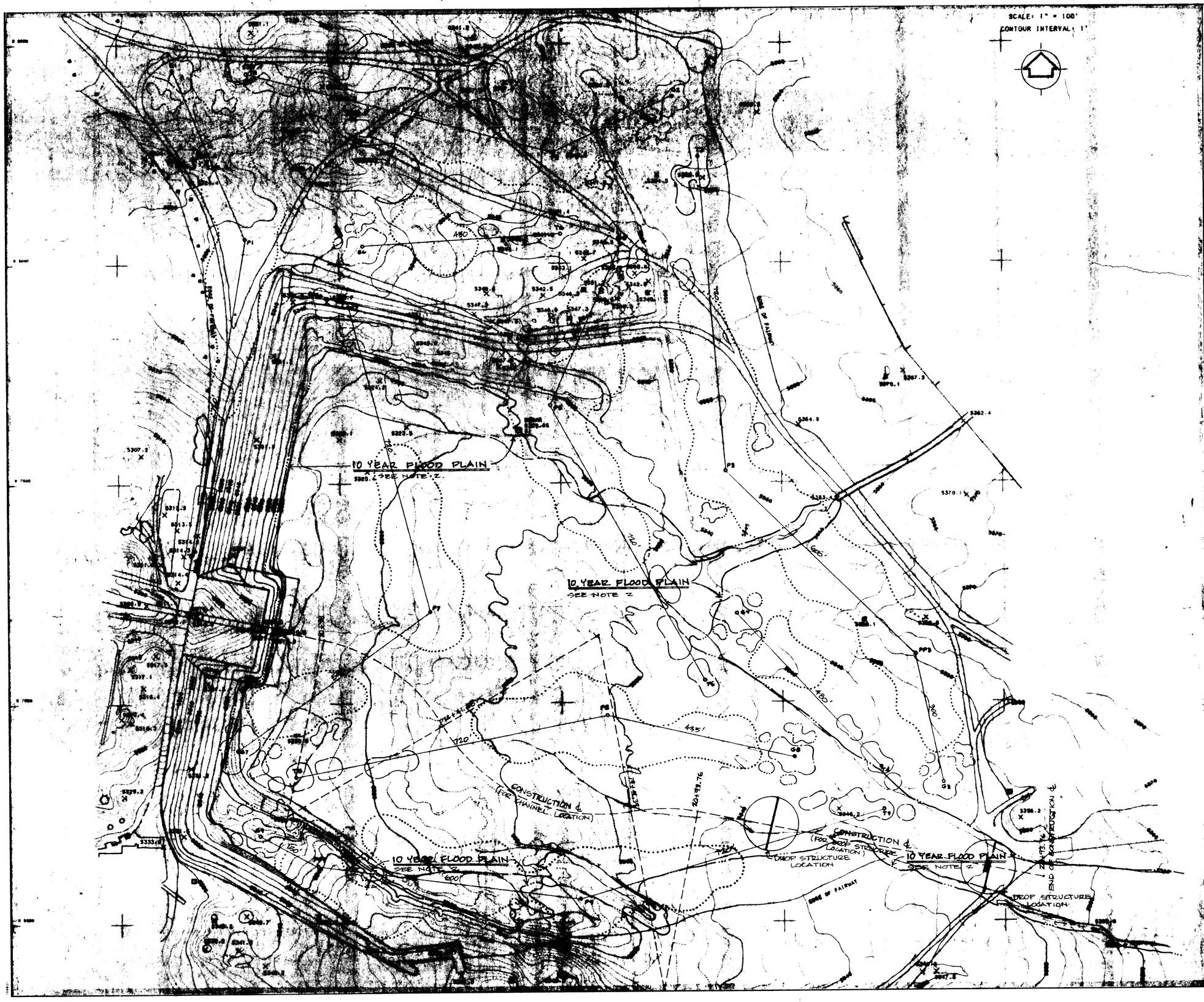
REV	SHEETS	CITY ENGINEER	DATE	USER DEPT.	DATE	USER DEPT.	DATE

APPROVED AS SUBJECT DRAWINGS
CHIEF CONSERVATION ENGINEER
6-1-90

RICHARD M. 172 REGISTERED LANDSCAPE ARCHITECT 1/2/88

ENGINEER'S SEAL & SIGNATURE	LOGO	APROVED FOR CONSTRUCTION
		1-18-88
	PROJECT NUMBER 3400	SHEET 1 OF 16



NOTE

1. THE EXACT LOCATION OF THE CONSTRUCTION & INVOLVING THE CHANNEL LOCATION AND [illegible]

2. NO CONSTRUCTION WILL BE ALLOWED WITHIN OF THE FLOODING BOUNDARIES SHOWN ON THIS SHEET DURING THE MONTHS OF JULY, AUGUST AND SEPTEMBER UNLESS THE CONTRACTOR SECURES AND OBTAINS APPROVAL OF AN EROSION CONTROL PLAN AND A PLAN FOR THE SAFE PASSAGE OF THE 10 YEAR DESIGN STORM RUNOFF.

3. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE HIS OWN SCALE STAKING FOR ALL ELEMENTS OF CONSTRUCTION THAT ARE INCLUDED IN THIS CONTRACT.

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO. BY DATE

ENGINEER'S SEAL

REGISTERED PROFESSIONAL ENGINEER

LASON 1-505-344-9404
BEST COPY AVAILABLE

26 34000290

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY — DATE
DRAWN BY — DATE 10/1/87
CHECKED BY — DATE

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION

FIELD CONTROL PLAN

	NAME	DATE	APPROVALS	ENGINEER	DATE
[illegible]	[illegible]	1-11-88	Liquid Waste	PEGO	1/8/88
[illegible]	[illegible]	1-11-88	Traffic	[illegible]	1/11/88
[illegible]	Roger A. Green	1-8-88	Water	PEGO	1/8/88

DRAWING NO	MAP NO	SHEET	OF
FC1	F-19	2	10

SCALE: 1" = 100'
CONTOUR INTERVAL: 1'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EDGE OF GREEN
- EDGE OF TRAP
- EDGE OF TEE
- EDGE OF FAIRWAY
- HIGH POINT
- CULVERT PIPE
- SURVEY LINE AND FAIRWAY CONTROL POINTS
- SURVEY LINE AND GREEN CONTROL POINT

NOTE:

- SLOPE ON TEES – 1%
- TOPOGRAPHIC DATA PROVIDED BY BOHANNAN - HUSTON INC. DATE OF DATA - DEC. 12, 1986

BANK PROTECTION - ARMOURING
(TO BE DONE BY OTHERS AT A LATER DATE. NOT PART OF THIS CONSTRUCTION)

STA 14+27 90' RT TO STA 14+90 - 55' RT TOT. LEN OF PROT. = 400'	STA 11+90 - 15' LT TO STA 13+20 - 275' LT TOTAL LENGTH OF PROTECTION - 330'
STA 20+85 - 65' RT TO STA 22+35 - 55' RT TOT. LEN. OF PROT. = 150'	STA 17+21 - 60' LT TO STA 20+00 - 82' LT TOT. LEN. OF PROT. = 240'
STA 25+40 - 10' RT TO STA 27+40 - 80' RT TOT. LEN OF PROT. = 110'	STA 20+96 - 105' LT TO STA 22+35 - 55' LT TOT. LEN. OF PROT. = 140'
	STA 26+90 - 15' LT TO STA 27+40 - 55' LT TOT. LEN OF PROT. = 150'

Arroyo del Oso Dam

Elevation - Area - Capacity Table

Elevation (ft.)	Area (acres)	Cumulative Volume (ac.-ft.)
[illegible]	[illegible]	[illegible]

AS BUILT INFORMATION
ORIGINAL TITLE
AS-BUILT BY: DATE
STAMPED BY: DATE
ACCEPTANCE BY: DATE
FIELD VERIFICATION BY: DATE
DRAWINGS CORRECTED BY: DATE
MICRO-FILM INFORMATION
RECORDED BY: DATE
N.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

ENGINEER'S SEAL

VOLUMETRICS AND ELEVATIONS REVISED AND CHECKED UNDER MY SUPERVISION
MPL 12-30-97
12-30-97

NO.	DATE	REMARKS	BY
1	7/10/88	REVISED GRADING FOR CONTROL OF PREVIOUS SPILLWAY OUTLET AND REMOVED 3.85' OF 2" CMP. PIPE. PLUG & 36" CMP STUB IN DAM TO BE LEFT UNDISTURBED.	RAP
1	7/10/88		RAP

REVISIONS

DESIGNED BY — DATE
DRAWN BY — DATE
CHECKED BY — DATE

26 34000390

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION
GRADING PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[signature]	1-11-88	Liquid Waste	[signature]	1/8/88
A.C.E. Design	[signature]	1-11-88	Traffic	[signature]	1/11/88
A.C.E. Hydrology	Roger A. Green	1-8-88	Water	[signature]	1/8/88

DRAWING NO. G1 | MAP NO. F-19 | SHEET 3 OF 16

BANK FILTER ON NORTHLINE
TO BE DONE BY OTHERS AT A LATER DATE. NOT PART OF THIS CONTRACT

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
BY
DATE
NO

ENGINEER'S SEAL

VALIDATED AND CHECKED AND CHECKED UNDER MY SUPERVISION
12-20-99

MICRO-FILM INFORMATION
RECORDED BY
DATE
NO

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY — DATE
DRAWN BY — DATE
CHECKED BY — DATE

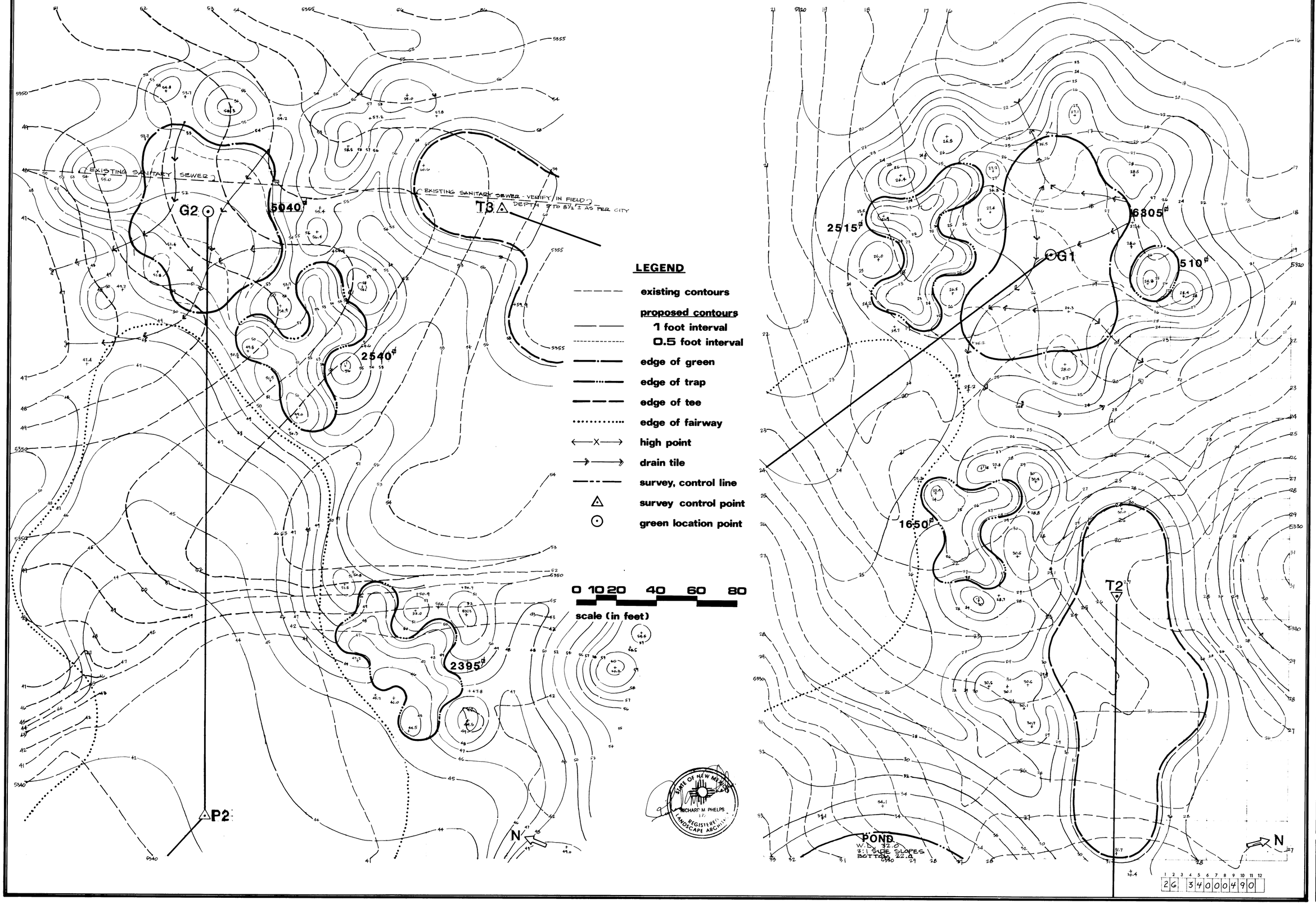
26 3400039 0A

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION
GRADING PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		1/6/88
ACE Design			Traffic		1/11/88
ACE Hydrology		1-6-88	Water		1/6/88

