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SHEET NO.	DESCRIPTION
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3.	OUTLET STRUCTURE PLAN 16+00 to 20+65
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5.	OUTLET STRUCTURE PROFILE
6.	MISCELLANEOUS DETAILS
7.	PONDING AREA AND PONDING OUTLET GRADING
8.	INTERSECTION GRADING PLAN
9.	CONCRETE BOX CULVERT DETAILS - SINGLE OPENING
10.	CONCRETE BOX CULVERT DETAILS - TRIPLE OPENING - FENCE DETAILS
11.	WINGWALLS FOR NORMAL CONCRETE BOX CULVERTS
12.	WINGWALLS FOR SKEW CONCRETE BOX CULVERTS
13.	WIRE ENCLOSED RIP RAP

REFERENCES

1. NORTH COORS DRAINAGE MANAGEMENT PLAN SCANLON & ASSOCIATES, INC. JUNE 1984
2. NORTH COORS DRAINAGE MANAGEMENT PLAN DESIGN MEMORANDUM, SCANLON & ASSOCIATES, INC., OCTOBER 1984

DRAWINGS FOR THE CONSTRUCTION OF

NORTH COORS DRAINAGE MONTANO ROAD OUTLET INTO RIO GRANDE

PROJECT SPONSORED BY

ALBUQUERQUE METROPOLITAN

ARROYO FLOOD CONTROL AUTHORITY

Bernalillo County

1986

08 09/1 01/87

APPROVED BY A.M.A.F.C.A.

Richard E. Lenard 10/1/86

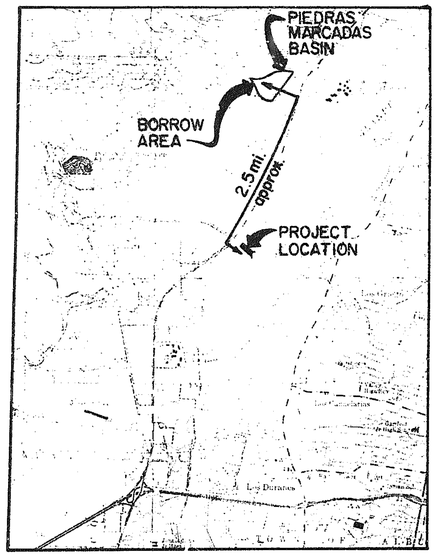
EXECUTIVE ENGINEER DATE

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-86	85104	NONE	M.L.A.	1
			CHECKED J.DR.	OF 13

SCANLON ASSOCIATES
CONSULTING ENGINEERS

08-001-87

RECORD DRAWING



LOCATION MAP

Scale: 1" = 4000' (approx)

LEGEND

EXISTING	NEW	
		Cement
		Contour Lines - Index + Intermediate
		Control Point
		℄ Survey / ℄ Construction
		Earth
		Fence (Wire)
		Manhole Cover + Ring
		P.I., P.T., P.C.
		Right of way Line
		Riprap
SAS	SAS	Sanitary Sewer Line
		Sanitary Sewer Manhole
		Section Designation Sheet Where Section is Cut Sheet Where Section is Shown
		Slope Embankment
•75.5		Spot Elevation
UT		Underground Telephone
		Flowline

*SELECTED ESTIMATED QUANTITY DISTRIBUTION

Earthwork

Embankment

New Road Berms	2430	Cu.Yds.
Intersection Grading	6123	Cu.Yds.
Ok Berms	8791	Cu.Yds.
A[illegible] Berms	350	Cu.Yds.
Subtotal (Centerline)	17694	Cu.Yds.
[illegible]	3122	Cu.Yds.
Total Estimated Embankment	20816	Cu.Yds.

Excavation

Outlet Channel	2465	~~775~~ Cu.Yds.
Drain Transitions & Widening	2349	[illegible] Yds.
Total Estimated Excavation (Centerline)	[illegible]	~~[illegible]~~ Cu.Yds.
Total Estimated Borrow	15758	~~[illegible]~~ Cu.Yds.

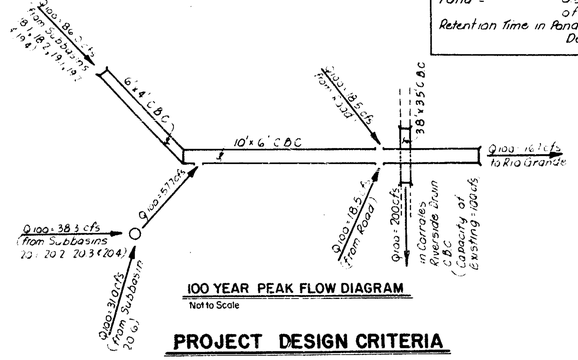
Structure	"A" Class	Reinforcing Steel
8'-0" x 8'-0" [illegible]	[illegible]	[illegible]
12'-0" x 6'-0" [illegible]	[illegible]	[illegible]
10'-0" x 6'-0" [illegible]	[illegible]	[illegible]
Total Estimate	[illegible] Cu.Yds.	[illegible]

* [illegible] are shown for information only - see bid Proposal Form for actual contract quantities.

Note: All borrow material will be obtained from the specified Borrow Area (See [illegible] Map), except [illegible] to be [illegible] by the Engineer. Placement of borrow material for embankments and haul will not be paid for separately, but will be considered incidental to "Borrow".

ABBREVIATION LEGEND

A.M.A.F.C.A. = Albuquerque Metrolpolitan Arroyo Flood Control Authority
Approx. = Approximate
b = Bottom Width
BM = Bench Mark
℄ = Centerline
C. or CH = Chord
C.B.C. = Concrete Box Culvert
C. Bearing = Chord Bearing
C.F.S. = Cubic Feet Per Second
Conc. = Concrete
Const. = Construction
Cu.Yds. = Cubic Yards
∴ D = Depth
Des. = Design
Diam or Ø = Diameter
Estim. = Estimate
Exist = Existing
El. or Elev. = Elevation
Engr. = Engineer
F.G. = Finish Grade
F_L = Flow Line
Ft. = Foot
Galv. = Galvanized
H. = Height
Horiz. = Horizontal
Incl. = Include
Inv. = Invert
L. = Length of Arc
Lbs. = Pounds
Lt. = Left
MH = Manhole
Mi = Mile
M.S.L. = Mean Sea Level
M.R.G.C.D. = Middle Rio Grande Conservancy District
Q = Peak flow rate at 100 years flood in [illegible]
R = Radius
Rd. = Road
RT = Right
R/W = Right of way
Reinf. = Reinforced
Req'd. = Required
S = Slope
SAS = Sanitary Sewer
Sec = Section
Sht = Sheet
Specs = Specifications
Sta = Station
Std = Standard
Topo = Topography
Typ = Typical
UT = Underground Telephone
Vert. = Vertical
W/ = With
WS = Water Surface
Δ = Central Angle
& = And



100 YEAR PEAK FLOW DIAGRAM
Not to Scale

PROJECT DESIGN CRITERIA

GENERAL NOTES

1. New Mexico State Highway Department "Standard Specification for Road and Bridge Construction", Edition 1984, shall govern construction of this project.

2. Elevations are shown in feet above mean sea level datum.

3. All stationing refers to centerline of construction and is the measured horizontal distance. Left and right of centerline are looking in the direction of increasing station.

4. All exposed concrete edges and joints between adjacent concrete pours shall be chamfered 3/4 inch unless noted or unless otherwise directed by the Engineer.

5. Reinforcing bar spacing is center to center of bars. Bar cover is clear distance between surface of bar and face of concrete and shall be two inches for formed and top surfaces and three inches for surfaces placed against the earth unless otherwise shown.

6. Reinforcing bars shall be continuous or spliced free slabs and walls into adjacent slabs and walls.

7. Bar splices shall be staggered in accordance with AASHTO Standard 118-77, Chapter 12, unless otherwise shown.

8. Water, as required for construction and dust control, shall be considered incidental to construction and no separate payment shall be made therefore. Construction areas shall be watered for dust pollution abatement as directed by the Engineer. The Contractor shall be responsible for locating and supplying water as required.

9. The Contractor will be responsible to replace at his own expense any and all property corners destroyed in the process of construction. All property corners must be set by a Registered Land Surveyor.

10. The Contractor shall confine his operations to the construction limits of the project and will be held responsible for any easements necessary or damage by his operation to public or private property including utilities.

11. "The Air Pollution Control Regulations" of the Albuquerque - Bernalillo County Air Quality Control Board limit emissions of particulate matter and the use of dust back asphalt. It is the responsibility of the Contractor to clarify these restrictions with the Environmental Health Department prior to submittal of his bid to insure compliance with regulations."

12. No work is to be done on structures or facilities belonging to, or operated by, the Middle Rio Grande Conservancy District between March 1 and October 31 inclusive.

13. Any work to be performed on Middle Rio Grande Conservancy District facilities or on the Middle Rio Grande Conservancy District Drainage [illegible] shall be coordinated with the Middle Rio Grande Conservancy District.

14. The Contractor shall notify all utility companies when working near their systems. Two days prior to any excavation, Contractor must contact Line Locating Service, 765-1234, for location of existing utilities.

15. All existing utilities shown here were taken as accurately as possible from record drawings and surface indications. It shall be the Contractor's responsibility to protect, maintain in service, and verify exact locations of all affected utilities during construction of this project, including service lines.

16. Prior to construction, exploratory excavation may be required as directed by the Project Engineer to more specifically locate utility lines. There will be no direct payment for this item of work. Cost will be considered incidental to other items of work.

17. Utility work required by the construction of this project is to be coordinated by the Contractor during construction. No additional compensation will be allowed for delays or inconveniences caused by utility company work crews. The Contractor may be required to reschedule his activities to allow utility crews to perform their required work.

18. A disposal site for all excess excavation material, asphaltic paving, concrete paving, etc. shall be obtained by the Contractor, and approved by the Project Manager in compliance with applicable regulations. All costs incurred in obtaining a disposal site and haul thereto shall be considered incidental to the other items.

19. All work on this project shall be performed in accordance with applicable Federal, State, and local laws, rules, and regulations concerning construction safety and health.

20. WARNING - If any utility lines, pipelines or underground utility lines are shown on these drawings, they are shown in approximate manner only, and other such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the Utility or pipeline company, the Owner, or by others (except where specifically noted as field verified), and the information may be incomplete, or may be obsolete by the time construction commences. The Engineer has undertaken limited field verification of the location, depth, size or type of existing utility lines, pipelines, or underground utility lines, and makes no representation pertaining thereto, and assumes no responsibility or liability therefor, the Contractor shall inform himself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during the excavation work. The Contractor is fully responsible for any and all damage caused by failure to locate, identify, and preserve any and all existing utilities, pipelines, and underground utility lines. The Contractor shall comply with State Statutes, Municipal and Local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities, in planning and conducting excavation, whether by calling or notifying the utilities, complying with "line locating" procedures, or otherwise. (See also Notes 14, 15, 16 and 17)

21. All dewatering as required for construction shall be considered incidental to other construction items as shown in the bid proposal form and no separate payment shall be made therefor.

