

THE CITY OF FORT WORTH, TEXAS

DEPARTMENT OF ENGINEERING

WATER, SANITARY SEWER, PAVING, STORM DRAINAGE AND EXCAVATION IMPROVEMENTS

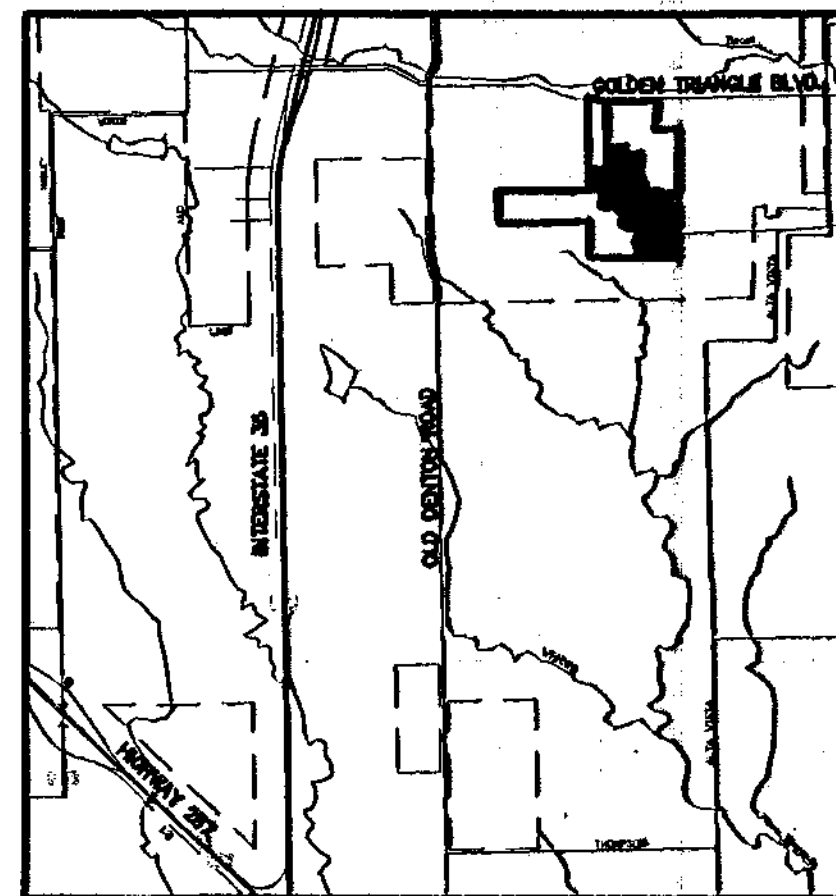
TO SERVE

CRAWFORD FARMS - PHASE II

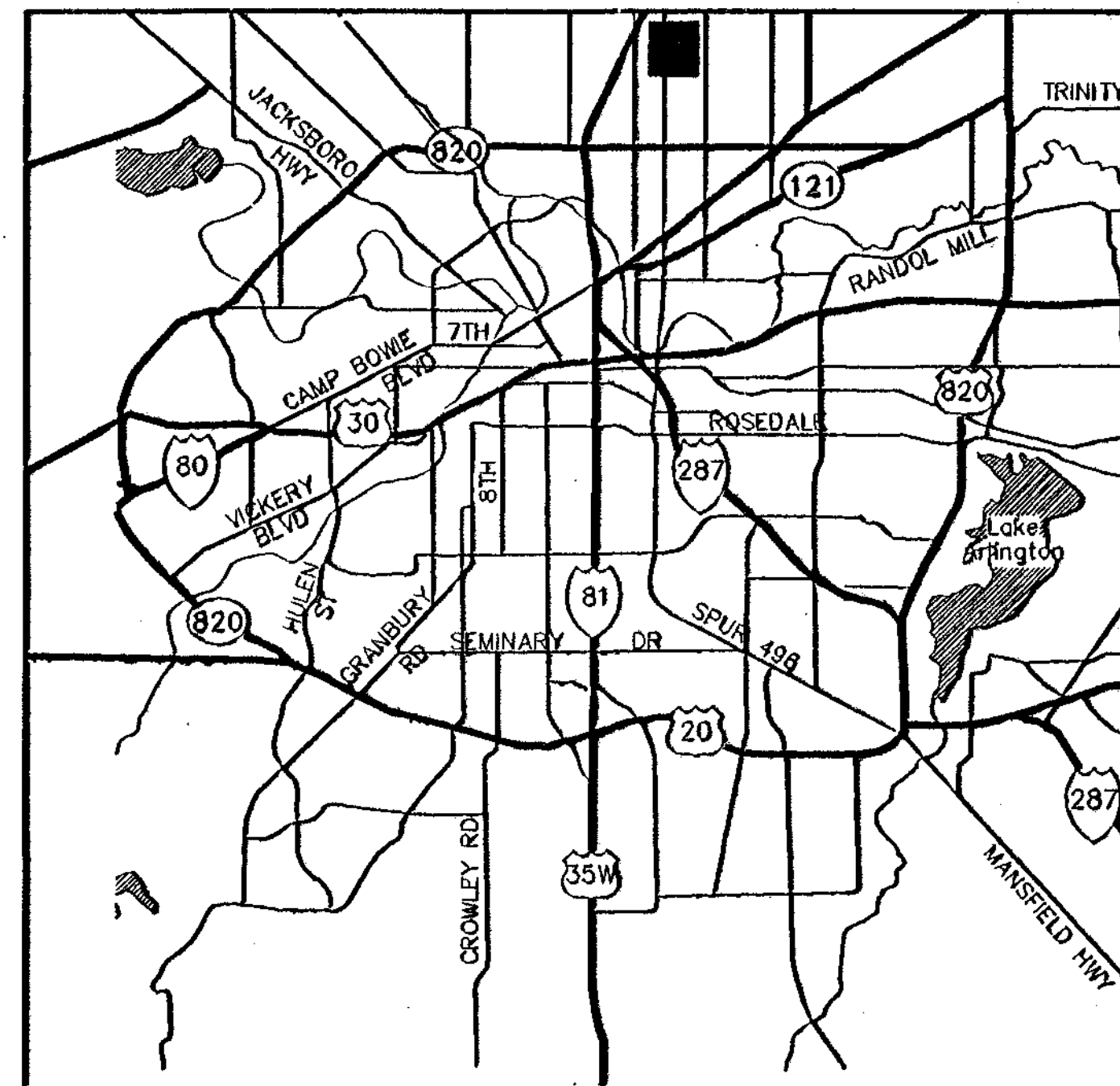
BLOCKS 10-27

PRESUMED BUILT
AS DESIGNED
MGA 11/1/2006

SHEET No.	DESCRIPTION
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3-4	WATER LAYOUT
5-6	SANITARY SEWER LAYOUT
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VICINITY MAP



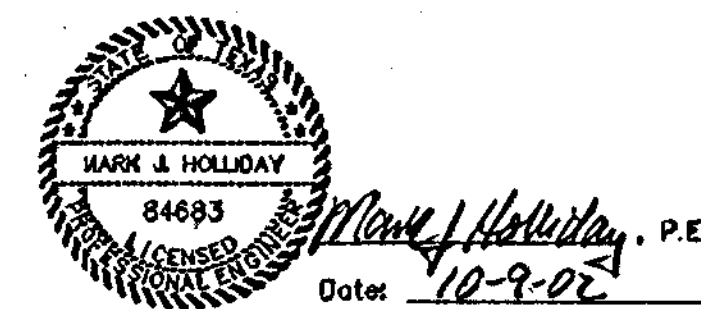
LOCATION MAP
N.T.S.

KENNETH BARR
MAYOR

GARY JACKSON
CITY MANAGER

ROBERT D. GOODE, P.E.
INTERIM DIRECTOR OF TRANSPORTATION AND PUBLIC WORKS

DALE A. FISSELER, P.E.
WATER DEPARTMENT DIRECTOR



TEP
INC.
TEAGUE NALL AND PERKINS
ENGINEERS ♦ SURVEYORS ♦ CONSULTANTS
26 Years of Service and Integrity

FILE NUMBER W- 1197
D.O.E. NUMBER 3828
WATER PROJECT NO. P161-060161151870
SEWER PROJECT NO. P171- 070171131920

A. Douglas Rademaker 11/25/02
A. DOUGLAS RADEMAKER, P.E. DATE
DIRECTOR, DEPARTMENT OF ENGINEERING

S. Frank Crumb 11/20/02
S. FRANK CRUMB, P.E. DATE
ASSISTANT DIRECTOR, WATER DEPARTMENT

George A. Behmanesh 11/19/02
GEORGE A. BEHMANESH, P.E. DATE
ASST. DIRECTOR, DEPT. OF TRANSPORTATION AND PUBLIC WORKS

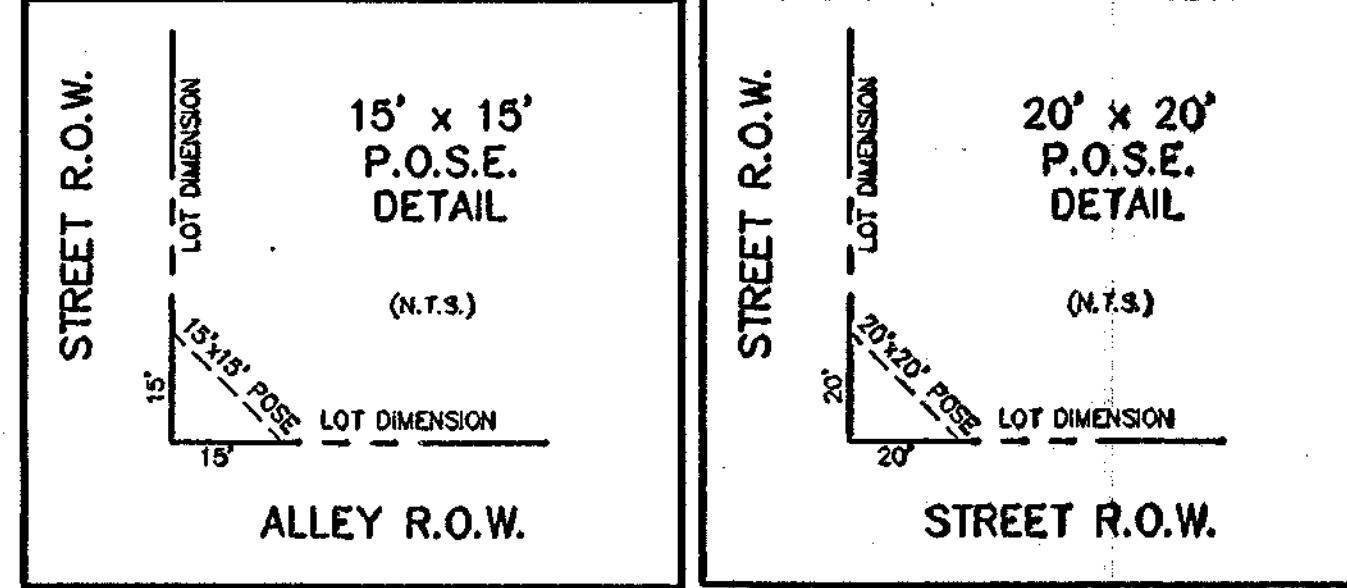
Richard Zavala 11/26/02
RICHARD ZAVALA DATE
DIRECTOR, PARKS AND COMMUNITY SERVICES DEPT.

John S. Hill 10/16/02 RECOMMENDED: *John S. Hill* 10/18/02
PROJECT MANAGER AS DIVISION MANAGER

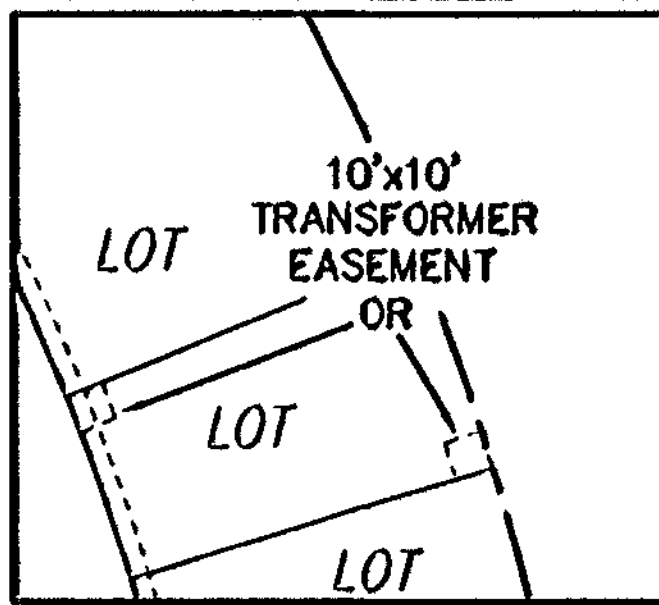
2002

RECORD DRAWING

WATER PROJECT NO. P161 - 060161151870
SEWER PROJECT NO. P171 - 070171131920
FILE NO. W - 1197
D.O.E. NO. 3828
WATER, SANITARY SEWER, EXCAVATION, PAVING & DRAINAGE IMPROVEMENTS FOR CRAWFORD FARMS PHASE II - BLOCKS 10-27 FORT WORTH, TEXAS



CURVE DATA (1) Δ = 141°39' L = 174.43' R = 700.00' CB = S73°09'09"W T = 87.87' CL = 173.98'	CURVE DATA (4) Δ = 01°00'08" L = 88.98' R = 4973.00' CB = S85°38'09"E T = 43.49' CL = 88.98'
CURVE DATA (2) Δ = 048°14' L = 9.12' R = 650.00' CB = N 62°3'03"E T = 4.58' CL = 9.12'	CURVE DATA (5) Δ = 3°43'00" L = 23.95' R = 400.00' CB = N14°38'08"W T = 12.98' CL = 23.94'
CURVE DATA (3) Δ = 201°38' L = 178.01' R = 4973.00' CB = S88°03'35"E T = 88.02' CL = 178.00'	CURVE DATA (6) Δ = 0°24'32" L = 7.31' R = 1023.00' CB = S 0°57'09"W T = 3.68' CL = 7.31'



NOTES:
UTILITY EASEMENTS
Any public franchised utility, including the City of Fort Worth, shall have the right to move and keep moved all or part of any building, fences, trees, shrubs, other growth or improvement which in any way endangers or interferes with the construction, maintenance or efficiency of its respective systems on any of the easements shown on the plat; and they shall have the right at all times to ingress and egress upon said easements for the purpose of construction, reconstruction, inspection, patrolling, maintaining and adding to or removing all or part of its respective systems with out the necessity at any time of procuring the permission of anyone.

FLOODPLAIN/DRAINAGEWAY MAINTENANCE
The existing creek, stream, river, or drainage channel traversing along or across portions of this addition, will remain unobstructed at all times and will be maintained by the individual lot owners whose lots are traversed by or adjacent to, the drainageways. The City of Fort Worth will not be responsible for the maintenance, erosion control, and/or operation of said drainageways. Property owners shall keep adjacent drainageways traversing their property clean and free of debris, silt or other substances which could result in unsanitary conditions, and the City shall have the right of entry for the purpose of inspecting the maintenance work by the property owners. The drainageways are occasionally subject to storm water overflow and/or bank erosion that cannot be defined. The City of Fort Worth shall not be liable for any damages resulting from the occurrence of these phenomena, nor the failure of any structure(s) within the drainageways. The drainageway crossing each lot is contained within the floodplain easement line as shown on the plat.

PUBLIC OPEN SPACE EASEMENT (P.O.S.E.)
No structure, object or plant material of any kind may obstruct a motorist's vision, within any portion of a P.O.S.E. shown on this plat, beginning 2 ft. (24") above the top of the curb to a height of 11 ft. above said curb, except as elsewhere allowed herein. Such obstructions shall include, but are not limited to, buildings, fences, walls, signs, banners, structures, trees, shrubs, motor vehicles, statutory and other similar objects.

WATER/WASTEWATER IMPACT FEES
The City of Fort Worth has an ordinance implementing the assessment and collection of water and wastewater impact fees. The total amount assessed is established on the filing date of this plat application, based upon Schedule I of the current impact fee ordinance. The amount to be collected is determined under Schedule II of the said ordinance, and becomes effective on the date a building permit is issued, or the connection date to the municipal water and/or wastewater system.

BUILDING PERMITS
No building permits shall be issued for any lot in this Subdivision until appropriate provisions are made for the construction of any applicable water, sewer, storm drain, street lights, sidewalks and paving improvements. Sidewalks are required on both sides of dedicated streets, in conformance with current City Policy.

FLOODPLAIN RESTRICTIONS
No construction shall be allowed within the floodplain without the written approval of the Director of Transportation and Public Works. In order to secure approval, satisfactory engineering studies and/or detailed engineering improvement plans shall be prepared and submitted by the party(ies) wishing to construct within the floodplain. Where construction is permitted, assuming ultimate development conditions, all finished floor elevations shall be a minimum of 2 ft. (two feet) above the 100 year flood plain water elevation, or 1 ft. (one foot) above the 100 year roadway water surface elevation.

PRIVATE COMMON AREAS AND FACILITIES
The City of Fort Worth shall not be held responsible for the construction, maintenance or operation of any lots containing private common areas or facilities identified as such on this plat. Said lots and facilities shall include, but not limited to, private streets, emergency access easements, and gated private entrances. Recreation, landscape, and open space areas, water and wastewater distribution, collection, and treatment facilities, and clubhouse, recreation buildings and outdoor facilities.

The land owners and subsequent owners of the lots and parcels in this subdivision, acting jointly and severally as a landowners association, shall be responsible for such construction, reconstruction, maintenance and operation of the subdivision's private common areas and facilities, and shall agree to indemnify and hold harmless the City of Fort Worth, Texas, from all claims, damages and losses arising out of, or resulting from the performance of the obligations of said owners association, as set forth herein.

No permanent structures shall be constructed over an existing water, sanitary sewer or utility easement.

**CITY OF FORT WORTH, TEXAS
CITY PLAN COMMISSION**

THIS PLAT IS VALID ONLY IF RECORDED WITHIN SIX (6) MONTHS AFTER DATE OF APPROVAL.

PLAT APPROVED DATE: _____

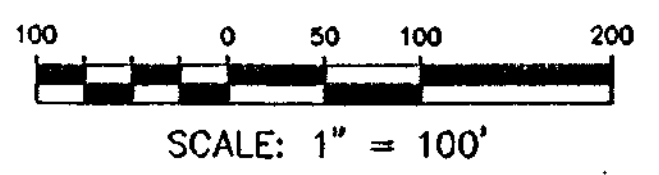
BY: _____ CHAIRMAN

BY: _____ SECRETARY

LEGEND
IRF = Iron rod found
P.O.S.E. = Public Open Space Easement
B.L. = Building line
H.O.A. = Homeowners Association
L.S. = Landscape Easement
D.E. = Drainage Easement
U.E. = Utility Easement

OWNER/DEVELOPER AGENT:
CRAWFORD PARTNERS No. 2, LTD.
5950 BERKSHIRE LANE #850
DALLAS, TEXAS 75225
1-214-373-1892
CONTACT: WALTER DAMON

ENGINEER/SURVEYOR:
TEAGUE NALL AND PERKINS, INC.
1100 MACON STREET
FORT WORTH, TEXAS 76102
1-817-336-5773
CONTACT: GARY J. TEAGUE, P.E.
CHARLES R. McILROY, R.P.L.S.



Preliminary, this document shall not be recorded for any purpose.

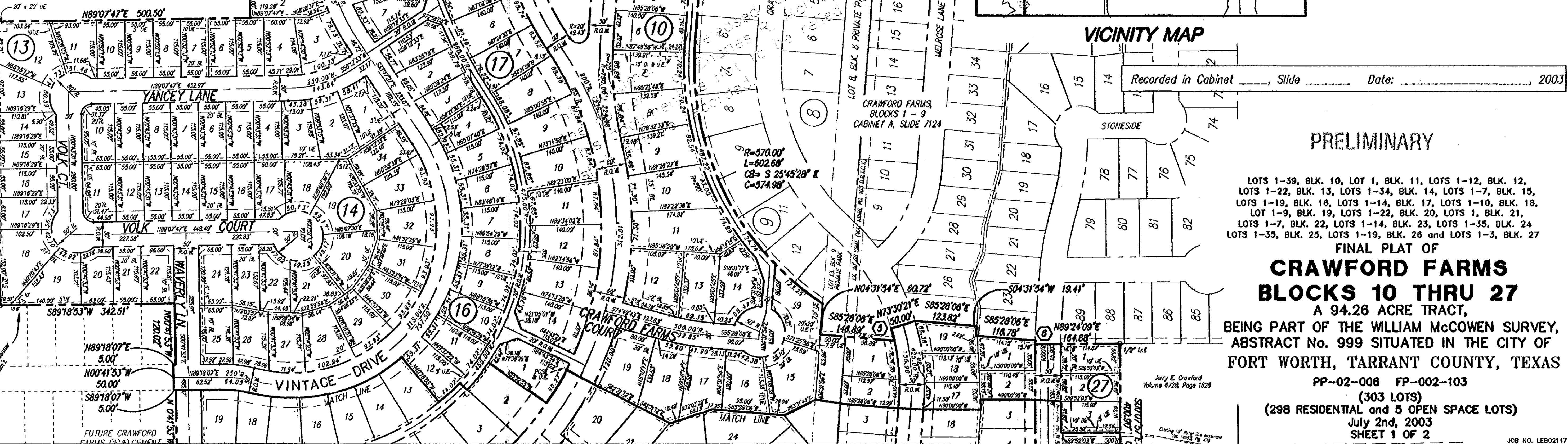
Charles R. McIlroy
Registered Professional Land Surveyor No. 5136

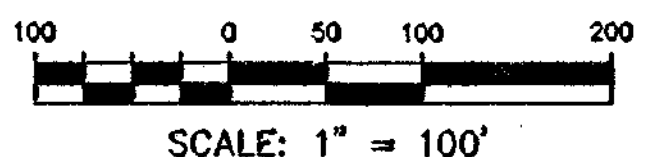
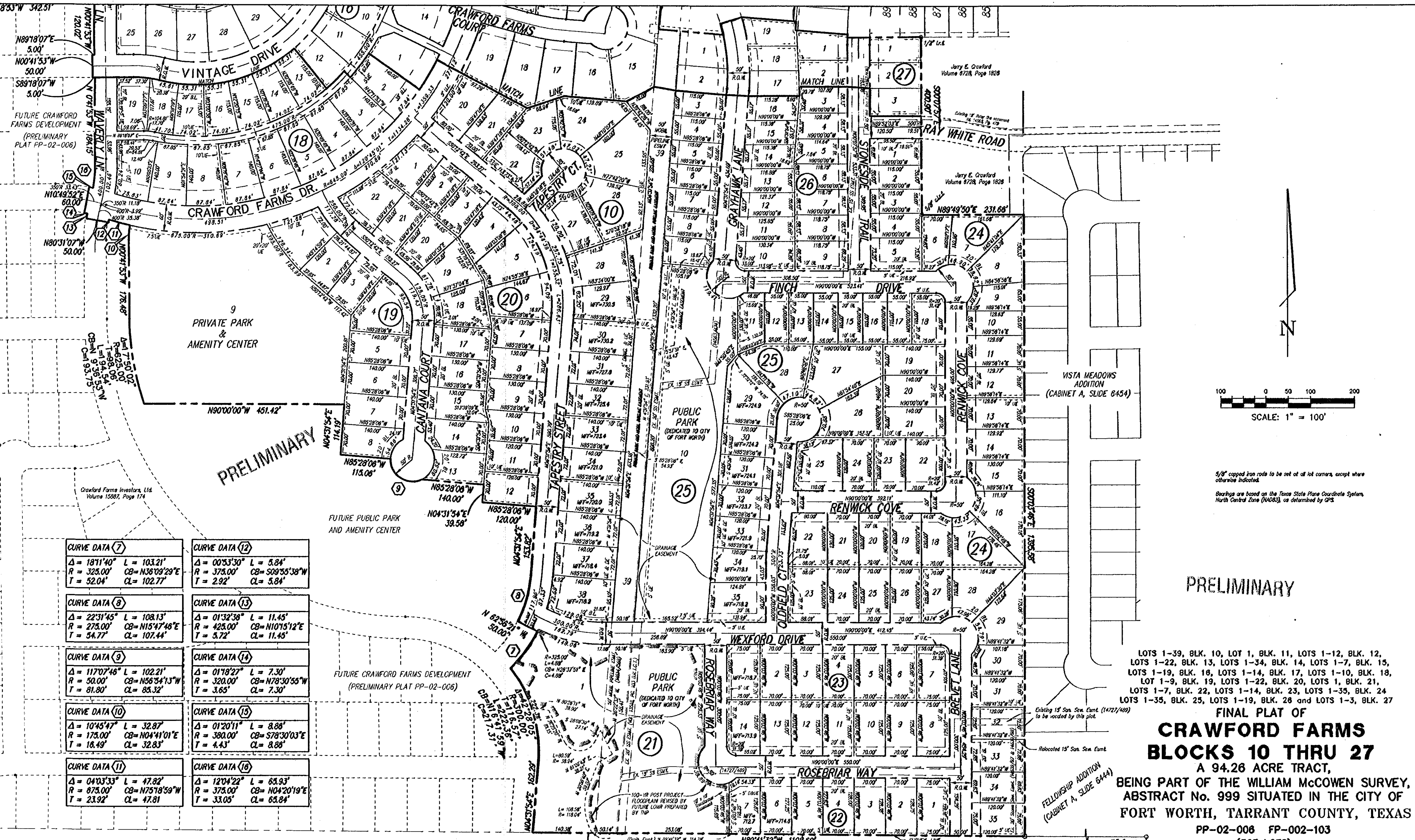
The surveyor, as required by state law, is responsible for surveying information only and bears no responsibility for the accuracy of the engineering data on this plat.

5/8" capped iron rods to be set at all lot corners, except where otherwise indicated.

Bearings are based on the Texas State Plane Coordinate System, North Central Zone (NAD83), as determined by GPS.

E. Crawford Family, L.P.
Volume 12931 Pages 414 & 416





5/8" capped iron rods to be set at all lot corners, except where otherwise indicated.
 Bearings are based on the Texas State Plane Coordinate System, North Central Zone (NACZ), as determined by GPS.