DRAWING NO G1 | MAP NO F-19 | SHEET 3 OF 16



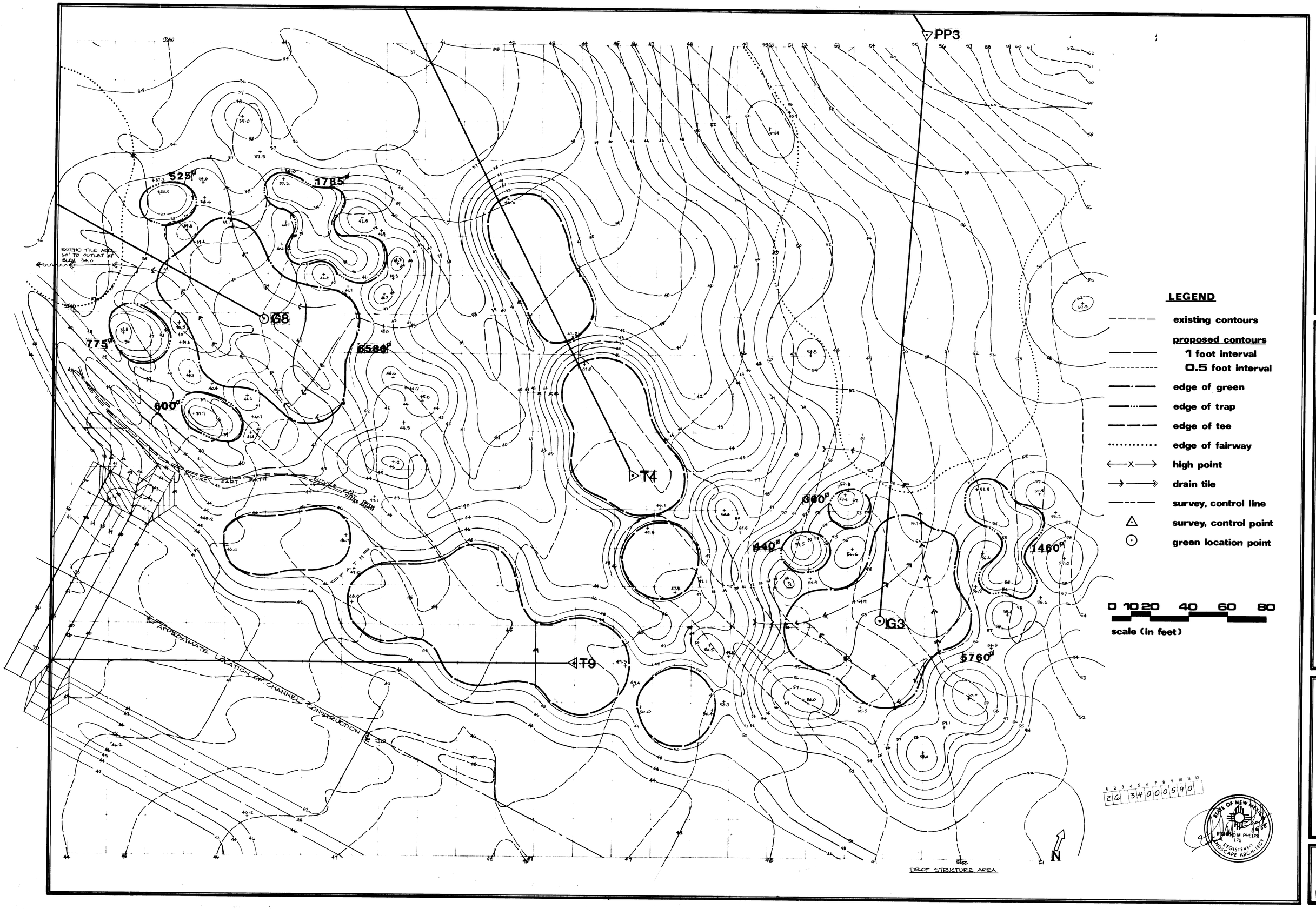
RICHARD M. PHELPS
GOLF COURSE ARCHITECT
P.O. Box 3256 Evergreen, Colorado 80439

ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 10/8/87
checked
revised 11/87 TLE

#1 GREEN
#2 TEE
#2 GREEN
#3 TEE

sheet GD1
4 of 16



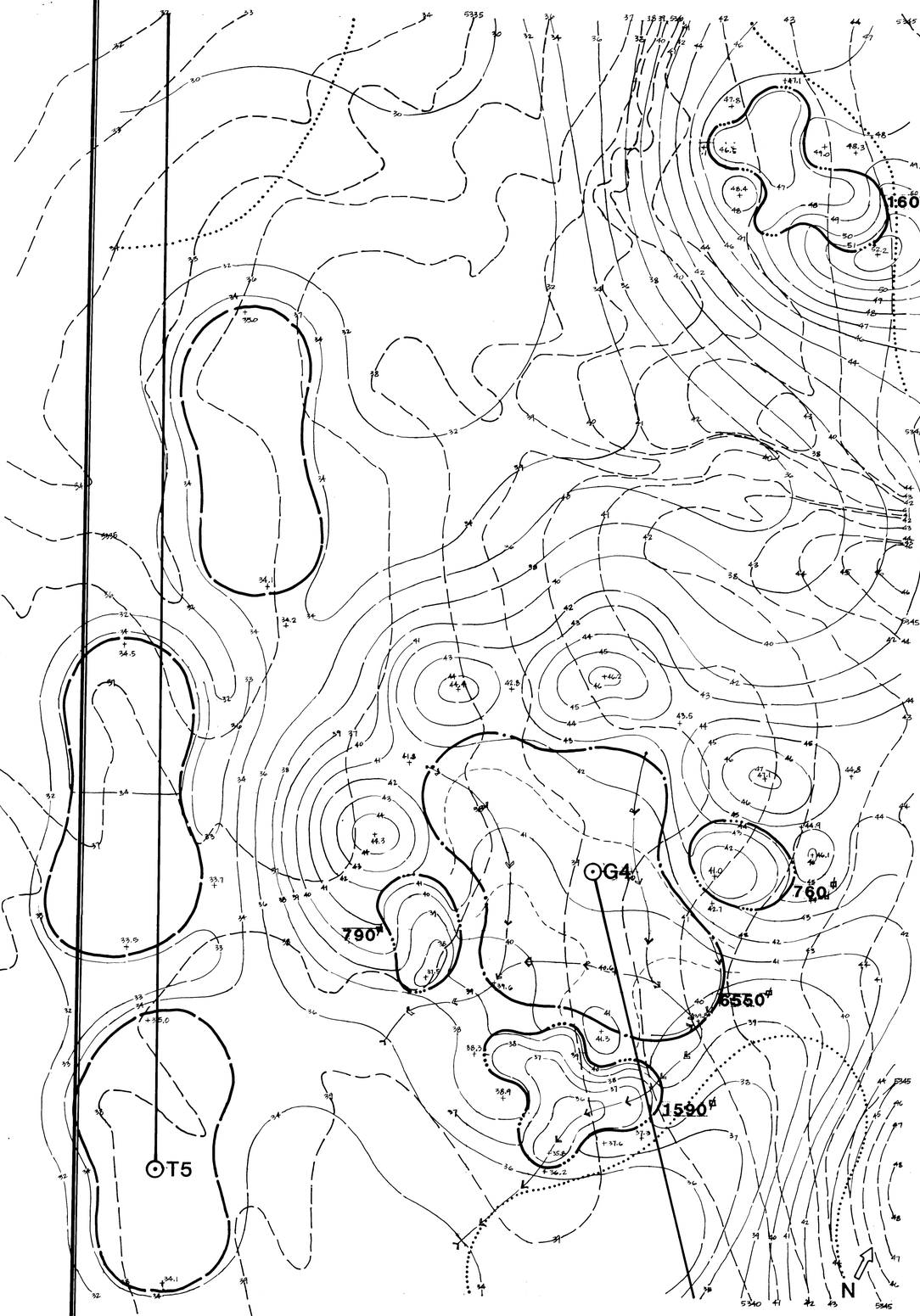
RICHARD M. PHELPS
GOLF COURSE ARCHITECT
P.O. Box 3295 Evergreen, Colorado 80439

ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 10/1/87
checked
revised 11/87 TITLE CHANGED

#3 GREEN,
#4 TEE,
#8 GREEN,
#9 TEE

sheet
GD2
1 of 1

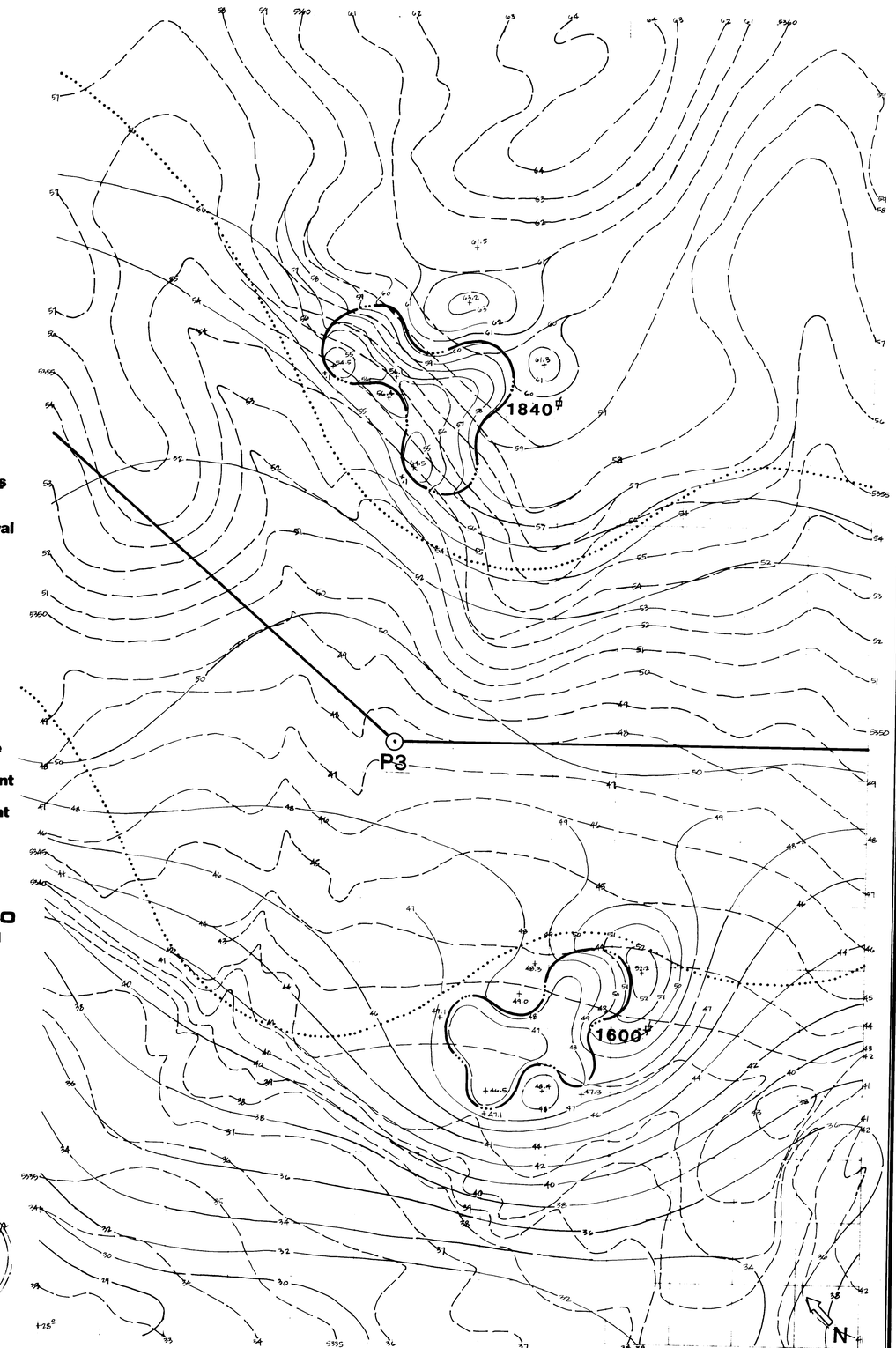


LEGEND

- existing contours
- **proposed contours**
  - 1 foot interval
  - 0.5 foot interval
- edge of green
- edge of trap
- edge of tee
- edge of fairway
- high point
- drain tile
- survey, control line
- survey control point
- green location point

0 10 20 40 60 80

scale (in feet)