DESIGN REQUIREMENTS FOR UPSTREAM SEDIMENT CONTROL
Min Pond Storage = 0.0024 Ac ft per Acre of Upstream Drainage Basin
Velocity of Sediment fall: 0.002 ft/Sec @ 50% of Q100 (Course Silt)
Max Horizontal Velocity in Sediment Pond = 0.5 ft/Sec @ 50% of Q100
Retention Time in Pond (Sec) = Depth of Pond (ft)/0.002 ft/Sec

08 001 0287

NORTH COORS DRAINAGE - PHASE III

LOCATION MAP - GENERAL NOTES - QUANTITIES

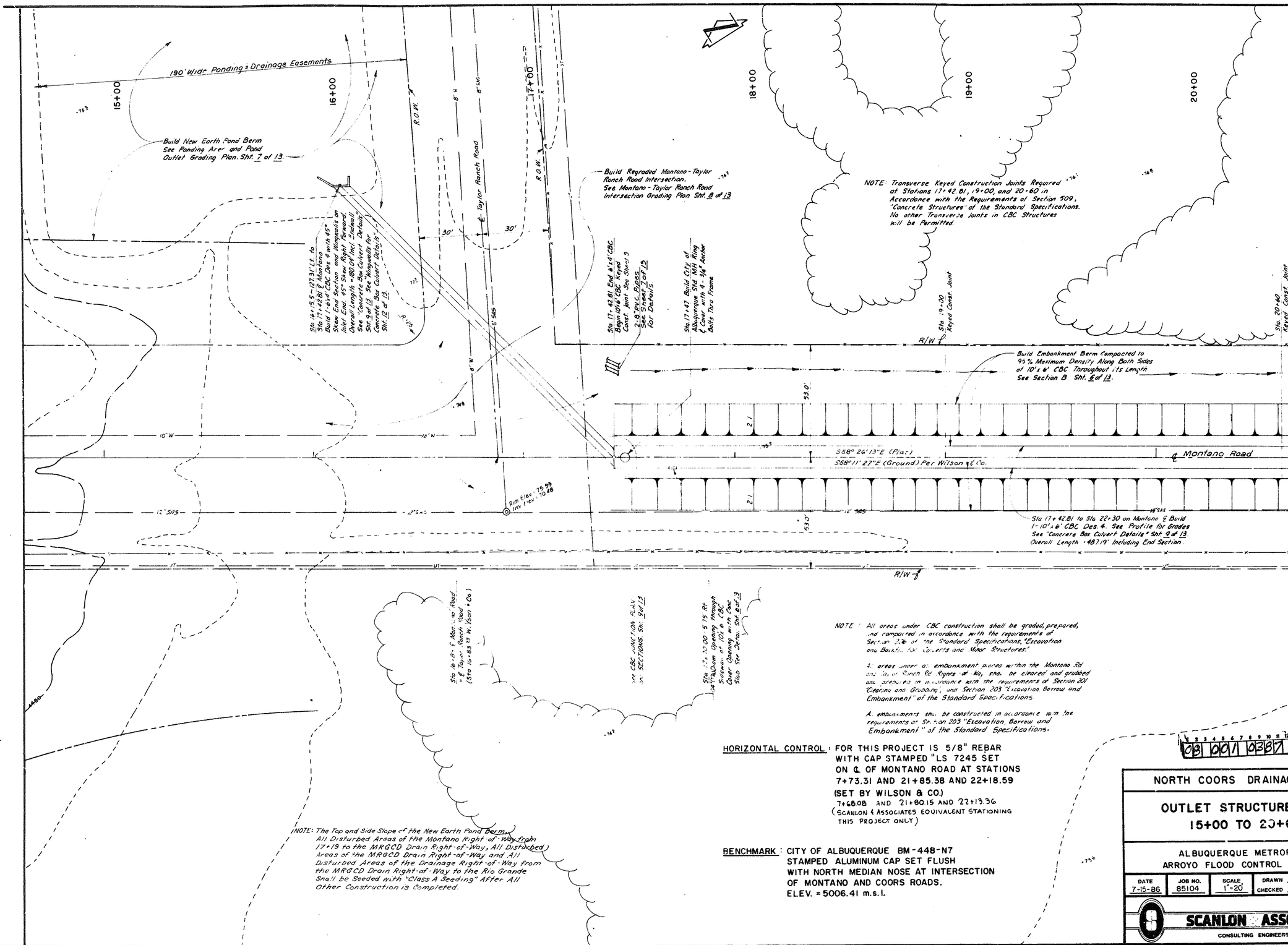
ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-'86	85104	AS NOTED	M.L.A.	2
			CHECKED N.G.	OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

Cliff P. Jordan 7/7/91

RECORD DRAWING



HORIZONTAL CONTROL: FOR THIS PROJECT IS 5/8" REBAR WITH CAP STAMPED "LS 7245 SET ON ℄ OF MONTANO ROAD AT STATIONS 7+73.31 AND 21+85.38 AND 22+18.59 (SET BY WILSON & CO.)
7+68.08 AND 21+80.15 AND 22+13.36
(SCANLON & ASSOCIATES EQUIVALENT STATIONING THIS PROJECT ONLY)

BENCHMARK: CITY OF ALBUQUERQUE BM-448-N7 STAMPED ALUMINUM CAP SET FLUSH WITH NORTH MEDIAN NOSE AT INTERSECTION OF MONTANO AND COORS ROADS. ELEV. = 5006.41 m.s.l.

03 001 0330

NORTH COORS DRAINAGE-PHASE III

OUTLET STRUCTURE PLAN 15+00 TO 20+65

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-86	85104	1"=20'	P.J.R.	3
			CHECKED N.G.	OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

7/7/87 RECORD DRAWING

88192

MATCH LINE STA. 20+65

20+78½ - 5.75' Rt. & 5.75' Lt. 30" Diam. Openings (1"½", - 0") through Sidewalk at 10'x6" CBC Cover Openings with Conc. Slab - See Detail Sht 6 of 13.

Sta. 21+07± Build 12' Wide Access Ramps Rt. & Lt. From Berm Along 10'x6' CBC to Existing Service Road Along Drain

21+00

7 cy. Riprap Slope Protection

Corrales Riverside Drain ℄

From 30' Lt. of End of 3-8'x3.5' CBC Build Transition from Existing Drain Section to 25' Bottom Width with 1.5:1 Side Slopes at End of CBC

Sta. 22+10 Build 12' Wide Access Ramps From Berm Along 10'x6' CBC (See Section B Sht. Ent. 3) to Existing Service Road Along East Side of Drain - As Shown.

22+00

Sta. 22+29 End 10'x6' CBC - Des 4 End Section Begin 10'x6' CBC - Des 4 End Section

Sta. 22+30 End 10'x6' CBC - Des 4 End Section Begin Standard Wingwalls 7'x6'. See "Wingwalls for Concrete Box Culvert Details" Sht. 11 of 13.

Sta. 22+45.25 End Standard Wingwalls Begin Earth Outlet Channel See Typical Section Sht 5 of 13

23+00

24+00

25+00

27+00

28+00

NOTE: Contractor Shall Maintain the Existing Flow of Water Through the Corrales Riverside Drain During all Construction Activities.

Drainage & Future Montano R/W ℄

NOTE: Exact location and alignment of Earth Outlet Channel may be changed during construction by the Engineer in order to avoid trees or other obstacles and to better fit local conditions.

Sta. 28+50±

Future Montano R.O.W.

Sta. 27+65.88' 6' Rt.-P.R.C.

Sta. 28+01.41 12' Rt. P.T.

Drainage R.O.W.

Ramp 15%

12'

Wire Gate

Berm Elev. 82.4

A 4G

S 58° 26' 13" E

℄ Montano Road

℄ Survey

2' Rt. ℄ Survey

@ 12' Rt. ℄ Survey

To Rio Grande Channel

22' Rt. ℄ Survey

Clear & Grub Zone 6' Lt. & 30' Rt. ℄ Survey

Rim Elev. = 77.0
Elev. = 67.50

Pull Panel

21+51 ℄ Drain

Access Ramp 15%

Clear & Grub Zone 19' Lt. & Rt.

22+30 to 35+77± Build Earth Outlet Channel 20' Bottom Width - 2:1 Side Slopes - See Profile - Sht. 5 of 13. See Typical Section - Sht 5 of 13.

Sta. 27+31.77 0' Rt.-P.C.

Drainage & Future Montano R/W ℄

Wire Gate

Pull Panel

Build Wire Fence Across Corrales Riverside Drain Easement.

4 strands of barbed wire, with wire stays @ 5'-0" O.C. Max to span C.B.C. Pass as barbed wire Fence.

CURVE DATE
Δ = 19° 56' 54"
R = 100.00'
L = 34.82'
Ch. = 34.64'
T = 17.59'

Sta. 20+80 Build Wire Fence Across Montano R/W Between Existing Fences 45' Rt. to 53' Lt. with Wire Gate at 10'x6' CBC. See "Fence Details" Sht. 12 of 13 Wire Gate @ 22+10 to 37+67 Rt. Sta. 20+94

Sta. 21+00 Build City of Albuquerque Std. M.H. Ring and Cover w/ 9-¾" Anchor Bolts Thru Frame

Sta. 21+46.5 Build 3-8'x3.5'x 150' CBC Barrel, Des. 4 with Std. End Sections and Wingwalls Both Ends, at Skew Of Forward. See "Concrete Box Culvert Details" Sht. 10 of 13. See Section B - Sheet 6 of 13

Corrales Riverside Drain ℄

From 50' Rt. of End of 3-8'x3.5' CBC Build Transition from Existing Drain Section to 25' Bottom Width with 1.5:1 Side Slopes at End of CBC

East R/W Corrales Riverside Drain

Sta. 22+30 to Sta. 22+45.25 Build 2.0 Thick Wire Encased Rip-Rap Between Wingwalls See "Wire Encased Rip-Rap" Sht. 13 of 13

Revision No. 1 2-4-87 - Change Channel ℄ from Sta. 22+45.25 to Sta. 35+77±

BENCHMARK: CITY OF ALBUQUERQUE BM-448-N7 STAMPED ALUMINUM CAP SET FLUSH WITH NORTH MEDIAN NOSE AT INTERSECTION OF MONTANO AND COORS ROADS. ELEV. = 5006.41 m.s.l.

08 001 04187

Clifford G. Thomas
Feb 1 Feb 4, 1987

NORTH COORS DRAINAGE-PHASE III

OUTLET STRUCTURE PLAN 20+65 TO 28+75

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-86	85104	1"=20'	P.J.R.	4
			CHECKED N.G.	OF 13

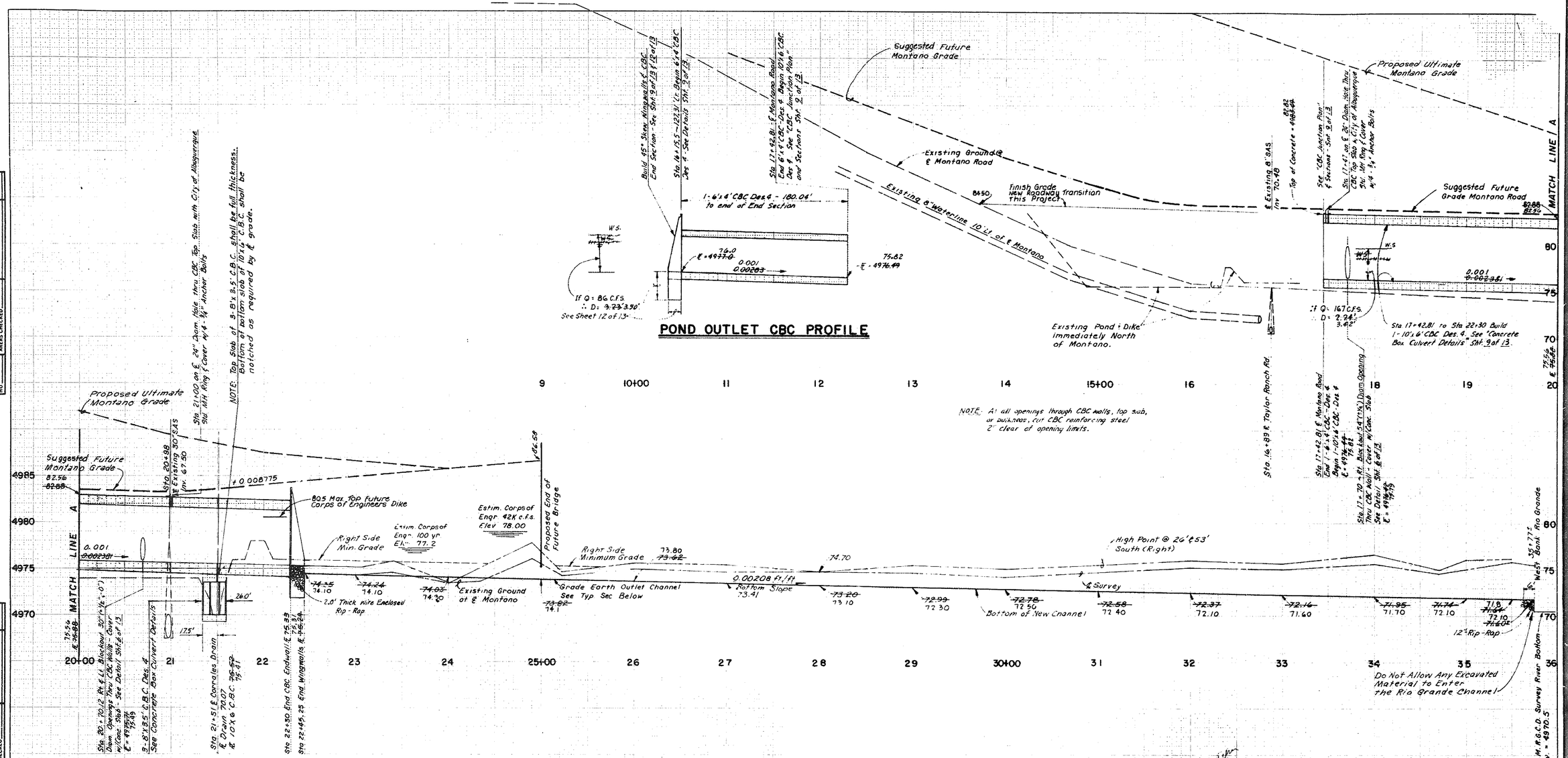
SCANLON & ASSOCIATES
CONSULTING ENGINEERS

Clifford G. Thomas 2/17/87 RECORD DRAWING

SCANLON AND ASSOCIATES
ENGINEERS PLANNERS

FINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED. PLOTTED. TEMPLATE. AREAS. AREAS CHECKED.		