CURVE DATA (7) $\Delta = 1811'40''$ $L = 103.21'$ $R = 325.00'$ $CB = N36'09'29''E$ $T = 52.04'$ $CL = 102.77'$	CURVE DATA (12) $\Delta = 00'53'30''$ $L = 5.84'$ $R = 375.00'$ $CB = S09'55'38''W$ $T = 2.92'$ $CL = 5.84'$
CURVE DATA (8) $\Delta = 22'31'45''$ $L = 108.13'$ $R = 275.00'$ $CB = N15'47'46''E$ $T = 54.77'$ $CL = 107.44'$	CURVE DATA (13) $\Delta = 01'32'38''$ $L = 11.45'$ $R = 425.00'$ $CB = N10'15'12''E$ $T = 5.72'$ $CL = 11.45'$
CURVE DATA (9) $\Delta = 1170'46''$ $L = 102.21'$ $R = 50.00'$ $CB = N56'34'13''W$ $T = 81.80'$ $CL = 85.32'$	CURVE DATA (14) $\Delta = 01'19'27''$ $L = 7.30'$ $R = 320.00'$ $CB = N78'30'55''W$ $T = 3.65'$ $CL = 7.30'$
CURVE DATA (10) $\Delta = 10'45'47''$ $L = 32.87'$ $R = 175.00'$ $CB = N04'41'01''E$ $T = 16.49'$ $CL = 32.83'$	CURVE DATA (15) $\Delta = 01'20'11''$ $L = 8.88'$ $R = 380.00'$ $CB = S78'30'03''E$ $T = 4.43'$ $CL = 8.88'$
CURVE DATA (11) $\Delta = 04'03'33''$ $L = 47.92'$ $R = 875.00'$ $CB = N75'18'59''W$ $T = 23.92'$ $CL = 47.81'$	CURVE DATA (16) $\Delta = 12'04'22''$ $L = 65.93'$ $R = 375.00'$ $CB = N04'20'19''E$ $T = 33.05'$ $CL = 65.84'$

LOTS 1-39, BLK. 10, LOT 1, BLK. 11, LOTS 1-12, BLK. 12, LOTS 1-22, BLK. 13, LOTS 1-34, BLK. 14, LOTS 1-7, BLK. 15, LOTS 1-19, BLK. 16, LOTS 1-14, BLK. 17, LOTS 1-10, BLK. 18, LOT 1-9, BLK. 19, LOTS 1-22, BLK. 20, LOTS 1, BLK. 21, LOTS 1-7, BLK. 22, LOTS 1-14, BLK. 23, LOTS 1-35, BLK. 24, LOTS 1-35, BLK. 25, LOTS 1-19, BLK. 26 and LOTS 1-3, BLK. 27

**FINAL PLAT OF
 CRAWFORD FARMS
 BLOCKS 10 THRU 27**
 A 94.26 ACRE TRACT,
 BEING PART OF THE WILLIAM McCOWEN SURVEY,
 ABSTRACT No. 999 SITUATED IN THE CITY OF
 FORT WORTH, TARRANT COUNTY, TEXAS
 PP-02-006 FP-002-103
 (303 LOTS)
 (298 RESIDENTIAL and 5 OPEN SPACE LOTS)
 July 2nd, 2003
 SHEET 2 OF 2

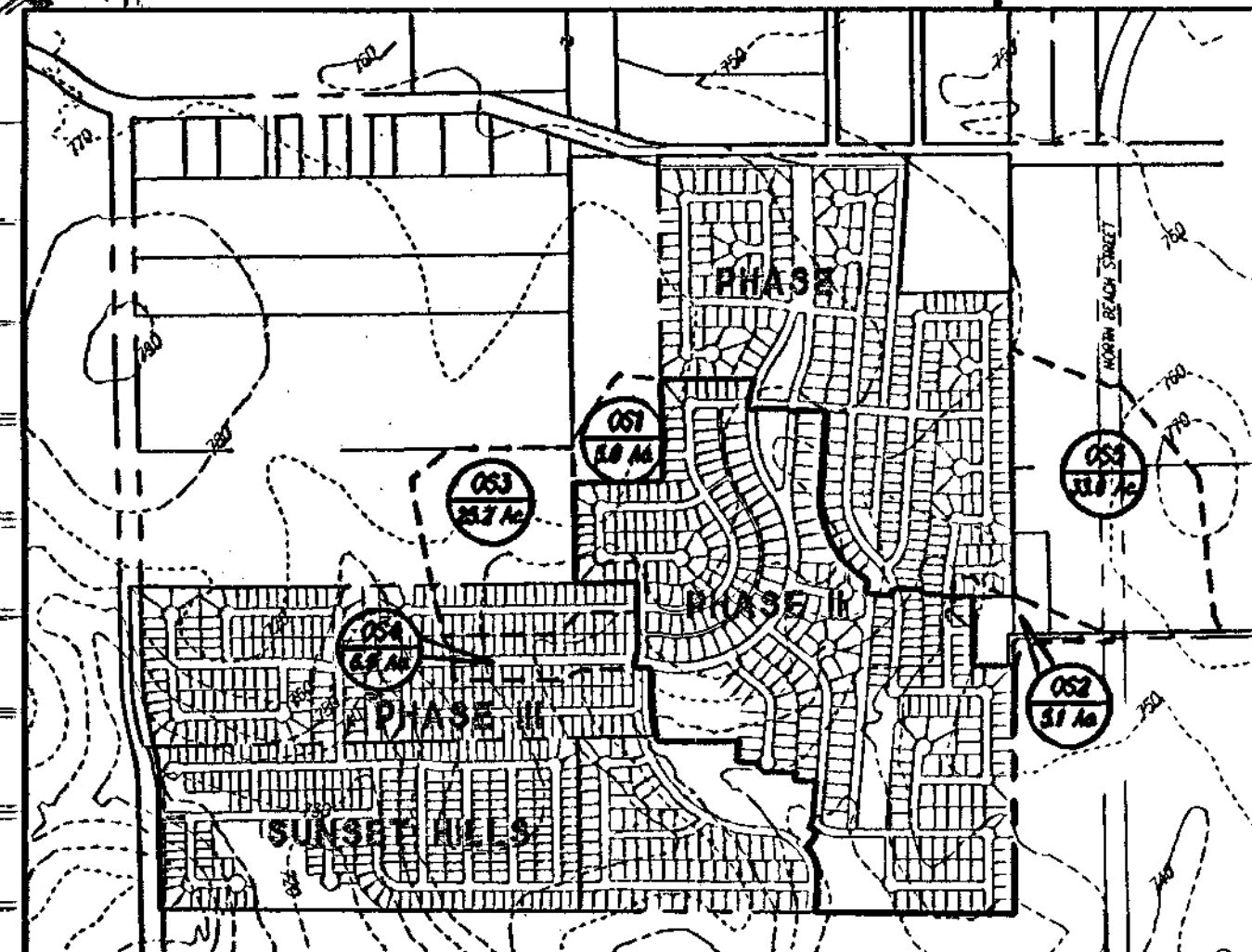
HERITAGE BLOCKS 35, 37-42
 (CABINET A, SLIDE 7946)

HILLWOOD/2500 LTD.
 Volume 9409, Page 1403

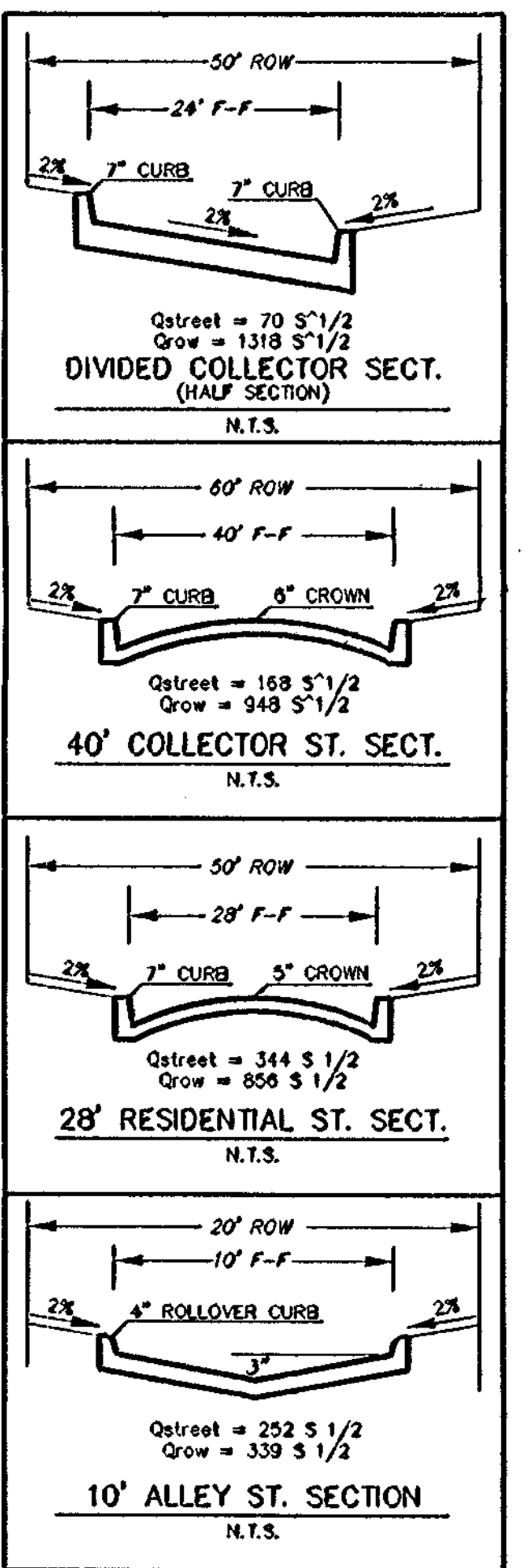
Point of Beginning
 Found 5/8" capped iron rod (CB8)

LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED CURB INLET
- DRAINAGE AREA DIVIDE
- PROPOSED DRAINAGE AREA
- PROPOSED DESIGN POINT



OFF-SITE DRAINAGE AREA MAP
SCALE 1" = 1000'



NO.	REVISION	BY	DATE

SHS DESIGNED	LCC DRAWN	MJH CHECKED
-----------------	--------------	----------------

SCALE HORIZ 1"=100'	VERT N/A	DATE OCT 2002
---------------------------	-------------	------------------

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street, Fort Worth, Texas 76102 (817) 338-5773
235 W. Hickory Street, Suite 210, Denton, Texas 76201 (940) 383-4061
2001 West Irving Blvd, Suite 100, Irving, Texas 75039 (972) 251-0661

MARK J. HOLLIDAY
84683
Professional Engineer
Date: 11-11-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
DRAINAGE AREA MAP (1 OF 2)

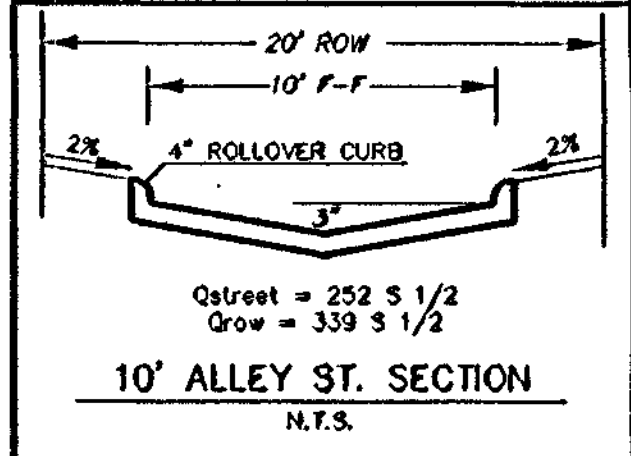
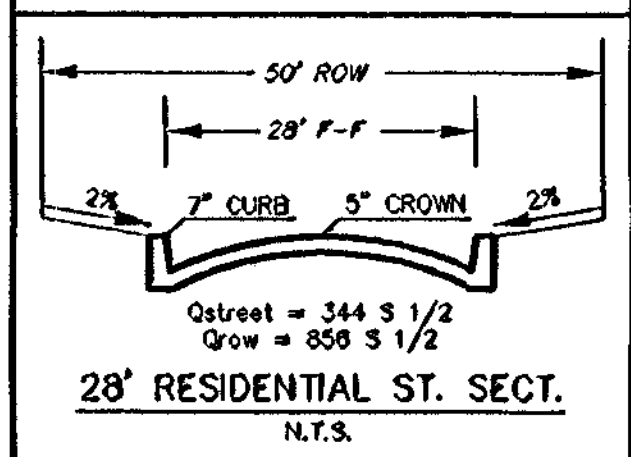
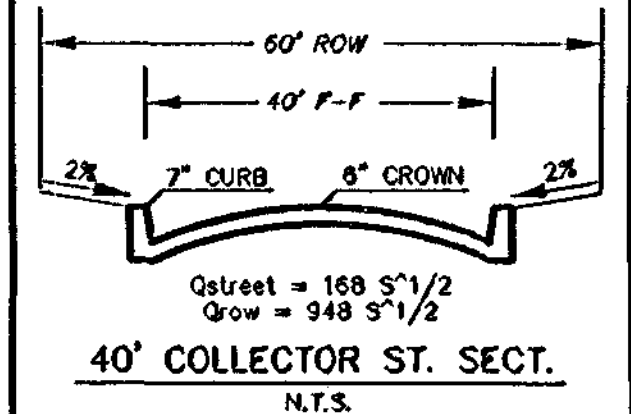
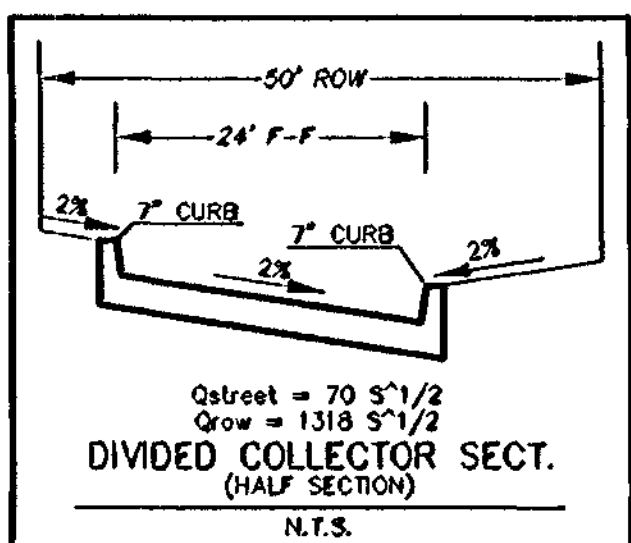
INP PROJECT
LEB02147
SHEET
14
OF
69

RECORD DRAWING



LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED CURB INLET
- DRAINAGE AREA DIVIDE
- PROPOSED DRAINAGE AREA
- PROPOSED DESIGN POINT



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJH
CHECKED

SCALE
HORIZ
1"=100'
VERT
N/A
DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Moon Street
Fort Worth, Texas 76102
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235 W. Hickory Street
Suite #100
Denton, Texas 76201
(940) 383-4100

2001 West Irving Blvd
Suite #100
Ft. Worth, Texas 76102
(817) 338-9773

MARK J. HOLLIDAY
84683
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
Date: 11-11-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
DRAINAGE AREA MAP (2 OF 2)

100BASE PLAN
DATE: 11-11-02
TWP PROJECT
LEB02147
SHEET
15
OF
69

RECORD DRAWING

6-YEAR DESIGN POINT AND INLET CALCULATIONS

DESIGN POINT	INLET No.	AREA(S)	SIZE (AC)	C	Tc (MIN)	IS (IN/HR)	QS (CFS)	UPSTREAM BYPASS (CFS)	TOTAL Q TO INLET	STREET SLOPE (FT/FT)	TOTAL Q IN STREET	STREET CAPACITY (CFS)	R.O.W. CAPACITY (CFS)	GUTTER DEPTH (FT)	INLET TYPE	INLET CAPACITY (CFS/FT)	INLET LENGTH (FT)	INLET CAPACITY (CFS)	FLOW COLLECTED (CFS)	BYPASS (CFS)	COMMENT
1	1A	A	4.70	0.5	15	5.8	13.2	0.0	13.2	0.005	13.2	4.9	93.2	0.32	ON GRADE	0.93	15	13.9	13.2	0.0	DIVIDED COLLECTOR SECTION.
2	2A	C	1.80	0.5	15	5.8	5.0	0.0	5.0	0.005	5.0	4.9	93.2	0.32	ON GRADE	0.77	10	7.7	5.0	0.0	DIVIDED COLLECTOR SECTION.
3	3A	B	2.90	0.5	15	5.8	8.1	0.0	8.1	0.0059	8.1	5.4	101.2	0.37	ON GRADE	0.93	10	8.3	8.1	0.0	DIVIDED COLLECTOR SECTION.
4	4A	D + H	3.00	0.5	15	5.8	8.4	0.0	8.4	0.008	8.4	22.5	30.3	0.33	SUMP	1.94	10	19.4	8.4	0.0	ALLEY SECTION.
5	5A	E1	2.80	0.5	15	5.8	7.8	0.0	7.8	0.0269	7.8	13.8	155.5	0.38	ON GRADE	0.84	10	8.4	7.8	0.0	HALF COLLECTOR SECTION.
5	5B	E2	1.90	0.5	15	5.8	5.3	0.0	5.3	0.0269	5.3	13.8	155.5	0.33	ON GRADE	0.78	10	7.8	5.3	0.0	HALF COLLECTOR SECTION.
6	6A	I	3.50	0.5	15	5.8	9.8	0.0	9.8	0.0322	9.8	45.2	60.8	0.35	ON GRADE	0.81	15	12.1	9.8	0.0	ALLEY SECTION.
7	7A	J	2.20	0.5	15	5.8	6.2	0.0	6.2	0.005	6.2	5.9	67.0	0.48	SUMP	2.55	10	25.5	6.2	0.0	HALF COLLECTOR SECTION. SUMP W/POSITIVE OVERFLOW OVER CROWN.
8	8A	K/2	3.55	0.5	15	5.8	9.9	0.0	9.9	0.01	19.9	34.4	85.6	0.50	ON GRADE	0.97	15	14.6	9.9	0.0	ASSUME HALF OF AREA K TO EACH INLET.
8	8B	K/2	3.55	0.5	15	5.8	9.9	0.0	9.9	0.01	19.9	34.4	85.6	0.50	ON GRADE	0.97	15	14.6	9.9	0.0	ASSUME HALF OF AREA K TO EACH INLET.
9	9A	W/2	3.20	0.5	15	5.8	9.0	3.5	12.5	0.0072	24.9	29.2	72.6	0.55	ON GRADE	1.03	10	10.3	10.3	2.2	ASSUME HALF OF AREA W TO EACH INLET.
9	9B	W/2	3.20	0.5	15	5.8	9.0	3.5	12.5	0.0072	24.9	29.2	72.6	0.55	ON GRADE	1.03	10	10.3	10.3	2.2	ASSUME HALF OF AREA W TO EACH INLET.
10	10A	OS2	5.10	0.5	15	5.8	14.3	0.0	14.3	N/A	N/A	N/A	N/A	3.80	HDWL	N/A	N/A	24.5	14.3	0.0	HEADWALL.
11	11A	O/2	1.75	0.5	15	5.8	4.9	2.2	7.1	0.0066	14.2	27.9	69.5	0.48	ON GRADE	0.95	10	9.5	7.1	0.0	ASSUME HALF OF AREA O TO EACH INLET.
11	11B	O/2	1.75	0.5	15	5.8	4.9	2.2	7.1	0.0066	14.2	27.9	69.5	0.48	ON GRADE	0.95	10	9.5	7.1	0.0	ASSUME HALF OF AREA O TO EACH INLET.
12	12A	P+H	8.50	0.5	15	5.8	23.8	0.0	23.8	0.0125	23.8	38.5	95.7	0.51	SUMP	2.68	20	53.6	23.8	0.0	SUMP. POSITIVE OVERFLOW TO NATURAL DRAINAGE WAY.
13	13A	L	1.90	0.5	15	5.8	5.3	0.0	5.3	0.0075	5.3	29.8	74.1	0.44	SUMP	2.38	10	23.8	5.3	0.0	SUMP. POSITIVE OVERFLOW TO NATURAL DRAINAGE WAY.
14	14A	OS1	5.60	0.75	15	5.8	23.5	0.0	23.5	N/A	N/A	N/A	N/A	5.00	HDWL	N/A	N/A	30.0	23.5	0.0	HEADWALL.
15	15A	F/2	4.75	0.5	15	5.8	13.3	0.0	13.3	0.01	26.6	34.4	85.6	0.54	ON GRADE	1.02	15	15.2	13.3	0.0	ASSUME HALF OF AREA F TO EACH INLET.
15	15B	F/2	4.75	0.5	15	5.8	13.3	0.0	13.3	0.01	26.6	34.4	85.6	0.54	ON GRADE	1.02	15	15.2	13.3	0.0	ASSUME HALF OF AREA F TO EACH INLET.
16	16A	G/2	3.25	0.5	15	5.8	9.1	0.0	9.1	0.011	18.2	36.1	89.8	0.51	ON GRADE	0.98	15	14.7	9.1	0.0	ASSUME HALF OF AREA G TO EACH INLET.
16	16B	G/2	3.25	0.5	15	5.8	9.1	0.0	9.1	0.011	18.2	36.1	89.8	0.51	ON GRADE	0.98	15	14.7	9.1	0.0	ASSUME HALF OF AREA G TO EACH INLET.
17	17A	M1+Q+S	10.15	0.5	15	5.8	28.4	0.0	28.4	0.019	28.4	47.4	118.0	0.58	SUMP	2.99	15	44.8	28.4	0.0	SUMP W/POSITIVE OVERFLOW TO NATURAL DRAINAGE WAY.

DRAINAGE AREA DATA

Area ID	Area (acres)	C	CA	Tc (min)	IS	I100	Q5 (cfs)	Q100 (cfs)	COMMENTS
A	4.7	0.5	2.35	15	5.8	9.8	13.2	22.6	PORTION OF CRAWFORD FARMS PH. I DEVELOPED Q.
B	2.9	0.5	1.45	15	5.8	9.8	8.1	13.9	CRAWFORD FARMS PH. I DEVELOPED Q.
C	1.8	0.5	0.90	15	5.8	9.6	5.0	8.6	
D	1.8	0.5	0.80	15	5.8	9.6	4.5	7.7	
E1	2.8	0.5	1.40	15	5.8	9.6	7.8	13.4	
E2	1.9	0.5	0.95	16	6.6	10.6	6.3	10.1	
F	9.5	0.5	4.75	15	5.8	9.6	26.6	45.6	
G	6.5	0.5	3.25	15	5.8	9.6	18.2	31.2	
H	1.4	0.5	0.70	15	5.8	9.6	3.9	6.7	
I	3.5	0.5	1.75	15	5.8	9.6	9.8	16.8	
J	2.2	0.5	1.10	15	5.8	9.6	6.2	10.6	
K	7.1	0.5	3.55	15	5.8	9.6	19.9	34.1	
L	1.9	0.5	0.95	15	5.8	9.6	5.3	9.1	
M	2.9	0.5	1.45	15	5.8	9.6	8.1	13.9	
M1	1.5	0.5	0.75	15	5.8	9.6	4.1	7.0	
M2	1.5	0.5	0.75	15	5.8	9.6	4.1	7.0	
N	3.0	0.5	1.50	15	5.8	9.6	8.4	14.4	
O	3.5	0.5	1.75	15	5.8	9.6	9.8	16.8	
P	5.5	0.5	2.75	15	5.8	9.6	15.4	26.4	
Q	7.3	0.5	3.65	15	5.8	9.6	20.4	35.0	
R	4.0	0.5	2.00	15	5.8	9.6	11.2	19.2	
S	1.4	0.5	0.70	15	5.8	9.6	3.9	6.7	
T	11.2	0.5	5.60	15	5.8	9.6	31.4	53.8	
U	1.7	0.5	0.85	15	5.8	9.6	4.8	8.2	CRAWFORD FARMS PH. I DEVELOPED Q.
V	14.1	0.5	7.05	15	5.8	9.6	39.5	67.7	
W	6.4	0.5	3.20	15	5.8	9.6	17.9	30.7	
X	1.6	0.5	0.80	15	5.8	9.6	4.5	7.7	
Y	10.3	0.5	5.15	15	5.8	9.6	28.8	49.4	
OS1	5.6	0.75	4.20	15	5.8	9.6	23.5	40.3	MULTIFAMILY ZONED DEVELOPED Q.
OS2	5.1	0.5	2.55	15	5.8	9.6	14.3	24.5	RESIDENTIAL ZONED DEVELOPED Q.
OS3	25.2	0.5	12.6	15	5.8	9.6	70.8	121.0	AGRICULTURAL & INDUSTRIAL ZONED DEVELOPED Q.
OS4	8.9	0.5	4.45	15	5.8	9.6	19.3	33.1	RESIDENTIAL ZONED DEVELOPED Q.
OS5	33.6	0.62	20.8	17.2	5.1	8.9	106.2	185.4	MULTI-FAMILY & RESIDENTIAL ZONED DEVELOPED Q.

100-YEAR DESIGN POINT AND INLET CALCULATIONS

DESIGN POINT	INLET No.	AREA(S)	SIZE (AC)	C	Tc (MIN)	I100 (IN/HR)	Q100 (CFS)	UPSTREAM BYPASS (CFS)	TOTAL Q TO INLET	STREET SLOPE (FT/FT)	TOTAL Q IN STREET	STREET CAPACITY (CFS)	R.O.W. CAPACITY (CFS)	GUTTER DEPTH (FT)	INLET TYPE	INLET CAPACITY (CFS/FT)	INLET LENGTH (FT)	INLET CAPACITY (CFS)	FLOW COLLECTED (CFS)	BYPASS (CFS)	COMMENT
1	1A	A	4.70	0.5	15	9.6	22.6	0.8	23.4	0.005	23.4	4.9	93.2	0.50	ON GRADE	1.04	15	15.6	13.2	10.2	DIVIDED COLLECTOR SECTION. BYPASS TO D.P. 2.
2	2A	C	1.80	0.5	15	9.6	8.6	10.2	18.8	0.005	18.8	4.9	93.2	0.50	ON GRADE	0.97	10	9.7	5.0	13.8	DIVIDED COLLECTOR SECTION. BYPASS TO D.P. 5.
3	3A	B	2.90	0.5	15	9.6	13.9	0.0	13.9	0.0059	13.9	5.4	101.2	0.48	ON GRADE	0.93	10	9.3	9.3	4.7	DIVIDED COLLECTOR SECTION. BYPASS TO D.P. 5.
4	4A	D + H	3.00	0.5	15	9.6	14.4	0.0	14.4	0.008	14.4	22.5	30.3	0.40	SUMP	2.22	10	22.2	14.4	0.0	ALLEY SECTION.
5	5A	E1	2.80	0.5	15	9.6	13.4	13.8	20.5	0.0269	20.5	13.8	155.5	0.53	ON GRADE	1.00	10	10.0	10.0	10.5	HALF COLLECTOR SECTION. BYPASS TO D.P. 7.
5	5B	E2	1.90	0.5	15	9.6	9.1	4.7	20.5	0.0269	20.5	13.8	155.5	0.47	ON GRADE	0.94	10	9.4	9.4	11.1	HALF COLLECTOR SECTION. BYPASS TO D.P. 8.
6	6A	I	3.50	0.5	15	9.6	16.8	0.0	16.8	0.0322	16.8	45.2	60.8	0.44	ON GRADE	0.90	15	13.5	13.5	3.3	ALLEY SECTION. BYPASS TO D.P. 7.
7	7A	J	2.20	0.5	15	9.6	10.6	13.8	24.4	0.005	24.4	5.9	67.0	0.50	SUMP	2.63	10	26.3	23.9	0.5	HALF COLLECTOR SECTION. SUMP W/POSITIVE OVERFLOW OVER CROWN. BYPASS TO D.P. 8.
8	8A	K/2	3.55	0.5	15	9.6	17.0	5.8	22.8	0.01	45.6	34.4	85.6	0.62	ON GRADE	1.11	15	16.6	16.6	6.3	ASSUME HALF OF AREA K TO EACH INLET. BYPASS OFF TAPESTRY ST.
8	8B	K/2	3.55	0.5	15	9.6	17.0	5.8	22.8	0.01	45.6	34.4	85.6	0.62	ON GRADE	1.11	15	16.6	16.6	6.3	ASSUME HALF OF AREA K TO EACH INLET. BYPASS OFF TAPESTRY ST.
9	9A	W/2	3.20	0.5	15	9.6	15.4	14.8	30.2	0.0072	60.3	29.2	72.6	0.78	ON GRADE	1.31	10	13.1	13.1	17.1	ASSUME HALF OF AREA W TO EACH INLET.
9	9B	W/2	3.20	0.5	15	9.6	15.4	14.8	30.2	0.0072	60.3	29.2	72.6	0.78	ON GRADE	1.31	10	13.1	13.1	17.1	ASSUME HALF OF AREA W TO EACH INLET.
10	10A	OS2	5.10	0.5	15	9.6	24.5	0.0	24.5	N/A	N/A	N/A	N/A	3.80	HDWL	N/A	N/A	24.5	24.5	0.0	HEADWALL.
11	11A	O/2	1.75	0.5	15	9.6	8.4	17.1	25.5	0.0066	51.0	27.9	69.5	0.75	ON GRADE	1.27	10	12.7	12.7	12.8	ASSUME HALF OF AREA O TO EACH INLET.
11	11B	O/2	1.75	0.5	15	9.6	8.4	17.1	25.5	0.0066	51.0	27.9	69.5	0.75	ON GRADE	1.27	10	12.7	12.7	12.8	ASSUME HALF OF AREA O TO EACH INLET.
12	12A	P+H	8.50	0.5	15	9.6	40.8	25.6	66.4	0.0125	66.4	38.5	95.7	0.77	SUMP	3.88	20	77.6	66.4	0.0	SUMP. POSITIVE OVERFLOW TO NATURAL DRAINAGE WAY.
13	13A	L	1.90	0.5	15	9.6	9.1	0.0	9.1	0.0075	9.1	29.8	74.1	0.50	SUMP	2.63	10	26.3	9.1	0.0	SUMP. POSITIVE OVERFLOW TO NATURAL DRAINAGE WAY.
14	14A	OS1	5.60	0.75	15	9.6	40.3	0.0	40.3												

5 YEAR STORM DRAIN CALCULATIONS

Table with 22 columns: SECTION REACH, LENGTH (FT), DRAINAGE AREA(S), INCR. CA, TOTAL CA, TIME OF CONCENTRATION (MIN), RAINFALL INTENSITY (IN/HR), DESIGN Q (CFS), UPSTREAM INLET BYPASS (CFS), SYSTEM BYPASS (CFS), TOTAL Q IN SYSTEM (CFS), SIZE, TYPE, FLOW AREA (SF), WETTED PERIMETER (FT), FRICTION GRADIENT (FT/FT), HYDRAULIC GRADIENT DOWNSTREAM (MSL), HYDRAULIC GRADIENT UPSTREAM (MSL), VELOCITY IN (FPS), VELOCITY OUT (FPS), VELOCITY HEAD IN (FT), VELOCITY HEAD OUT (FT), LOSS COEFF. KJ, HEAD LOSS (FT), HG AT UPSTREAM OF NODE, T/C ELEV. @ INLET.