STATE OF NEW MEXICO
RICHARD M. PHELPS
172
REGISTERED LANDSCAPE ARCHITECT

1 2 3 4 5 6 7 8 9 10 11 12
26 3 4 0 0 0 6 9 0

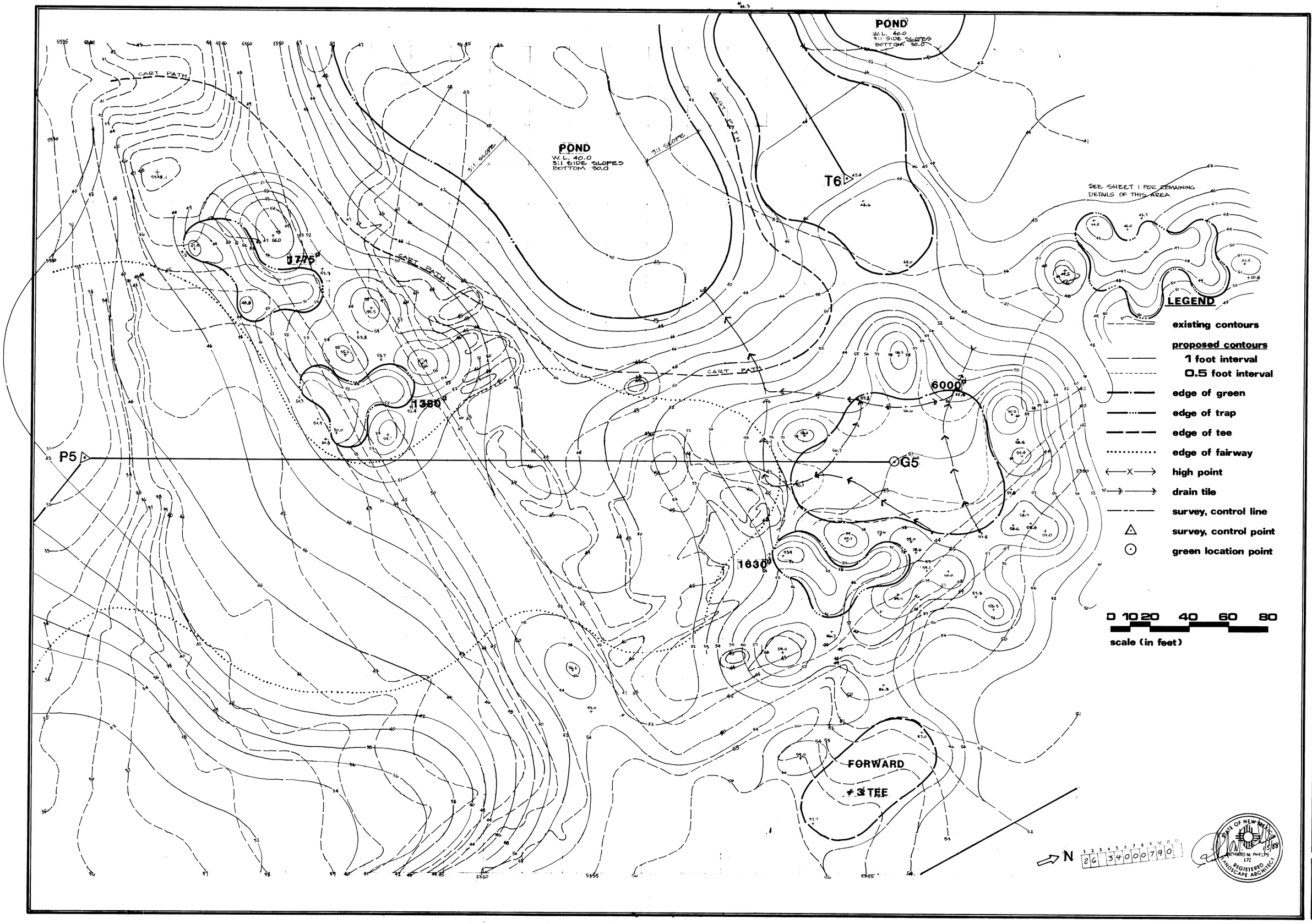
RICHARD M. PHELPS
GOLF COURSE ARCHITECT
P.O. Box 3295 Evergreen, Colorado 80439

ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 9/91
checked
revised 11/91 TLE

#3 FAIRWAY TRAPS
#4 GREEN
#5 TEE

sheet GD3
of 13



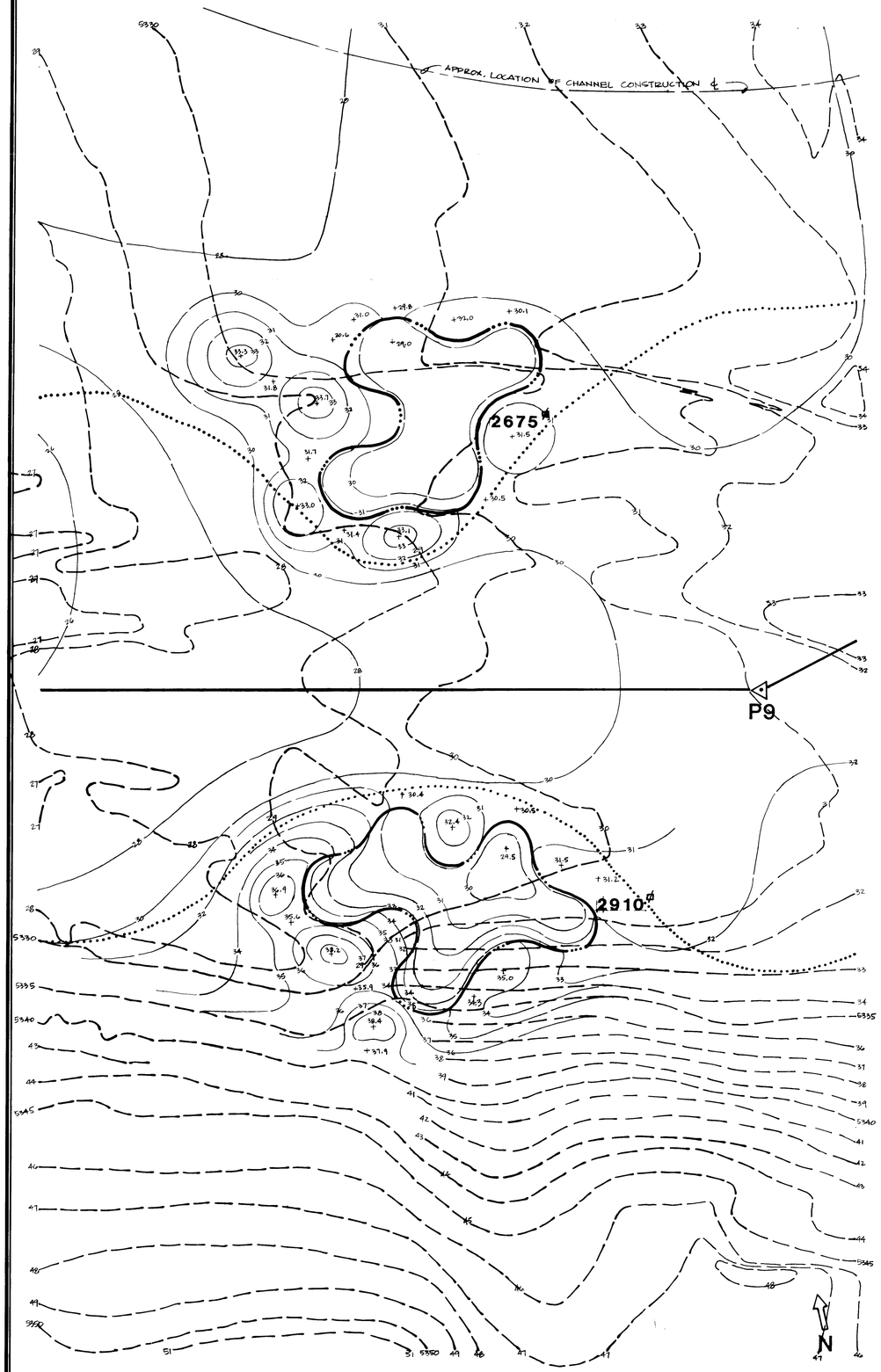
RICHARD M. PHELPS
GOLF COURSE ARCHITECT
P.O. Box 3296 Evergreen, Colorado 80439

ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 10/4/87
checked
revised 9/21 TILE

#3 TEE
#5 GREEN
#6 TEE

sheet GD4

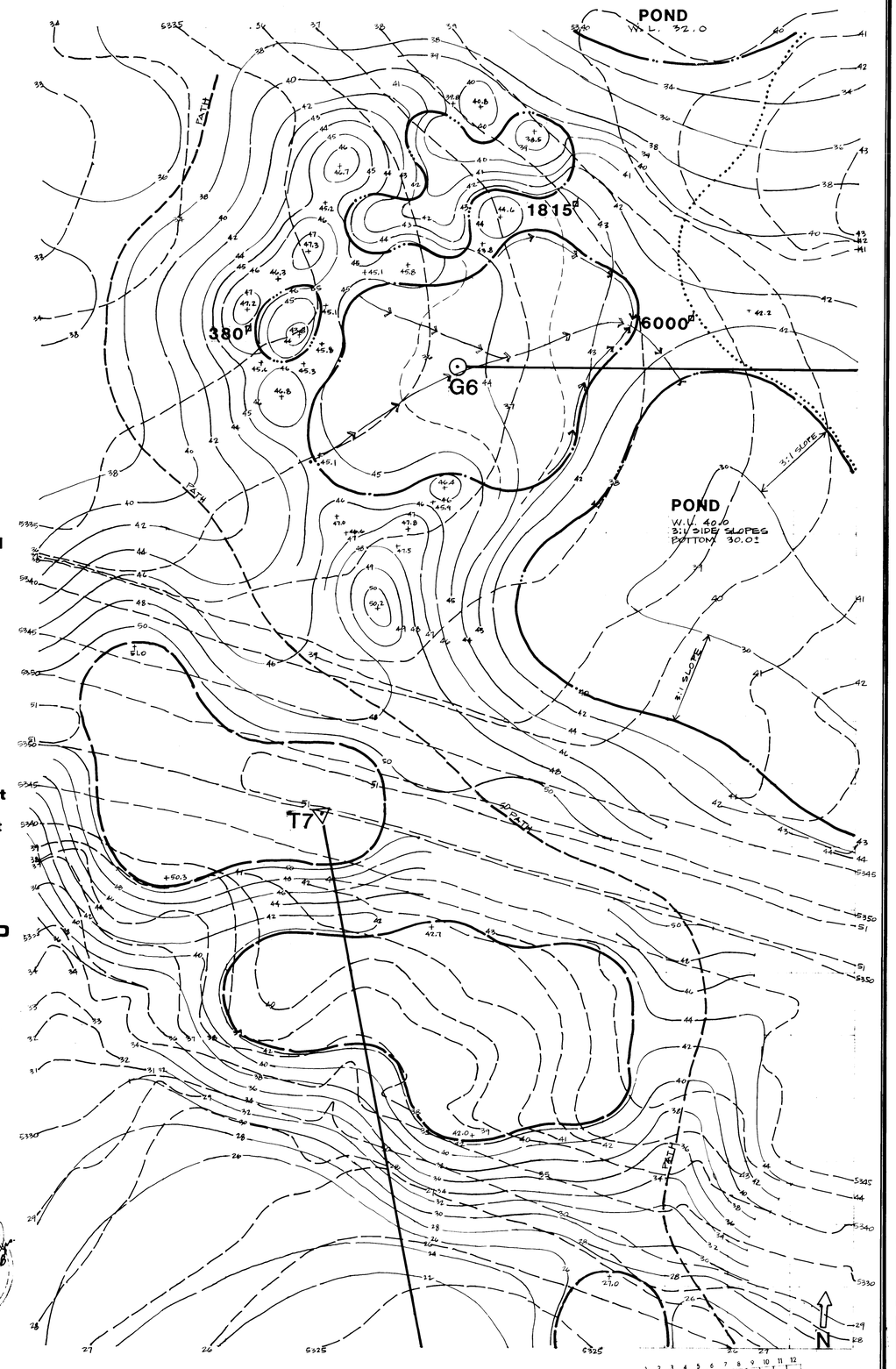


LEGEND

- existing contours
- proposed contours
  - 1 foot interval
  - 0.5 foot interval
- edge of green
- edge of trap
- edge of tee
- edge of fairway
- high point
- drain tile
- survey, control line
- survey control point
- green location point

0 10 20 40 60 80

scale (in feet)



RICHARD M. PHELPS
GOLF COURSE ARCHITECT
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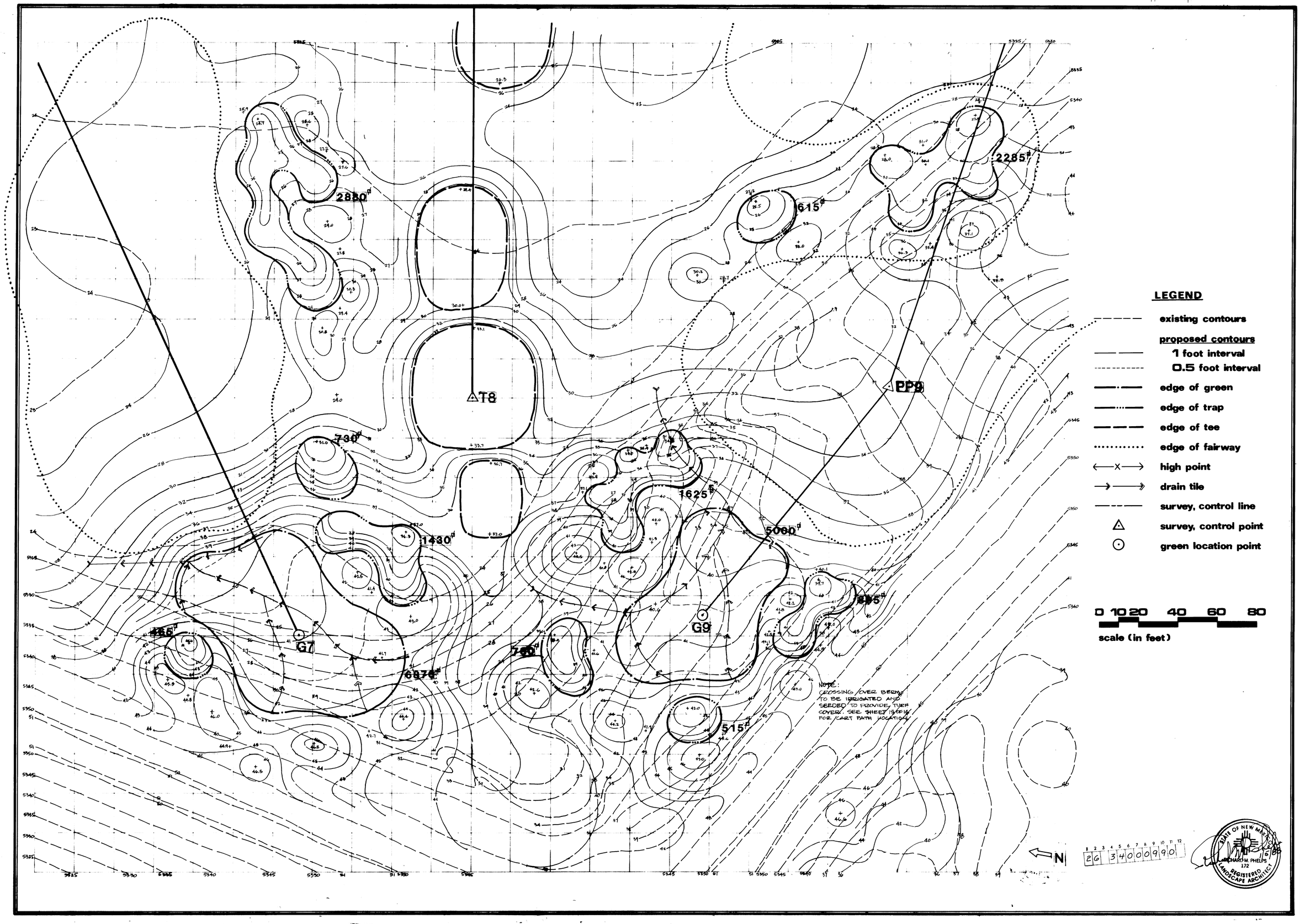
ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 10/4/87
checked
revised