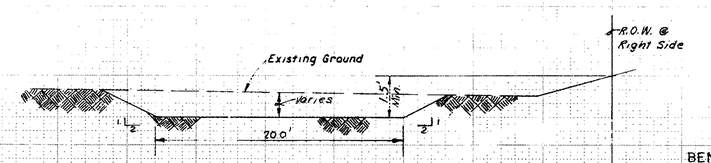
ORIGINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED. PLOTTED. TEMPLATE. AREAS. AREAS CHECKED.		



NOTE: At all openings through CBC walls, top slab, or bulkheads, cut CBC reinforcing steel 2" clear of opening limits.

Revision No. 1 10-3-86 - Change Slope & Elevations of 10'x6' and 6'x4' C.B.C.'s - N.F.G.

Revision No. 2 2-5-87 - Change Channel ℄ from Sta. 22+45.25 to Sta. 35+77±



TYPICAL SECTION - EARTH OUTLET CHANNEL

BENCHMARK: CITY OF ALBUQUERQUE BM-448-N7
STAMPED ALUMINUM CAP SET FLUSH
WITH NORTH MEDIAN NOSE AT INTERSECTION
OF MONTANO AND COORS ROADS.
ELEV. = 5006.41 m.s.l.

NORTH COORS DRAINAGE-PHASE III

OUTLET STRUCTURE PROFILE

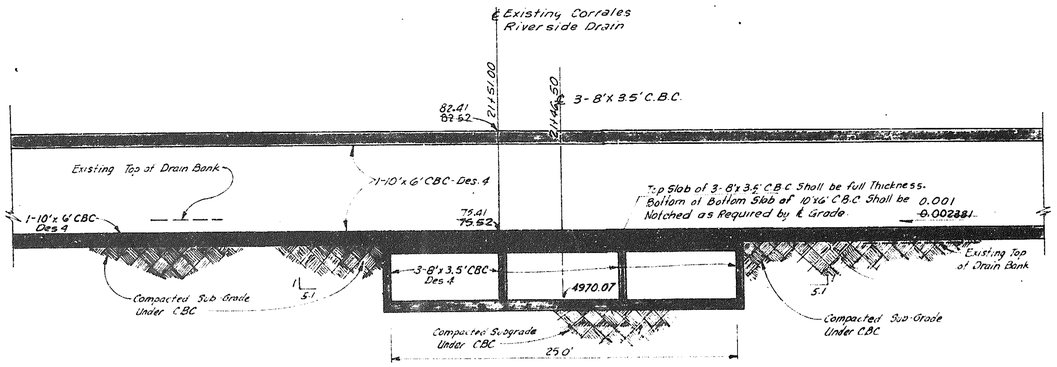
ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN / CHECKED	SHEET OF
7-15-86	85104	1" = 50'	R.L.H. / N.G.	5 OF 13

SCANLON ASSOCIATES
CONSULTING ENGINEERS

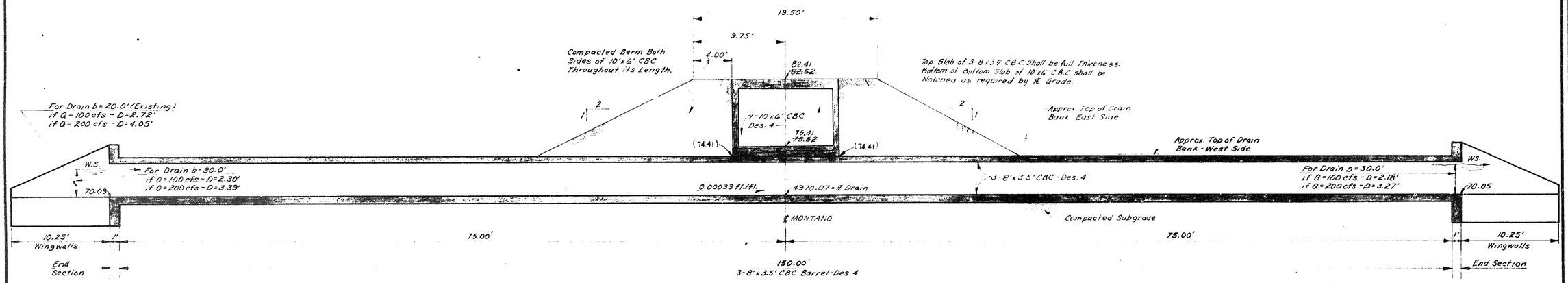
PROJECT NO. _____ SHEET NO. _____

BRUNING 44-132 54861
PLATE 3 CROSS SECTION - DOTTED
CHARLES BRUNING COMPANY
MADE IN USA



CORRALES DRAIN CROSSING SECTION (A 4|6)

SCALE : 1" = 5'-0"



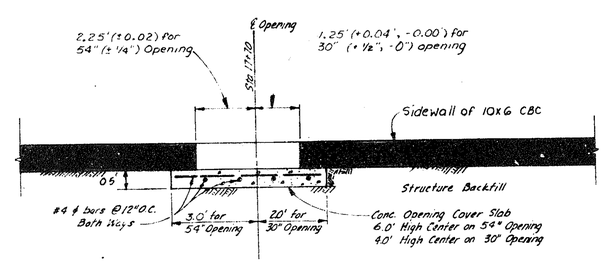
CORRALES DRAIN STRUCTURE SECTION (B 4|6)

Scale: 1" = 5.0'

NOTE: All areas under CBC construction shall be graded, prepared, and compacted in accordance with the requirements of Section 206 of the Standard Specifications, "Excavation and Backfill for Culvert and Minor Structures."

All areas under all embankment placed within the Montano Rd. and Taylor Ranch Rd. Rights-of-Way shall be cleared and grubbed and prepared in accordance with the requirements of Section 201 "Clearing and Grubbing", and Section 203 of the Standard Specifications, "Excavation, Borrow and Embankment."

All embankments shall be constructed in accordance with the requirements of Section 203 of the Standard Specifications, "Excavation, Borrow and Embankment."



CONCRETE SLAB OPENING COVER DETAIL

Scale: 1" = 2'-0"

08 091 0687

Revision No.1 - 10-3-86 - Change Slope ℄ Elevations of 10'x6' and 6'x4' C.B.C.'s - N.F.G.

NORTH COORS DRAINAGE - PHASE III

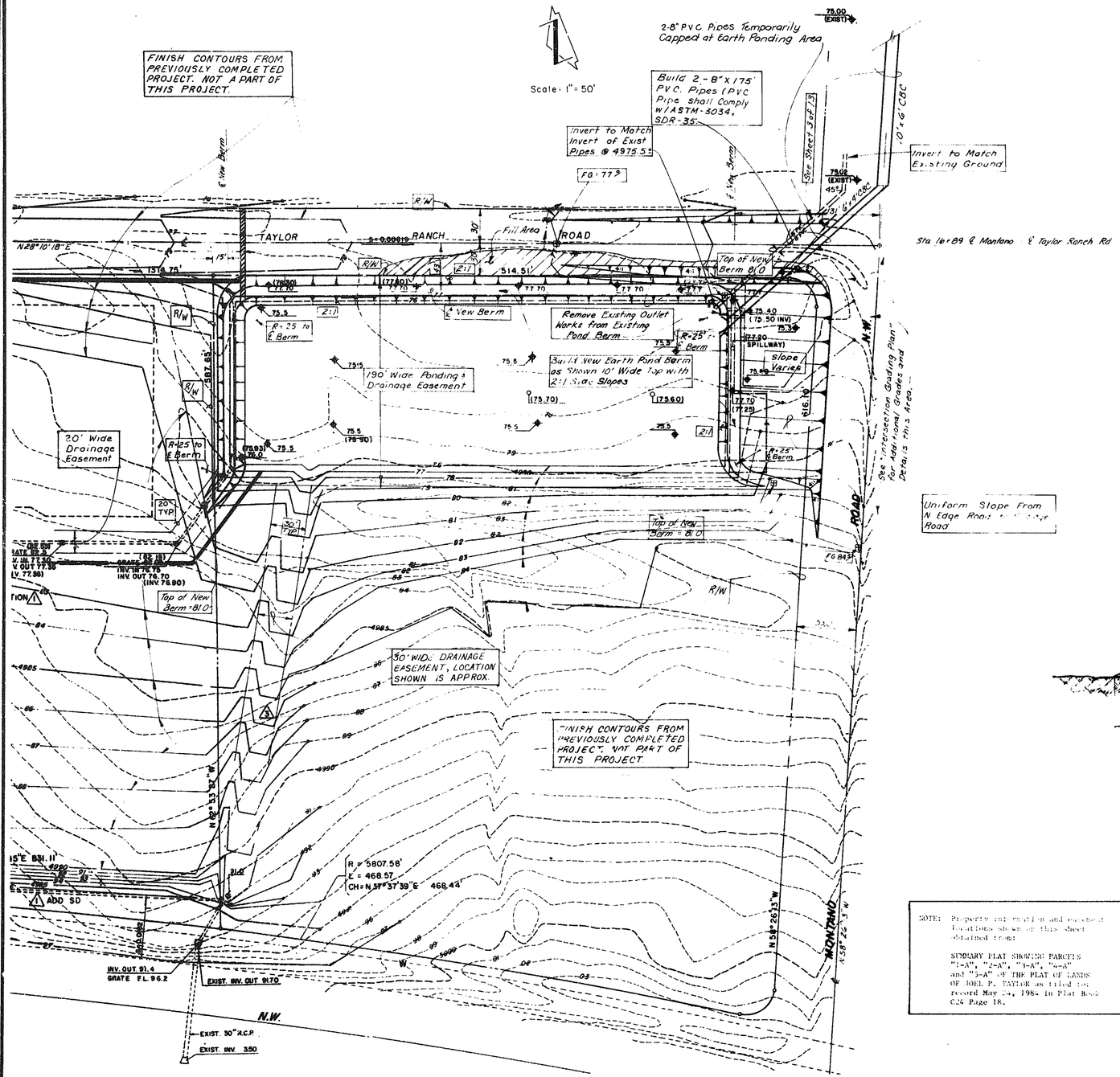
MISCELLANEOUS DETAILS

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

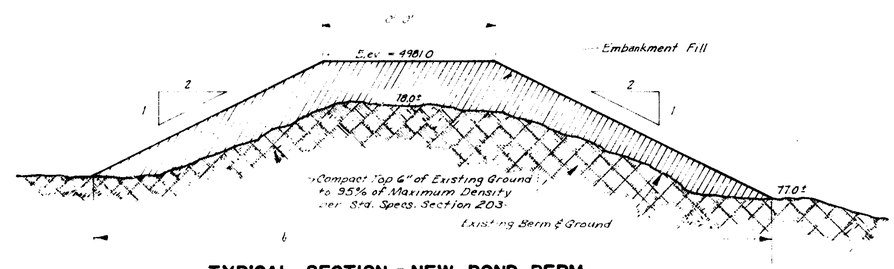
DATE	JOB NO.	SCALE	DRAWN / CHECKED	SHEET / OF
SEPT. 1986	85104	AS SHOWN	CLW / NG	6 / 13

SCANLON ASSOCIATES
CONSULTING ENGINEERS

7/7/91 RECORD DRAWING



NOTE: Base Topo. and Existing features are from "Montano Playa, Grading Plan Details" by Victor J. Chavez, P.E., Dated 8-1-83 and Revised 4-9-84.



TYPICAL SECTION - NEW POND BERM

NOT TO SCALE

NOTE: Property and monument locations shown on this sheet obtained from:

SUMMARY PLAT SHOWING PARCELS "1-A", "2-A", "3-A", "4-A" and "5-A" OF THE PLAT OF LANDS OF JOEL P. TAYLOR as filed for record May 24, 1984 in Plat Book 624 Page 18.