100 YEAR STORM DRAIN CALCULATIONS

Table with 22 columns: SECTION REACH, LENGTH (FT), CONTRIBUTING DRAINAGE AREA(S), INCR. CA, TOTAL CA, TIME OF CONCENTRATION (MIN), RAINFALL INTENSITY (IN/HR), DESIGN Q (CFS), UPSTREAM INLET BYPASS (CFS), SYSTEM BYPASS (CFS), TOTAL Q IN SYSTEM (CFS), SIZE, TYPE, FLOW AREA (SF), WETTED PERIMETER (FT), FRICTION GRADIENT (FT/FT), HYDRAULIC GRADIENT DOWNSTREAM (MSL), HYDRAULIC GRADIENT UPSTREAM (MSL), VELOCITY IN (FPS), VELOCITY OUT (FPS), VELOCITY HEAD IN (FT), VELOCITY HEAD OUT (FT), LOSS COEFF. KJ, HEAD LOSS (FT), HG AT UPSTREAM OF NODE, T/C ELEV. @ INLET.

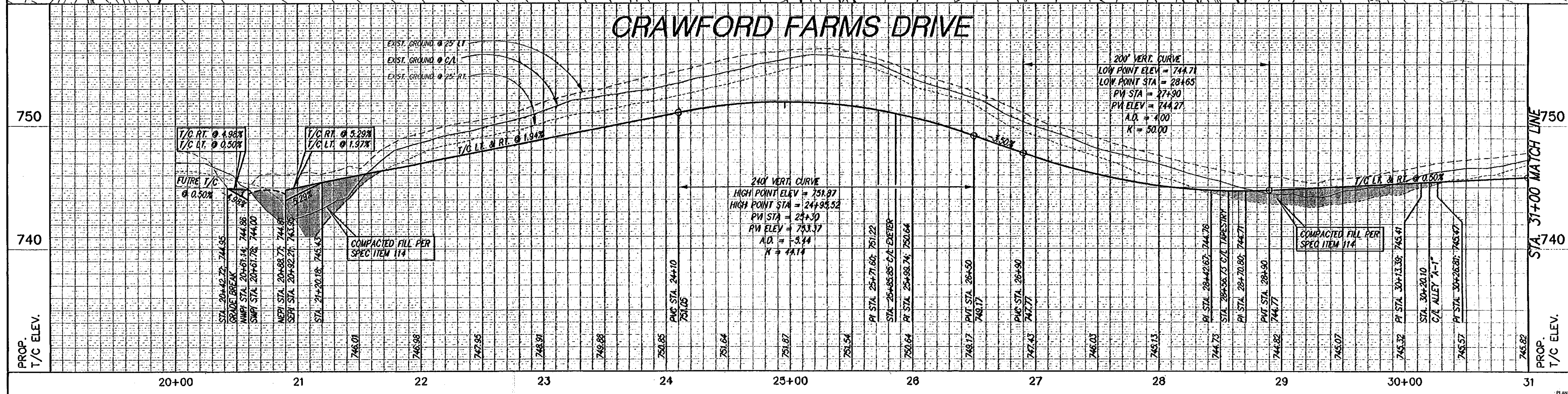
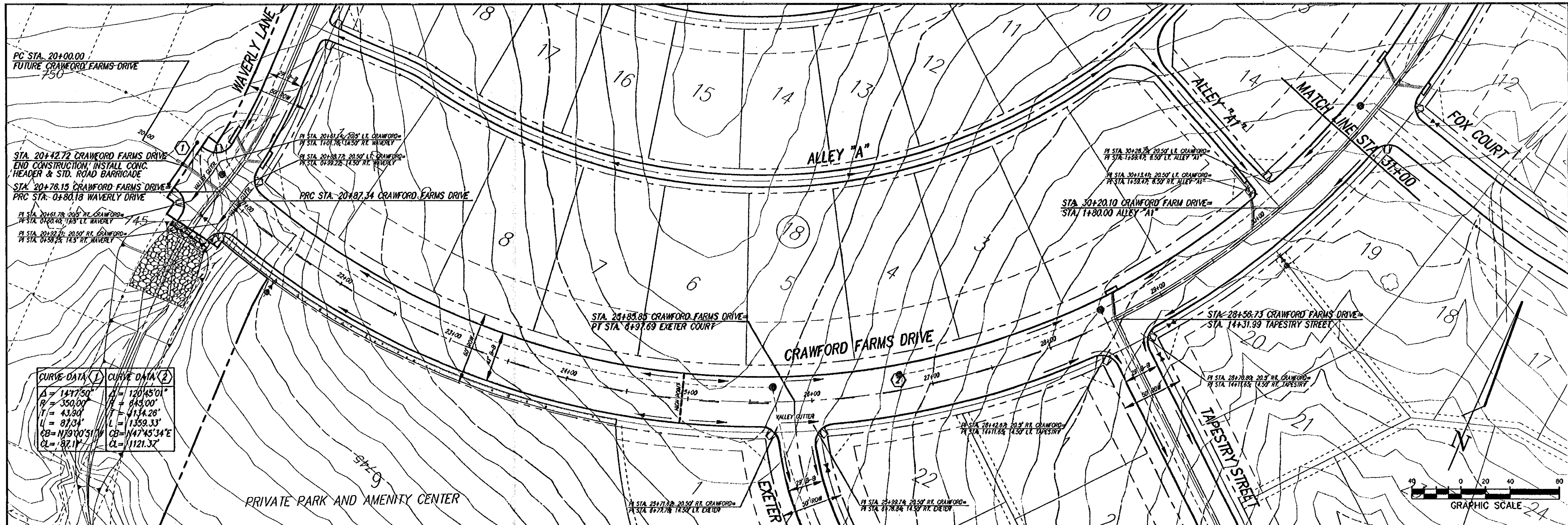
Table with 3 columns: NO., REVISION, BY, DATE. Includes designer SHS, ASB, MJH and checker MJH.

SCALE: HORIZ N/A, VERT N/A, DATE OCT 2002

TEAGUE NALL AND PERKINS CONSULTING ENGINEERS logo and address: 1100 Moon Street, Fort Worth, Texas 76102. Includes 'RECORD DRAWING' stamp.

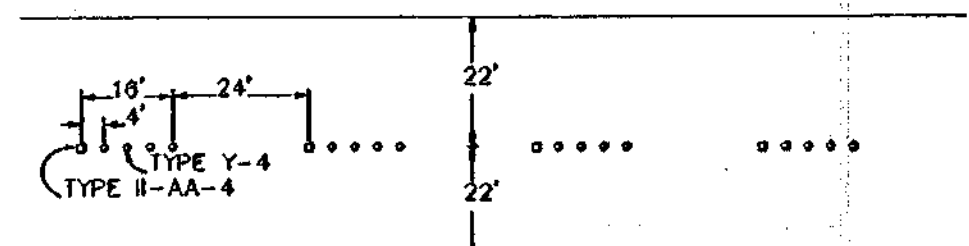
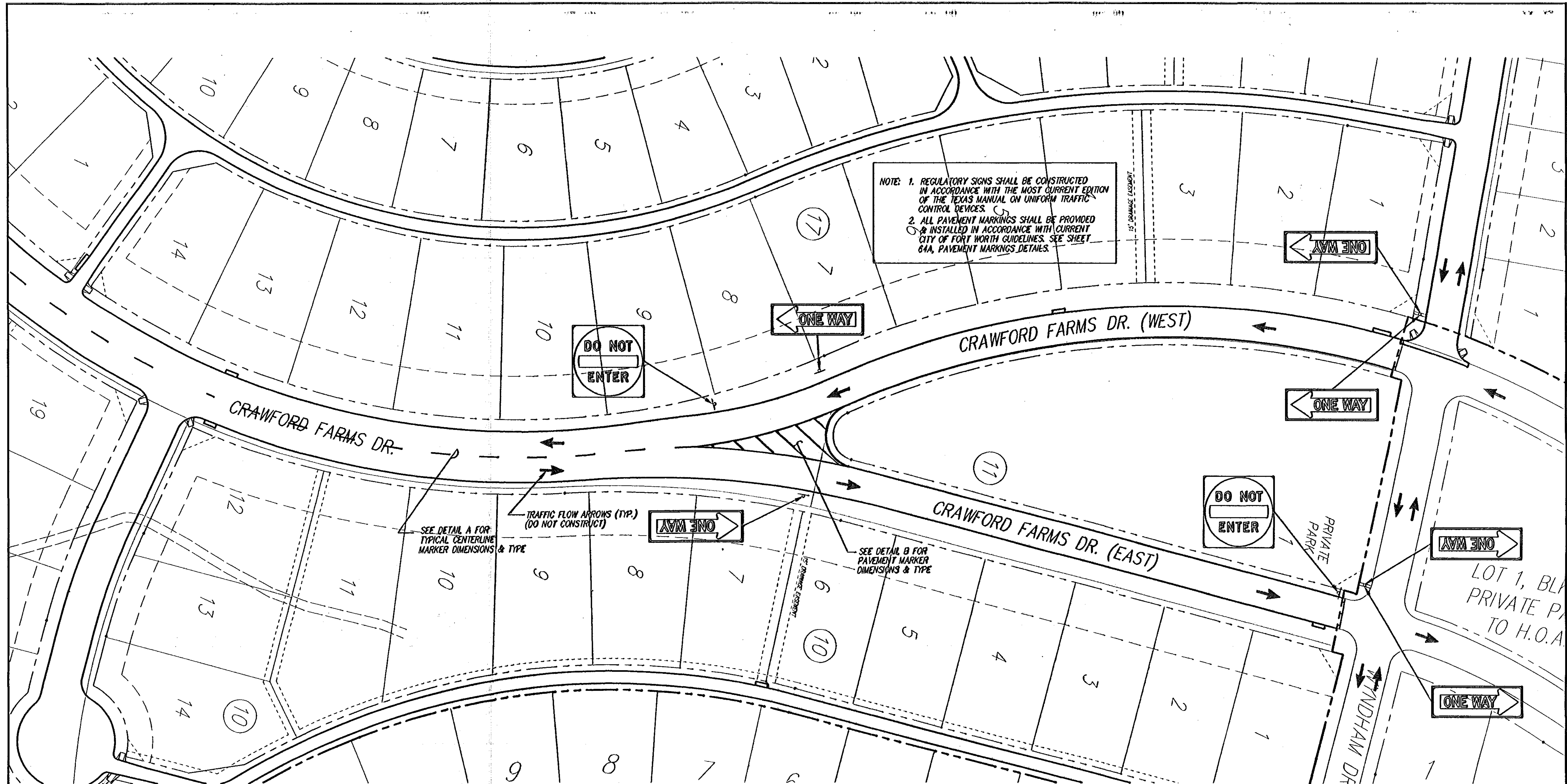
Professional Engineer Seal for Mark A. Holliday, No. 84683, State of Texas, dated 11-17-02.

CITY OF FORT WORTH, TEXAS. CRAWFORD FARMS, PHASE II DRAINAGE CALCULATIONS (2 OF 2). SHEET 16B OF 69.



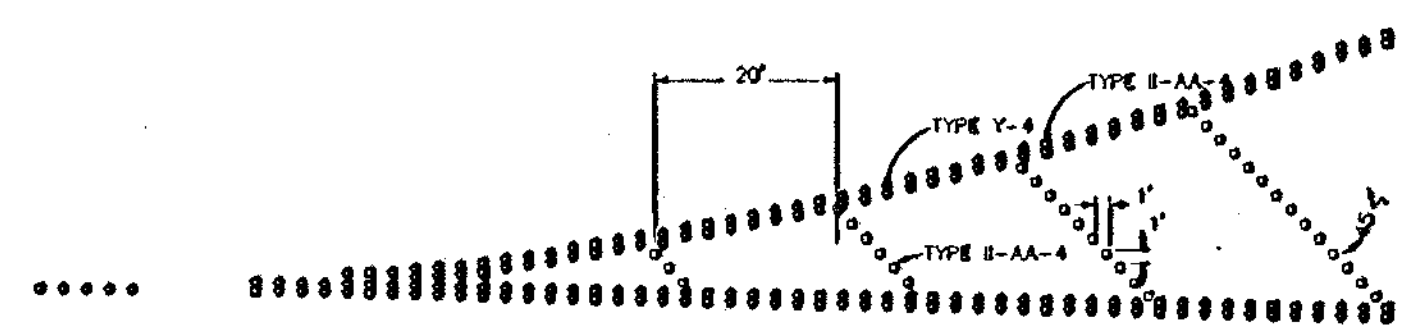
NO.	REVISION	BY	DATE	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street Fort Worth, Texas 76102 (817) 338-5773 235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd Irving, Texas 75061 (972) 254-7200	MARK J. HOLLIDAY 84683 REGISTERED PROFESSIONAL ENGINEER CIVIL Date: 11-11-02	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE CRAWFORD FARMS DRIVE	TNP PROJECT LEB02147 SHEET 17 OF 69

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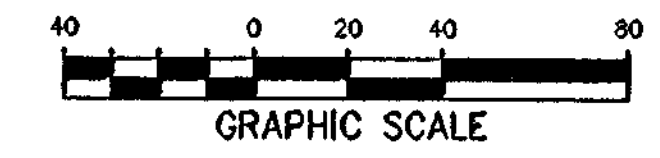


TYPICAL TWO-LANE, TWO-WAY MARKING WITH PASSING PERMITTED

DETAIL A



DETAIL B



NO.	REVISION	BY	DATE

DESIGNED SHS	
DRAWN TET	
CHECKED MJH	

SCALE HORIZ 1"=40'
VERT N/A
DATE OCT 2002

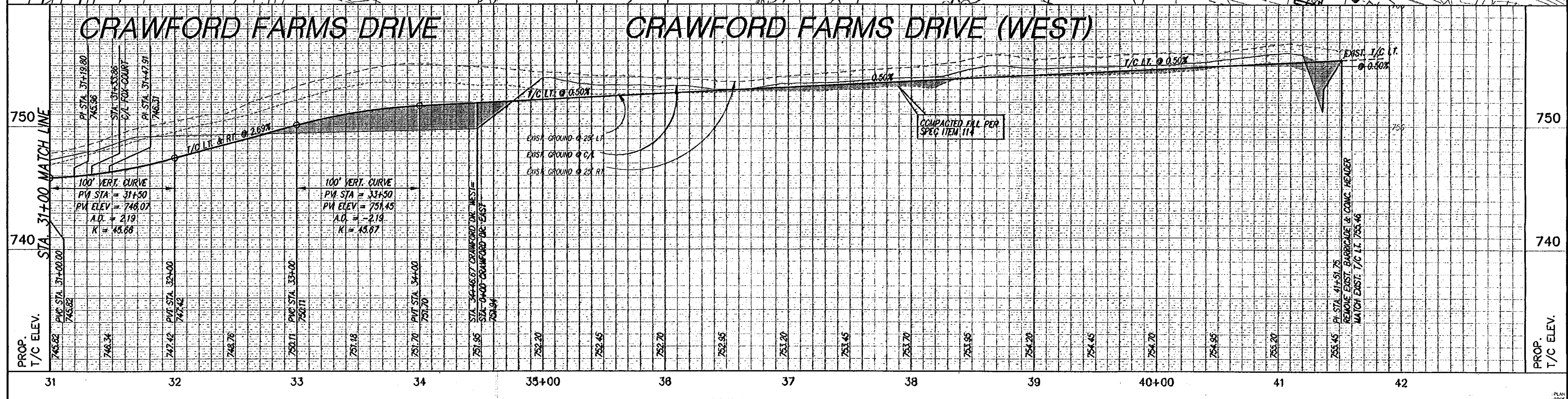
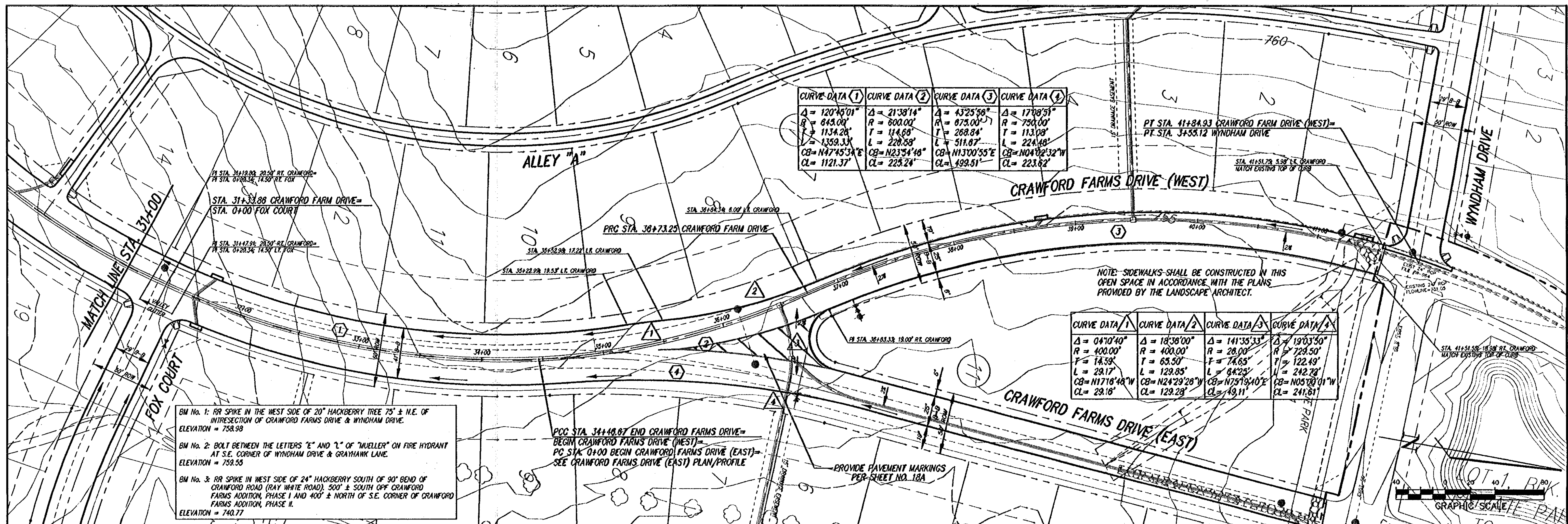
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 235 W. Highway Street, Suite #100 Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd. Irving, Texas 75061 (972) 254-1765

Professional Engineer Seal for Mark J. Holliday, No. 84683, State of Texas. Date: 10-11-02.

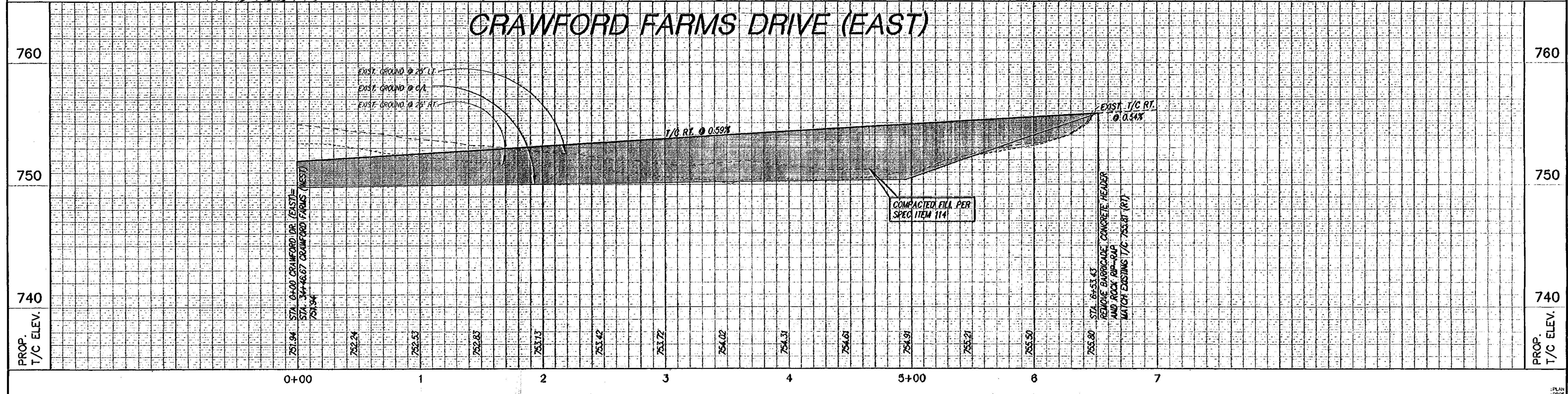
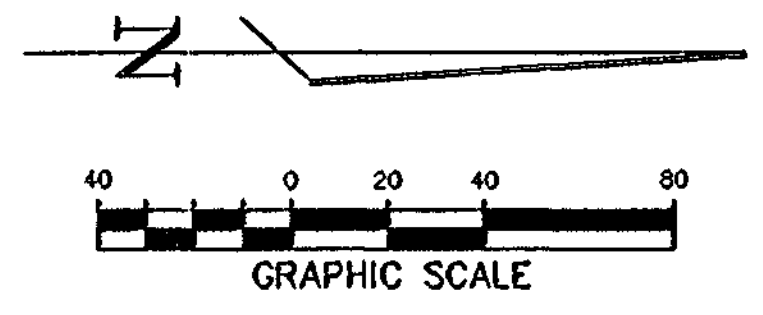
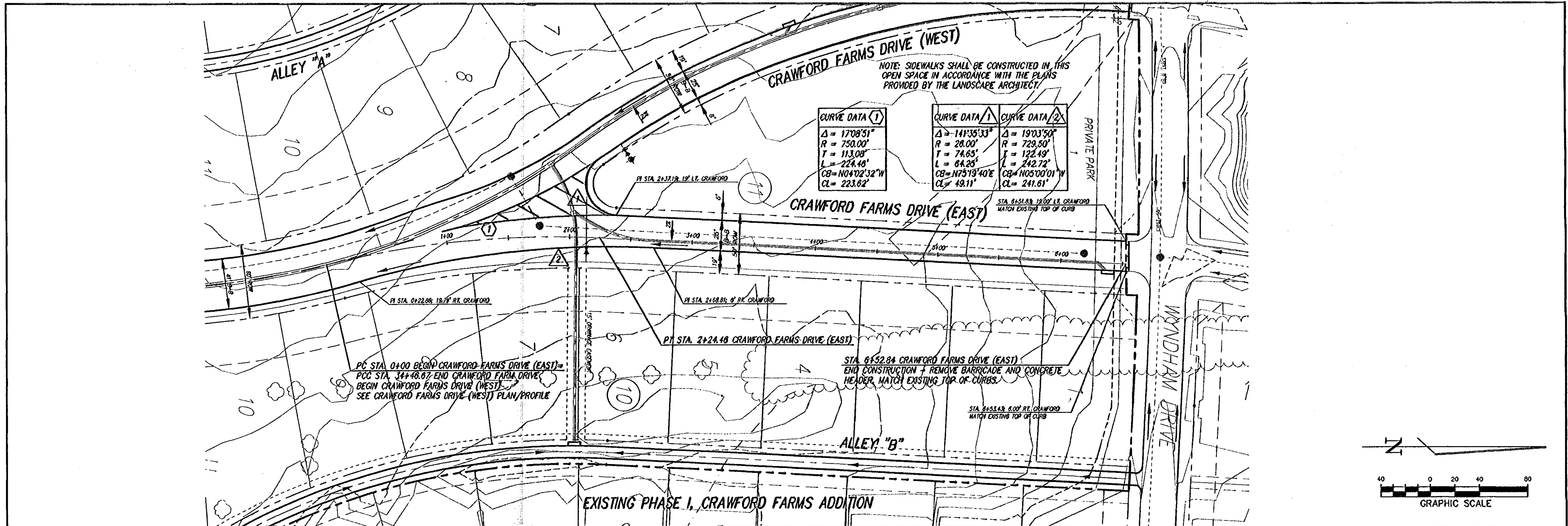
CITY OF FORT WORTH, TEXAS	TWP PROJECT LEB02147
CRAWFORD FARMS, PHASE II	SHEET 18A
PAVEMENT MARKINGS AND SIGNAGE CRAWFORD FARMS DRIVE	OF 69

RECORD DRAWING



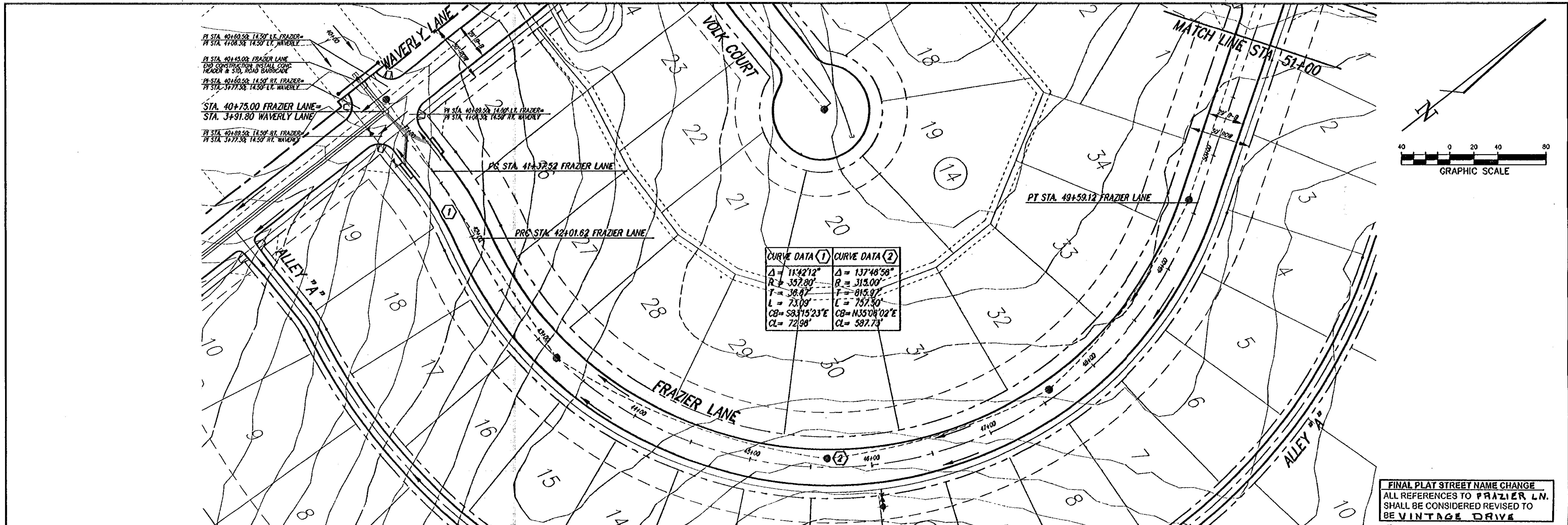
NO.	REVISION	BY	DATE	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	<p>TEAGUE NALL AND PERKINS CONSULTING ENGINEERS</p> <p>1100 Moon Street Fort Worth, Texas 76102 (817) 338-3775</p> <p>235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177</p> <p>2001 West Irving Blvd Irving, Texas 75001 (972) 254-1765</p>	<p>MARK J. HOLLIDAY 84683 LICENSED PROFESSIONAL ENGINEER State of Texas Date: 11-11-02</p>	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE CRAWFORD FARMS DRIVE (WEST)	TNP PROJECT LEB02147 SHEET 18 OF 69
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RECORD DRAWING