#9 FAIRWAY TRAPS
#6 GREEN
#7 TEE

sheet GD5
of 16

26 3400089 0



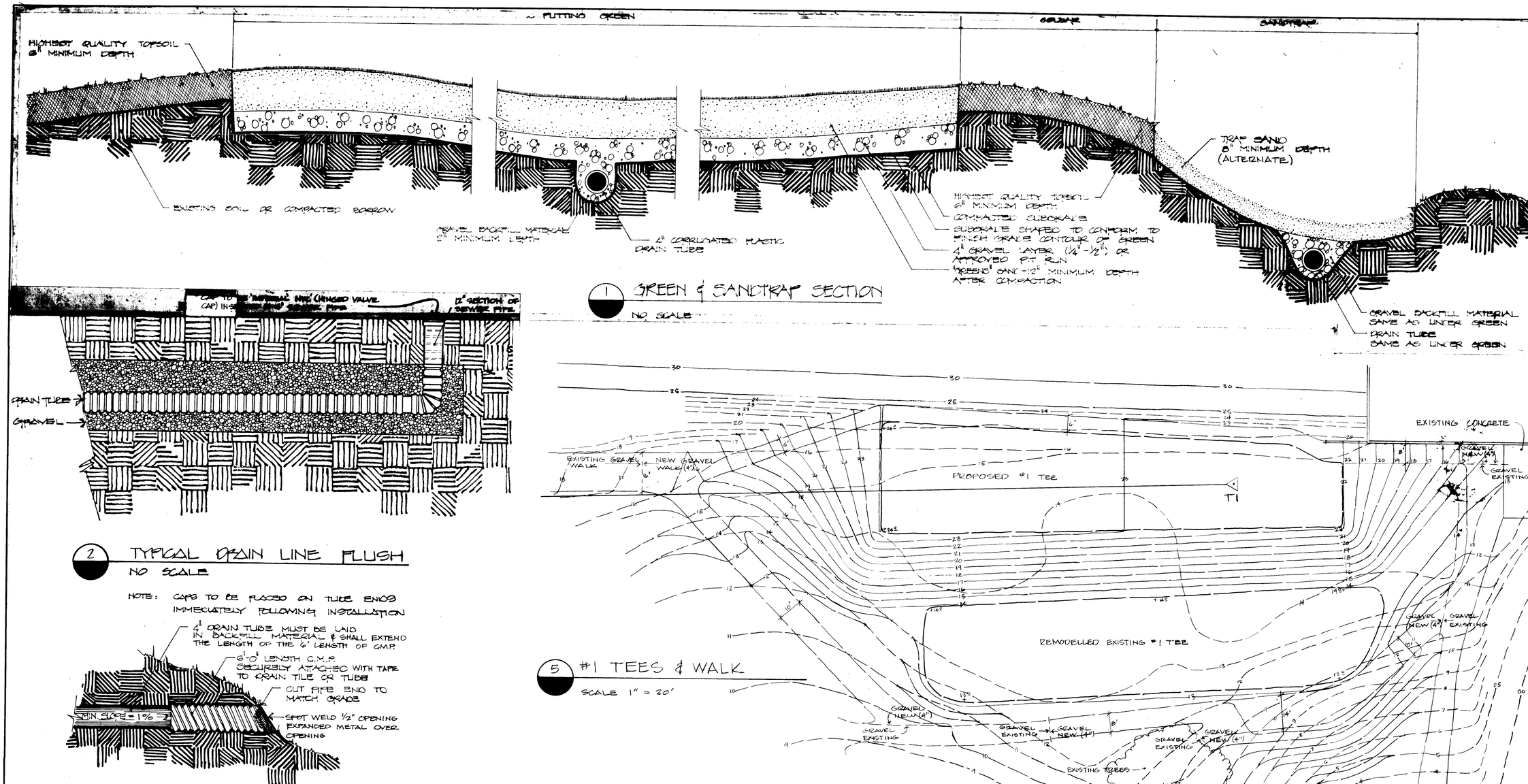
RICHARD M. PHELPS
GOLF COURSE ARCHITECT
P.O. Box 3285 Evergreen, Colorado 80439

ARROYO DEL OSO GOLF COURSE
ALBUQUERQUE, NEW MEXICO

job no
drawn EP
date 10/1/87
checked
revised 1/21 TLE

#7 GREEN
#8 TEE
#9 GREEN

sheet



1 GREEN & SANDTRAP SECTION

NO SCALE

2 TYPICAL DRAIN LINE FLUSH

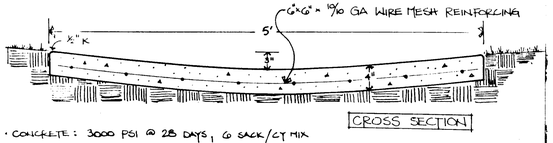
NO SCALE

NOTE: CAPS TO BE PLACED ON TUBE ENDS IMMEDIATELY FOLLOWING INSTALLATION

3 DAYLIGHTED DRAIN

NO SCALE

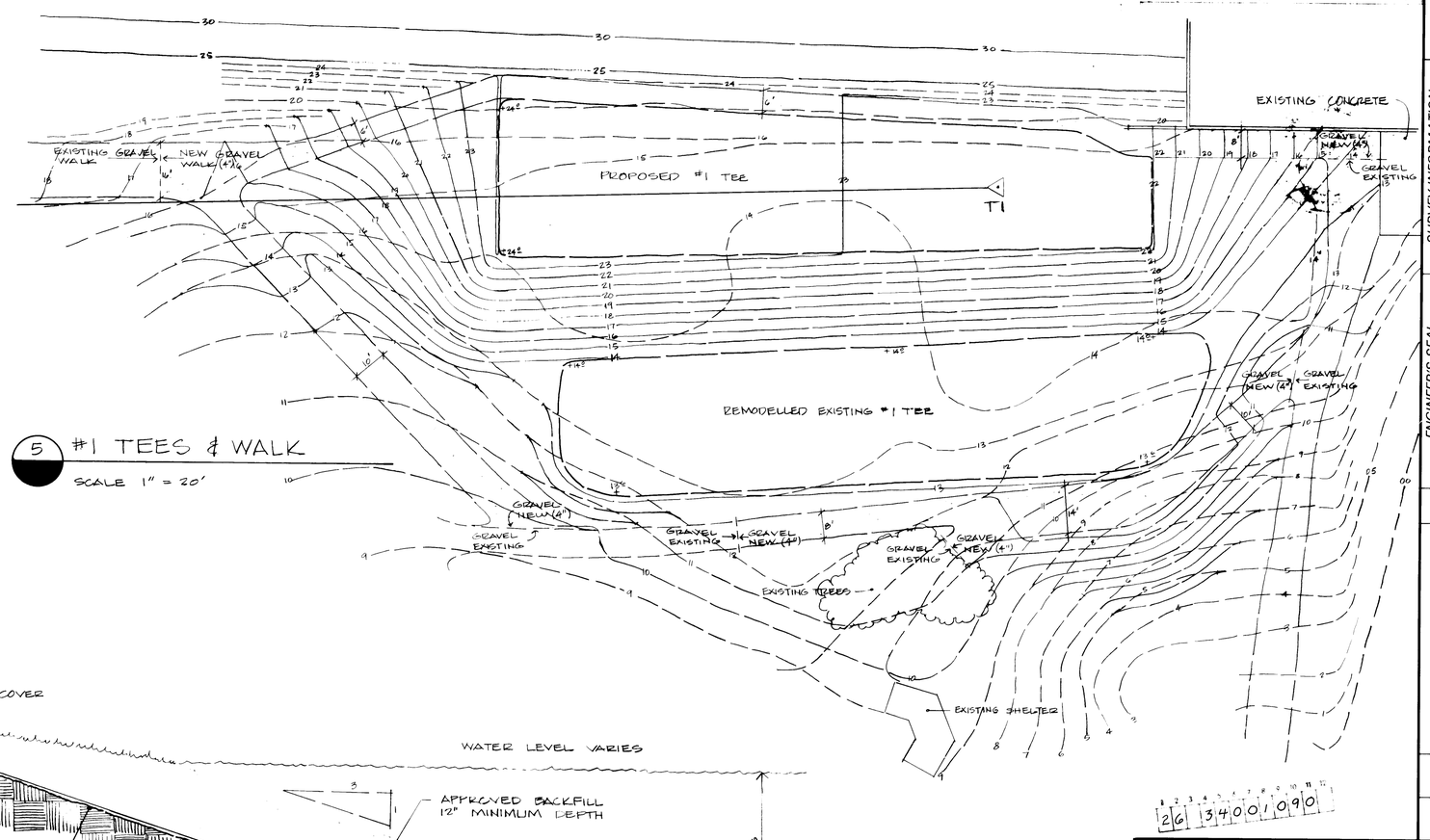
- TIE NEW SWALED CONCRETE PAN INTO EXISTING CONCRETE SWALE WITH 16" LONG #3 @ 12" O.C. DOWELS.
- USE JOINT SEALING COMPOUND WHERE OLD & NEW CONCRETE MEET.
- FINISHED GRADE OF PATH SURFACE SHALL MATCH GRADE OF EXISTING SOIL EXCEPT WHERE NOTED.
- TOOL JOINTS: 1" DEEP @ 6' O.C. PERPENDICULAR TO OUTSIDE EDGES.



- CONCRETE: 3000 PSI @ 28 DAYS, 6 SACK/CY MIX
- BRUSH DRY FINISH

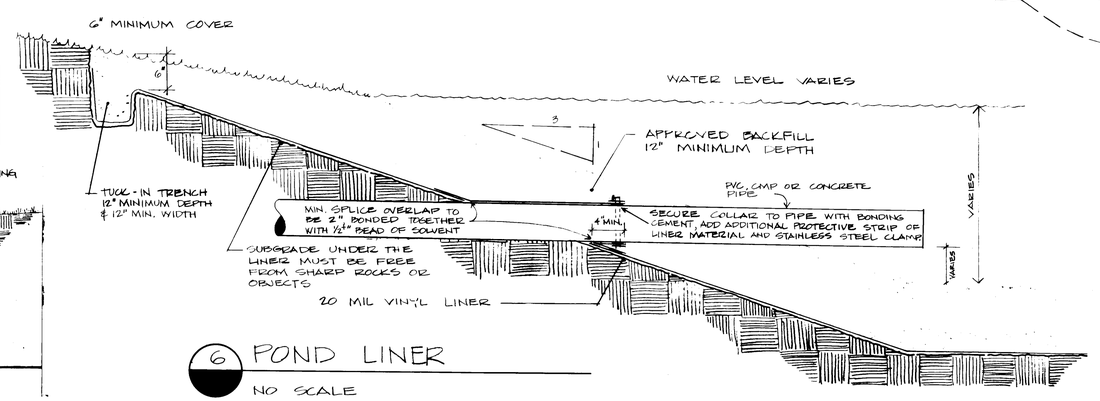
4 SWALED CONCRETE PAN - #3 FAIRWAY

NO SCALE



5 #1 TEES & WALK

SCALE 1" = 20'