98 001 0787

NORTH COORS DRAINAGE - PHASE III

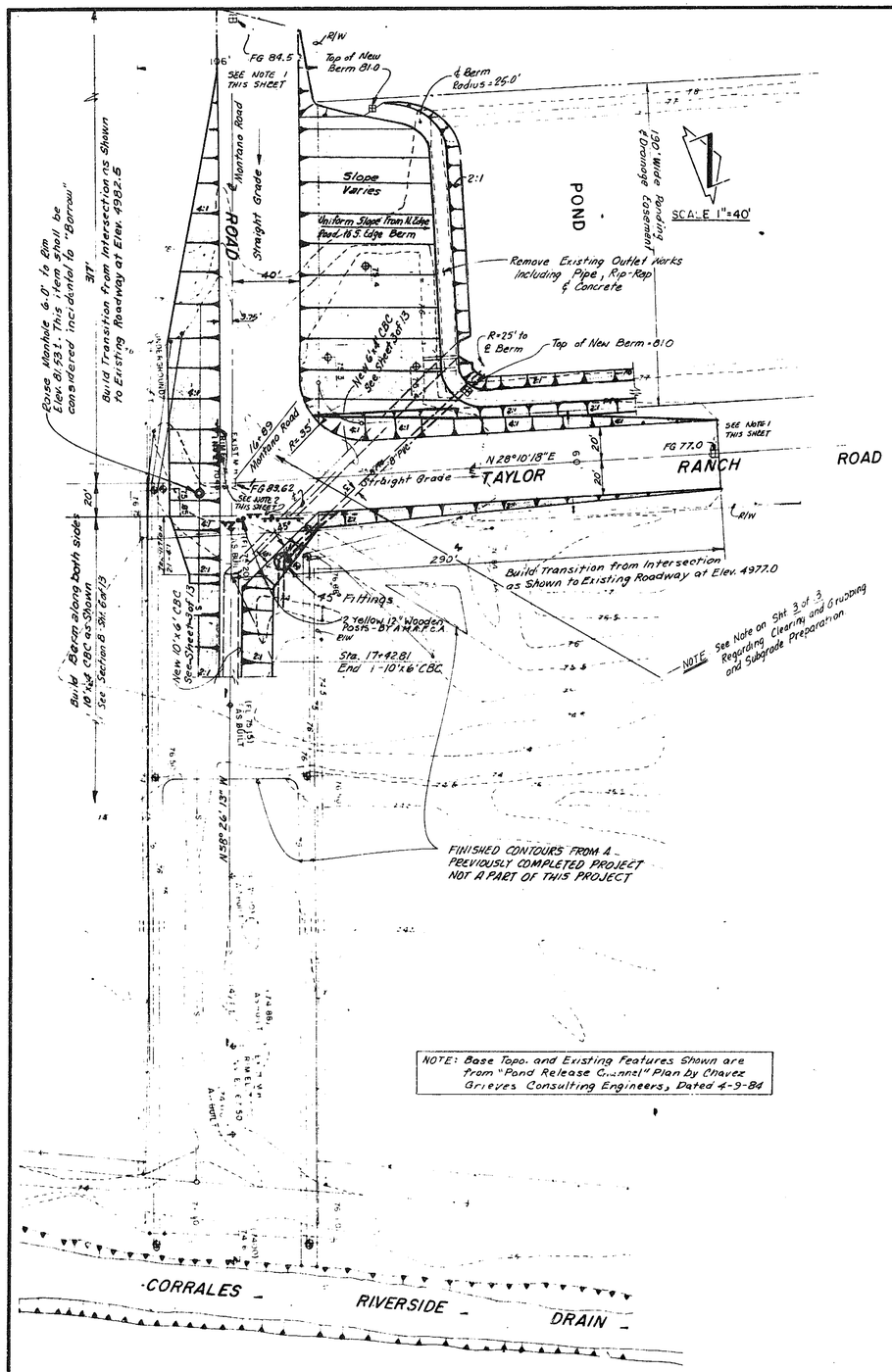
PONDING AREA AND POND OUTLET GRADING

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN / CHECKED	SHEET
7-15-86	85104	1" = 50'	M.I.A. / N.G.	7 OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

7/7/87 **RECORD DRAWING**



NOTES:

1- Portions of these streets may be closed to traffic upon written approval and authorization from the City of Albuquerque. All traffic control, signs, temporary barricades, etc., as may be required, shall be considered incidental to the other items of work.

2- TYPE III BARRICADES:
Build 5- of 8' long and 1 of 12' long with posts set to span C.B.C.
Build per N.M.S.H.D. Serial SN 77-9 "Barricades and Channelization Devices" or latest revisions thereof with breakaway posts. This item shall be considered incidental to borrow.

08 09 / 09 87

NORTH COORS DRAINAGE-PHASE III

MONTANO-TAYLOR RANCH ROAD
INTERSECTION GRADING PLAN

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-'86	85104	1" = 40'	M.L.A.	8
			CHECKED N.G.	OF 13

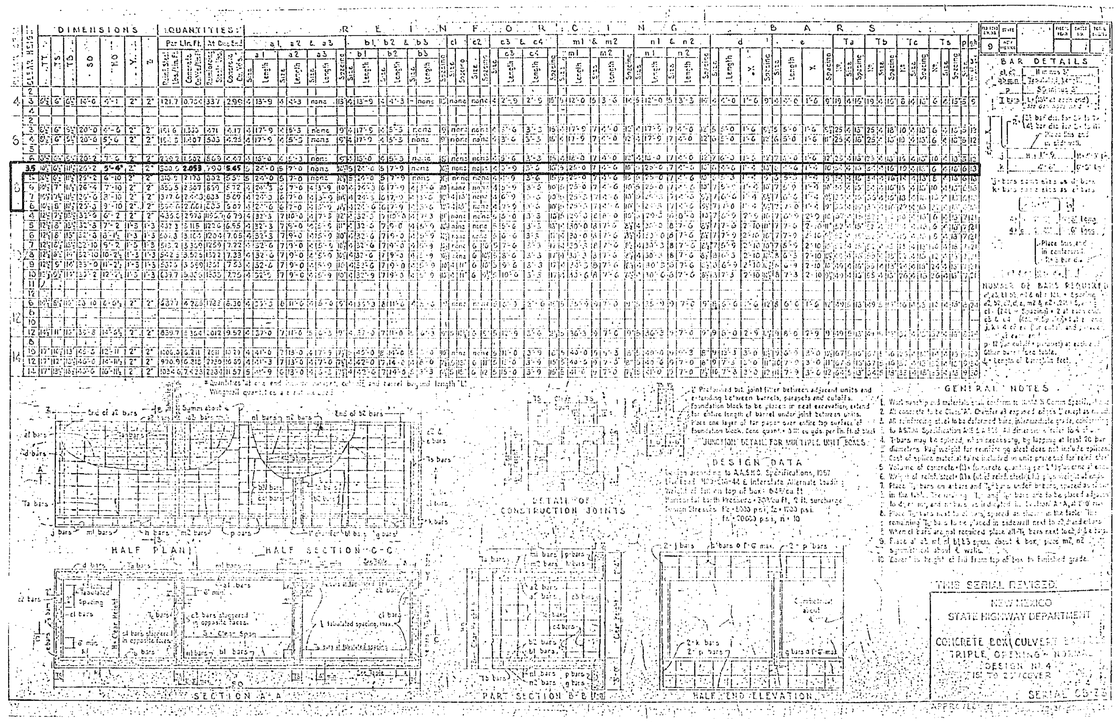
SCANLON & ASSOCIATES
CONSULTING ENGINEERS