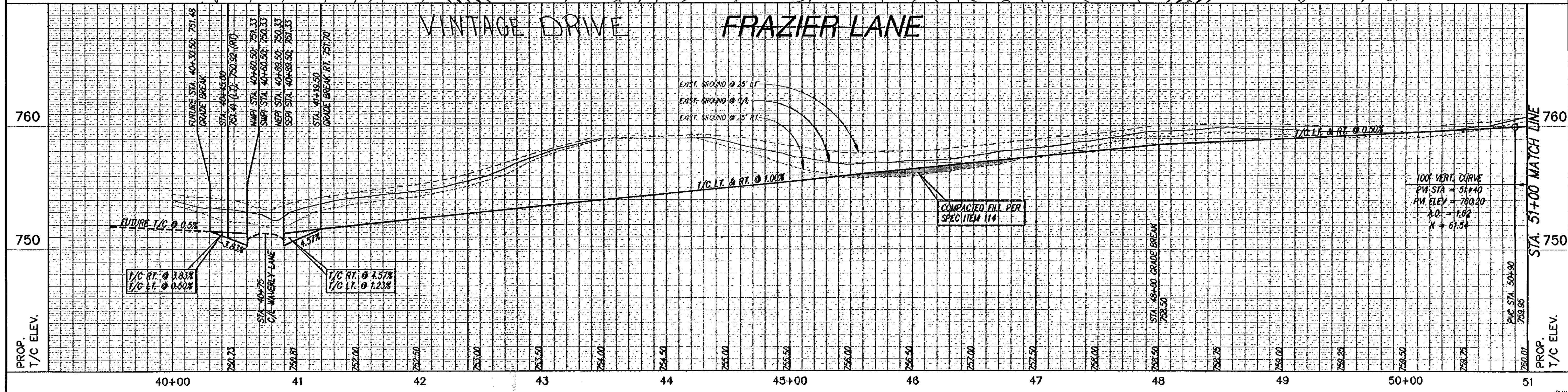


NO.	REVISION	BY	DATE	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1"=40' VERT 1"=4' DATE OCT 2002	<p>TEAGUE NALL AND PERKINS CONSULTING ENGINEERS</p> <p>1100 Mason Street Fort Worth, Texas 76102 (817) 336-9773</p> <p>235 W Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177</p> <p>2001 West Irving Blvd Irving, Texas 75061 (972) 254-1785</p>	<p>MARK J. HOLLIDAY 34683 LICENSED PROFESSIONAL ENGINEER Date: 11-11-02</p>	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE CRAWFORD FARMS DRIVE (EAST)	TNP PROJECT LEB02147 SHEET 19 OF 69

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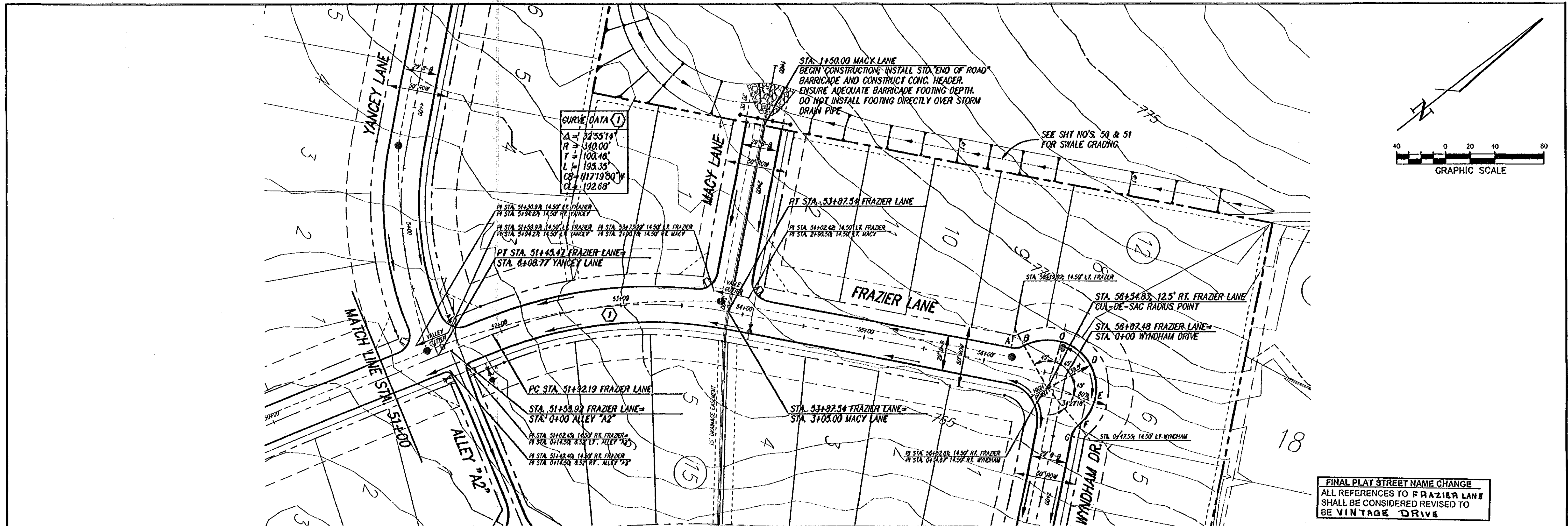


FINAL PLAT STREET NAME CHANGE
 ALL REFERENCES TO FRAZIER LN.
 SHALL BE CONSIDERED REVISED TO
 BE VINTAGE DRIVE

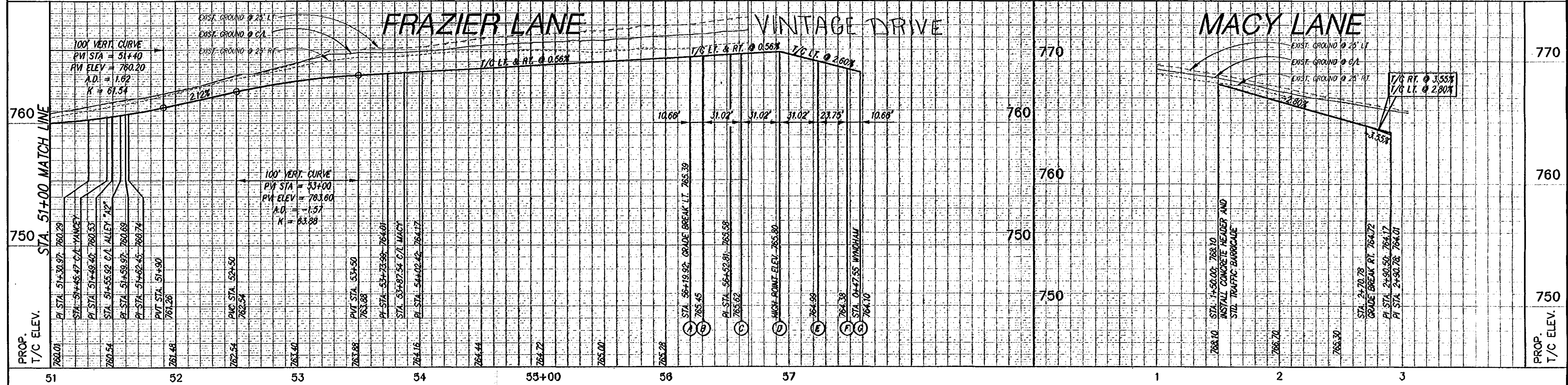


STREET NAME CHANGES		ASB	2010	SHS DESIGNED	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Moon Street Fort Worth, Texas 76102 (817) 338-3775	235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177	2001 West Irving Blvd. Irving, Texas 75061 (972) 254-1765	CITY OF FORT WORTH, TEXAS		TMP PROJECT LEB02147	
				LCC DRAWN				CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE FRAZIER LANE VINTAGE DRIVE		SHEET 20	
				MJH CHECKED				MARK A. HOLLIDAY 84683 LICENSED PROFESSIONAL ENGINEER State of Texas Date: 10-11-02		OF 69	
NO.	REVISION	BY	DATE		SCALE HORIZ 1"=40' VERT 1"=4' DATE OCT 2002						

RECORD DRAWING



FINAL PLAT STREET NAME CHANGE
 ALL REFERENCES TO FRAZIER LANE SHALL BE CONSIDERED REVISED TO BE VINTAGE DRIVE



NO.	REVISION	BY	DATE

STREET NAME CHANGES	ASD	11/25/03

SCALE	HORIZ	1" = 40'
	VERT	1" = 4'
DATE		OCT 2002

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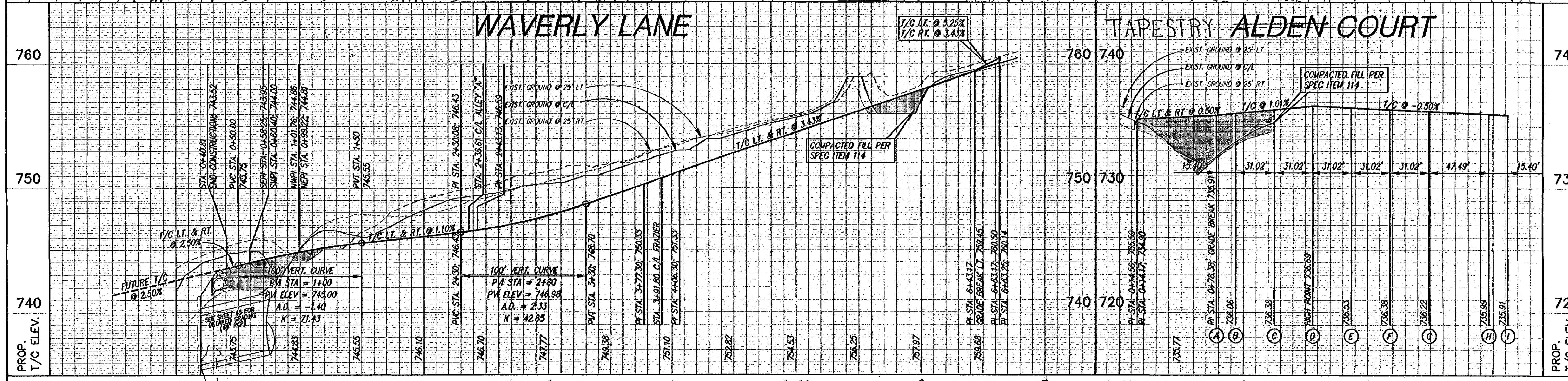
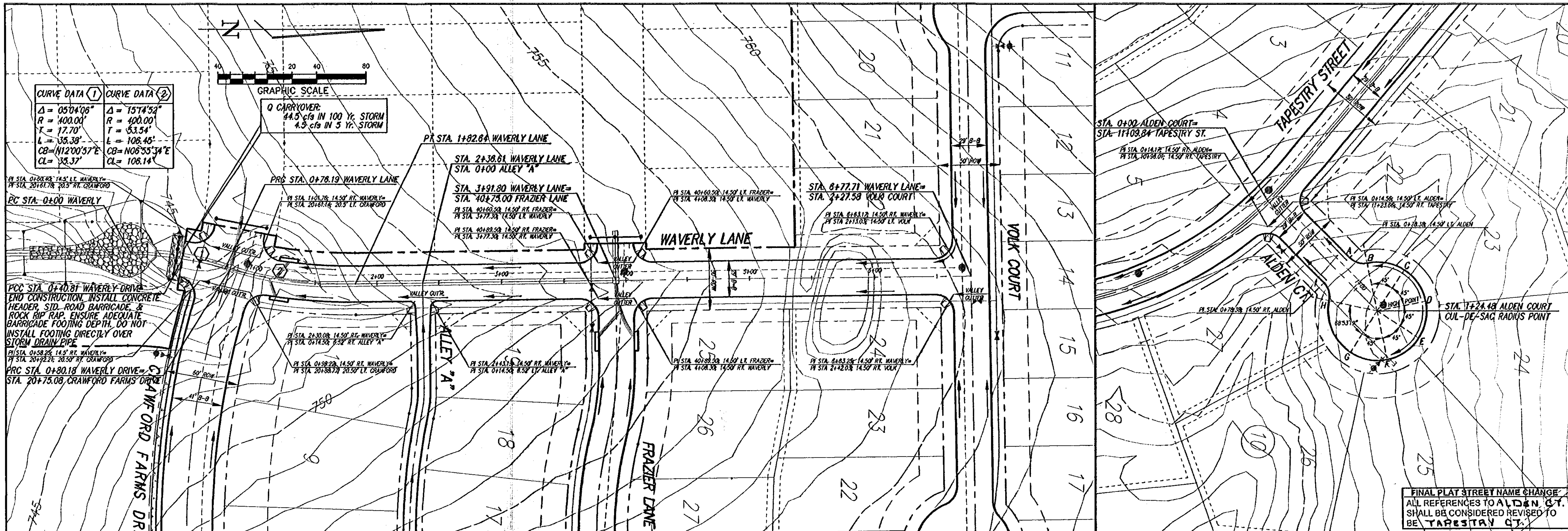
MARK J. HOLLIDAY
 84683
 PROFESSIONAL ENGINEER
 State of Texas
 Date: 11-11-02

CITY OF FORT WORTH, TEXAS

CRAWFORD FARMS, PHASE II
 PAVING PLAN/PROFILE
 FRAZIER LANE (end) and MACY LANE
 VINTAGE DRIVE

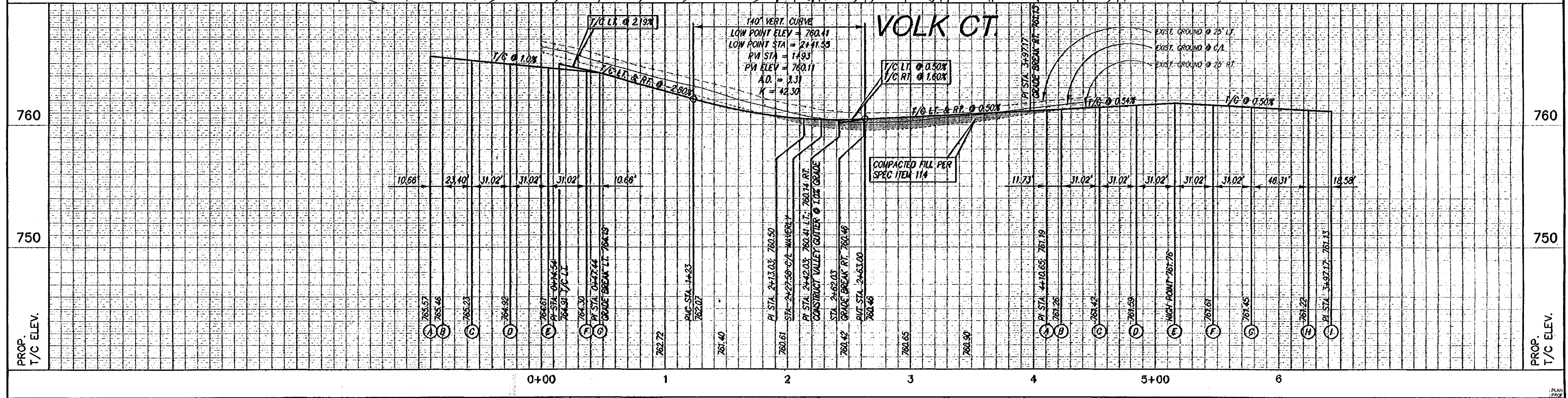
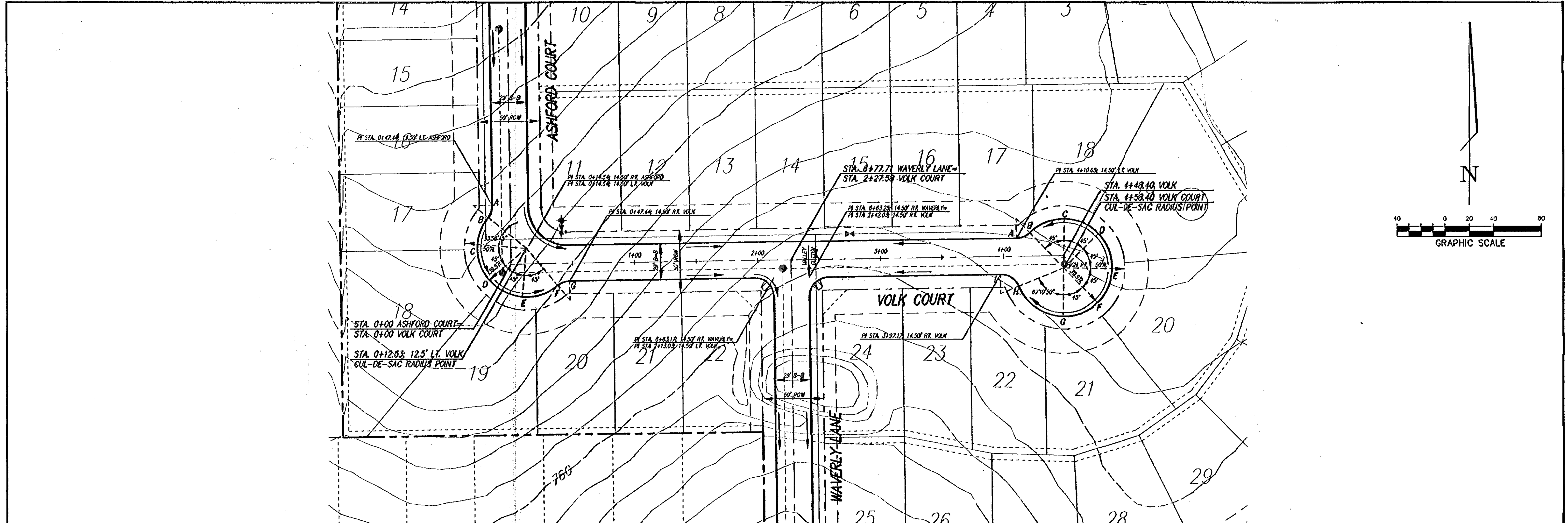
TNP PROJECT LEB02147
 SHEET **21** OF 69

RECORD DRAWING



STREET NAME CHANGES ASB 7/25/03		SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Moon Street Fort Worth, Texas 76102 (817) 336-5773 235 W Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd. Irving, Texas 75001 (972) 254-7200		CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE WAVERLY LANE and ALDEN COURT TAPESTRY CT.	TWP PROJECT LEB02147 SHEET 22 OF 69
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RECORD DRAWING



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJK
CHECKED

SCALE
HORIZ
1" = 40'
VERT
1" = 4'
DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Moon Street
Fort Worth, Texas 76102
(817) 338-5773

235 W. Hickory Street
Suite #100
Denton, Texas 76201
(940) 383-4177

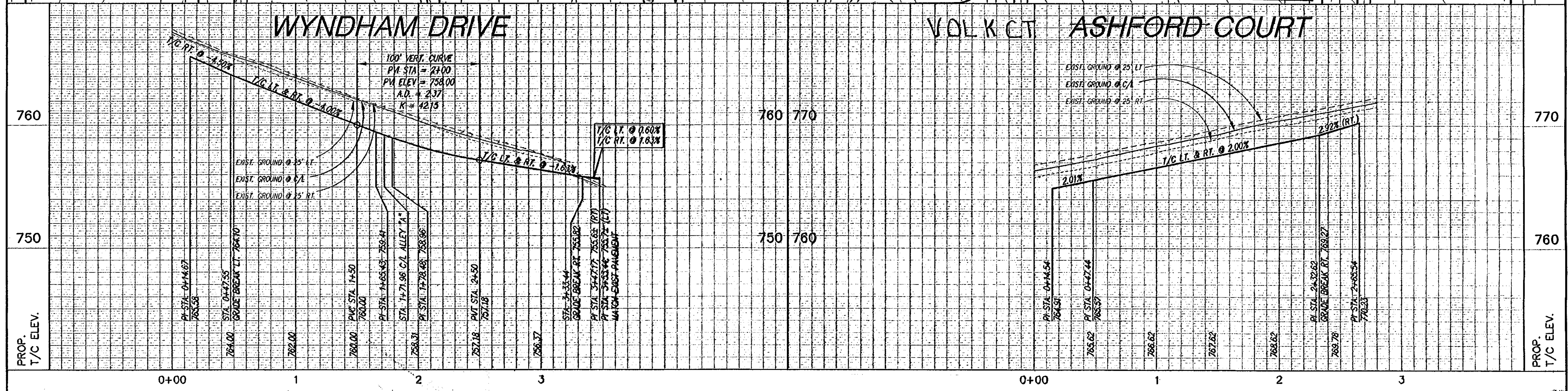
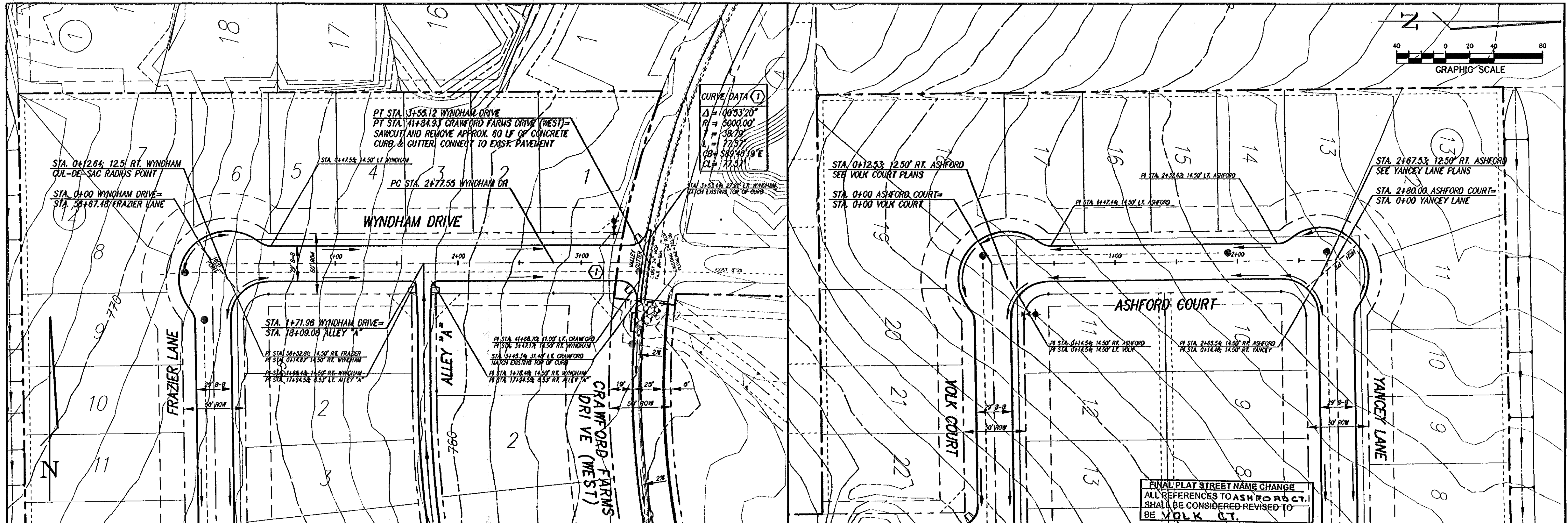
2001 West Irving Blvd
Irving, Texas 75061
(972) 254-1765

MARK J. HOLIDAY
84683
PROFESSIONAL ENGINEER
STATE OF TEXAS
Date: 10-15-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
PAVING PLAN/PROFILE
VOLK COURT

PLAN
SHEET
LEB02147
23
OF
69

RECORD DRAWING



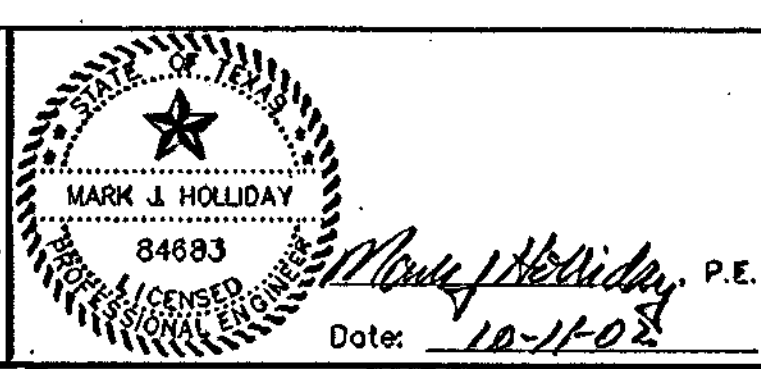
NO.	REVISION	BY	DATE

ASB	7/25/02
SHS	DESIGNED
LCC	DRAWN
MJH	CHECKED

SCALE	HORIZ 1"=40'
VERT	1"=4'
DATE	OCT 2002

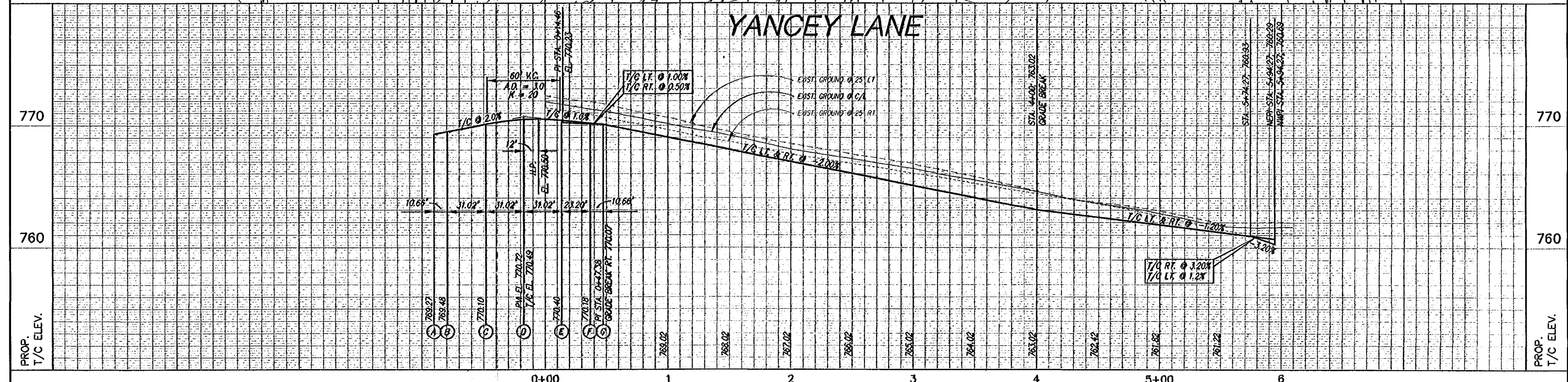
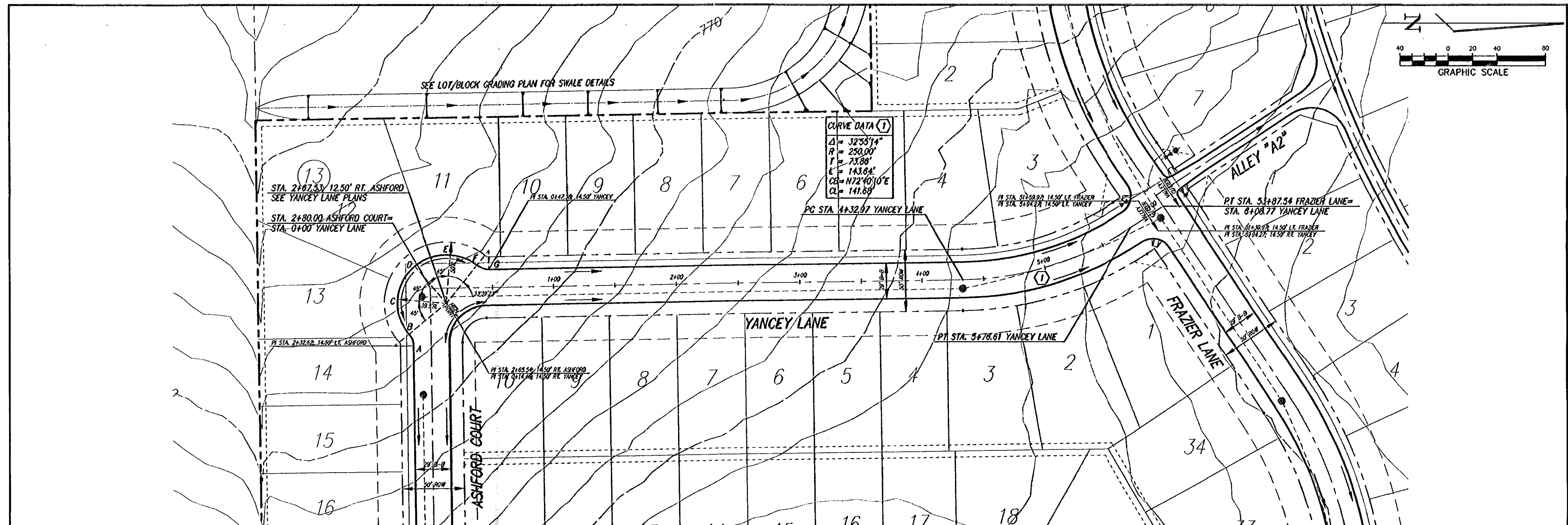
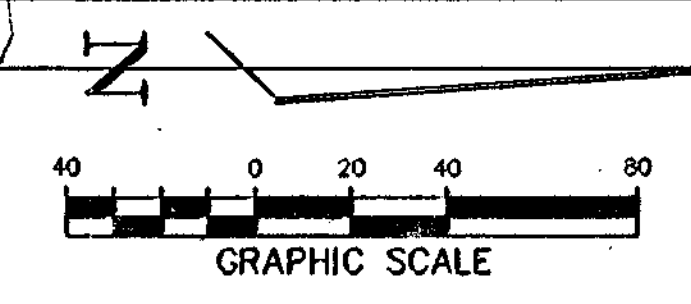
TEAGUE NALL AND PERKINS
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CITY OF FORT WORTH, TEXAS		TNP PROJECT LEB02147
CRAWFORD FARMS, PHASE II		SHEET 24
PAVING PLAN/PROFILE		OF 69
WYNDHAM DR. and ASHFORD CT. VOLK COURT		