6 POND LINER

NO SCALE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	
NO.	DATE

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN

DESIGNED BY	DATE 10/24/87
DRAWN BY E.F.	DATE
CHECKED BY	DATE

2 6 3 4 0 0 1 0 9 0

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

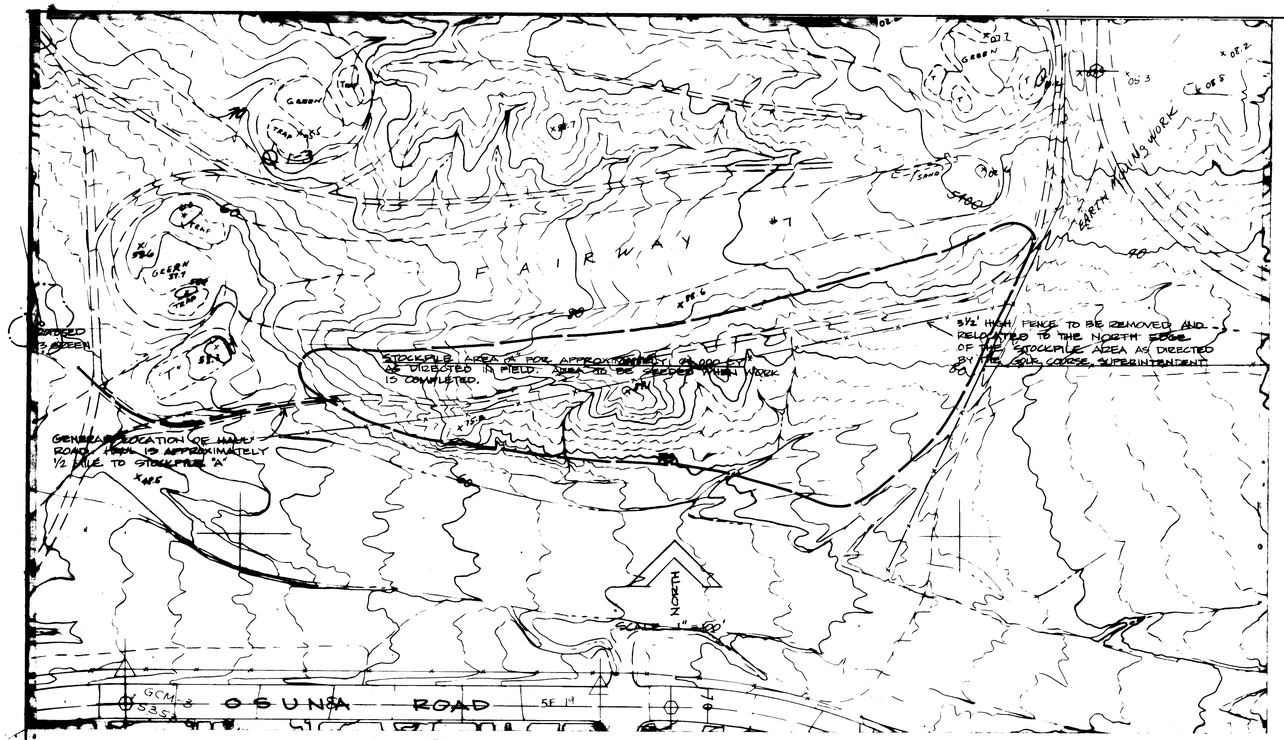
TITLE: ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION

CONSTRUCTION DETAILS

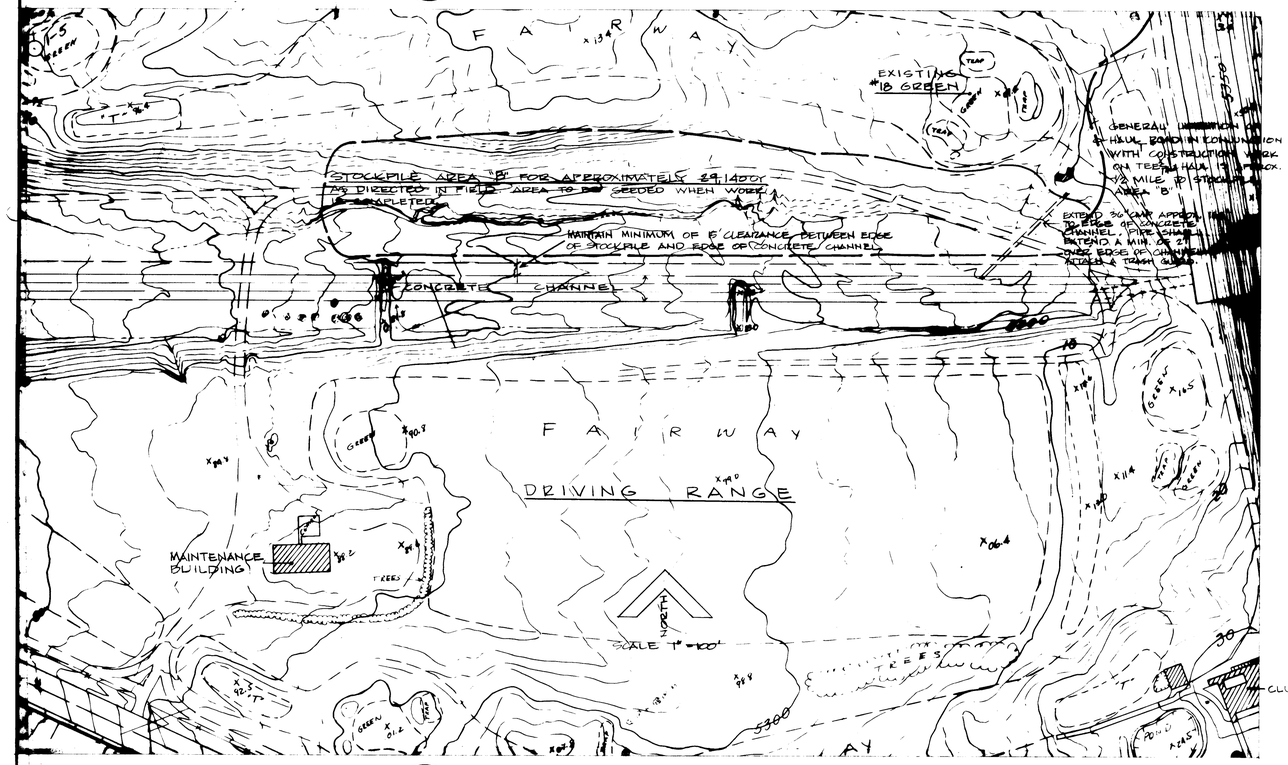
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	Richard Gonzales	1-11-88	Liquid Waste	PESO	1/8/88
A.C.E. Design	Richard Gonzales	1-11-88	Traffic	RCC	1/11/88
A.C.E.-Hydrology	Kenneth Shea	1-8-88	Water	PESO	1/8/88
Parks	[illegible]	4/7/88			

STATE OF NEW MEXICO RICHARD M. PHELPS 172 PROFESSIONAL ENGINEER 7/5/88

DRAWING NO.	MAP NO.	SHEET	OF
CD1	F-19	10	16



1 LOCATIONS FOR STOCKPILE AREA 'A'
SCALE 1" = 100'



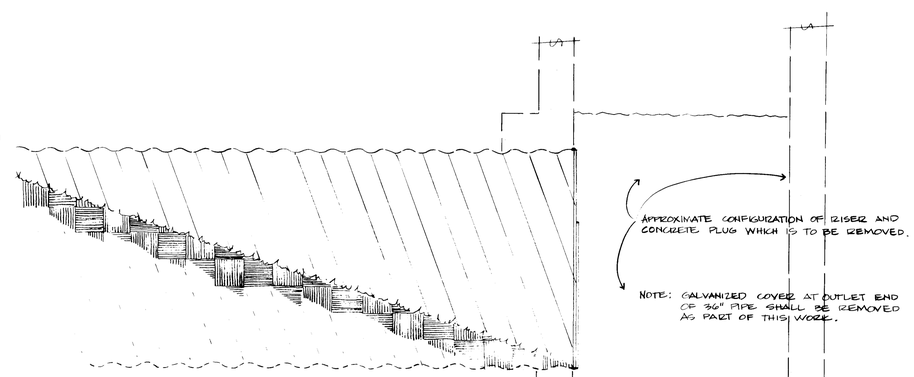
2 LOCATIONS FOR STOCKPILE AREA 'B'
SCALE 1" = 100'

NOTE - STOCKPILE AREA "A"

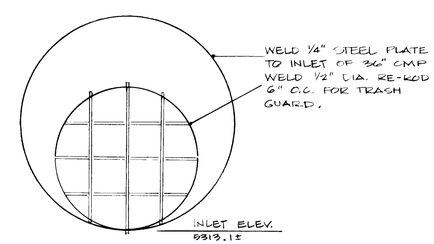
The material in this stockpile only is available to the Contractor for a period of two (2) years beyond the final date of acceptance of the project, for removal for his use in other projects, or for sale to other contractors and/or projects, at his sole discretion and under his control. The Contractor will be responsible for the control of access routes, dust control, safety, control over access to the material by fencing or other methods, and removal of the stockpiled material. Once all the material has been removed, and/or at the end of the two year period, the Contractor will be required to rip, disc and/or scarify all access roads and/or all compacted areas, bring all disturbed areas within the access roads and stockpile area to a seed-bed condition, apply seed, fertilizer and hydromulch (if slopes are greater than 5 to 1), and water until seed has adequately germinated.

At the end of the two year period, the remaining material in the stockpile will be the property of the City.

If the Contractor shall violate the conditions of this agreement at any time during the two year period, the City may deny access to the stockpiled material by the Contractor or any other parties he may have agreements with for removal of the material until acceptable corrective measures have been made.



3 SECTION - 36" CMP INLET
NO SCALE



4 INLET WITH 24" 'REDUCER'
NO SCALE

AS BUILT INFORMATION

CONTRACTOR		
SURVEYED BY		DATE
STAKED BY		
INSPECTOR'S NOTE/IMAGE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY	
DATE	
NO.	

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

STATE OF NEW MEXICO — RICHARD M. PATRICK — 172 — REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGNED BY — DATE
DRAWN BY E.F. — DATE 12/1/87
CHECKED BY — DATE

2 6 3 4 0 0 1 1 9 0

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

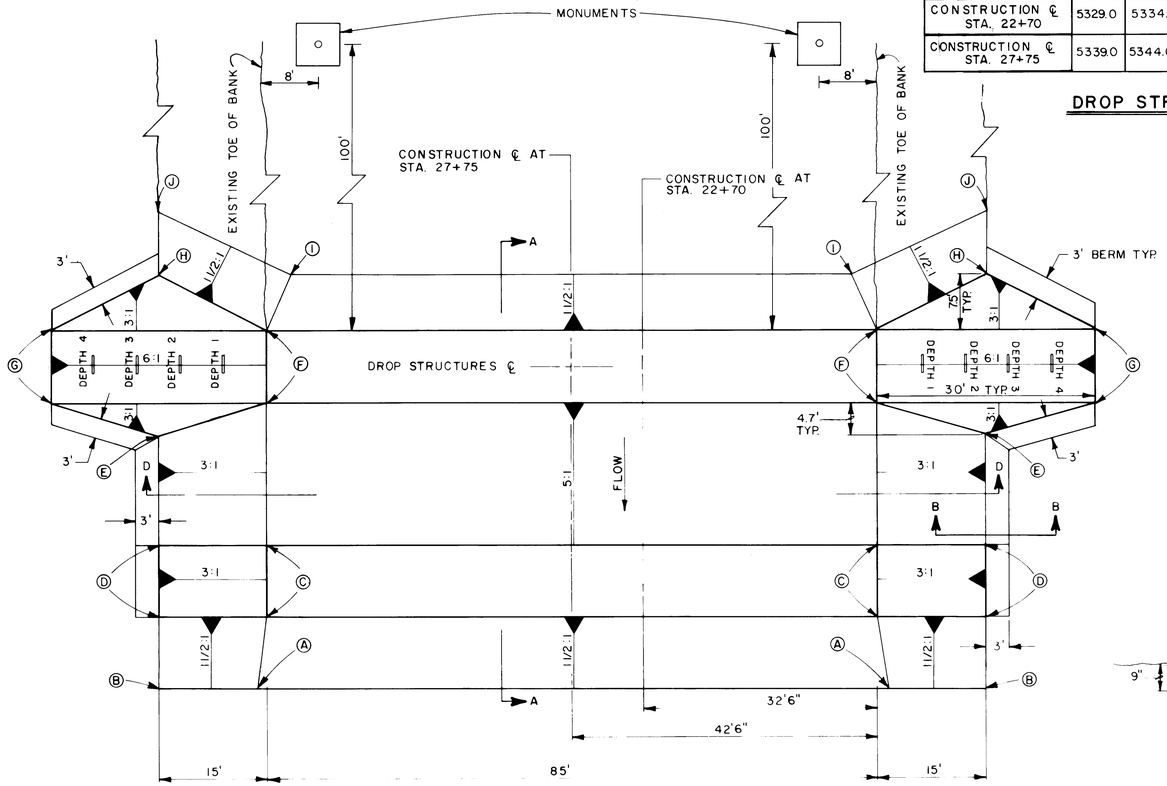
TITLE: ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION
CONSTRUCTION DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[signature]	1-11-88	Liquid Waste	RBO	1/8/88
A.C.E. Design	[signature]	1-11-88	Traffic	RC	1/11/88
A.C.E.-Hydrology	Roger A. Hansen	1-8-88	Water	RBO	1/8/88
[signature]	[signature]	1/7/88			

DRAWING NO. CD2 — MAP NO. F-19 — SHEET 11 OF 16

	A	B	C	D	E	F	G	H	I	J
CONSTRUCTION ℄ STA. 22+70	5329.0	5334.0	5336.0	5341.0	5344.06	5340.0	5345.0	5345.0	5335.0	5340.0
CONSTRUCTION ℄ STA. 27+75	5339.0	5344.0	5346.0	5351.0	5354.06	5350.0	5355.0	5355.0	5345.0	5350.0