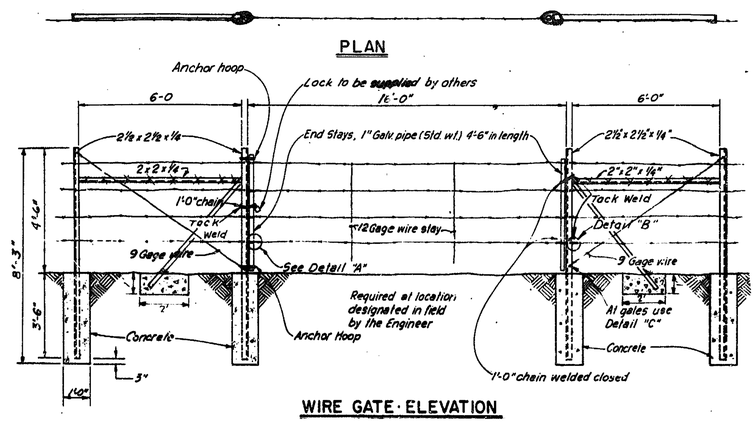
RECORD DRAWING

88192

DESIGN Nº	CLEAR SPAN	CLEAR HEIGHT	a SIZE	a LENGTH	a SPACING	b SIZE	b LENGTH	b SPACING	c SIZE	c LENGTH	c SPACING	d SIZE	d LENGTH	d X	d SPACING	e SIZE	e LENGTH	e X	e SPACING	Ta Nº	Ta SIZE	Ta SPACING	Tb Nº	Tb SIZE	Tb SPACING	Tc Nº	Tc SIZE	Tc SPACING	gh Nº	gh SIZE	gh SPACING	TT	TS	TB	SO	HO	Rein. Steel Lbs/Lin.Ft.	Concrete Cu.Yds./Lin.Ft.	Reinforcing Steel Lbs.	Concrete Cu.Yds.
			REINFORCING BARS																													DIMENSIONS					QUANTITIES Per Foot of Barrel		At One End*	
DESIGN Nº 3 - 10 TO 15' COVER	4	2	4#	4'-9"	12	4#	4'-8"	12	–	NONE	–	5#	4'-8"	2'-6"	6	5#	6'-8"	2'-6"	6	5#	3'	4#	15"	7	4#	15"	4	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	45.4	0.282	120	1.06
		3	4#	4'-9"	12	4#	4'-9"	12	–	NONE	–	5#	5'-3"	2'-6"	6	5#	5'-3"	2'-6"	6	5#	3'	4#	15"	7	4#	15"	6	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	49.4	0.319	124	1.10
		4	4#	4'-9"	12	4#	4'-9"	12	–	NONE	–	5#	5'-9"	2'-6"	6	5#	5'-9"	2'-6"	6	5#	3'	4#	15"	7	4#	15"	6	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	52.1	0.356	127	1.14
		5	5#	6'-0"	12	4#	6'-0"	7"	4#	2'-9"	15"	6#	8'-0"	2'-0"	6	5#	5'-3"	2'-0"	10	5#	4'	5#	15"	8	4#	15"	16	4#	12"	4	4#	15"	6"	7"	7"	6'-2"	5'-2"	85.1	0.569	279	1.53
DESIGN Nº 4 - 15 TO 20' COVER	6	2	6#	6'-9"	12	6#	6'-9"	12	–	NONE	–	6#	4'-0"	1'-10"	10	6#	4'-0"	1'-10"	10	5#	4'	4#	14"	9	4#	14"	9	4#	14"	4	4#	15"	4	7"	6"	8"	7'-0"	5'-3"	72.2	0.395	746	1.46
		3	6#	6'-9"	12	6#	6'-9"	12	–	NONE	–	6#	6'-6"	1'-10"	10	6#	6'-6"	1'-10"	10	5#	4'	4#	14"	9	4#	14"	9	4#	14"	4	4#	15"	4	7"	6"	8"	7'-0"	5'-3"	78.9	0.435	755	1.50
		4	6#	6'-9"	12	6#	6'-9"	7"	–	NONE	–	6#	5'-0"	1'-10"	10	6#	5'-0"	1'-10"	10	5#	4'	4#	14"	9	4#	14"	14	4#	12"	4	4#	15"	4	7"	6"	8"	7'-0"	5'-3"	85.7	0.472	761	1.53
		5	6#	6'-9"	12	6#	6'-9"	8"	–	NONE	–	6#	5'-9"	2'-0"	6	6#	5'-9"	2'-0"	6	5#	4'	4#	14"	8	4#	14"	8	4#	14"	4	4#	15"	4	7"	6"	8"	7'-0"	5'-3"	92.4	0.520	266	1.57
		6	6#	6'-9"	12	6#	6'-9"	8"	–	NONE	–	6#	6'-9"	2'-0"	10	6#	5'-9"	2'-0"	10	5#	4'	4#	14"	9	4#	14"	10	4#	15"	4	7"	6"	8"	7'-0"	7'-3"	8"	7'-0"	5'-3"	102.7	0.552	290	1.61
DESIGN Nº 3 - 10 TO 15' COVER	8	2	7#	8'-9"	12	7#	8'-9"	12	–	NONE	–	6#	5'-3"	2'-0"	10	6#	5'-3"	2'-0"	10	6#	4'	5#	15"	10	4#	15"	14	4#	12"	5	4#	15"	5	9"	8"	10"	9'-1"	5'-10"	117.3	0.707	388	1.96
		3	7#	8'-9"	12	7#	8'-9"	7"	–	NONE	–	7#	5'-9"	2'-0"	10	6#	5'-9"	2'-0"	10	6#	4'	5#	15"	10	4#	15"	14	4#	12"	5	4#	15"	5	9"	8"	10"	9'-1"	6'-7"	130.3	0.785	410	2.00
		4	7#	9'-0"	12	7#	9'-0"	7"	–	NONE	–	7#	6'-6"	2'-3"	10	7#	6'-6"	2'-3"	10	6#	4'	5#	15"	11	4#	15"	10	4#	15"	5	9"	7"	10"	9'-2"	7'-7"	13.5"	0.797	426	2.07
		5	7#	9'-0"	12	7#	9'-0"	7"	–	NONE	–	7#	7'-3"	2'-6"	10	7#	7'-3"	2'-6"	10	6#	4'	5#	15"	11	4#	15"	10	4#	15"	5	9"	7"	10"	9'-3"	8'-7"	14.5"	0.867	434	2.16
		6	7#	9'-0"	12	7#	9'-0"	8"	–	NONE	–	7#	8'-0"	2'-6"	10	7#	7'-9"	2'-6"	10	6#	4'	5#	15"	11	4#	15"	14	4#	12"	5	4#	15"	5	9"	7"	10"	9'-4"	9'-7"	159.7	0.945	760	2.26
DESIGN Nº 4 - 15 TO 20' COVER	10	2	8#	11'-0"	12	8#	11'-0"	8"	–	NONE	–	8#	6'-0"	2'-3"	15	8#	6'-0"	2'-3"	15	8#	4'	5#	15"	14	5#	15"	12	6#	4"	5	4#	15"	7	11"	9"	12"	11'-3"	5'-11"	171.9	0.954	603	2.41
		3	8#	11'-0"	12	8#	11'-0"	8"	–	NONE	–	8#	6'-9"	2'-3"	15	8#	6'-9"	2'-3"	15	8#	4'	5#	15"	15	5#	15"	14	5#	15"	5	4#	15"	7	11"	9"	12"	11'-3"	6'-11"	187.1	1.030	616	2.46
		4	8#	11'-0"	12	8#	11'-0"	8"	–	NONE	–	8#	7'-3"	2'-6"	15	8#	7'-3"	2'-6"	15	8#	4'	5#	15"	15	5#	15"	14	5#	15"	5	4#	15"	7	11"	9"	12"	11'-4"	7'-11"	193.9	1.101	626	2.53
		5	8#	11'-0"	12	8#	11'-0"	8"	–	NONE	–	8#	8'-0"	2'-6"	15	8#	7'-6"	2'-6"	15	8#	4'	5#	15"	15	5#	14"	10	4#	15"	7	10"	8"	12"	11'-4"	8'-10"	20.7"	1.153	639	2.59
		6	8#	11'-3"	12	8#	11'-3"	8"	–	NONE	–	8#	9'-6"	2'-9"	15	8#	9'-6"	2'-9"	15	8#	4'	5#	15"	15	5#	14"	12	4#	15"	7	10"	8"	12"	11'-5"	9'-10"	23.2"	1.273	656	2.68
DESIGN Nº 3 - 10 TO 15' COVER	12	2	9#	13'-3"	12	9#	13'-3"	8"	4#	5'-9"	15"	6#	10'-6"	2'-9"	15	9#	8'-0"	3'-6"	15	9#	4'	5#	15"	15	5#	15"	16	4#	12"	7	10"	9"	12"	11'-6"	10'-10"	245.0	1.398	699	2.75
		3	9#	13'-3"	12	9#	13'-3"	8"	4#	6'-9"	15"	6#	11'-9"	2'-11"	15	9#	8'-3"	3'-6"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	7	10"	9"	12"	11'-7"	11'-10"	250.6	1.391	712	2.80
		4	9#	13'-6"	12	9#	13'-6"	8"	4#	7'-9"	15"	6#	13'-0"	3'-2"	15	9#	8'-3"	3'-6"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	7	10"	10"	12"	11'-8"	12'-10"	265.7	1.431	733	3.03
		5	9#	13'-6"	12	9#	13'-6"	8"	4#	8'-9"	15"	6#	14'-0"	3'-5"	10	9#	8'-6"	3'-10"	10	9#	4'	5#	15"	15	5#	15"	24	4#	12"	7	10"	10"	12"	11'-8"	13'-10"	320.5	1.515	756	3.14
		6	9#	13'-6"	12	9#	13'-6"	8"	4#	9'-9"	15"	6#	15'-0"	3'-8"	15	9#	7'-6"	3'-8"	15	9#	4'	5#	15"	15	5#	15"	24	4#	12"	7	10"	10"	12"	11'-8"	14'-10"	376.5	1.633	742	3.26
DESIGN Nº 4 - 15 TO 20' COVER	14	2	9#	15'-9"	12	9#	15'-9"	7"	–	NONE	–	9#	9'-9"	2'-11"	15	9#	8'-0"	2'-11"	15	9#	4'	5#	15"	15	5#	15"	16	4#	12"	8	10"	9"	14"	12'-5"	10'-10"	295.1	1.549	764	3.11
		3	9#	15'-9"	12	9#	15'-9"	7"	–	NONE	–	9#	10'-9"	3'-6"	15	9#	8'-3"	3'-2"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	8	10"	9"	14"	12'-5"	12'-10"	325.1	1.735	806	3.33
		4	9#	15'-9"	12	9#	15'-9"	7"	4#	11'-9"	15"	6#	14'-3"	3'-6"	10	9#	8'-6"	3'-6"	10	9#	4'	5#	15"	15	5#	15"	20	4#	12"	8	10"	11"	14"	12'-5"	14'-10"	370.4	1.925	860	3.60
		5	9#	15'-9"	12	9#	15'-9"	7"	4#	9'-9"	15"	6#	15'-9"	3'-9"	15	9#	8'-9"	3'-9"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	8	10"	11"	14"	12'-5"	16'-10"	415.2	2.001	1095	3.93
		6	9#	15'-9"	12	9#	15'-9"	7"	4#	11'-9"	15"	6#	16'-9"	3'-9"	15	9#	8'-9"	3'-9"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	8	10"	11"	14"	12'-5"	18'-10"	455.1	2.326	1147	4.05
		7	9#	15'-9"	12	9#	15'-9"	7"	4#	13'-9"	15"	6#	17'-9"	3'-9"	15	9#	8'-9"	3'-9"	15	9#	4'	5#	15"	15	5#	15"	20	4#	12"	8	10"	11"	14"	12'-5"	20'-10"	495.4	2.595	1194	4.39
DESIGN Nº 3 - 10 TO 15' COVER	4	2	5#	4'-9"	12	5#	4'-9"	7"	–	NONE	–	5#	4'-9"	2'-6"	10	5#	4'-9"	2'-6"	10	5#	4'	4#	15"	7	4#	15"	4	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	56.0	0.282	165	1.06
		3	5#	4'-9"	12	5#	4'-9"	7"	–	NONE	–	5#	5'-3"	2'-6"	10	5#	5'-3"	2'-6"	10	5#	4'	4#	15"	7	4#	15"	6	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	62.6	0.319	168	1.10
		4	5#	4'-9"	12	5#	4'-9"	7"	–	NONE	–	5#	5'-9"	2'-6"	10	5#	5'-9"	2'-6"	10	5#	4'	4#	15"	7	4#	15"	6	4#	15"	3	4#	15"	6"	6"	7"	5'-0"	3'-11"	66.0	0.356	173	1.14
DESIGN Nº 4 - 15 TO 20' COVER	5	7	6#	6'-9"	12	6#	6'-9"	12	4#	6'-9"	12"	6#	8'-0"	2'-0"	10	6#	5'-3"	2'-0"	10	5#	4'	5#	15"	8	4#	15"	8	4#	15"	4	4#	15"	7"	7"	7"	6'-2"	5'-2"	104.9	0.597	277	1.53
	6	2	7#	6'-9"	12	7#	6'-9"	9"	–	NONE	–	6#	4'-0"	1'-8"	10	6#	4'-0"	1'-8"	10	6#	4'	4#	14"	9	4#	14"	9	4#	14"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	79.1	0.441	305	1.46
		3	7#	6'-9"	12	7#	6'-9"	9"	–	NONE	–	6#	4'-6"	1'-8"	10	6#	4'-6"	1'-8"	10	6#	4'	4#	14"	9	4#	14"	9	4#	14"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	95.1	0.515	324	1.53
		4	7#	6'-9"	12	7#	6'-9"	9"	–	NONE	–	6#	5'-3"	2'-0"	10	6#	5'-3"	2'-0"	10	6#	4'	4#	14"	9	4#	14"	14	4#	12"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	102.1	0.574	333	1.60
		5	7#	6'-9"	12	7#	6'-9"	8"	–	NONE	–	6#	6'-9"	2'-0"	10	6#	6'-9"	2'-0"	10	6#	4'	4#	14"	8	4#	14"	8	4#	14"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	109.1	0.625	343	1.64
		6	7#	6'-9"	12	7#	6'-9"	8"	–	NONE	–	6#	8'-0"	2'-3"	15	6#	8'-0"	2'-3"	15	6#	4'	4#	14"	8	4#	14"	8	4#	14"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	149.8	0.785	517	2.01
		7	7#	6'-9"	12	7#	6'-9"	8"	–	NONE	–	6#	9'-6"	2'-3"	15	6#	9'-6"	2'-3"	15	6#	4'	4#	14"	8	4#	14"	8	4#	14"	4	4#	15"	4	8"	6"	9"	7'-0"	5'-5"	164.7	0.831	526	2.06
DESIGN Nº 3 - 10 TO 15' COVER	8	2	8#	9'-0"	12	8#	9'-0"	8"	–	NONE	–	8#	6'-0"	2'-3"	15	8#	6'-0"	2'-3"	15	8#	4'	5#	15"	14	5#	15"	12	6#	4"	5	4#	15"	7	10"	8"	11"	9'-2"	5'-9"	173.5	0.877	540	2.10
		3	8#	9'-0"	12	8#	9'-0"	8"	–	NONE	–	8#	7'-9"	2'-5"	15	8#	7'-9"	2'-5"	15	8#	4'	5#	15"	14	5#	15"	14	5#	15"	5	4#	15"	7	10"	8"	11"	9'-4"	6'-9"	184.0	0.951	552	2.19
		4	8#	9'-3"	12	8#	9'-3"	8"	–	NONE	–	8#	9'-0"	2'-7"	30	8#	9'-0"	2'-7"	30	8#	4'	5#	15"	15	5#	15"	16	5#	15"	5	4#	15"	7	10"	8"	11"	9'-5"	7'-9"	199.4	1.037	571	2.29
		5	8#	11'-3"	12	8#	11'-3"	7"	–	NONE	–	8#	6'-3"	2'-6"	11	8#	6'-3"	2'-6"	11	8#	4'	5#	15"	17	5#	15"	13	6#	15"	6	4#	15"	7	12"	9"	13"	11'-6"	6'-11"	210.2	1.110	618	2.49
		6	8#	11'-3"	12	8#	11'-3"	7"	–	NONE	–	8#	6'-9"	2'-6"	11	8#	6'-9"	2'-6"	11	8#	4'	5#	15"	17	5#	15"	13	6#	15"	6	4#	15"	7	12"	9"	13"	11'-6"	7'-7"	222.4	1.165	640	2.66
		7	8#	11'-3"	12	8#	11'-3"	8"	–	NONE	–	8#	7'-3"	2'-6"	15	8#	7'-3"	2'-6"	15	8#	4'	5#	15"	17	5#	15"	14	6#	15"	6	4#	15"	7	12"	9"	13"	11'-6"	8'-3"	239.4	1.221	662	2.80
DESIGN Nº 4 - 15 TO 20' COVER	10	2	9#	13'-6"	12	9#	13'-6"	8"	–	NONE	–	9#	8'-0"	2'-7"	15	9#	8'-0"	2'-7"	15	9#	4'	5#	15"	17	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	9'-11"	269.1	1.456	715	2.96
		3	9#	13'-6"	12	9#	13'-6"	8"	–	NONE	–	9#	9'-0"	2'-7"	15	9#	9'-0"	2'-7"	15	9#	4'	5#	15"	17	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	11'-11"	307.6	1.671	767	3.12
		4	9#	13'-6"	12	9#	13'-6"	8"	–	NONE	–	9#	10'-0"	2'-9"	15	9#	10'-0"	2'-9"	15	9#	4'	5#	15"	17	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	13'-11"	327.1	1.842	745	3.16
		5	9#	13'-6"	12	9#	13'-6"	8"	–	NONE	–	9#	11'-0"	3'-0"	15	9#	11'-0"	3'-0"	15	9#	4'	5#	15"	17	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	15'-10"	342.8	1.953	770	3.34
		6	9#	13'-6"	12	9#	13'-6"	7"	–	NONE	–	9#	8'-0"	2'-10"	15	9#	8'-0"	2'-10"	15	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	9'-10"	359.1	1.780	955	3.19
		7	9#	13'-6"	12	9#	13'-6"	7"	–	NONE	–	9#	12'-3"	3'-2"	15	9#	12'-3"	3'-2"	15	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	13'-9"	386.6	1.945	997	3.37
		8	9#	13'-9"	12	9#	13'-9"	7"	–	NONE	–	9#	14'-6"	3'-4"	15	9#	14'-6"	3'-4"	15	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	14'-9"	420.5	2.164	1043	3.66
DESIGN Nº 3 - 10 TO 15' COVER	14	2	9#	15'-6"	12	9#	15'-6"	7"	–	NONE	–	9#	10'-0"	2'-9"	12	9#	8'-6"	2'-11"	12	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	10'-10"	435.6	2.196	1017	3.63
		3	9#	15'-6"	12	9#	15'-6"	7"	4#	11'-9"	15"	6#	12'-3"	3'-1"	10	9#	8'-6"	3'-3"	10	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	12'-10"	491.9	2.455	1125	3.95
		4	9#	15'-6"	12	9#	15'-6"	7"	4#	13'-9"	15"	6#	14'-0"	3'-5"	10	9#	9'-3"	3'-6"	10	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	14'-10"	534.5	2.635	1164	4.16
		5	9#	15'-6"	12	9#	15'-6"	7"	4#	15'-9"	15"	6#	15'-9"	3'-10"	15	9#	9'-3"	3'-10"	15	9#	4'	5#	15"	18	5#	15"	14	6#	15"	7	12"	9"	13"	11'-6"	16'-10"	577.1	2.895	1201	4.41