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJH
CHECKED

SCALE
HORIZ
1" = 40'
VERT
1" = 4'
DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

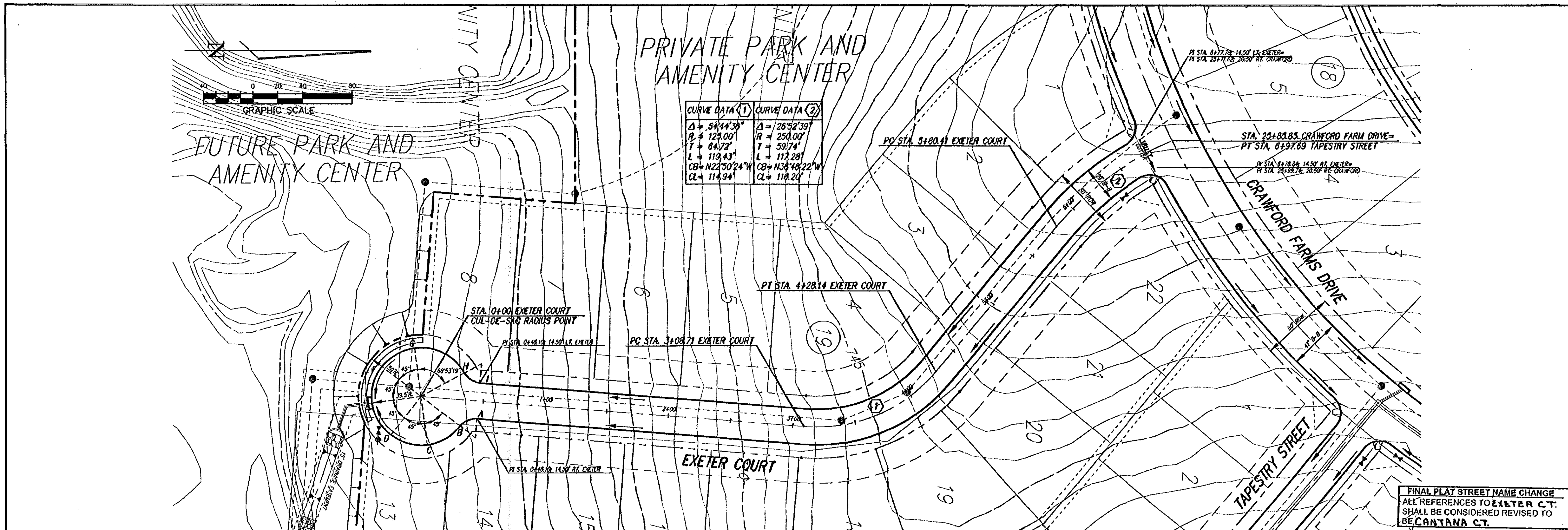
1100 Moon Street Fort Worth, Texas 76102 (817) 338-3773
 235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765

Professional Engineer Seal for Mark A. Holiday, License No. 84683, State of Texas. Date: 10-1-02

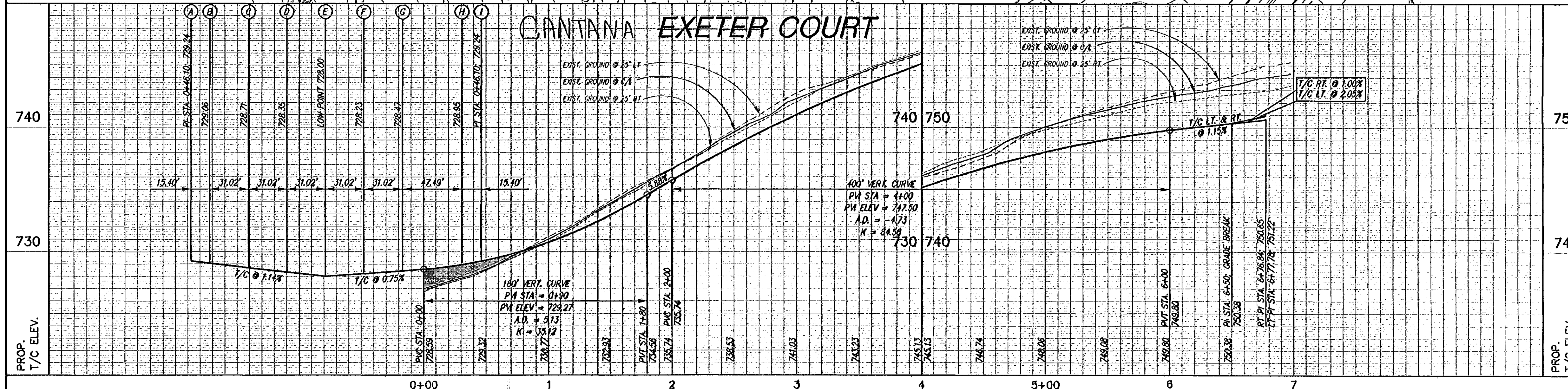
CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 PAVING PLAN/PROFILE
 YANCEY LANE

TNP PROJECT
LEBO2147
 SHEET
25
 OF
 69

RECORD DRAWING



FINAL PLAT STREET NAME CHANGE
 ALL REFERENCES TO EXETER CT.
 SHALL BE CONSIDERED REVISED TO
 BE CANTANA CT.



STREET NAME CHANGES	ASB 7/25/03		
DESIGNED	SHS		
DRAWN	LCC		
CHECKED	MJH		
NO.	REVISION	BY	DATE

SCALE	HORIZ 1"=40'
SCALE	VERT 1"=4'
DATE	OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS

1100 Mason Street
 Fort Worth, Texas 76102
 (817) 338-5773

235 W. Hickory Street
 Suite #100
 Denton, Texas 76201
 (940) 383-4177

2001 West Irving Blvd
 Irving, Texas 75061
 (972) 254-1765

MARK J. HOLLIDAY
 84683
 LICENSED PROFESSIONAL ENGINEER
 State of Texas
 Date: 11-11-02

CITY OF FORT WORTH, TEXAS

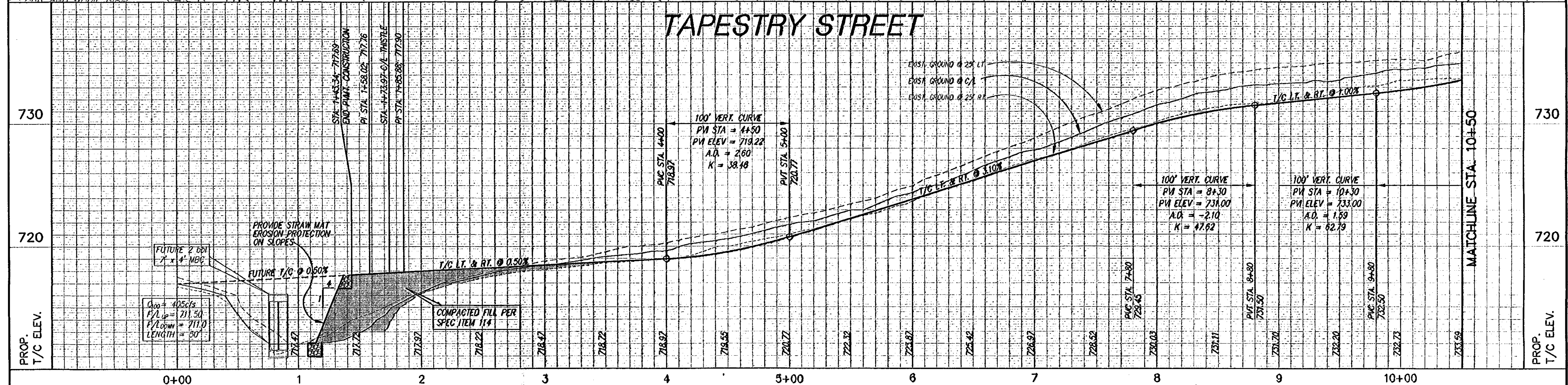
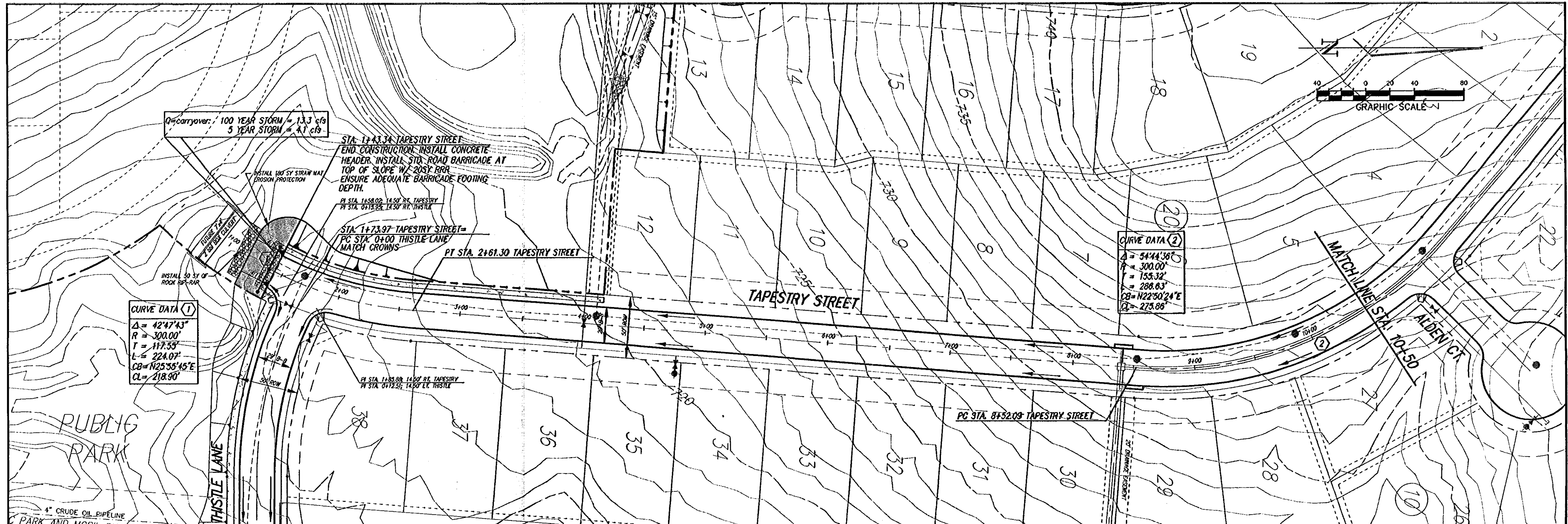
CRAWFORD FARMS, PHASE II

PAVING PLAN/PROFILE
 EXETER COURT
 CANTANA COURT

TNP PROJECT
 LEB02147

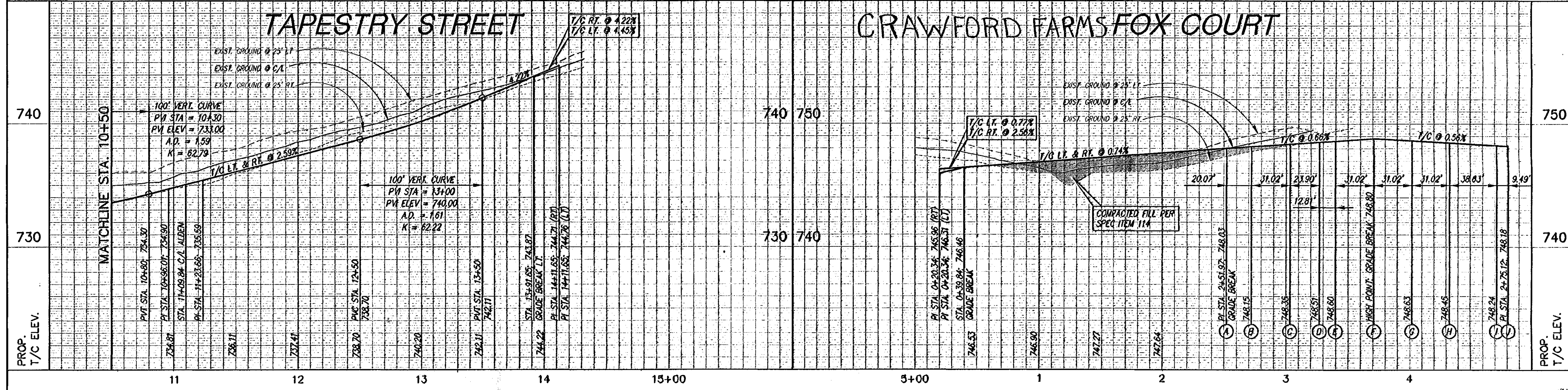
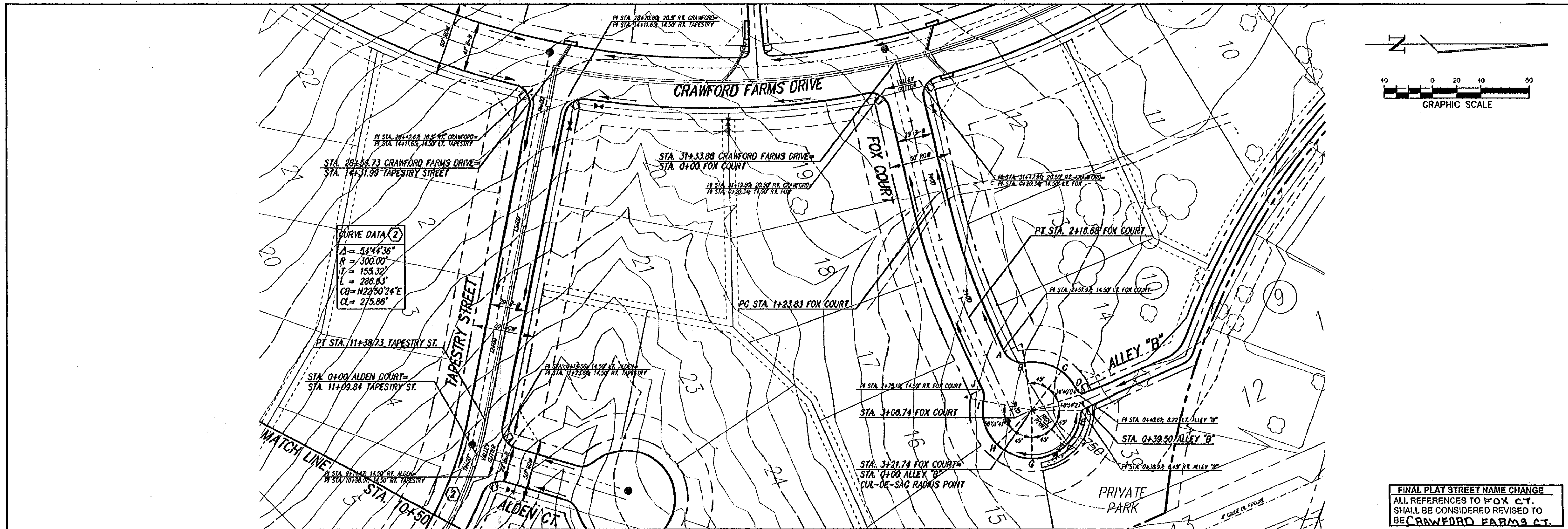
SHEET
26
 OF
 69

RECORD DRAWING



NO.		REVISION		BY		DATE	
SHS DESIGNED LCC DRAWN MJH CHECKED				SCALE HORIZ 1"=40' VERT 1"=4' DATE OCT 2002			
				CITY OF FORT WORTH, TEXAS TRIP PROJECT LEB02147 SHEET 27 OF 69			
1100 Moon Street Fort Worth, Texas 76102 (817) 336-3773				235 W Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177			
2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765				MARK J. HOLLIDAY 84683 LICENSED PROFESSIONAL ENGINEER State of Texas Date: 4-2-02			
CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE TAPESTRY STREET (1 OF 2)							

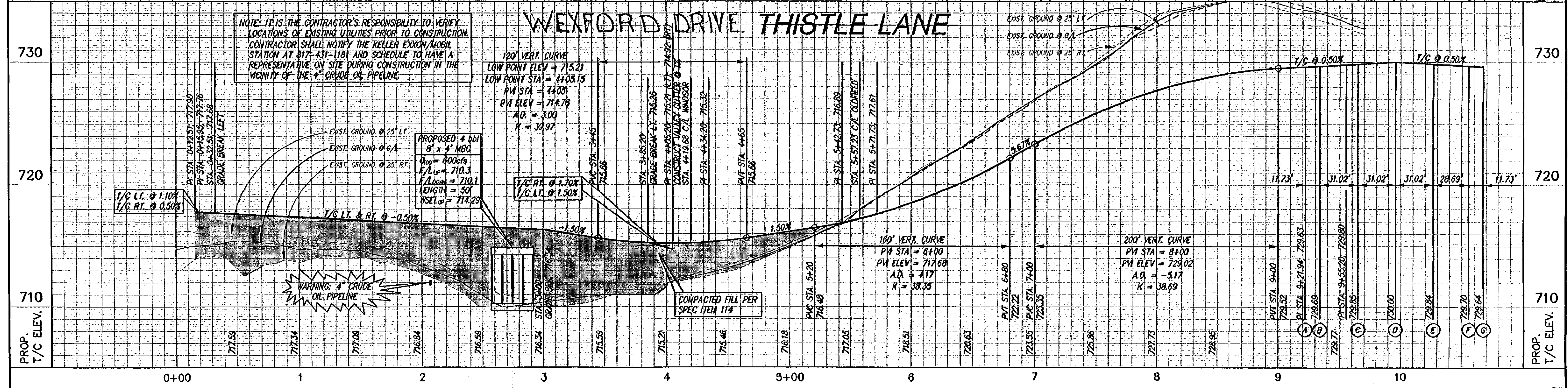
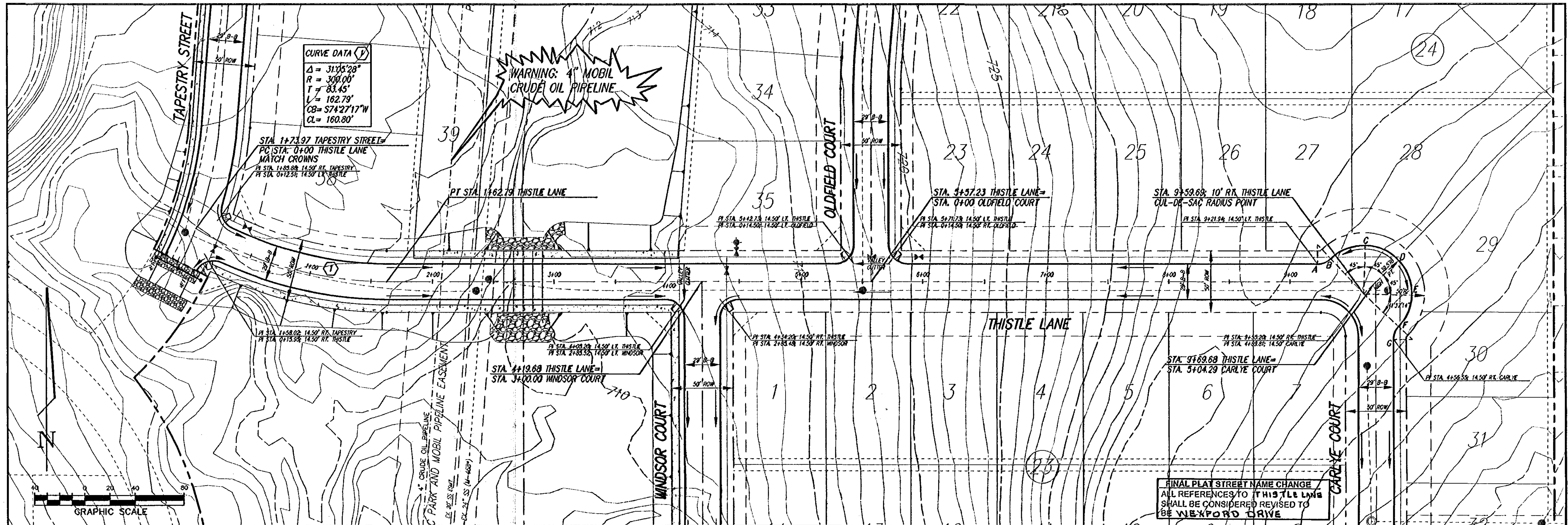
RECORD DRAWING



STREET NAME CHANGES		ASB	7/25/02	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	 1100 Mason Street Fort Worth, Texas 76102 (817) 336-9773 235 W. Hierarchy Street Suite #1100 Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd. Irving, Texas 75061 (972) 254-1765		CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE TAPESTRY ST. and FOX CT.	TNP PROJECT LEB02147 SHEET 28 OF 69
NO.	REVISION	BY	DATE						

RECORD DRAWING

CRAWFORD FARMS CT.



NO.	REVISION	BY	DATE

SHS DESIGNED	ASB 7/25/03
LCC DRAWN	
MJH CHECKED	

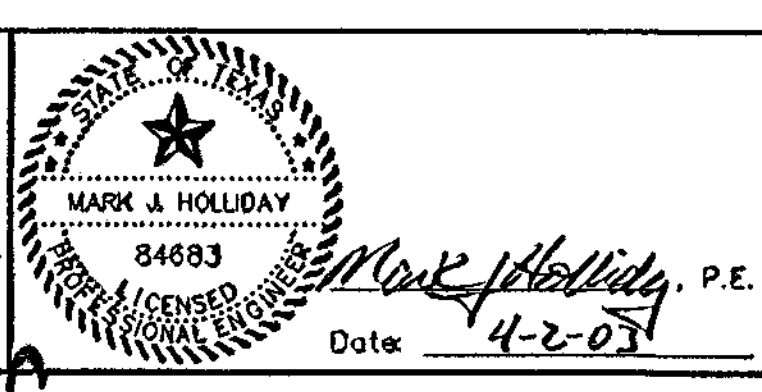
SCALE
 HORIZ 1"=40'
 VERT 1"=4'
 DATE
 OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS

1100 Moon Street Suite #100 Fort Worth, Texas 76102 (817) 338-9773

235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd Irving, Texas 75001 (972) 254-1765

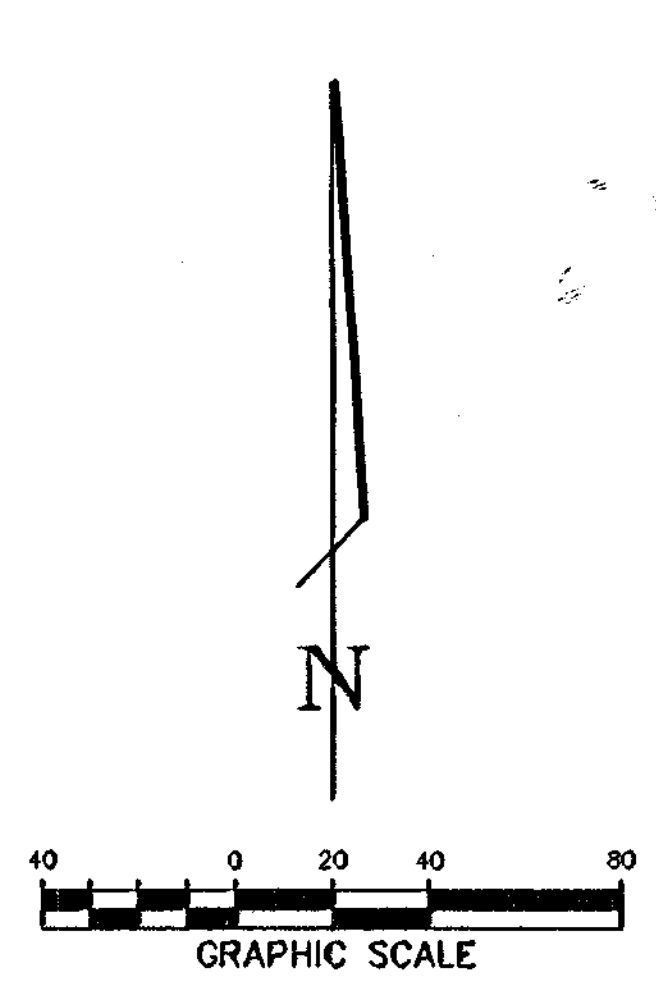
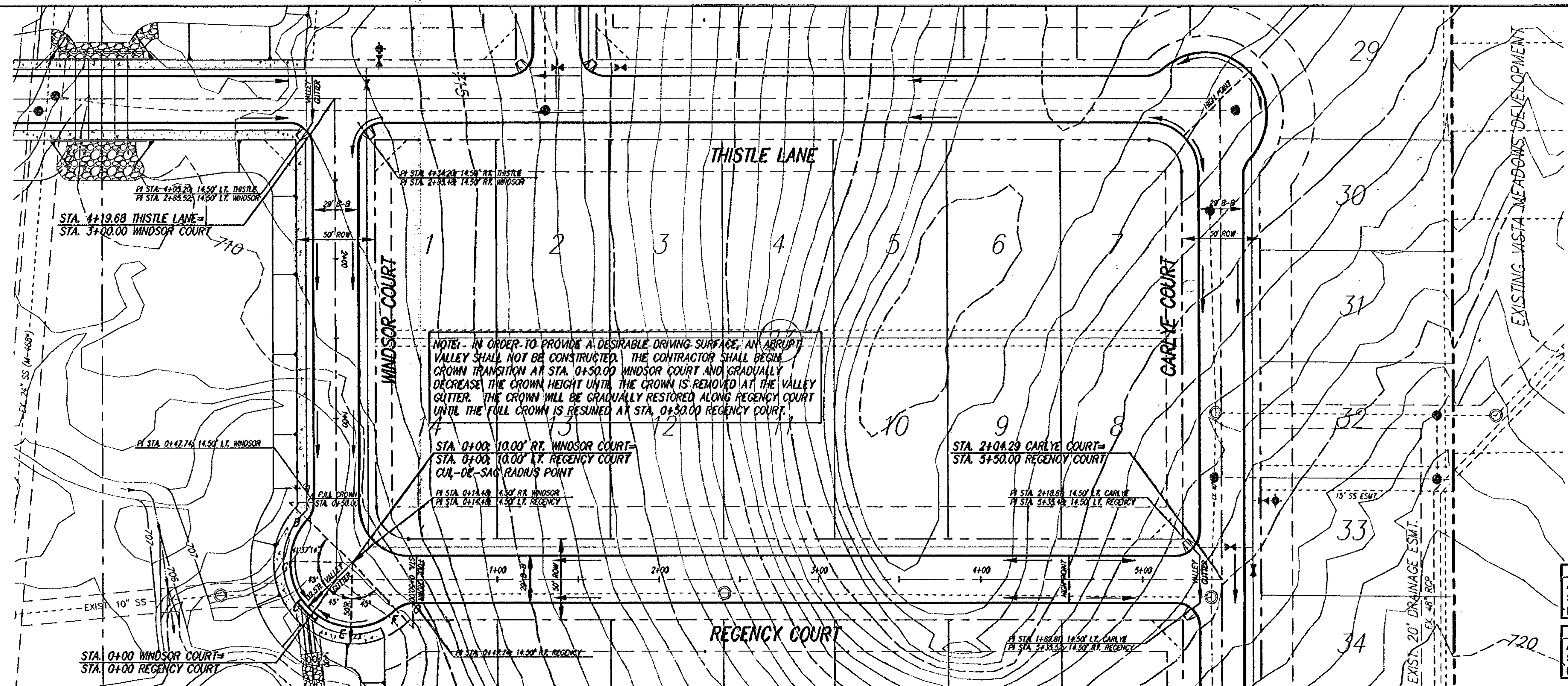