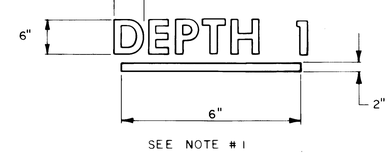
DROP STRUCTURE SPOT ELEVATIONS



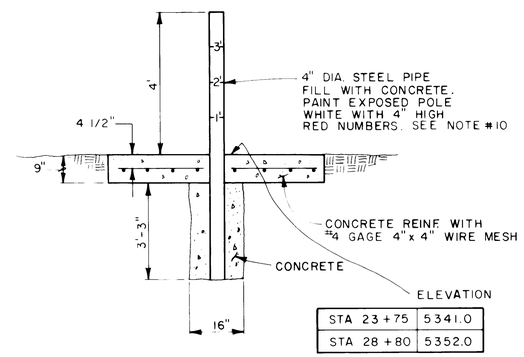
DROP STRUCTURE PLAN

NO SCALE

CHANNEL CONSTRUCTION ℄ STA. 22+70 &
CHANNEL CONSTRUCTION ℄ STA. 27+75



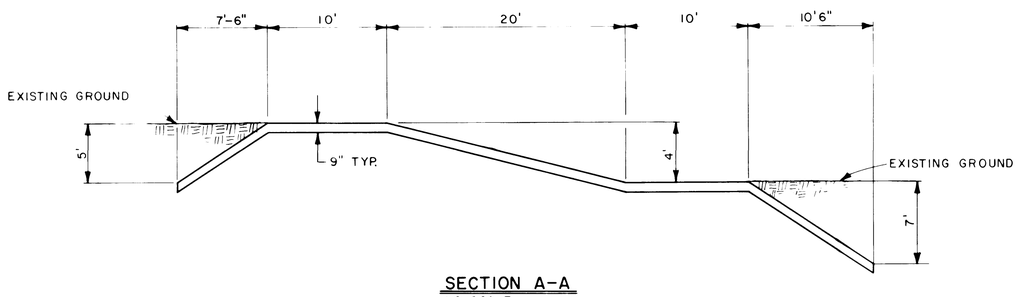
SEE NOTE #1



STA 23+75	5341.0
STA 28+80	5352.0

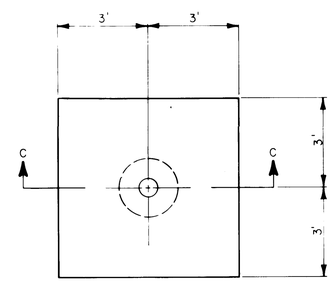
SECTION C-C

NO SCALE



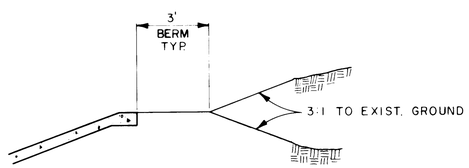
SECTION A-A

NO SCALE



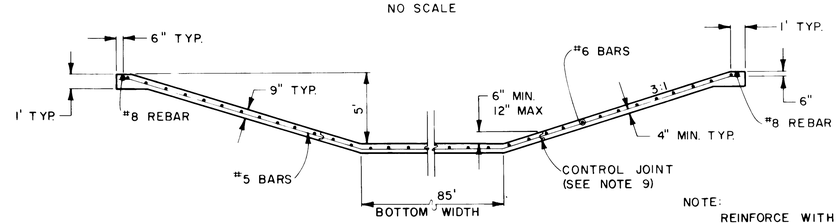
SEDIMENTATION DEPTH MONUMENT

NO SCALE



SECTION B-B

NO SCALE



SECTION D-D

NO SCALE

NOTE:
REINFORCE WITH #5 BARS @ 1'-4" O.C. TRANSVERSE & #6 BARS @ 12" O.C. LONGITUDINAL.

BOHANNAN-HUSTON INC. JOB NO. 86430.04

CONSTRUCTION NOTES:

1. DEPTH MARKERS ON RAMP SHALL BE 6" HIGH LETTERS PAINTED ON A WHITE BACKGROUND. WHITE SHALL BE CONCRETE MASONRY PAINT. RED PAINT SHALL BE ENAMAL.
2. CONCRETE SHALL BE 3000 PSI 28 DAY STRENGTH FLYASH WITH MAX. AGGREGATE SIZE AS STATED IN THE SPECIFICATIONS.
3. ALL REIFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS, UNLESS OTHERWISE SHOWN.
4. SPLICES IN REBAR IN TYPICAL CHANNEL SECTION SHALL BE 1' OR GREATER FOR #3 & #4 BARS, 1'-3" FOR #5 BARS & 2'-9" FOR #6 BARS, UNLESS OTHERWISE SHOWN.
5. ALL STEEL SPACING IS GIVEN TO THE CENTERLINE OF THE BARS, UNLESS OTHERWISE SHOWN.
6. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER, UNLESS OTHERWISE SHOWN.
7. CHANNEL REBAR SHALL BE SUPPORTED ON 4 1/2" SAND CHAIRS AT A MAX. SPACING OF 5' PERPEDICULAR TO THE CHANNEL CENTERLINE.
8. MIN. SUBGRADE COMPACTION SHALL BE 90% PER ASTM D 1557.
9. SAW CUT CONTROL JOINT 1/4" WIDE, 2" DEEP & APPLY POLY-URETHANE SEALANT OR BURKE COLD KEYED JOINT ENGINEER APPROVED EQUAL, (CONTRACTOR'S OPTION) TYPICAL BOTH SIDES. SEE TYPICAL SECTION.
10. MONUMENTS SHALL BE PAINTED WITH ONE COAT OF METAL PRIMER FOLLOW BY ONE COAT OF WHITE ENAMEL. DEPTH NUMBERS ON MONUMENTS SHALL BE 4" HIGH PAINTED ON TWO SIDES OF MONUMENT WITH RED ENAMEL.
11. STRUCTURAL CONCRETE SHALL BE TINTED WITH DAVIS COLOR (OR EQUIVALENT) 5447 BUFF AS REQUIRED BY THE SPECIFICATIONS.
12. ENGINEER SHALL APPROVE HORIZONTAL LOCATION OF DROP STRUCTURES BEFORE CONSTRUCTION.

Harold Gerhardt
11-19-87

1	2	3	4	5	6	7	8	9	10	11	12
2	6	3	4	0	0	1	2	9	0		

AS-BUILT INFORMATION: CONTRACTOR / WORK STAKED BY / INSPECTOR'S ACCEPTANCE BY / FIELD VERIFICATION BY / DRAWINGS CORRECTED BY — DATE

BENCH MARKS

SURVEY INFORMATION — FIELD NOTES: NO. / BY / DATE

ENGINEER'S SEAL

MICRO-FILM INFORMATION: RECORDED BY / DATE / NO.

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN			
DESIGNED BY	BG	DATE OCT., 1987	
DRAWN BY	VCG	DATE OCT., 1987	
CHECKED BY	HCS	DATE OCT., 1987	

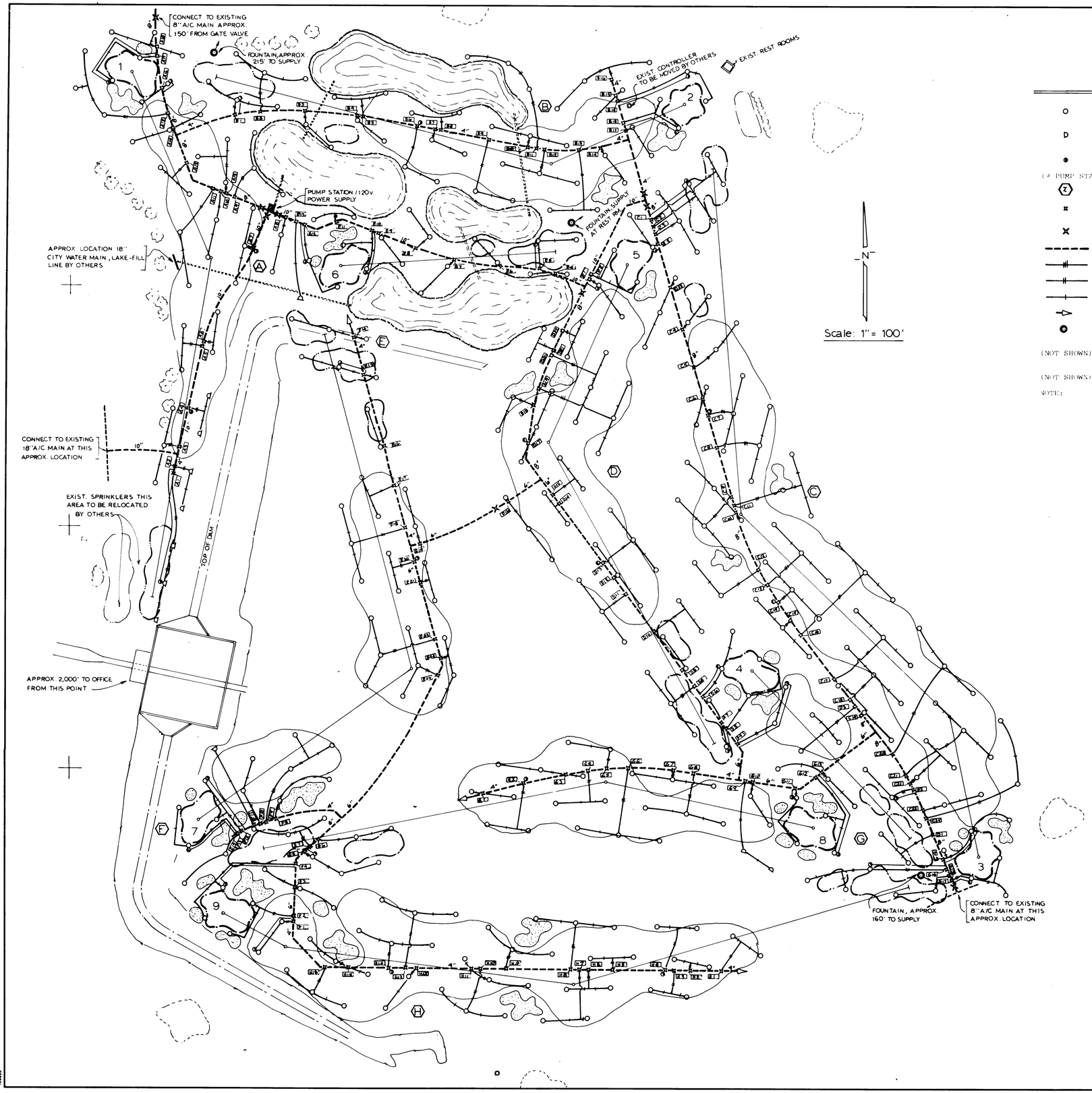
CITY OF ALBUQUERQUE
ARROYO DEL OSO
GOLF COURSE EXPANSION

TITLE: CONCRETE DROP STRUCTURES CONSTRUCTION DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		1-11-88	Liquid Waste		1/8/88
A C E - Design		1-11-88	Traffic		1/11/88
A C E - Hydrology		1-11-88	Water		1/8/88
Parks		1/11/88			

DRAWING NO. CD-3 | MAP NO. F-19 | SHEET 12 OF 16

BRUNING 44-232



LEGEND and NOTES

- TORO MODEL 674-02-71 FULL-CIRCLE SPRINKLER W/CHECK VALVE -- 45.6 GPM 85'R @ 80 PSI
- TORO MODEL 655-02-58 PART-CIRCLE SPRINKLER W/CHECK VALVE -- 37.2 GPM 77'R @ 80 PSI
- TORO MODEL 474-00 1" QUICK-COUPLING VALVE -USE 1 1/4" CLASS 200 PVC ML TO QCV
- (@ PUMP STA) TOPAZ MODEL 53493-00Q3 LINE 1 POWER CONDITIONER
- TORO MODEL 132-56-08 NETWORK 8000 SATELLITE CONTROLLER
- TORO MODEL 216-27-08 2" ELECTRIC, PRESSURE REGULATING REMOTE CONTROL VALVE
- LINE SIZE GATE VALVE
- CLASS 200 RUBBER-RING-JOINT PVC MAINLINE (SIZE AS SHOWN)
- 3" CLASS 200 SOLVENT-WELD PVC LATERAL
- 2½" " " " " " "
- 2" " " " " " "
- AIR RELIEF AND FLUSH VALVE
- LOCATION OF DRINKING FOUNTAIN. INSTALL 1" PVC WATER LINE, FOUNTAIN BY OTHERS.

(NOT SHOWN) 120 VOLT POWER WIRE FROM SOURCE TO ALL SATELLITES SHALL BE NO. 6 UF COPPER

(NOT SHOWN) 24 VOLT CONTROL AND COMMON WIRE SHALL BE NO. 14 UF COPPER

NOTE: SEE SHEET I-2 FOR LAKE FILL LINE DETAIL. MANUFACTURER'S NAMES AND MODEL NUMBERS ARE USED TO ESTABLISH QUALITY AND PERFORMANCE REQUIRED, AND IS NOT INTENDED TO LIMIT USE OF MATERIALS OF EQUAL QUALITY AND PERFORMANCE. SEE SPECIFICATIONS FOR FURTHER INFORMATION.