DESIGN Nº	CLEAR SPAN	CLEAR HEIGHT	15° SKEW DIMENSION	15° SKEW REINFORCING BARS-ONE END								15° SKEW QUANTITIES FOR ONE END								30° SKEW DIMENSION	30° SKEW REINFORCING BARS-ONE END								30° SKEW QUANTITIES FOR ONE END								45° SKEW DIMENSION	45° SKEW REINFORCING BARS-ONE END								45° SKEW QUANTITIES FOR ONE END							
			P	A	n	B	C	Spacing	Size	Length	Nº of Bars at Each End	REINFORCING STEEL-Lbs. DESIGN Nº 1	2	3	4	Concrete Cu. Yds.	P	A	n	B	C	Spacing	Size	Length	Nº of Bars at Each End	REINFORCING STEEL-Lbs. DESIGN Nº 1	2	3	4	Concrete Cu. Yds.	P	A	n	B	C	Spacing	Size	Length	Nº of Bars at Each End	REINFORCING STEEL-Lbs. DESIGN Nº 1	2	3	4	Concrete Cu. Yds.
DESIGN Nº 3 - 10 TO 15' COVER	4	2	5'-7"	1'-10"	1	4'-9"	—	—	5#	5'-2"	3	161	151	172	172	1.36	6'-6"	1'-9"	1	5'-9"	0'-10"	6"	5#	6'-1"	3	195	175	197	197	1.44	7'-10"	1'-7"	1	6'-6"	0'-10"	6"	5#	7'-7"	3	220	192	203	224	1.71
		3	5'-7"	1'-10"	1	4'-9"	—	—	5#	5'-3"	3	165	154	175	175	1.36	6'-6"	1'-9"	1	6'-5"	0'-10"	6"	5#	6'-5"	3	195	175	197	219	1.51	7'-10"	1'-7"	1	6'-6"	0'-10"	6"	5#	7'-7"	3	233	199	216	235	1.50
		4	5'-7"	1'-10"	1	4'-9"	—	—	5#	5'-9"	3	176	157	179	179	1.37	6'-6"	1'-9"	1	6'-9"	0'-10"	7"	5#	6'-9"	4	237	172	195	229	1.55	7'-10"	1'-7"	1	6'-7"	0'-10"	7"	5#	7'-7"	4	252	193	224	253	1.59
		5	5'-7"	1'-10"	1	6'-0"	—	—	5#	6'-6"	3	187	171	230	255	1.69	6'-10"	1'-10"	1	6'-10"	0'-10"	7"	5#	7'-9"	4	309	221	256	291	1.77	8'-10"	1'-7"	1	6'-9"	0'-10"	7"	5#	8'-3"	5	414	245	319	363	1.99
DESIGN Nº 4 - 15 TO 20' COVER	6	2	7'-8"	1'-11"	2	6'-5"	2'-0"	6	5#	7'-5"	5	225	232	249	281	1.62	5'-10"	1'-10"	6	6'-8"	1'-10"	6"	6#	8'-8"	5	333	324	356	358	1.93	10'-5"	2'-2"	6	8'-8"	1'-10"	6"	6#	9'-5"	5	357	349	357	410	2.27
		3	7'-8"	1'-11"	2	6'-5"	2'-0"	6	5#	7'-5"	5	225	232	249	270	1.64	6'-10"	1'-10"	6	6'-9"	1'-10"	6"	6#	8'-8"	5	333	339	353	365	1.97	10'-5"	2'-2"	6	8'-8"	1'-10"	6"	6#	9'-5"	5	357	349	357	417	2.27
		4	7'-8"	1'-11"	2	6'-5"	2'-2"	7	5#	7'-5"	5	225	232	249	270	1.73	6'-10"	1'-10"	6	6'-9"	1'-10"	7"	6#	8'-8"	5	333	323	320	356	2.04	10'-5"	2'-2"	6	8'-8"	1'-10"	7"	6#	9'-5"	5	357	339	357	417	2.34
		5	7'-8"	1'-11"	2	6'-5"	2'-2"	7	5#	7'-5"	5	225	253	257	285	1.73	6'-10"	1'-10"	6	6'-9"	1'-10"	7"	6#	8'-8"	5	333	332	337	365	2.11	10'-5"	2'-2"	6	8'-8"	1'-10"	7"	6#	9'-5"	5	357	339	357	426	2.34
		6	7'-8"	1'-11"	2	6'-5"	2'-2"	7	5#	7'-6"	5	225	253	271	285	1.86	6'-10"	1'-10"	6	6'-9"	1'-10"	7"	6#	8'-8"	5	333	332	353	375	2.21	10'-5"	2'-2"	6	8'-8"	1'-10"	7"	6#	9'-5"	5	357	339	357	426	2.42
		7	8'-9"	2'-3"	2	5'-5"	2'-4"	7#	6#	8'-6"	6	348	263	355	390	2.16	11'-11"	2'-6"	6	6'-8"	1'-11"	7"	7#	11'-0"	7	499	395	484	569	2.51	13'-7"	2'-5"	12	8'-8"	1'-11"	7"	7#	11'-4"	8	595	615	578	651	3.02
		8	8'-9"	2'-3"	2	5'-8"	2'-4"	7#	6#	8'-8"	6	371	357	372	430	2.21	11'-11"	2'-6"	6	6'-8"	1'-11"	7"	7#	11'-0"	7	511	523	503	573	2.59	13'-7"	2'-5"	12	8'-9"	1'-11"	7"	7#	11'-5"	8	616	635	591	682	3.13
		9	8'-10"	2'-3"	2	5'-8"	2'-4"	7#	6#	9'-7"	6	384	395	385	447	2.26	11'-11"	2'-6"	6	6'-8"	1'-11"	7"	7#	11'-0"	7	523	554	519	592	2.73	13'-7"	2'-5"	12	8'-9"	1'-11"	7"	7#	11'-5"	8	629	655	605	696	3.19
		10	8'-10"	2'-3"	2	5'-9"	2'-4"	7#	6#	9'-9"	6	398	410	435	461	2.41	11'-11"	2'-6"	6	6'-9"	1'-11"	7"	7#	11'-0"	7	541	565	537	611	2.85	13'-7"	2'-5"	12	8'-9"	1'-11"	7"	7#	11'-6"	8	643	676	623	712	3.52
		11	8'-11"	2'-5"	3	10'-8"	2'-4"	7#	7#	11'-6"	7	417	565	551	591	2.58	13'-7"	2'-6"	7	8'-8"	1'-11"	7"	7#	13'-5"	8	610	611	642	693	3.30	16'-5"	2'-4"	15	10'-0"	1'-11"	7"	7#	13'-8"	9	812	1395	1027	994	3.62
		12	8'-11"	2'-5"	3	10'-8"	2'-4"	7#	7#	11'-9"	7	435	564	570	627	2.65	13'-7"	2'-6"	7	8'-9"	1'-11"	7"	7#	13'-5"	8	633	689	657	713	3.08	16'-6"	2'-4"	15	10'-0"	1'-11"	7"	7#	13'-8"	9	1031	1036	1051	1069	3.73
		13	8'-11"	2'-5"	4	10'-8"	2'-4"	7#	7#	11'-9"	7	453	592	592	652	2.75	13'-7"	2'-6"	7	8'-9"	1'-11"	7"	7#	13'-5"	8	657	707	674	732	3.27	16'-7"	2'-4"	15	10'-0"	1'-11"	7"	7#	13'-8"	9	1183	1192	1083	1147	3.92
		14	8'-11"	2'-5"	4	10'-8"	2'-4"	7#	7#	11'-9"	7	474	620	623	685	2.84	13'-7"	2'-6"	7	8'-9"	1'-11"	7"	7#	13'-5"	8



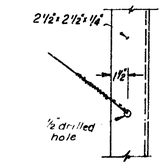


WIRE GATE · ELEVATION

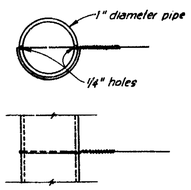
Footing Dimensions:
12" Minimum diameter in earth
6" Minimum diameter on sound rock

Shorter line posts may be used in rock if approved by the Engineer

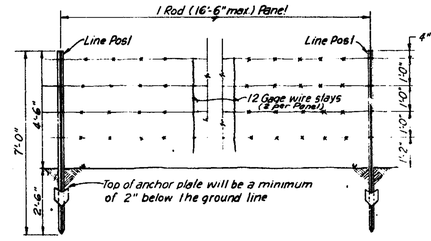
Unless otherwise approved, a concrete mix of 4½ sacks of cement per cubic yard of mix shall be used. Top surface of concrete footing shall be sloped to drain.



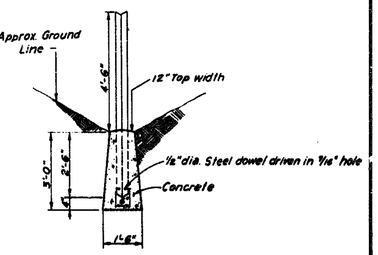
DETAIL C
NOT TO SCALE



DETAIL A



BARBED WIRE FENCE PANEL



DEADMAN FENCE ANCHOR

At changes in vertical alignment, posts that restrain upward pull of the fence strands shall be anchored by setting such post in a deadman fence anchor.

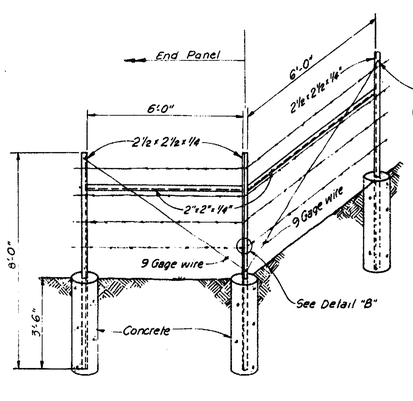
In addition, where there is a change in vertical alignment that produces upward or downward pull, each barbed wire shall be secured to line posts with double tie wires, and to angle posts as shown in Detail C.

Horizontal cross braces (2 x 2 x ¼) shall be spot welded in place to angle posts. After welding, angle end braces shall be treated with Paint Systems according to Specifications.