CITY OF FORT WORTH, TEXAS

CRAWFORD FARMS, PHASE II
 PAVING PLAN/PROFILE
 THISTLE LANE
 WEXFORD DRIVE

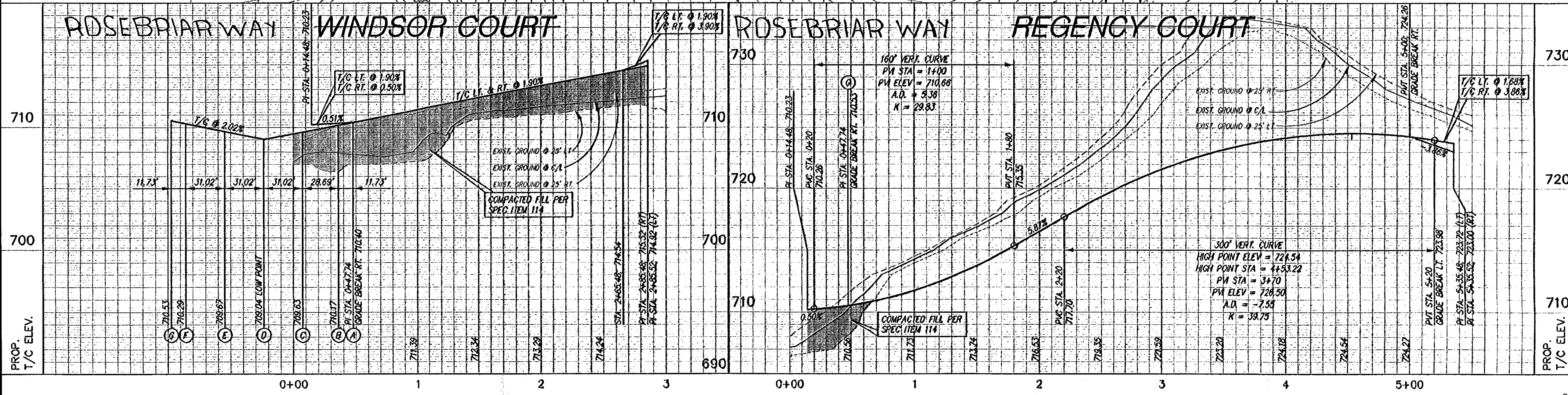
INP PROJECT LEB02147
 SHEET 29 OF 69

RECORD DRAWING



FINAL PLAT STREET NAME CHANGE
ALL REFERENCES TO WINDSOR CT. SHALL BE CONSIDERED REVISED TO BE ROSEBRIAR WAY

FINAL PLAT STREET NAME CHANGE
ALL REFERENCES TO REGENCY CT. SHALL BE CONSIDERED REVISED TO BE ROSEBRIAR WAY



STREET NAME CHANGES	ASB	7/23/03
NO.	REVISION	BY DATE

SHS DESIGNED	LCC DRAWN	MJH CHECKED
-----------------	--------------	----------------

SCALE	HORIZ 1"=40'	VERT 1"=4'
DATE	OCT 2002	

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street Fort Worth, Texas 76102 (817) 338-5773

235 W Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765

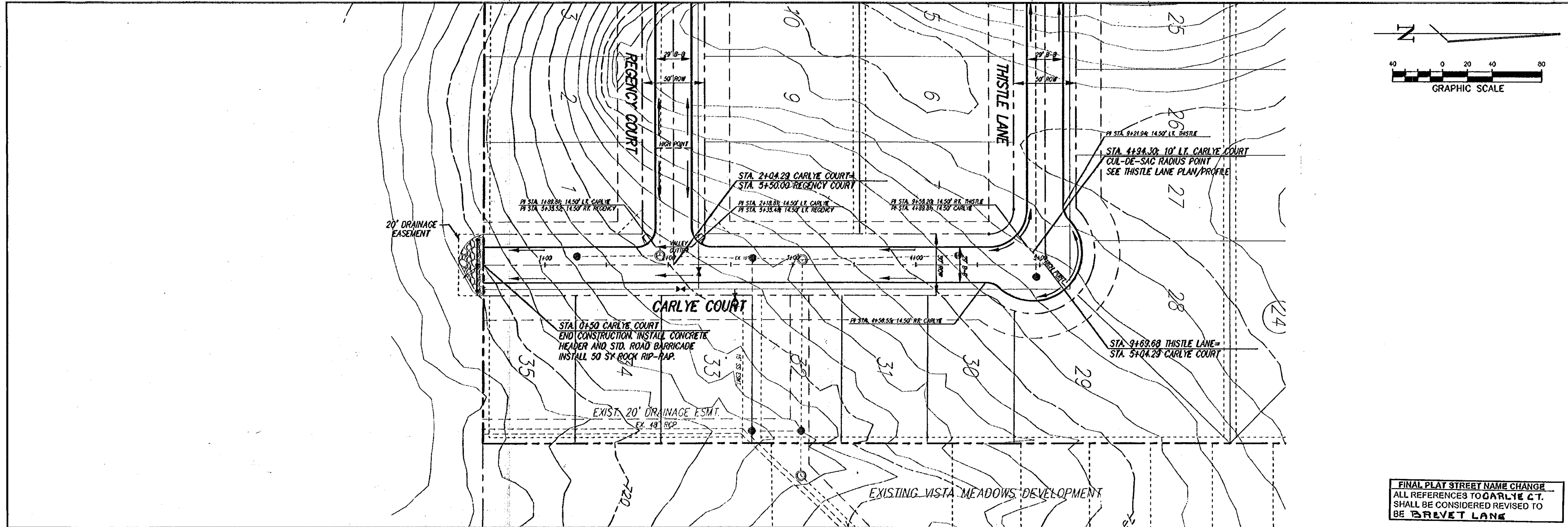
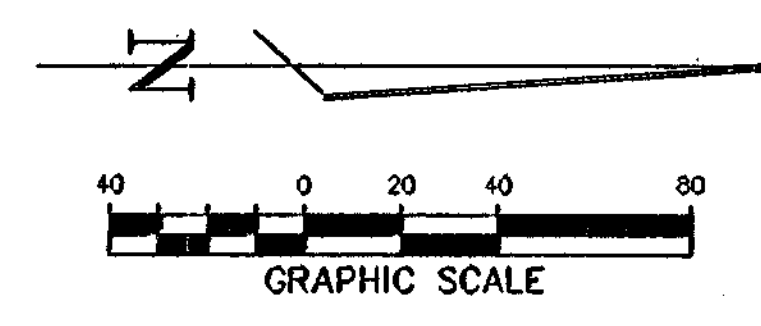
MARK J. HOLIDAY
84683
Professional Engineer
Date: 4-2-03

CITY OF FORT WORTH, TEXAS

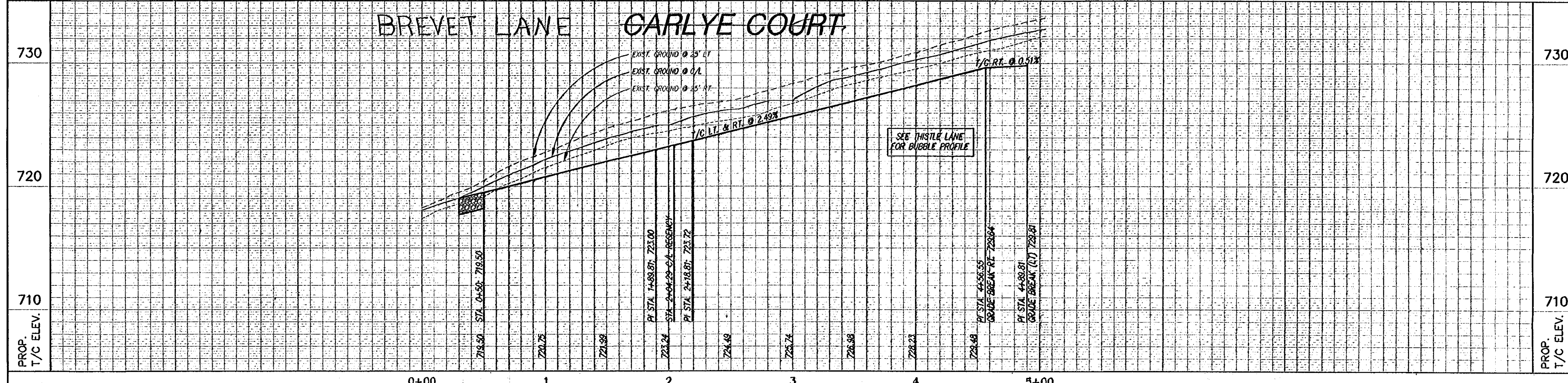
CRAWFORD FARMS, PHASE II
PAVING PLAN/PROFILE
WINDSOR and REGENCY COURTS
ROSEBRIAR WAY

TNP PROJECT LEBO2147
SHEET 30 OF 69

RECORD DRAWING



FINAL PLAT STREET NAME CHANGE
 ALL REFERENCES TO **CARLYE CT.**
 SHALL BE CONSIDERED REVISED TO
 BE **BREVET LANE**

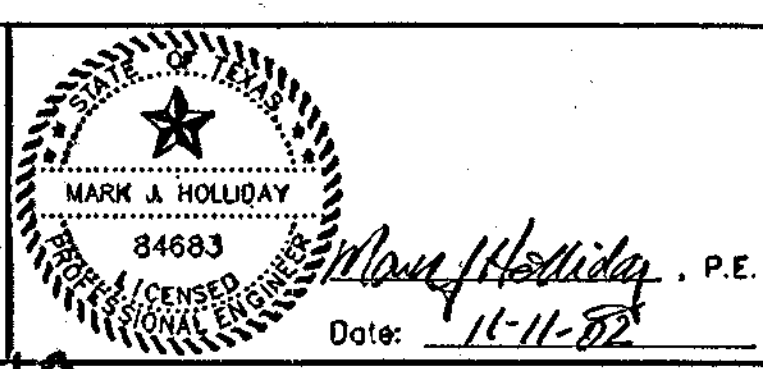


NO.	REVISION	BY	DATE

DESIGNED	SHS
DRAWN	LCC
CHECKED	MJH

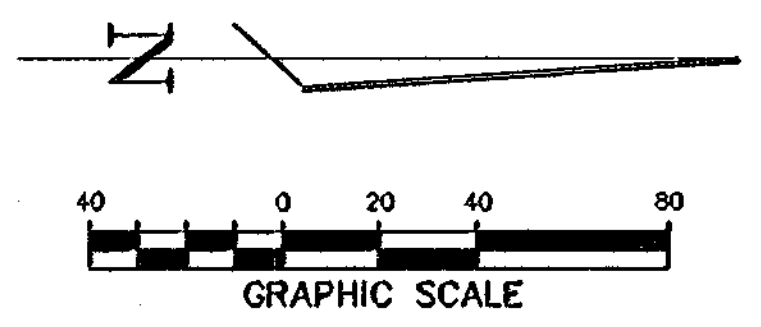
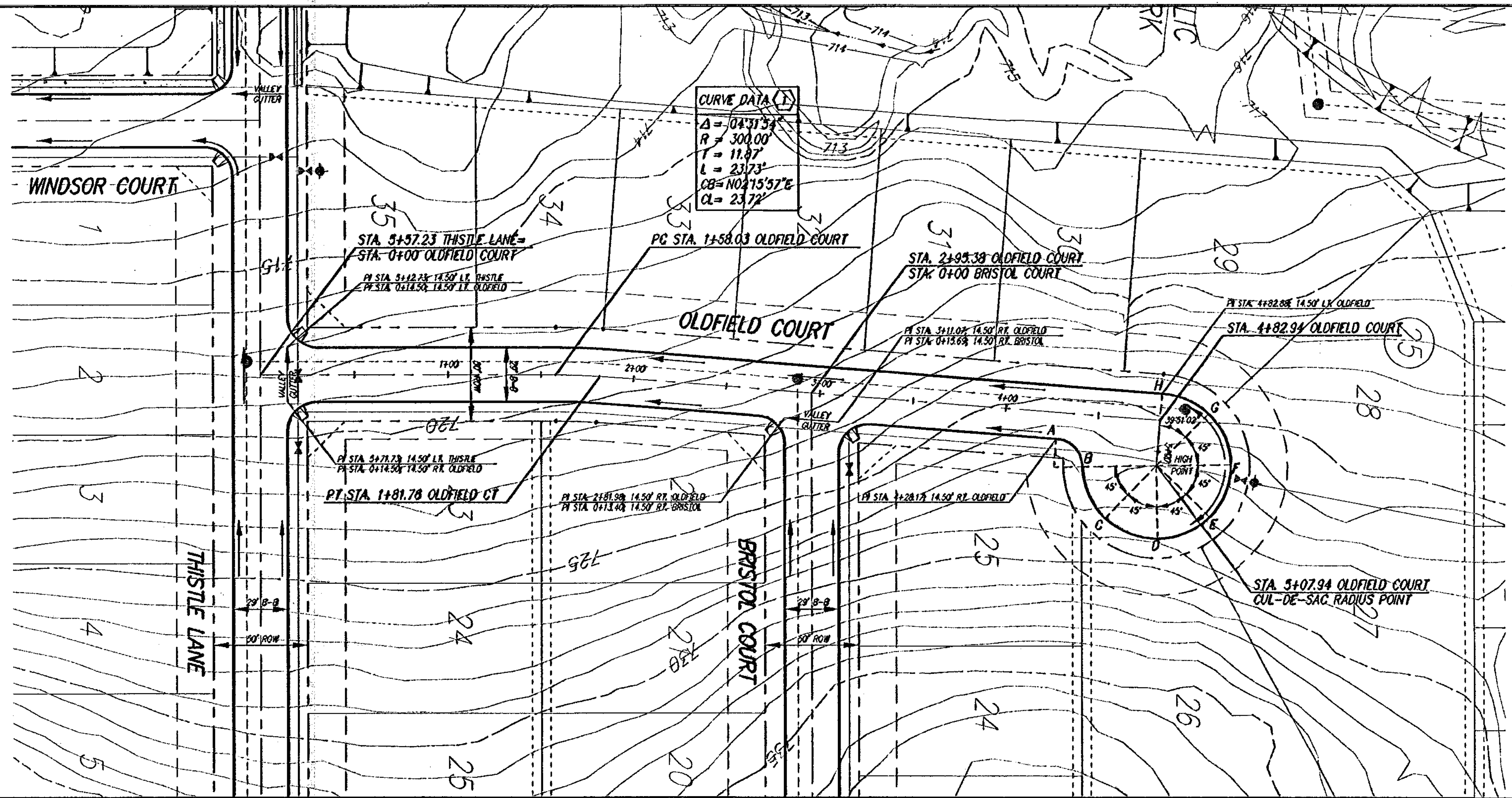
SCALE
 HORZ
 1" = 40'
 VERT.
 1" = 4'
 DATE
 OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Moon Street, Suite #100, Fort Worth, Texas 76102 (817) 336-9773
 235 W. Hickory Street, Suite #100, Irving, Texas 75061 (940) 393-4177
 2001 West Irving Blvd., Irving, Texas 75061 (972) 254-1785

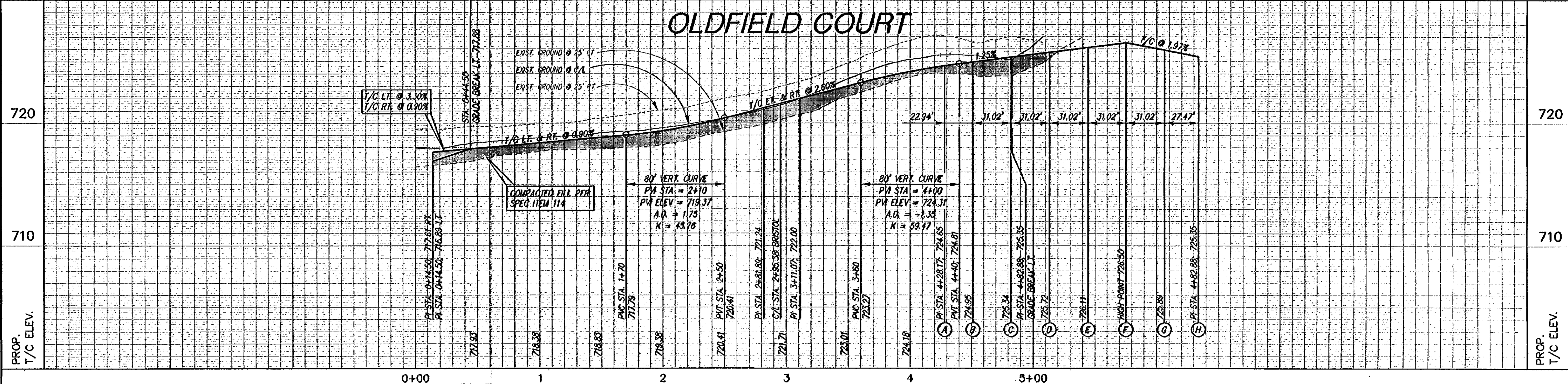


CITY OF FORT WORTH, TEXAS	TNP PROJECT LEB02147
CRAWFORD FARMS, PHASE II	SHEET 31
PAVING PLAN/PROFILE -CARLYE COURT BREVET LANE	OF 69

RECORD DRAWING



OLDFIELD COURT



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJH
CHECKED

SCALE
HORIZ
1"=40'
VERT
1"=4'
DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

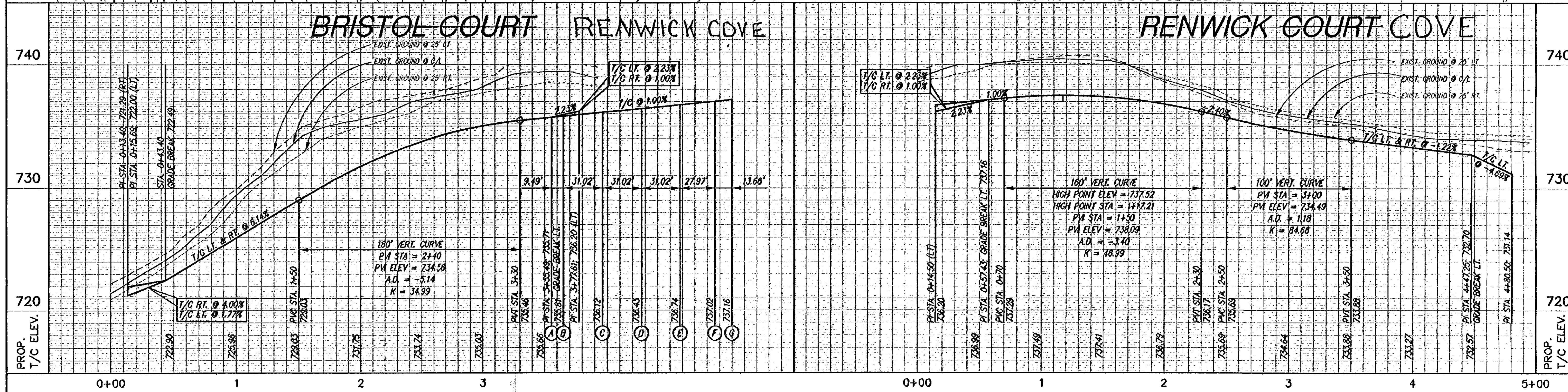
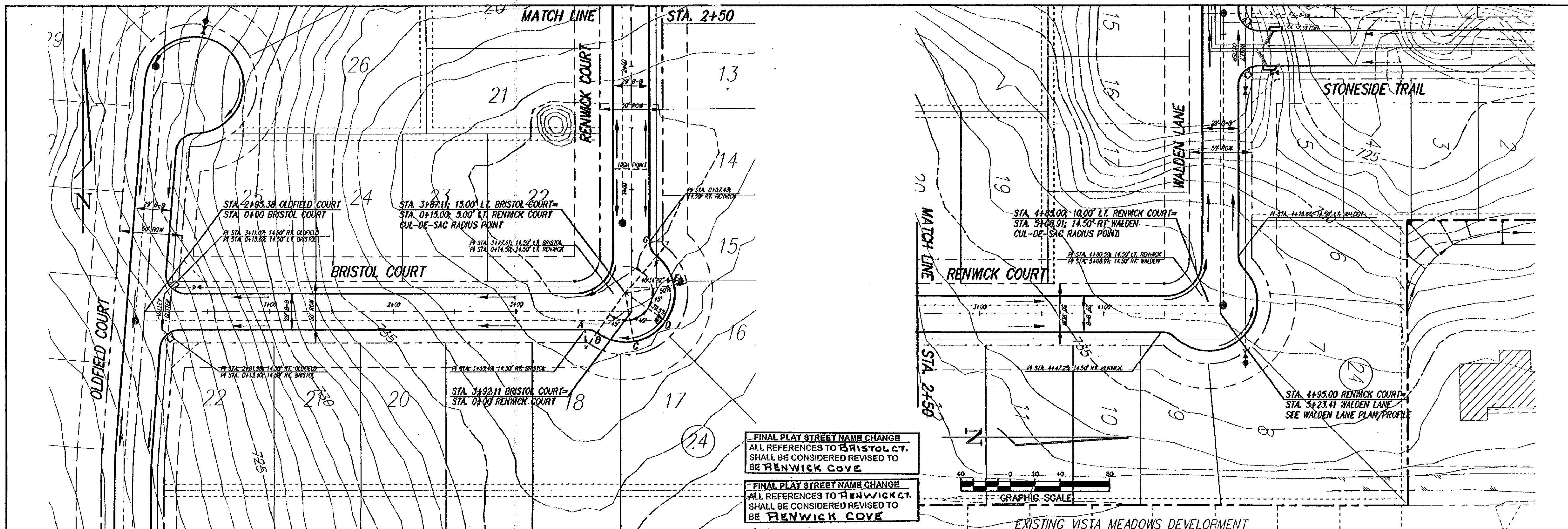
1100 Mason Street, Fort Worth, Texas 76102 (817) 338-5773
235 W. Hickory Street, Suite 4100, Denton, Texas 76201 (940) 383-4177
2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1785

MARK J. HOLLIDAY
34883
Professional Engineer
Date: 11-11-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
PAVING PLAN/PROFILE
OLDFIELD COURT

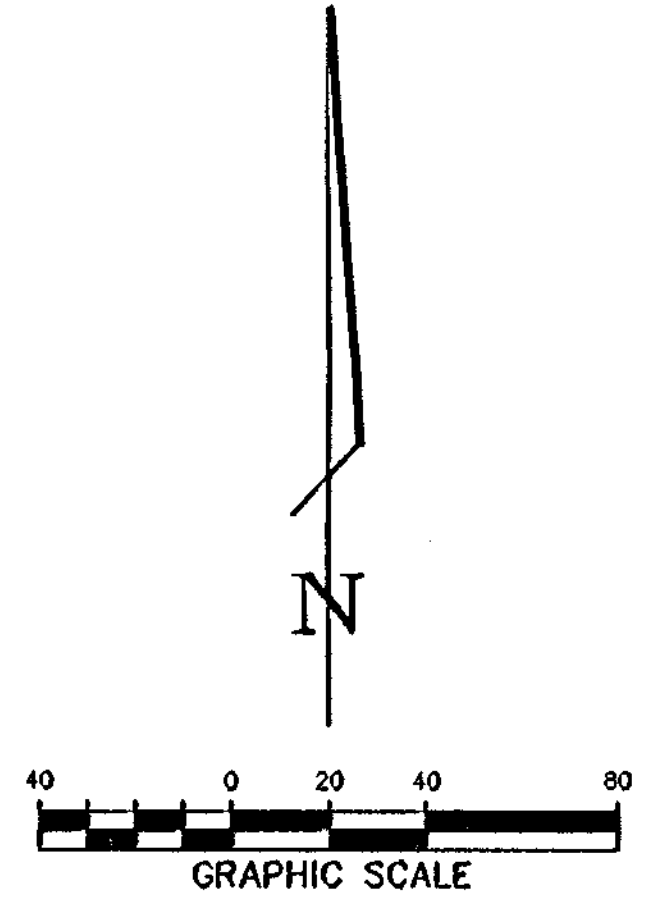
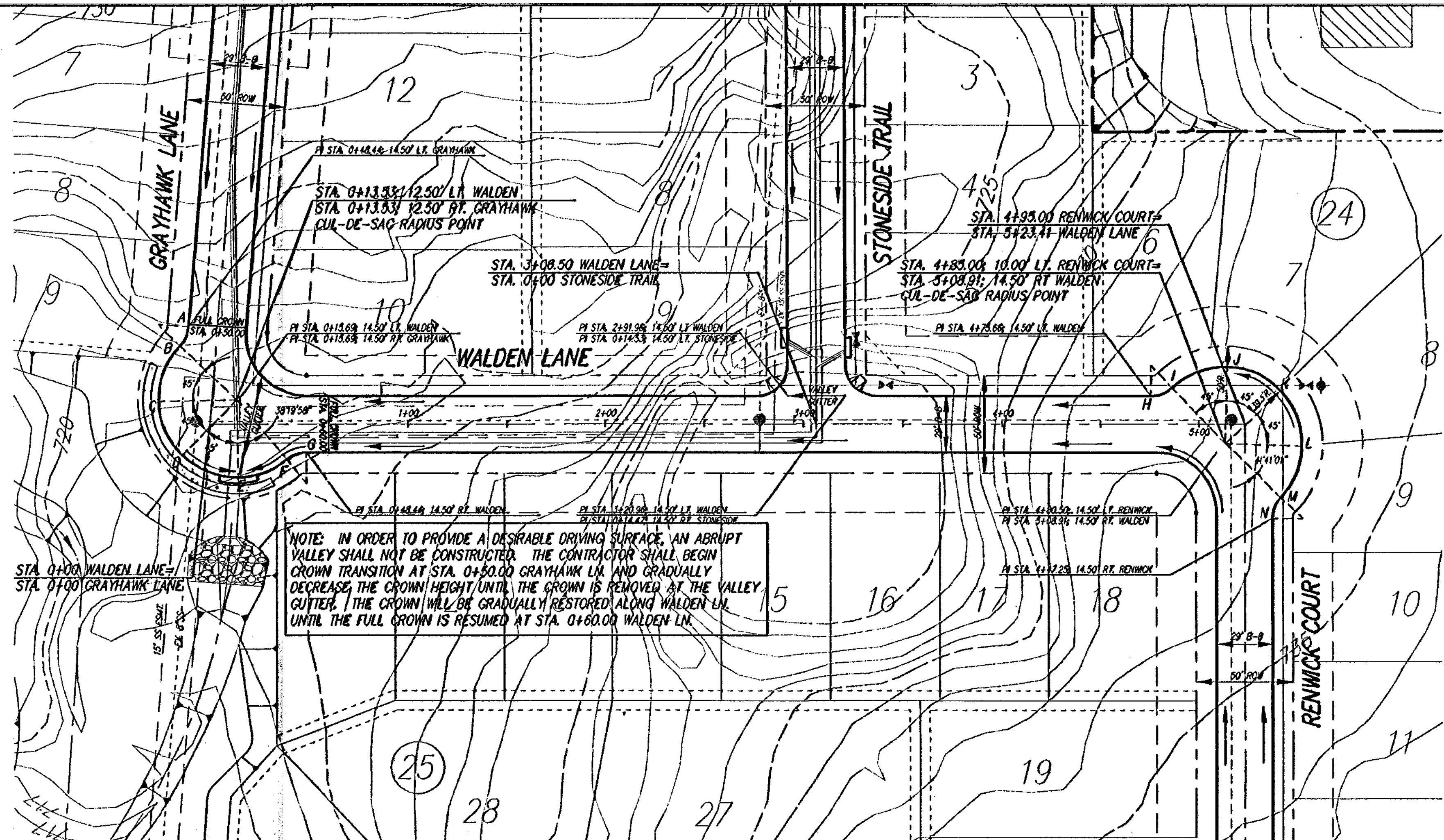
TNP PROJECT
LEB02147
SHEET
32
OF
69

RECORD DRAWING

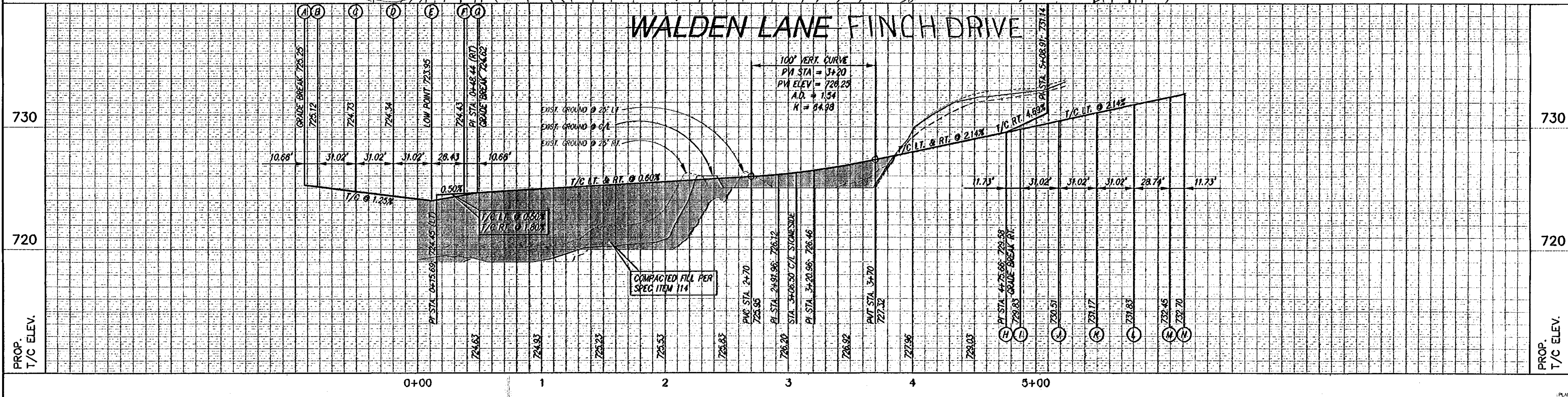


STREET NAME CHANGES ASD 7/25/03		SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Fort Worth, Texas 76102 (817) 336-5773 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd, Suite 200, Irving, Texas 75061 (972) 256-2195	MARK A. HOLLIDAY P.E. Date 10-1-02	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE BRISTOL and RENWICK COURTS RENWICK COVE	TNP PROJECT LEB02147 SHEET 33 OF 69
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RECORD DRAWING