SATELLITE	VALVES	SPRINKLERS
(A)	18	44
(B)	19	44
(C)	24	63
(D)	23	57
(E)	24	53
(F)	14	31
(G)	17	42
(H)	16	40
8	155	374

SUGGESTED IRRIGATION SCHEDULE

SET AVERAGE TIME ON SPRINKLER ZONES TO 5 MINUTES.
FOR PEAK DEMAND SET DAILY SCHEDULE AS FOLLOWS:

START ALL SATELLITES AT 9:30 PM
REPEAT STARTS -- 11:30 PM
1:30 AM
AND 3:30 AM

FOR A TOTAL APPLICATION OF 0.264 INCHES
ADD OR DELETE IRRIGATION CYCLES AS DEMAND CHANGES.
AVERAGE DEMAND = 875 GPM
AVERAGE DAILY PEAK CONSUMPTION = APPROXIMATELY 342,000 GALLONS

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY — DATE
INSPECTORS ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY

REVISIONS

DESIGNED BY E. Lee Bean DATE Dec 1987
DRAWN BY " DATE "
CHECKED BY DATE

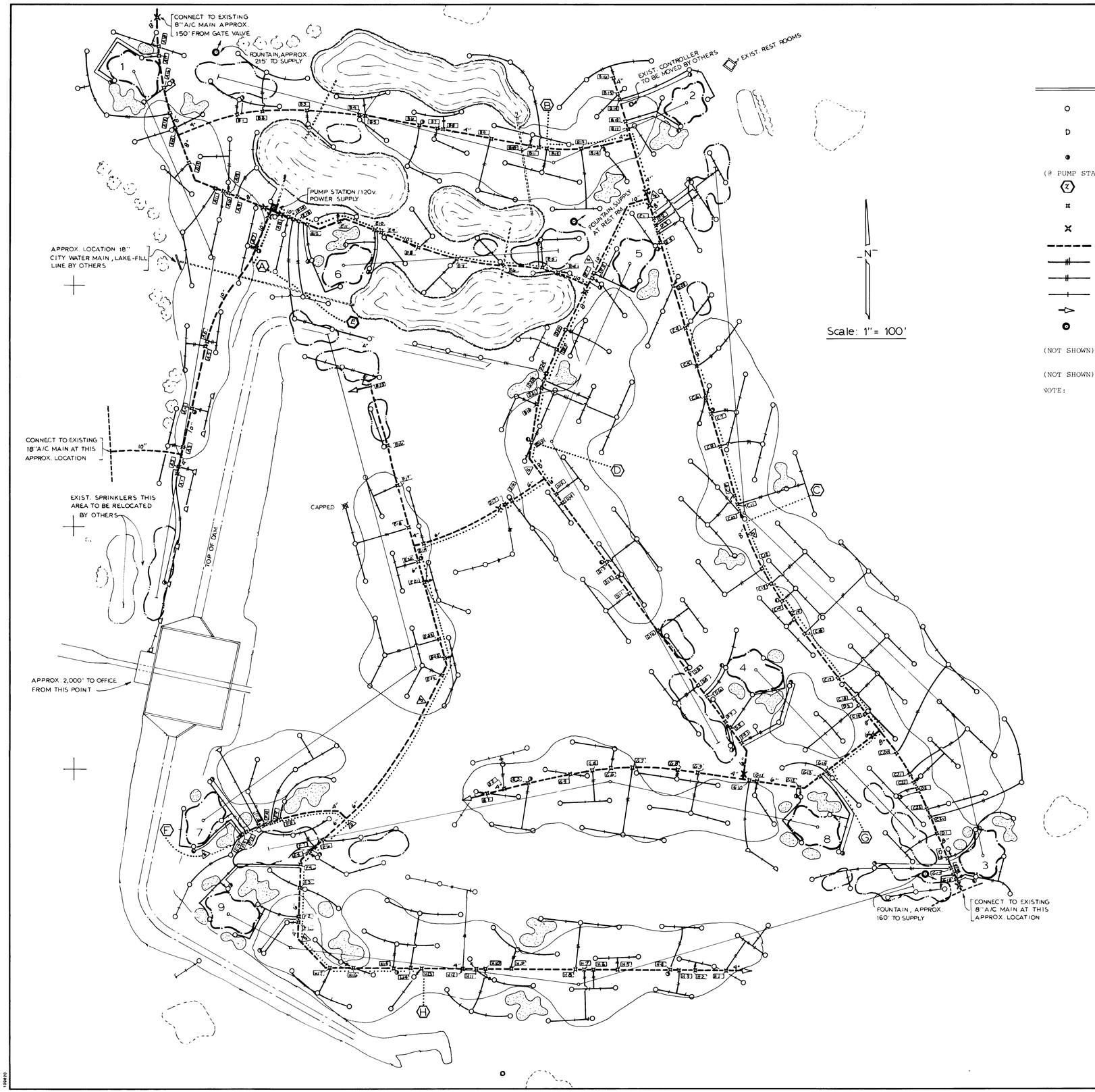
26 3400 1390

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: ARROYO DEL OSO GOLF COURSE SPRINKLER SYSTEM

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	Robert Hogan	1-11-88	Liquid Waste	RECD	1/8/88
A.C.E. Design	[illegible]	1-11-88	Traffic	RC	1/11/88
A.C.E.-Hydrology	N/A	1-8-88	Water	RECD	1/8/88
Parks	Linda Cadley	1/7/88			

DRAWING NO. I-1 | MAP NO. F19 | SHEET 13 OF 16



LEGEND and NOTES

- TORO MODEL 674-02-71 FULL-CIRCLE SPRINKLER W/CHECK VALVE -- 45.6 GPM 85'R @ 80 PSI
- TORO MODEL 655-02-58 PART-CIRCLE SPRINKLER W/CHECK VALVE -- 37.2 GPM 77'R @ 80 PSI
- TORO MODEL 474-00 1" QUICK-COUPLING VALVE - USE 1 1/4" CLASS 200 PVC ML TO QCV
- (@ PUMP STA) TOPAZ MODEL 53493-00Q3 LINE 1 POWER CONDITIONER
- TORO MODEL 132-56-08 NETWORK 8000 SATELLITE CONTROLLER
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- LINE SIZE GATE VALVE
- CLASS 200 RUBBER-RING-JOINT PVC MAINLINE (SIZE AS SHOWN)
- 3" CLASS 200 SOLVENT-WELD PVC LATERAL
- 2½" " " " " " "
- 2" " " " " " "
- AIR RELIEF AND FLUSH VALVE
- ELECTRICAL SPLICE BOX 120v. POWER TO CONTROLLERS
- LOCATION OF DRINKING FOUNTAIN. INSTALL 1" PVC WATER LINE, FOUNTAIN BY OTHERS.

(NOT SHOWN) 120 VOLT POWER WIRE FROM SOURCE TO ALL SATELLITES SHALL BE NO. 6 UF COPPER

(NOT SHOWN) 24 VOLT CONTROL AND COMMON WIRE SHALL BE NO. 14 UF COPPER

NOTE: SEE SHEET I-11 FOR LAKE FILL LINE DETAIL. MANUFACTURER'S NAMES AND MODEL NUMBERS ARE USED TO ESTABLISH QUALITY AND PERFORMANCE REQUIRED, AND IS NOT INTENDED TO LIMIT USE OF MATERIALS OF EQUAL QUALITY AND PERFORMANCE. SEE SPECIFICATIONS FOR FURTHER INFORMATION.

SATELLITE	VALVES	SPRINKLERS
(A)	18	46
(B)	19	44
(C)	24	64
(D)	24	62
(E)	24	56
(F)	14	32
(G)	18	46
(H)	17	45
8	158	395

SUGGESTED IRRIGATION SCHEDULE

SET AVERAGE TIME ON SPRINKLER ZONES TO 5 MINUTES.
FOR PEAK DEMAND SET DAILY SCHEDULE AS FOLLOWS:

START ALL SATELLITES AT 9:30 PM
REPEAT STARTS -- 11:30 PM
1:30 AM
AND 3:30 AM

FOR A TOTAL APPLICATION OF 0.264 INCHES
ADD OR DELETE IRRIGATION CYCLES AS DEMAND CHANGES.
AVERAGE DEMAND = 875 GPM
AVERAGE DAILY PEAK CONSUMPTION = APPROXIMATELY 342,000 GALLONS

AS BUILT PLAN NOV. 1988

E. Lee Bean IRRIGATION ENGINEERING
105 W 32nd St. BOISE, ID 83704 (208) 384 0510

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD DRAWINGS BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGNED BY E. Lee Bean DATE Dec. 1987
DRAWN BY " DATE "
CHECKED BY DATE

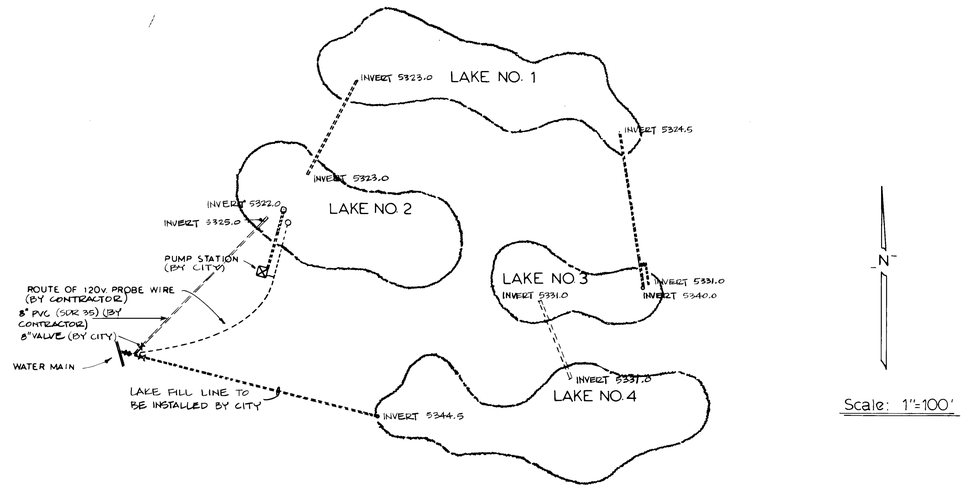
2 6 3 4 0 0 1 3 9 0 A

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: ARROYO DEL OSO GOLF COURSE SPRINKLER SYSTEM

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E. Design			Traffic		
A.C.E.-Hydrology			Water		

DRAWING NO. I-1 | MAP NO. F19 | SHEET 13 OF 16



Scale: 1"=100'

PLAN - LAKE CONNECTIONS

LAKE NO. 1 WS ELEV = 5332 FT.
APPROXIMATE STORAGE @ 5 FT. DEPTH = 1,535,000 GAL

LAKE NO. 2 WS ELEV = 5332 FT.
APPROXIMATE STORAGE @ 5 FT. DEPTH = 1,403,000 GAL

LAKE NO. 3 WS ELEV = 5340 FT.
APPROXIMATE STORAGE @ 5 FT. DEPTH = 661,000 GAL

LAKE NO. 4 WS ELEV = 5340 FT.
APPROXIMATE STORAGE @ 5 FT. DEPTH = 1,996,000 GAL

MAXIMUM PEAK USE (27 HOLES) = 1,440,000 GAL/DAY
DRAWDOWN FROM LAKE NO. 1 & 2 FOR ONE IRRIGATION = 192,513 CU FT. OR 2.33 FT. DROP.
TO REPLACE VOLUME USED IN 24 HOURS A FLOW RATE OF 1000 GPM IS REQUIRED FROM WATER MAIN. TO ALLOW FOR CONTROL (NO FLOW OR LOW FLOW) AT PEAK DOMESTIC DEMAND, VALVE AND FILL LINE SIZED FOR 2000 GPM FLOW.

DRAWING EXPLANATION

PLAN VIEW OF LAKES IS TO SHOW LOCATION OF LAKES, CONNECTING PIPE, PUMP STATION, FILL LINE FROM WATER MAIN AND VALVE CONTROL CIRCUIT. ELEVATION DRAWING SHOWS PIPE AND VALVE LAYOUT WITH ELEVATIONS SHOWN.

MATERIALS AND INSTALLATION

CONTROL VALVE AND WATER LEVEL PROBES

CONTROL VALVE TO CONTROL FLOW FROM WATER MAIN TO LAKE NO. 4 SHALL BE 8" SOLENOID OPERATED, SHALL REGULATE DOWNSTREAM PRESSURE AND BACK PRESSURE. THE VALVE SHALL BE PROVIDED A START SIGNAL ON REMOTE FALLING RESERVOIR WATER LEVEL. THE SIGNAL SHALL BE SENSED BY ¼" STAINLESS STEEL PROBES INSTALLED IN WET WELL AT RESERVOIR. SIGNAL SHALL BE TRANSMITTED BY PROBES TO THE SOLENOID THROUGH NO. 14 UF WIRES. THE 120-VOLT POWER SUPPLY SHALL BE FROM PUMPHOUSE. WIRES SHALL BE INSTALLED IN PVC CONDUIT. THE CONTROL VALVE SHALL BE AS MANUFACTURED BY MUSECO OR ACCEPTABLE EQUAL. THE PROBES SHALL BE AS MANUFACTURED BY WARRICK OR ACCEPTABLE EQUAL.

PIPE

ALL PIPE 12", 8" & 6" REQUIRED FOR LAKEFILL LINE AND TO CONNECT LAKES SHALL BE ASTM D 3034, SDR 35 PVC AND INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

OUTLET TO LAKE NO. 4

OUTLET TO LAKE NO. 4 SHALL BE A MINIMUM OF 4.5' ABOVE HIGH WATER LEVEL IN LAKE. A WATER FALL STRUCTURE SHALL BE CONSTRUCTED TO ARCHITECT'S DRAWINGS.

MANUAL BYPASS

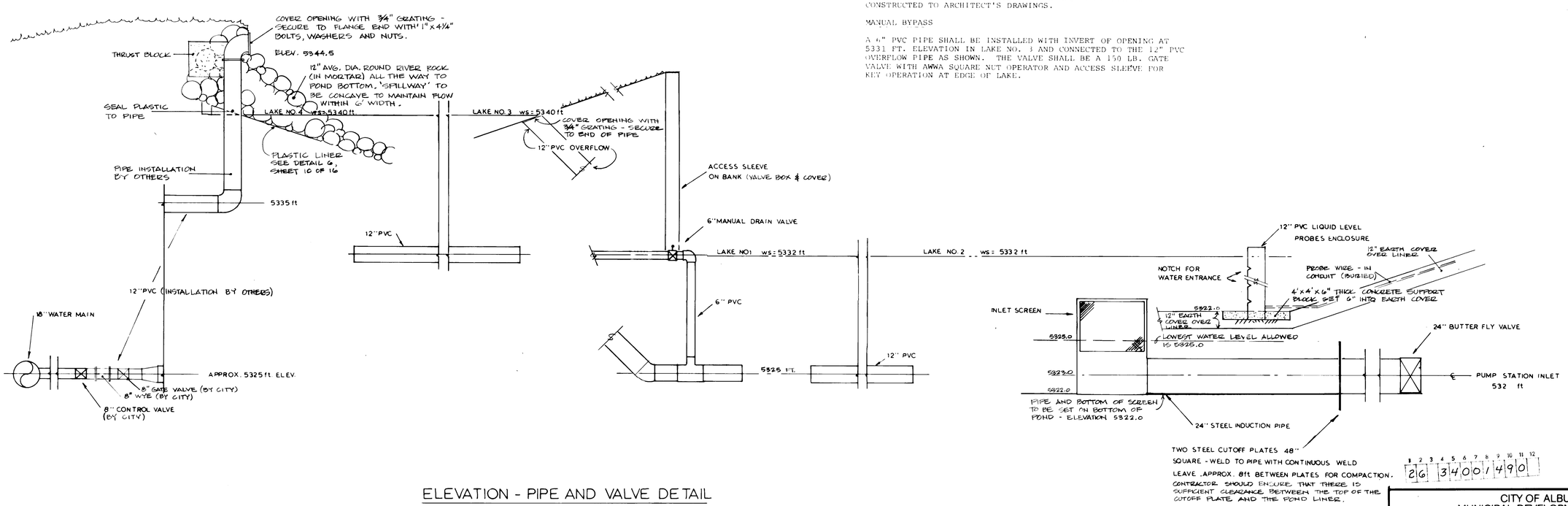
A 6" PVC PIPE SHALL BE INSTALLED WITH INVERT OF OPENING AT 5331 FT. ELEVATION IN LAKE NO. 3 AND CONNECTED TO THE 12" PVC OVERFLOW PIPE AS SHOWN. THE VALVE SHALL BE A 150 LB. GATE VALVE WITH AWWA SQUARE NUT OPERATOR AND ACCESS SLEEVE FOR KEY OPERATION AT EDGE OF LAKE.