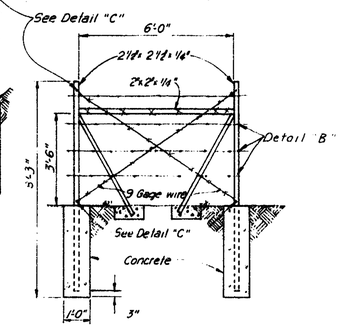
Wire forming gate(s) to be of the same type and spacing as the regular fence.

Anchor hoops to be two strands of 9 gage wire tied to gate post with 9 gage wire.

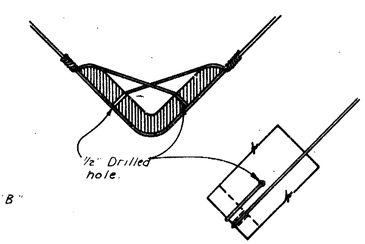
Chain used shall be straight link; material size from ⅛" to 9/32", links per foot from 10 to 18, weight per foot from 0.1 to 0.5 lbs. Weldless wire-twist chain will not be permitted.



END OR CORNER PANEL



PULL PANEL



Note: Wire not shown as double strand

DETAIL B

BARBED WIRE FENCE DETAILS

NORTH COORS DRAINAGE - PHASE III

CONCRETE BOX CULVERT DETAILS
FENCE DETAILS

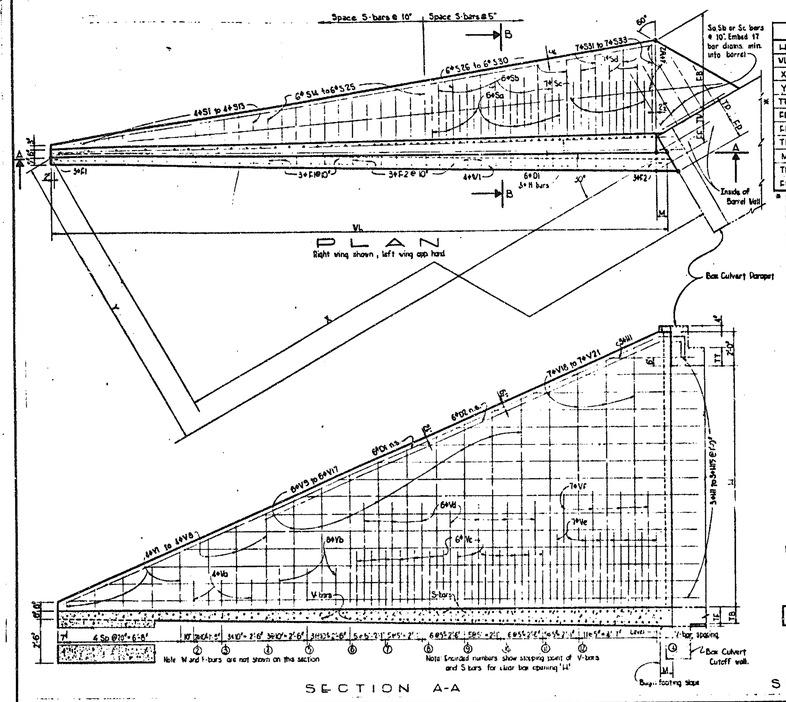
ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-86	85104	—	—	10
			CHECKED N.G.	OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

1 2 3 4 5 6 7 8 9 10 11 12
08 001 1087

Carl Q. Clark 2/7/87 RECORD DRAWING



VINGWALL DIMENSIONS

H	2	3.5	4	5	6	7	8	9	10	11	12	14
VL	8'-4½"	11.84'	12'-10½"	15'-3½"	17'-12"	19'-11"	22'-2½"	24'-10½"	26'-10½"	29'-4½"	31'-5½"	36'-1"
X	7'-3"	10.25'	11'-3"	13'-3"	15'-3"	17'-3"	19'-3"	21'-3"	23'-3"	25'-3"	27'-3"	31'-3"
Y	4'-2½"	5.92'	6'-6"	7'-7½"	8'-9½"	9'-11½"	11'-1½"	12'-3½"	13'-5½"	14'-7½"	15'-11½"	18'-1½"
TW	8"	8"	8"	8"	8"	11"	11"	11"	11"	11"	1'-0"	1'-2"
EE	-	0.82'	1'-	1'-0"	1'-1½"	1'-3½"	1'-5½"	1'-4½"	1'-6"	1'-7"	1'-8"	1'-10"
FB	1'-4½"	1.87'	2'-3½"	2'-4½"	2'-7½"	2'-10½"	3'-1½"	3'-3"	3'-7½"	3'-10½"	4'-1½"	4'-7½"
TE	7½"	0.69'	8½"	9"	9½"	10"	10½"	11"	11½"	1'-0"	1'-0½"	1'-1½"
M	3½"	5½"	5½"	5½"	5½"	4½"	4½"	5½"	5½"	6½"	6½"	8½"
TD	6½"	6½"	6½"	6½"	7½"	8½"	9½"	10½"	11½"	1'-0½"	1'-1½"	1'-4½"
ED	10½"	1.0'-4"	1'-1½"	1'-2½"	1'-4½"	1'-5½"	1'-6½"	1'-7½"	1'-9½"	1'-10½"	1'-11½"	2'-2½"

* NOTE: Wingwalls may be built with a uniform thickness of "TW" throughout their entire length, providing vertical reinforcing in back face is kept 2" from back face of the concrete and the back of the footing is kept at least wide enough to prevent the wall from projecting beyond the footing, and providing this modification is made at no additional cost to the state. Pay quantities to remain the same as shown on the standard plans.

NEW MEXICO
STATE HIGHWAY DEPARTMENT

WINGWALLS
FOR
NORMAL CONCRETE BOX CULVERTS

SHEET 1 OF 2
SCDIAL WCR-0

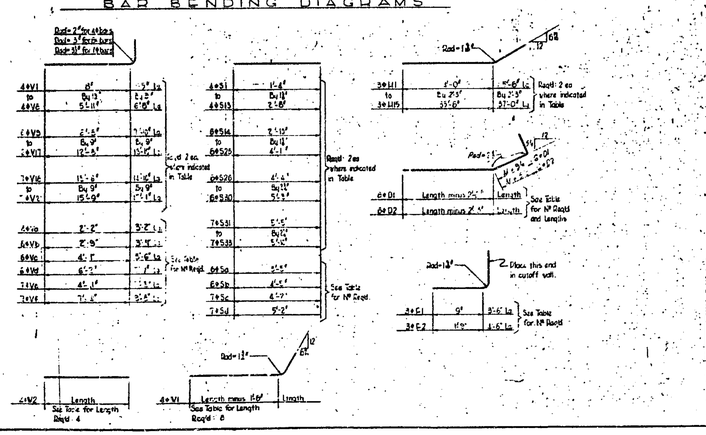
REINFORCING STEEL REQUIREMENTS

H	V1 Bars	V1 No	V2 Bars	V2 No	V3 Bars	V3 No	V4 Bars	V4 No	V5 Bars	V5 No	6*D1 Bars	6*D1 No	6*D1 Length	6*D2 No	6*D2 Length	S1 Bars	S1 No	S2 Bars	S2 No	S3 Bars	S3 No	S4 No	S5 No	F1 No	F2 No	V1 No	V2 No	Concrete CY	Steel Lbs	H
2	1#5	2									1#5	2	10'-5"			1#8								20				2.46	198	2
3.5	1#7	6									1#5	2	14.50'			1#10								30		14.46'	11.25'	4.06	306	3.5
4	1#9	6									1#5	2	15'-3"			1#14	5/6							32		15'-2"	12'-8"	4.45	354	4
5	1#9	6									1#6	2	16'-3"			1#18	5/6							36		16'-1"	14'-0"	6.40	465	5
6	1#11	6	6								1#7	2	20'-9"	2	16'-3"	1#19	5/6							40		20'-8"	17'-0"	7.45	604	6
7	1#13	6	6	6	2						1#8	2	22'-3"	2	18'-0"	1#22	5/6							42	0	22'-3"	19'-3"	9.36	856	7
8	1#13	6	6	10	6						1#9	2	25'-9"	2	22'-1"	1#25	5/6							42	0	25'-9"	22'-8"	10.75	1076	8
9	1#15	6	6	16	8						1#10	2	29'-3"	2	25'-9"	1#28	5/6	5/6	2					42	15	27'-6"	23'-9"	14.85	1346	9
10	1#15	6	6	22	10						1#11	2	30'-9"	2	28'-9"	1#27	5/6	10	5/6					42	22	29'-9"	28'-6"	15.[illegible]	1675	10
11	1#17	6	6	26	14						1#12	2	33'-3"	2	29'-6"	1#29	5/6	14	5/6					42	26	32'-[illegible]	28'-3"	16.[illegible]	1871	11
12	1#13	6	6	26	14	4	2	1#15	2	37'-6"	1#30	2	34'-9"	2	27'-6"	1#30	5/6	20	5/6	2	1/2			42	34	33'-[illegible]	30'-6"	22.[illegible]	2136	12
14	1#13	6	6	26	14	16	8	1#16	2	40'-6"	2	31'-3"	1#33	2	2	1/2	2	42	46	33'-[illegible]	35'-0"	26.19	2.[illegible]	42	46	33'-[illegible]	35'-0"	26.19	2.[illegible]	14

Note: Reinforcing steel requirements and quantities in the above table are tabulated for the two wings at one end of the culvert.

Note: The number of Sa, Sb & Sc bars shown in the upper portion of tabulation are to be placed in footing adjacent to barrel. Number shown in the lower portion of tabulation are to be placed adjacent to wing.

BAR BENDING DIAGRAMS



DESIGN DATA

Design according to AASHO Specifications, 1957
Active earth pressure determined from Rankine's Formula
Weight of earth: 120#/cu.ft.
Fill Slope: 2:1 } For Rankine's Formula
Angle of internal friction: 34°
Design stresses: f_s=20000 psi, f_c=1200 psi, f_v=20,000 psi, n=10.
Maximum computed bearing pressure = 2 tons per sq. ft.

GENERAL NOTES

1. Workmanship and materials shall conform to NMSHD Commission Specs.
2. All concrete shall be Class "A". Chamfer all exposed edges 1".
3. All reinforcing steel shall be deformed bars, intermediate grade, conforming to A.S.T.M. Specifications A-15 and A-305.
4. Reinforcing bars may be spliced where necessary to avoid excessive lengths of bars. Splices shall lap a minimum of 20 bar diameters. Bu. weight of reinforcing steel does not include weight of splices. Cost of splice material shall be included in the unit price bid for reinforcing steel.
5. Dimensions to reinforcing steel: for up to 6' bar: Cut bars to nearest 1" length; use shorter length when detailed length falls at ½".
6. Wingwalls are to be placed monolithic with barrel.