FINAL PLAT STREET NAME CHANGE
ALL REFERENCES TO WALDEN LN.
SHALL BE CONSIDERED REVISED TO
BE FINCH DRIVE



NO.	REVISION	BY	DATE

ASB 7/25/03

SHS
DESIGNED

LCC
DRAWN

MJH
CHECKED

SCALE
HORIZ
1"=40'

VERT
1"=4'

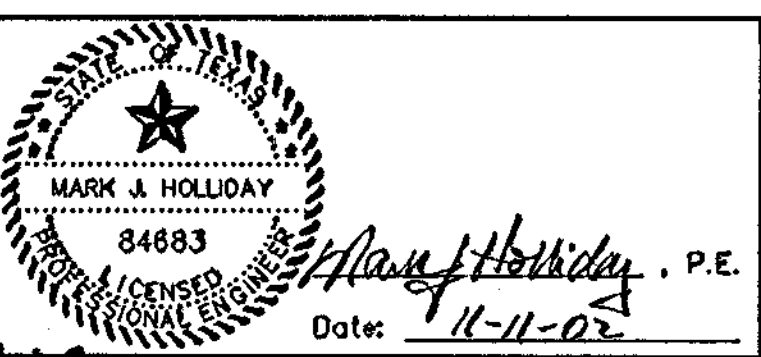
DATE
OCT 2002

TEAGUE NALL AND PERKINS
INC. CONSULTING ENGINEERS

1100 Mason Street, Fort Worth, Texas 76102 (817) 336-5773

235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd, Irving, Texas 75061 (972) 354-1785



CITY OF FORT WORTH, TEXAS

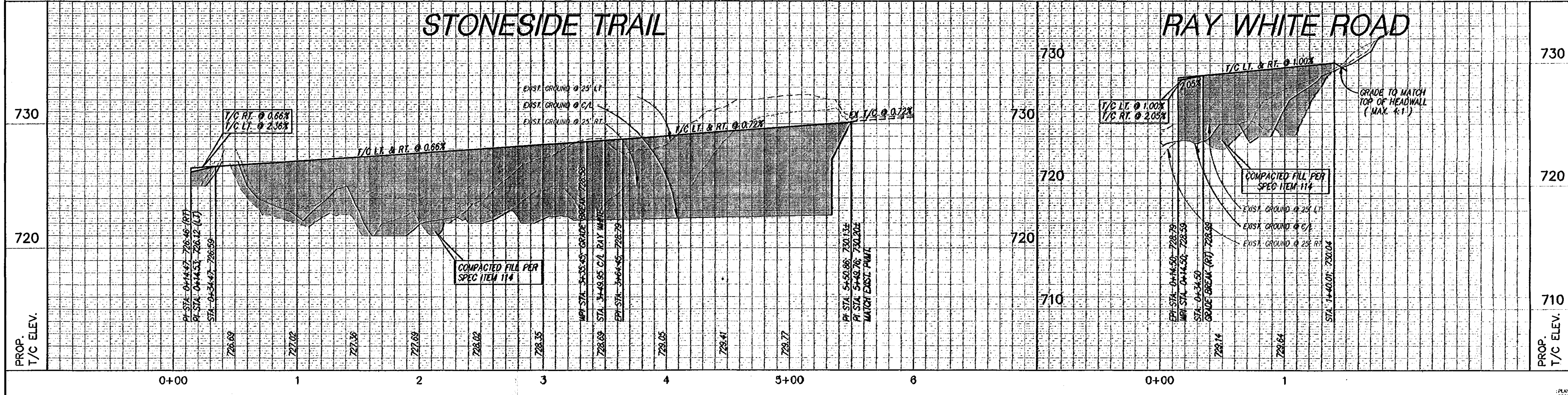
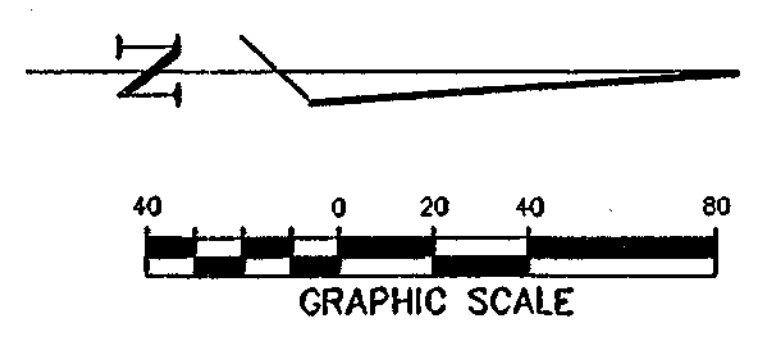
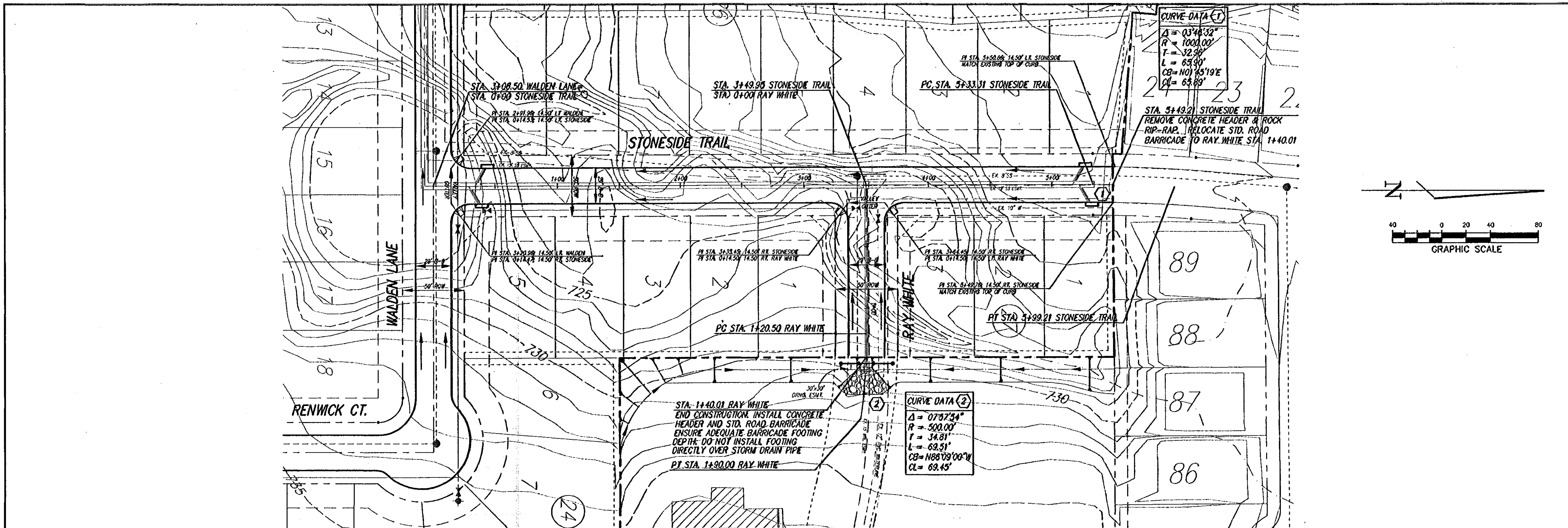
CRAWFORD FARMS, PHASE II

PAVING PLAN/PROFILE
-WALDEN LANE-
FINCH DRIVE

INP PROJECT
LEB02147

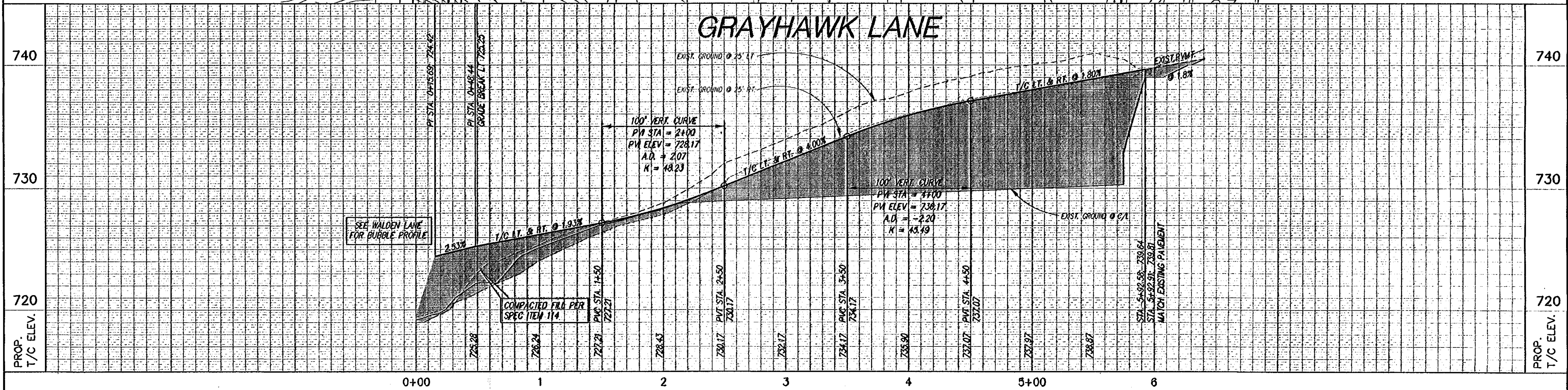
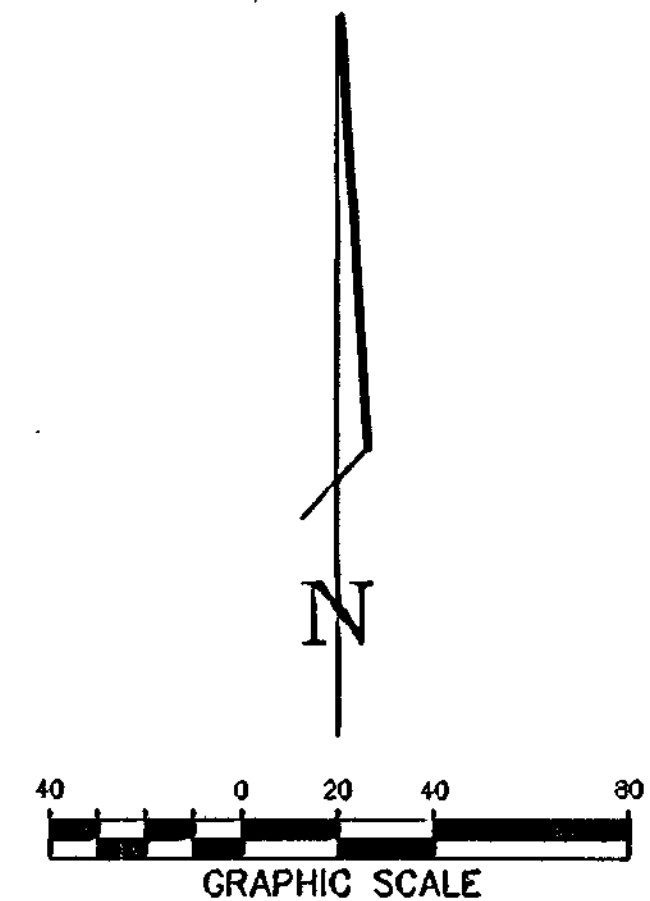
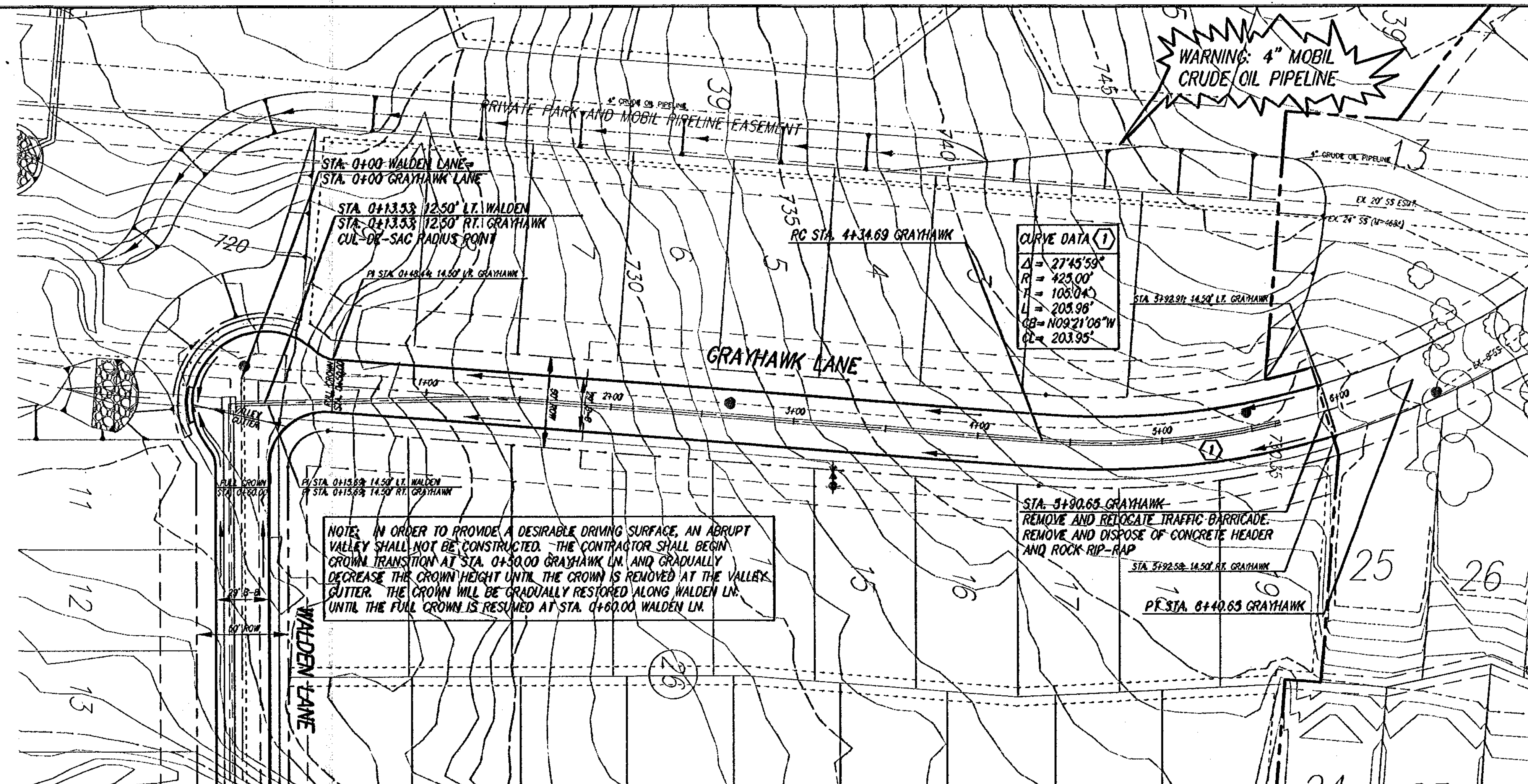
SHEET
34
OF
69

RECORD DRAWING



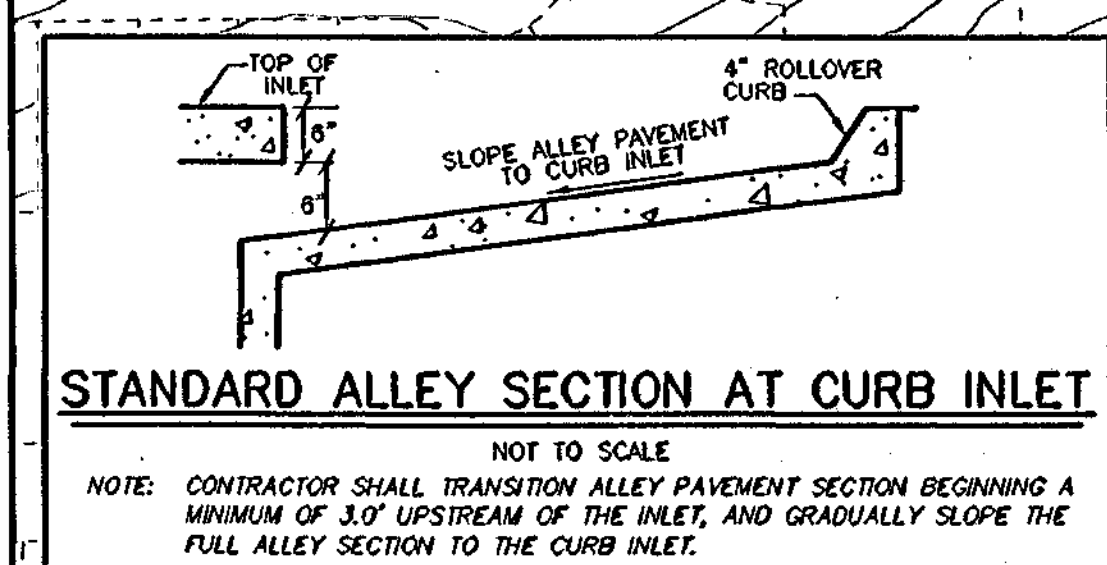
	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS INC. CONSULTING ENGINEERS 1100 Moon Street, Fort Worth, Texas 76102 (817) 338-5773 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd., Irving, Texas 75061 (972) 254-1783	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE STONESIDE TR. and RAY WHITE	SHEET 35 OF 69
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RECORD DRAWING

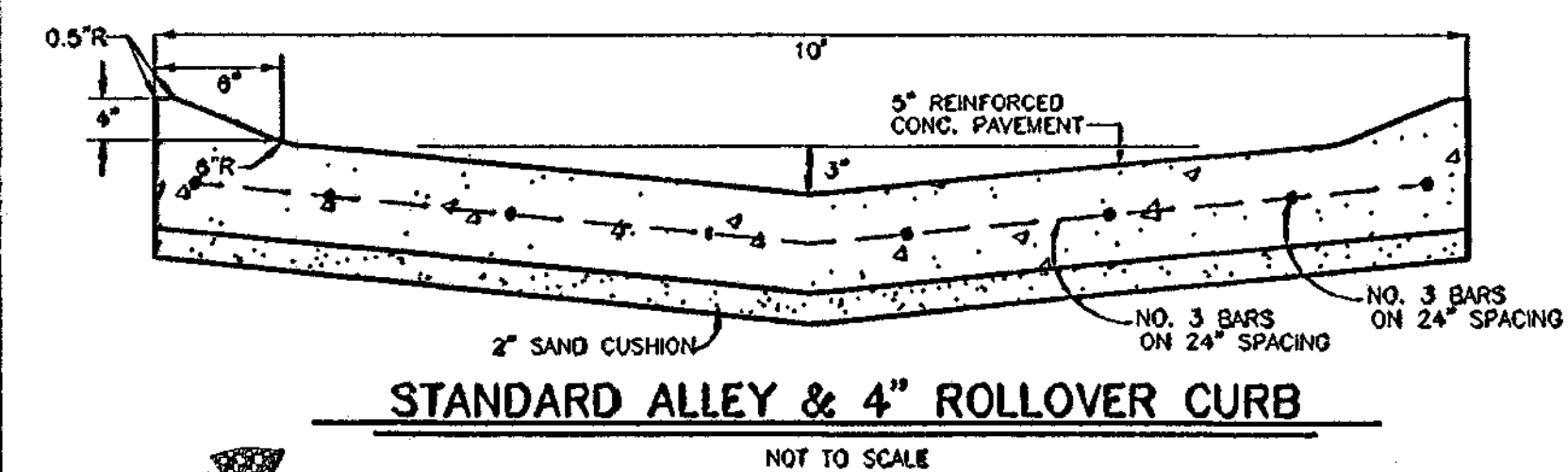
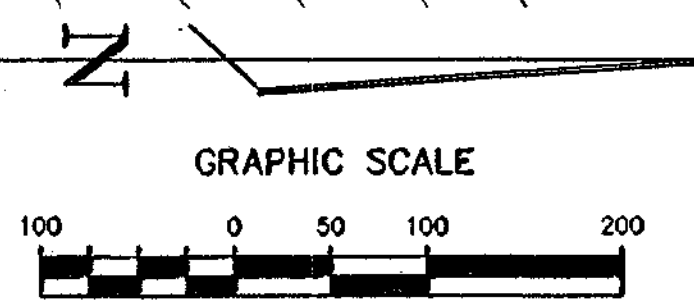


NO.		REVISION		BY DATE		SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	<p>TEAGUE NALL AND PERKINS CONSULTING ENGINEERS</p> <p>1100 Mason Street Fort Worth, Texas 76102 (817) 336-5773</p> <p>235 W. Hickory Street Suite 2100 Denton, Texas 76201 (940) 383-4177</p> <p>2001 West Irving Blvd Irving, Texas 75061 (972) 254-1703</p>	<p>MARK A. HOLIDAY 84683 LICENSED PROFESSIONAL ENGINEER Date: 10-11-02</p>	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II PAVING PLAN/PROFILE GRAYHAWK LANE	TWP PROJECT LEB02147 SHEET 36 OF 69
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RECORD DRAWING



CURVE DATA (1)	CURVE DATA (2)	CURVE DATA (3)	CURVE DATA (4)	CURVE DATA (5)
$\Delta = 135^{\circ}47'$	$\Delta = 136^{\circ}28'18''$	$\Delta = 333^{\circ}427'$	$\Delta = 1205^{\circ}44'$	$\Delta = 353^{\circ}9'19''$
$R = 94.81'$	$R = 480.72'$	$R = 850.00'$	$R = 580.00'$	$R = 580.00'$
$T = 11.51'$	$T = 1153.00'$	$T = 258.42'$	$T = 61.45'$	$T = 188.53'$
$L = 22.91'$	$L = 1097.11'$	$L = 498.08'$	$L = 122.44'$	$L = 360.94'$
$CB = N83^{\circ}36'45''W$	$CB = N33^{\circ}45'17''E$	$CB = N17^{\circ}00'13''W$	$CB = N37^{\circ}10'01''W$	$CB = N137^{\circ}17'29''W$
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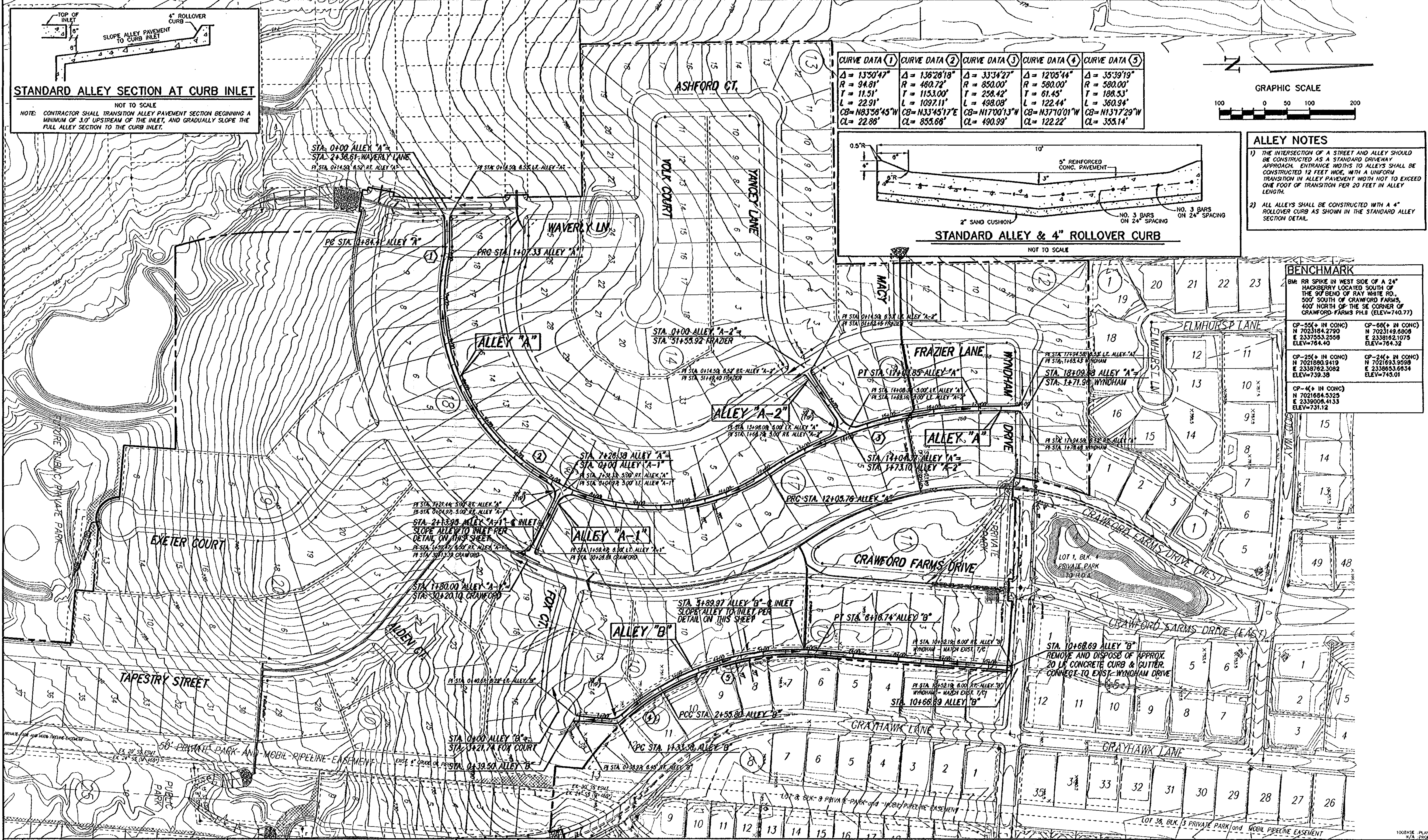
ALLEY NOTES

- 1) THE INTERSECTION OF A STREET AND ALLEY SHOULD BE CONSTRUCTED AS A STANDARD DRIVEWAY APPROACH. ENTRANCE WIDTHS TO ALLEYS SHALL BE CONSTRUCTED 12 FEET WIDE, WITH A UNIFORM TRANSITION IN ALLEY PAVEMENT WITH NOT TO EXCEED ONE FOOT OF TRANSITION PER 20 FEET IN ALLEY LENGTH.
- 2) ALL ALLEYS SHALL BE CONSTRUCTED WITH A 4" ROLLOVER CURB AS SHOWN IN THE STANDARD ALLEY SECTION DETAIL.