INDUCTION PIPE

INDUCTION PIPE FROM LAKE TO PUMP STATION INLET SHALL BE 24" O.D. STEEL PIPE WITH 3/8" WALL THICKNESS. INSTALL 24" BUTTERFLY VALVE AT POINT INSIDE OF PUMPHOUSE AT ELEVATION DESIGNATED. ALSO INSTALL TWO (2) 48" SQUARE ¼" STEEL PLATES AT TWO (2) LOCATIONS BETWEEN LAKE AND PUMPHOUSE TO SERVE AS CUTOFF WALLS TO PREVENT WATER SEEPAGE ALONG PIPE.

INLET SCREEN

A RESERVOIR INLET SCREEN SHALL BE PROVIDED AT THE INLET TO THE HORIZONTAL 24" O.D. INDUCTION TUBE LEADING FROM THE LAKE TO THE PUMP STATION. ALL OF THE SCREEN SHALL BE IN A VERTICAL PLANE WITH A SCREEN AREA OF 36 SQUARE FEET. THE SCREEN SHALL BE 16 GAUGE, TYPE 304, FLATTENED STAINLESS STEEL EXPANDED METAL, WITH A MAXIMUM 3/8"X7/8" OPENINGS. THE BOTTOM AND LEGS SHALL BE CARBON STEEL AND SHALL BE EPOXY COATED TO A THICKNESS OF NOT LESS THAN 4 MILS. THE SCREEN OUTLET CONNECTION SHALL BE COMPATIBLE WITH THE HORIZONTAL INDUCTION TUBE. INLET SCREEN SHALL BE AS MANUFACTURED BY KESLER INTERNATIONAL CORPORATION OF DENVER, COLORADO OR ACCEPTABLE EQUAL.



ELEVATION - PIPE AND VALVE DETAIL

(NOT TO SCALE)

AS BUILT INFORMATION

CONTRACTOR

WORK STAKED BY | DATE
INSPECTED BY | DATE
ACCEPTANCE BY | DATE
FIELD VERIFICATION BY | DATE
DRAWINGS CORRECTED BY | DATE

MICRO-FILM INFORMATION

RECORDED BY | DATE
NO

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN

DESIGNED BY E. Lee Bean DATE Dec. 1987
DRAWN BY " DATE "
CHECKED BY DATE

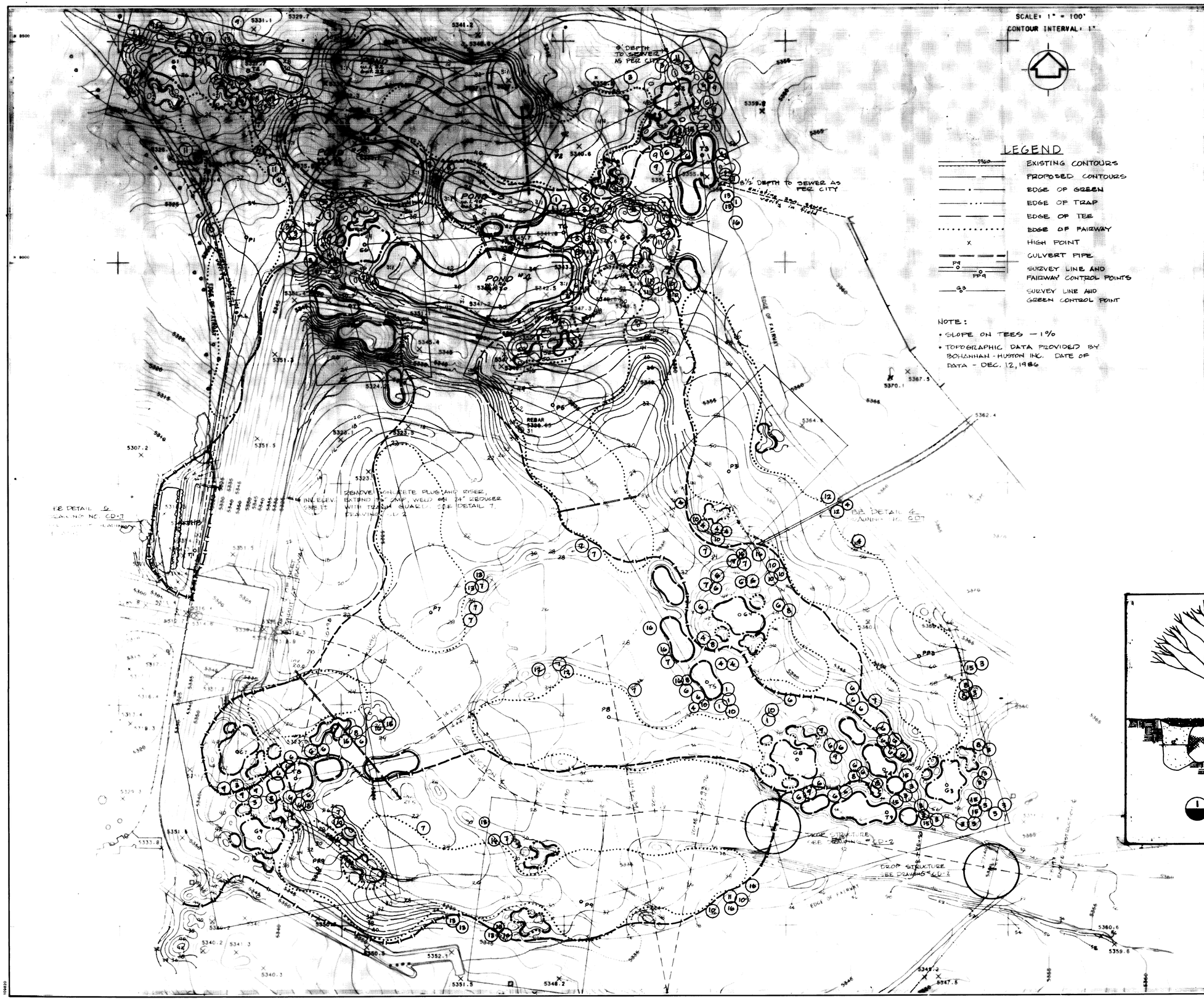
2 6 3 4 0 0 1 4 9 0

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: ARROYO DEL OSO GOLF COURSE
LAKE CONNECTIONS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		1-11-88	Liquid Waste	PEGO	1/8/88
A.C.E. Design		1-11-88	Traffic		1/11/88
A.C.E.-Hydrology		1-8-88	Water	PEGO	1/8/88

DRAWING NO. I - 2 | MAP NO. F19 | SHEET 14 OF 16



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EDGE OF GREEN
- EDGE OF TRAP
- EDGE OF TEE
- EDGE OF FAIRWAY
- HIGH POINT
- CULVERT PIPE
- SURVEY LINE AND FAIRWAY CONTROL POINTS
- SURVEY LINE AND GREEN CONTROL POINT

NOTE:

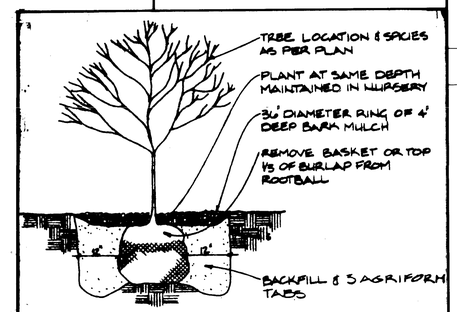
- SLOPE ON TEES — 1%
- TOPOGRAPHIC DATA PROVIDED BY BOHANNAN - HUSTON INC. DATE OF DATA - DEC. 12, 1986

PLANT LIST

KEY	PLANT NAME	NO.	SIZE	COMMENTS
1	KOSTER BLUE SPRUCE PICEA PUNGENS 'KOSTER'	11	6'	B & B
2	PINION PINE PINUS EDULIS	NONE	THIS	PHASE
3	PONDEROSA PINE PINUS PONDEROSA	27	6'	B & B
4	SCOTCH PINE PINUS SYLVESTRIS	15	6'	B & B
5	CYPRESS CUPRESSUS GARYI	NONE	THIS	PHASE
6	SUMMIT GREEN ASH FRAXINUS PENN. LANCEOLATA	58	1½"	CONT.
7	LANCELEAF COTTONWOOD POPULUS ACUMINATA	25	"	"
8	BECHTEL CRABAPPLE MALUS SP. 'BECHTEL'	24	"	"
9	HACKBERRY CELTIS OCCIDENTALIS	13	"	"
10	HAWTHORN CRATAEGUS CRUS-GALLI	15	"	"
11	SHADEMASTER HONEYLOCUST GLEDITSIA TRIACANTHOS	13	"	"
12	MIMOSA ALBIZIA JULIBRISSIN	4	18"	"
13	MULBERRY (SEEDLESS) MORUS ALBA 'FRUITLESS'	12	1½"	"
14	PURPLELEAF PLUM PRUNUS CERASIFERA ATROPURPUREA	NONE	THIS	PHASE
15	RUSSIAN OLIVE ELAEAGNUS ANGUSTIFOLIA	9	1½"	CONT.
16	GLOBE WILLOW SALIX MATSUDANA UMBRACULIFERA	12	"	"
THB	TALL HEDGE BUCKTHORN RHAMNUS FRANGULA 'COLUMNARIS'	90	6'	2' O.C.

LEGEND THIS SHEET

- CART PATHS - 1ST PHASE
- CART PATHS - FUTURE PHASES
- TREE LOCATION AND KEY NO.
- HEDGE - COLUMNAR BUCKTHORN



1 TREE PLANTING DETAIL
N.T.S.

26 340 015 90

STATE OF NEW MEXICO — RICHARD [illegible] — REGISTERED LANDSCAPE ARCHITECT

AS BUILT INFORMATION

		DATE
CONTRACTOR		
WORK STAKED BY		
INSPECTOR'S ACCEPTANCE BY		
FIELD VERIFICATION BY		
DRAWINGS CORRECTED BY		

MICRO-FILM INFORMATION

		DATE
RECORDED BY		
NO.		

BENCH MARKS

SURVEY INFORMATION

NO.	FIELD NOTES BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY DAP — DATE 11/25/87
DRAWN BY — DATE
CHECKED BY — DATE

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION

PLANTING PLAN/CART PATHS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[signature]	1-11-88	Liquid Waste	REBO	1/8/88
A.C.E. Design	[signature]	1-11-88	Traffic	RC	1/8/88
A.C.E.-Hydrology	N/A [signature]	1-8-88	Water	REBO	1/8/88
[signature]	[signature]	1/7/88			

DRAWING NO. PP1 — MAP NO. F-19 — SHEET 15 OF 16

SCALE: 1" = 100'

CONTOUR INTERVAL: 1'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EDGE OF GREEN
- EDGE OF TRAP
- EDGE OF TEE
- EDGE OF FAIRWAY
- HIGH POINT
- CULVERT PIPE
- SURVEY LINE AND FAIRWAY CONTROL POINTS
- SURVEY LINE AND GREEN CONTROL POINT

NOTE:

- SLOPE ON TEES – 1%
- TOPOGRAPHIC DATA PROVIDED BY BOHANNAN-HUSTON INC. DATE OF DATA – DEC. 2, 1986

LEGEND SEEDING

GREENS – SEASIDE BENTGRASS

IRRIGATED TEES, FAIRWAYS AND ROUGH – SCOTT'S BLEND

NON-IRRIGATED ROUGH – NATIVE MIXTURE

26 34001690

AS BUILT INFORMATION

		DATE
CONTRACTOR		
WORK STAKED BY		
INSPECTOR'S ACCEPTANCE BY		
FIELD VERIFICATION BY		
DRAWINGS CORRECTED BY		
MICRO-FILM INFORMATION RECORDED BY		
N.O.		

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

CITY OF NEW MEXICO — RICHARD M. PHELPS — 1/5/88 — REGISTERED LANDSCAPE ARCH.

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY EP — DATE 11/24/87

DRAWN BY — DATE

CHECKED BY — DATE

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: ARROYO DEL OSO GOLF COURSE 9-HOLE ADDITION

SEEDING PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		1-11-88	Liquid Waste		1/8/88
A.C.E. Design		1-11-88	Traffic		1/5/88
A.C.E.-Hydrology	N/A	1-8-88	Water		1/8/88
		1/13/88			

DRAWING NO. S1 — MAP NO. F-19 — SHEET 16 OF 16