NEW MEXICO
STATE HIGHWAY DEPARTMENT

WINGWALLS
FOR
NORMAL CONCRETE BOX CULVERTS

SHEET 2 OF 2
SCDIAL WCR-0

08 00 1 1 1 87

NORTH COORS DRAINAGE-PHASE III

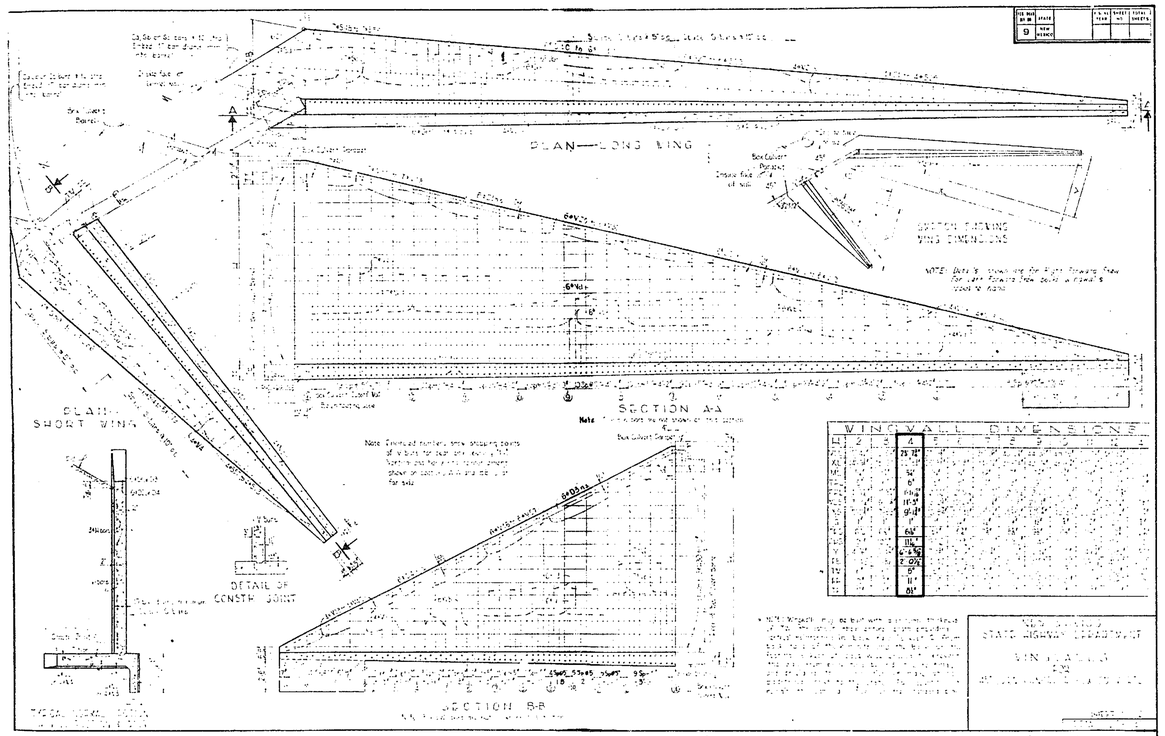
WINGWALLS FOR CONCRETE BOX CULVERT DETAILS

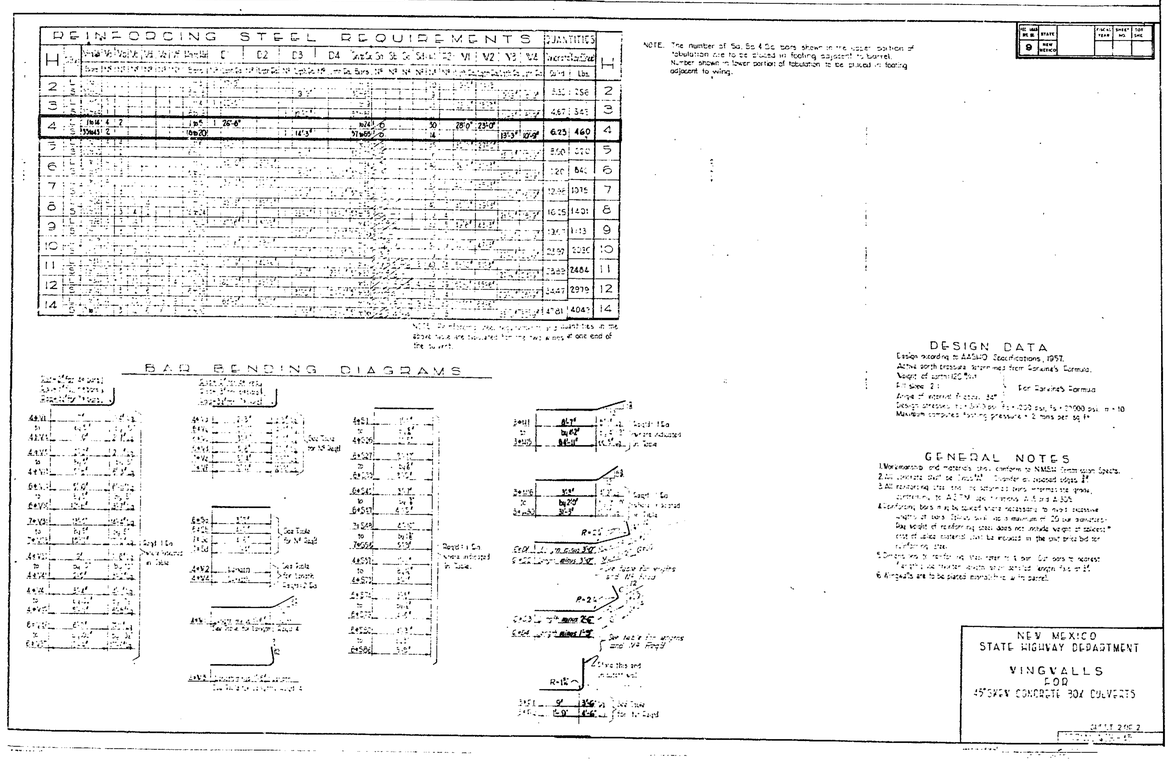
ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-86	85104	—	CHECKED —	11 OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

7/1/87 RECORD DRAWING





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NORTH COORS DRAINAGE-PHASE III

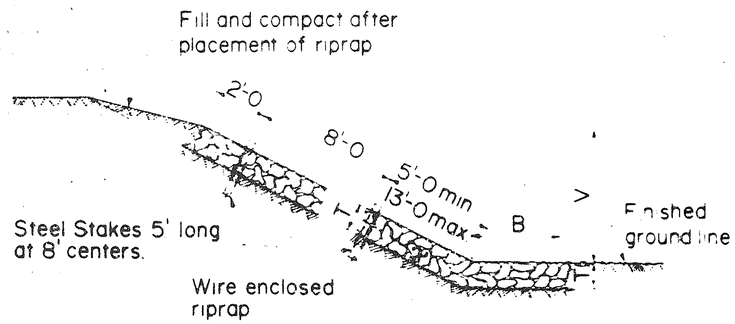
WINGWALLS FOR CONCRETE BOX CULVERT DETAILS

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO.	SCALE	DRAWN	SHEET
7-15-'86	85104	—	M.L.A.	12
			CHECKED N.G.	OF 13

SCANLON & ASSOCIATES
CONSULTING ENGINEERS

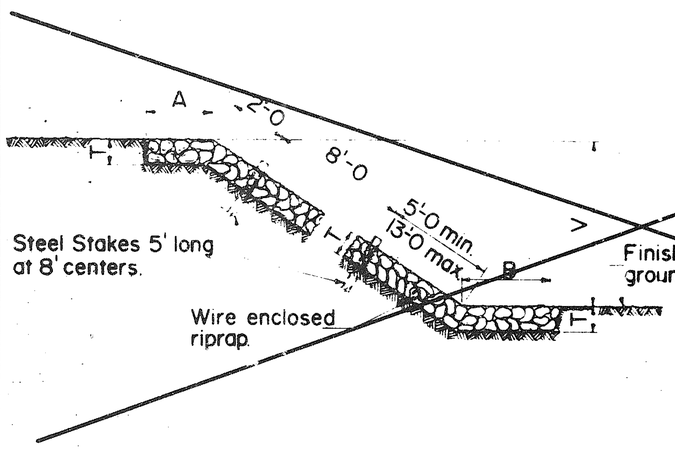
RECORD DRAWING



QUANTITIES PER LIN. FT.

SLOPE	RIPRAP CU. YDS.
1½ : 1	$\frac{T}{27}(B+1.803V+0.303T)$
1¾ : 1	$\frac{T}{27}(B+2.016V+0.266T)$
2 : 1	$\frac{T}{27}(B+2.236V+0.236T)$
3 : 1	$\frac{T}{27}(B+3.162V+0.162T)$
4 : 1	$\frac{T}{27}(B+4.123V+0.123T)$

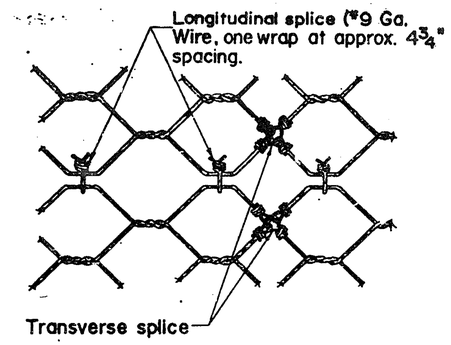
S E C T I O N T Y P E A



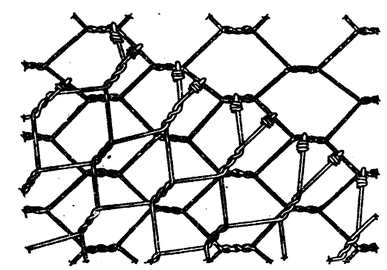
QUANTITIES PER LIN. FT.

SLOPE	RIPRAP CU. YDS
1 : 1	$\frac{T}{27}(A+B+1.414V)$
1½ : 1	$\frac{T}{27}(A+B+1.803V)$
1¾ : 1	$\frac{T}{27}(A+B+2.016V)$
2 : 1	$\frac{T}{27}(A+B+2.236V)$
3 : 1	$\frac{T}{27}(A+B+3.162V)$
4 : 1	$\frac{T}{27}(A+B+4.123V)$

S E C T I O N T Y P E B



NORMAL INTERSECTION



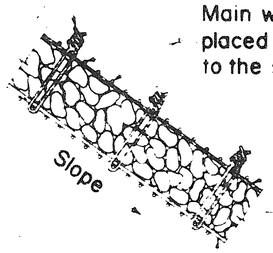
SKEWED INTERSECTION
HEXAGONAL MESH

GENERAL NOTES

1. Wire Fabric is to be galvanized "V" mesh of the following construction
   Main Wires; Two Nº 12½ gage stranded wires spaced at 4"
   Cross Wires; Single Nº 12½ gage wires spaced at 2" with not less than two turns around the main wires
   Approximate weight; 48 lbs per 100 square feet
2. Steel stakes may be railroad rails weighing not less than 30 lbs per yard, 4" O.D standard strength galvanized steel pipe or 4 x 4 x ⅜ steel angles. Steel stakes shall project 6" above top of riprap. Steel stakes are considered incidental to the completion of the work and no direct measurement or payment will be made therefor.
3. If length of slope is 15 feet or less only one row of steel stakes, 2 feet from the top edge of the riprap, will be required unless otherwise noted on plans.
4. For dimensions A, B, V & T see plans.
5. **As an alternate, wire fabric may be galvanized steel wire meeting the requirements for Class 3, Finish 5, medium tensile strength coated wire as set forth in Federal Specification QQ-W-461 f. The wires shall be continuous, have a diameter of not less than 0.118 inch and shall be triple twisted to form a uniform hexagonal mesh pattern with a maximum opening size of 3"x4¾".**

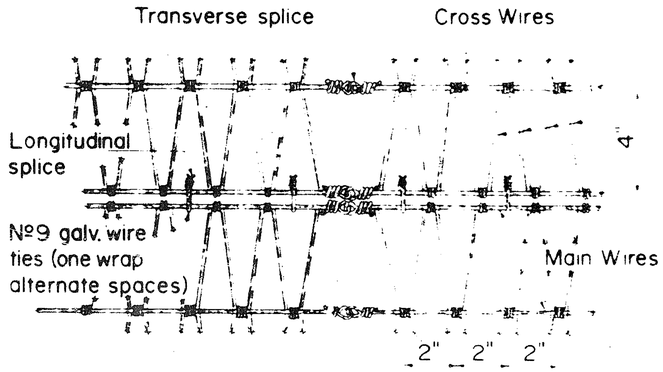
Nº 9 gage galvanized tie wires at approx. 2' centers longitudinally & transversely.

Main wires are to be placed perpendicular to the slope.



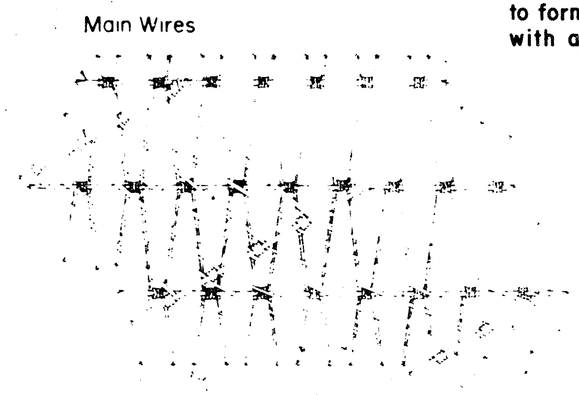
Wire Fabric

TYPICAL SECTION



DETAIL OF WIRE FABRIC
AND NORMAL SPLICE

"V" MESH



DETAIL OF SPLICE
AT SKEWED INTERSECTIONS

08 001 1387

NORTH COORS DRAINAGE-PHASE III

WIRE ENCLOSED RIPRAP

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL AUTHORITY

DATE	JOB NO	SCALE	DRAWN / CHECKED	SHEET / OF
7-15-86	85104	NONE	M.L.A. / N.G.	13 / 13

SCANLON ASSOCIATES
CONSULTING ENGINEERS

Cyl B. Jr 7/7/87 RECORD DRAWING