BENCHMARK

BM: RR SPIKE IN WEST SIDE OF A 24" HACKBERRY LOCATED SOUTH OF THE 90' BEND OF RAY WHITE RD., 500' SOUTH OF CRAWFORD FARMS, 400' NORTH OF THE SE CORNER OF CRAWFORD FARMS PH II (ELEV=740.77)

CP-55(+ IN CONC) N 7023184.2790 E 2337555.2558 ELEV=754.43	CP-66(+ IN CONC) N 7023149.6808 E 2338102.1075 ELEV=754.32
CP-25(+ IN CONC) N 7021880.9419 E 2338162.3082 ELEV=739.38	CP-24(+ IN CONC) N 7021893.9598 E 2338653.6634 ELEV=745.01
CP-4(+ IN CONC) N 7021684.5325 E 2339008.4133 ELEV=731.12	



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJH
CHECKED

SCALE
HORIZ
1"=100'
VERT
N/A
DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street
Fort Worth, Texas 76102
(817) 338-5773

235 W. Hickory Street
Suite #100
Denton, Texas 76201
(940) 383-4177

2001 West Irving Blvd
Irving, Texas 75061
(972) 254-1765

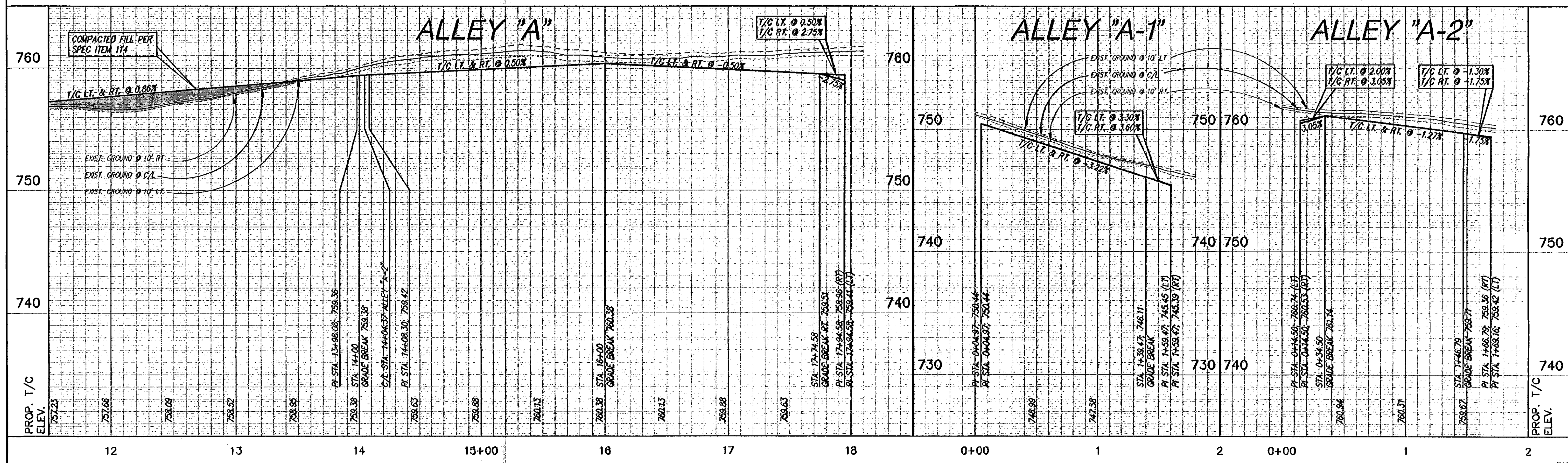
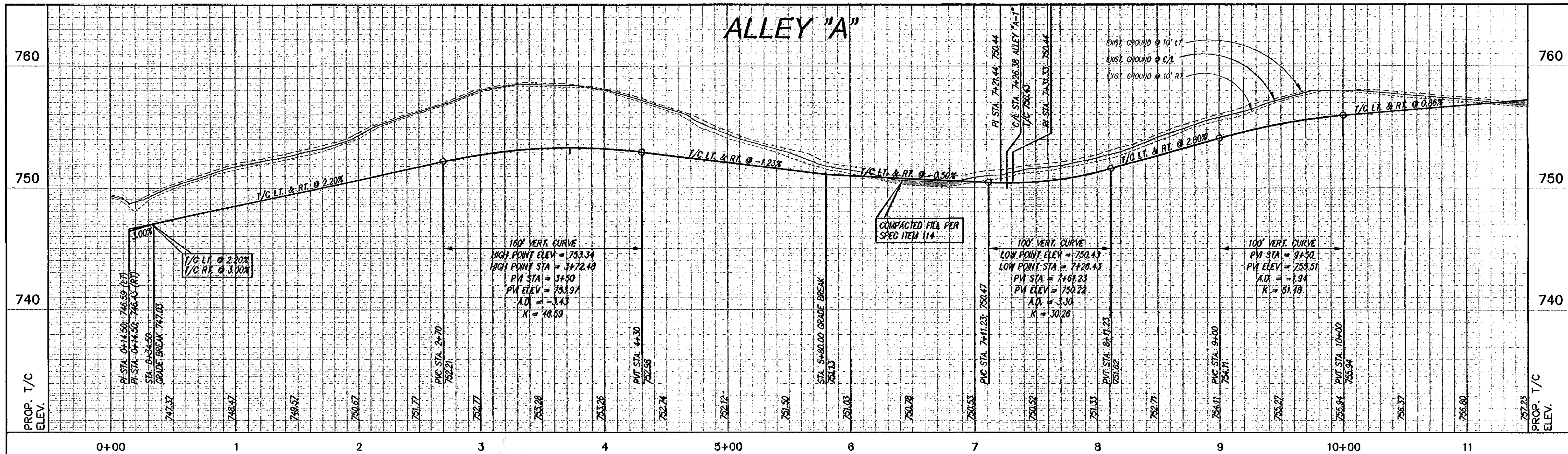
CITY OF FORT WORTH, TEXAS

CRAWFORD FARMS, PHASE II

ALLEY PLAN

INP PROJECT
LEB02147
SHEET
37
OF
69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED	CHECKED
LCC DRAWN	
MJH	

SCALE
HORIZ
1" = 40'
VERT
1" = 4'
DATE
JULY 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street
Fort Worth, Texas 76102
(817) 336-3773

235 W. Hickory Street
Suite # 200
Dallas, Texas 75201
(940) 383-4177

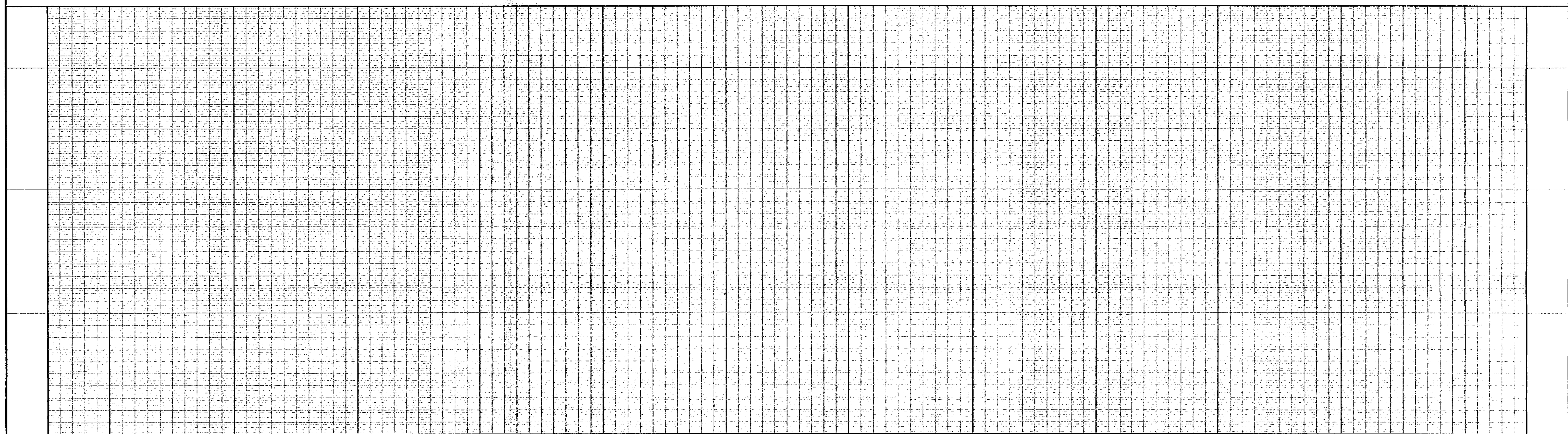
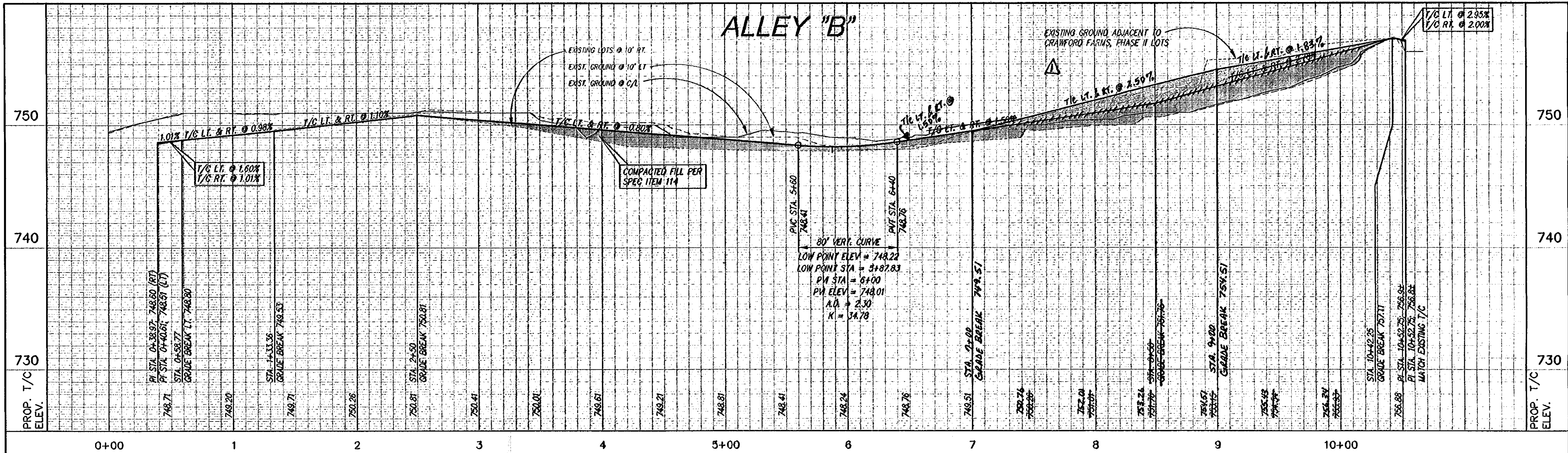
2001 West Irving Blvd
Irving, Texas 75061
(972) 254-1769

Professional Engineer Seal for Mark A. Holliday, P.E., No. 34683, State of Texas. Date: 7-25-02.

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE 2
ALLEY PROFILES
ALLEY'S "A", "A-1" and "A-2"

TNP PROJECT
LEB02147
SHEET
38
OF
69

RECORD DRAWING

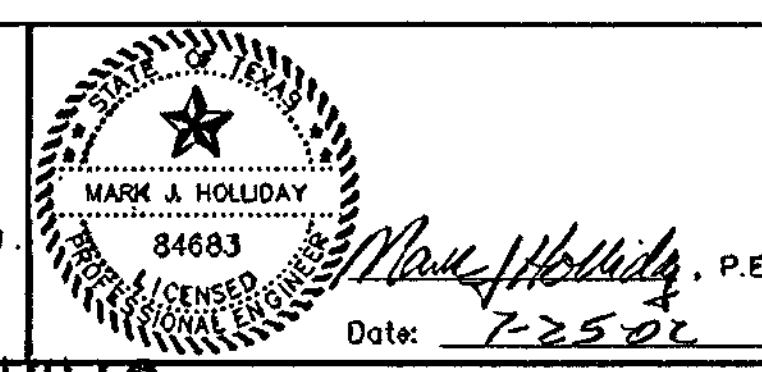


NO.	REVISION	BY	DATE

SHS
 DESIGNED
 LCC
 DRAWN
 MJH
 CHECKED

SCALE
 HORIZ
 1" = 40'
 VERT
 1" = 4'
 DATE
 JULY 2002

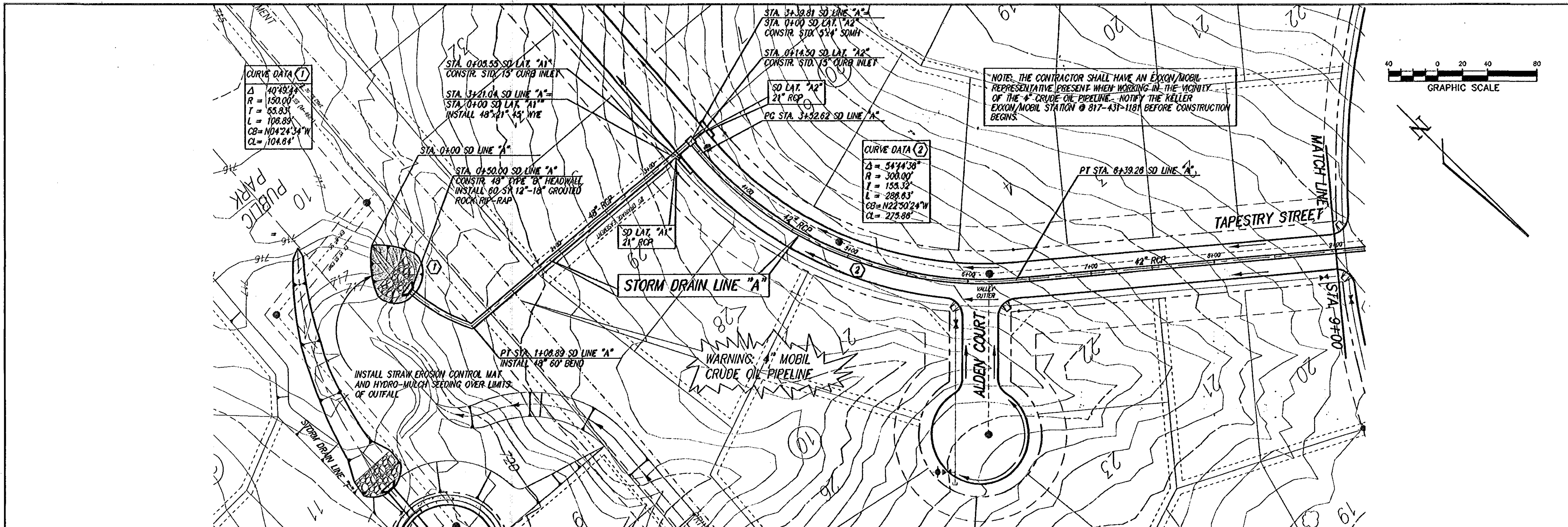
TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Mason Street, Fort Worth, Texas 76102 (817) 338-5773
 235 W. Hickory Street, Suite 2100, Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1765



CITY OF FORT WORTH, TEXAS
 CRAWFORD FARMS, PHASE 2
 ALLEY PROFILES
 ALLEY "B"

TNP PROJECT
 LEB02147
 SHEET
39
 OF
 69

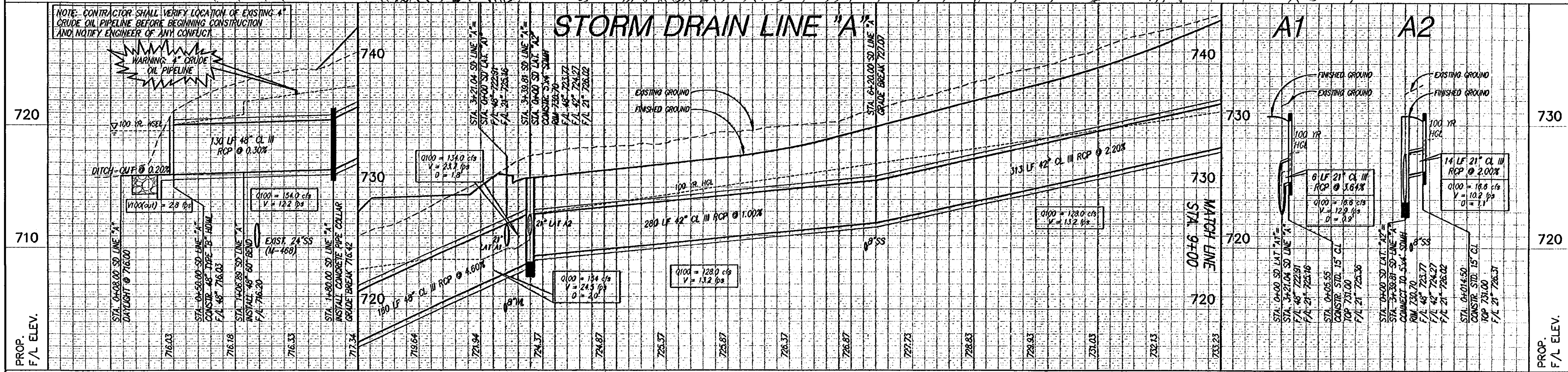
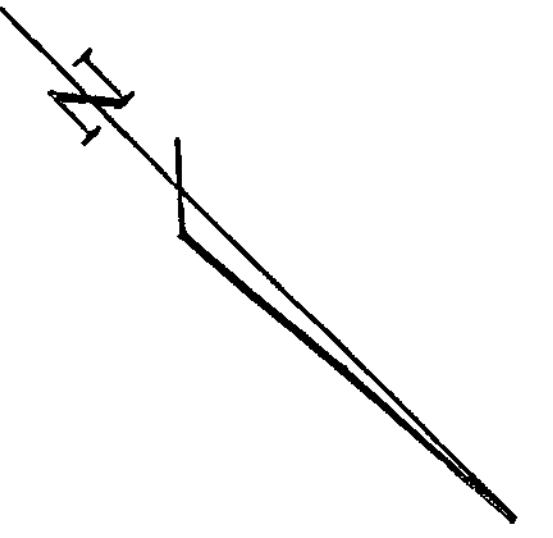
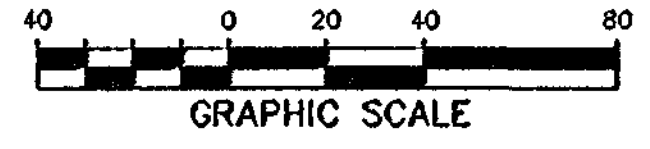
RECORD DRAWING



CURVE DATA (1)
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 $T = 55.83'$
 $L = 106.89'$
 $CB = N04^\circ 24' 34'' W$
 $CL = 104.84'$

CURVE DATA (2)
 $\Delta = 54^\circ 44' 38''$
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 $T = 155.32'$
 $L = 288.63'$
 $CB = N22^\circ 50' 24'' W$
 $CL = 275.80'$

NOTE: THE CONTRACTOR SHALL HAVE AN EXXON/MOBIL REPRESENTATIVE PRESENT WHEN WORKING IN THE VICINITY OF THE 4" CRUDE OIL PIPELINE. NOTIFY THE KELLER EXXON/MOBIL STATION @ 817-431-1181 BEFORE CONSTRUCTION BEGINS.



NOTE: CONTRACTOR SHALL VERIFY LOCATION OF EXISTING 4" CRUDE OIL PIPELINE BEFORE BEGINNING CONSTRUCTION AND NOTIFY ENGINEER OF ANY CONFLICT.

WARNING: 4" CRUDE OIL PIPELINE

WARNING: 4" MOBIL CRUDE OIL PIPELINE

INSTALL STRAKER EROSION CONTROL MAT AND HYDRO-MULCH SEEDING OVER LIMITS OF OUTFALL

PT STA. 1+08.89 SD LINE "A"
INSTALL 48" 60" BEND

DITCH-CUT @ 0.20%

W/100(YR) = 2.8 FPS

Q100 = 154.0 cfs
V = 12.2 FPS
D = 1.8'

EXIST. 24" SS (N-468)

Q100 = 154.0 cfs
V = 23.7 FPS
D = 1.8'

Q100 = 154.0 cfs
V = 24.5 FPS
D = 2.0'

Q100 = 128.0 cfs
V = 13.2 FPS

Q100 = 128.0 cfs
V = 13.2 FPS

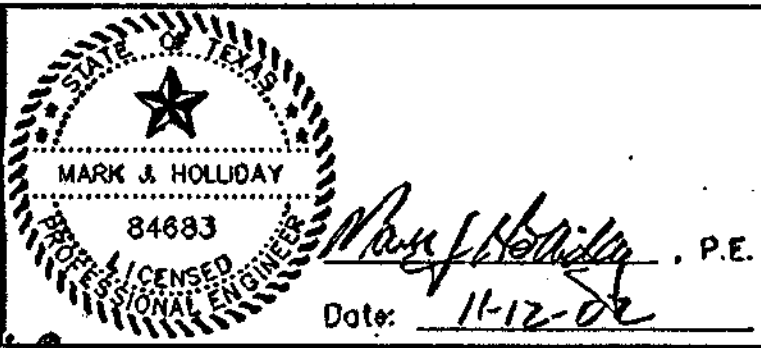
Q100 = 18.8 cfs
V = 10.2 FPS
D = 1.1'

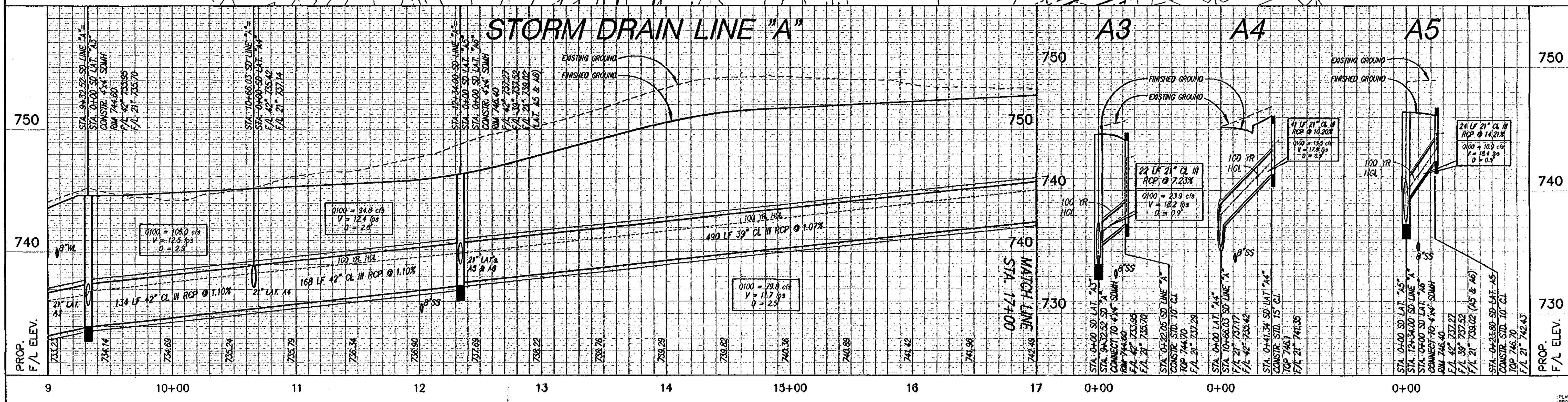
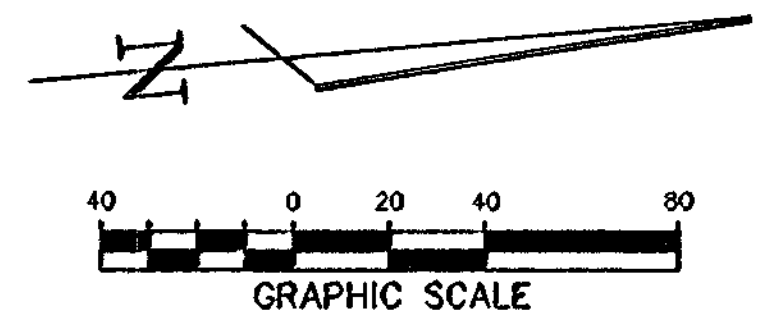
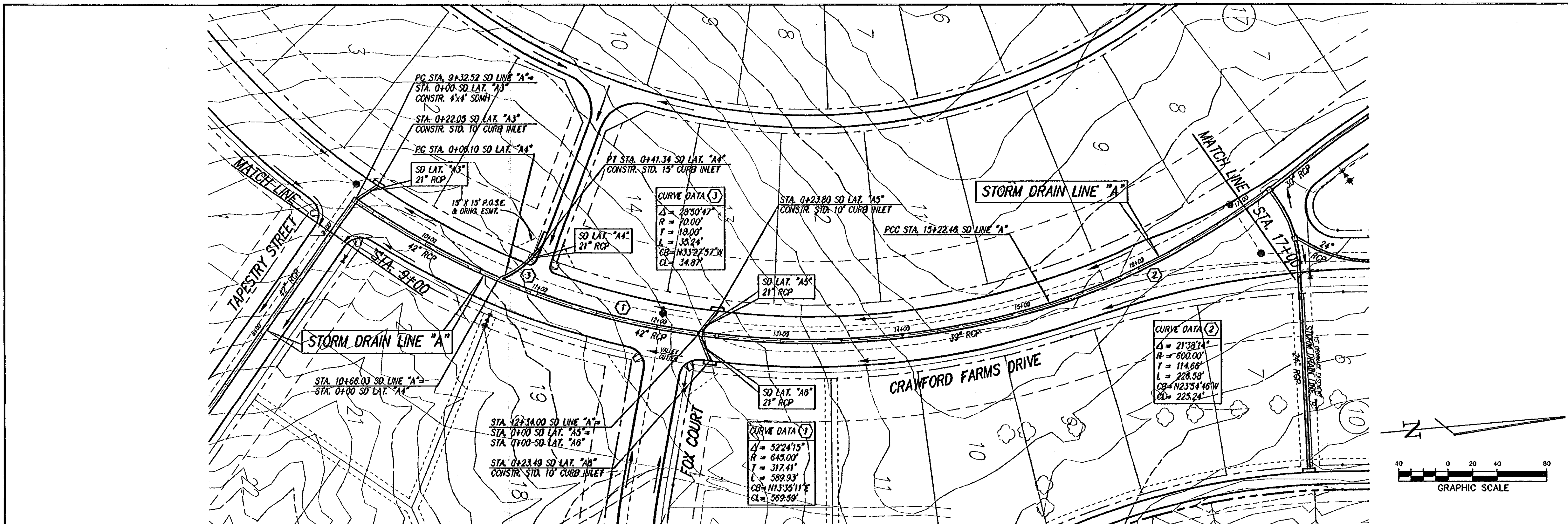
Q100 = 18.8 cfs
V = 10.2 FPS
D = 1.1'

PROP. F/L ELEV. 720 710 740 730 720 730 720 730 720 730 720 730 720 730 720 730 720 730 720 730 720 730 720 730

NO.	REVISION	BY	DATE	SHS DESIGNED	LCC DRAWN	MJH CHECKED	SCALE HORZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Suite #100, Fort Worth, Texas 76102 (817) 338-3773 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1785	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "A" (SHEET 1 OF 3)	INP PROJECT LEB02147 SHEET 40 OF 69
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RECORD DRAWING





NO.	REVISION	BY	DATE

SHS DESIGNED
LCC DRAWN
MJH CHECKED

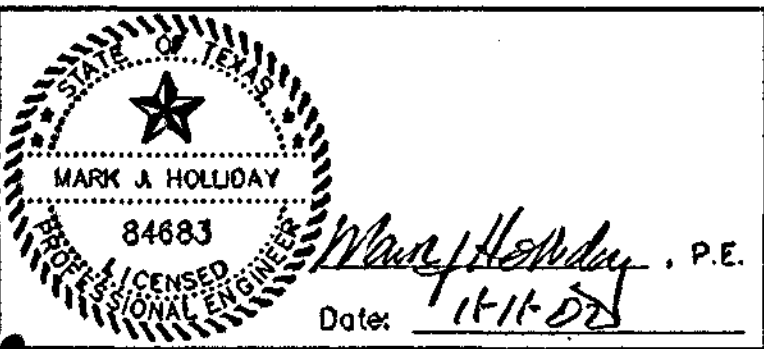
SCALE HORIZ 1"=40'
VERT 1"=4'
DATE OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Meador Street, Suite 100, Fort Worth, Texas 76102 (817) 356-5773

235 W. Hickory Street, Suite 100, Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd, Suite 100, Irving, Texas 75061 (972) 254-1765



CITY OF FORT WORTH, TEXAS

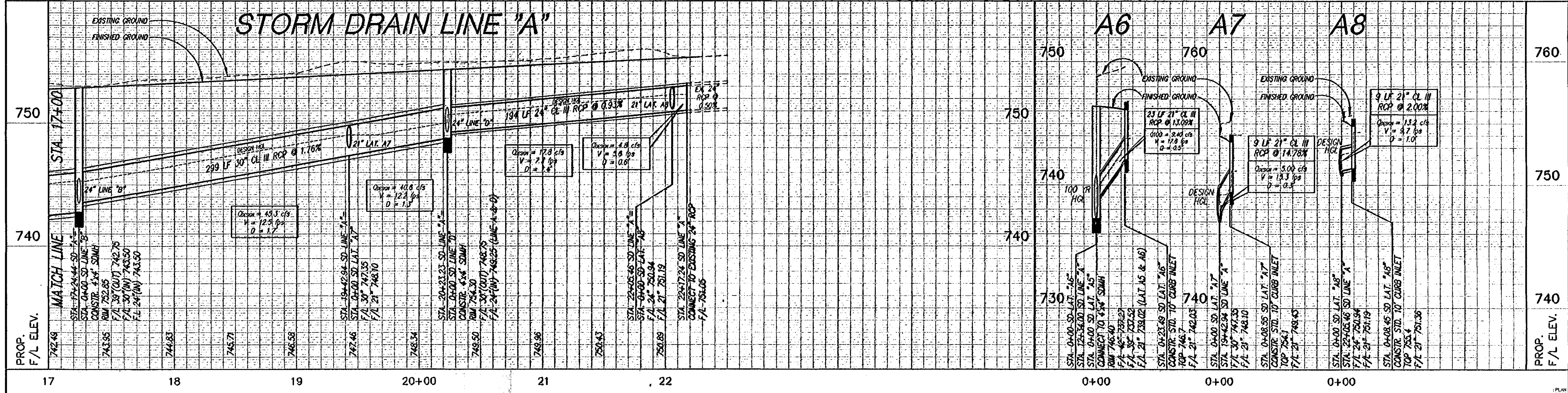
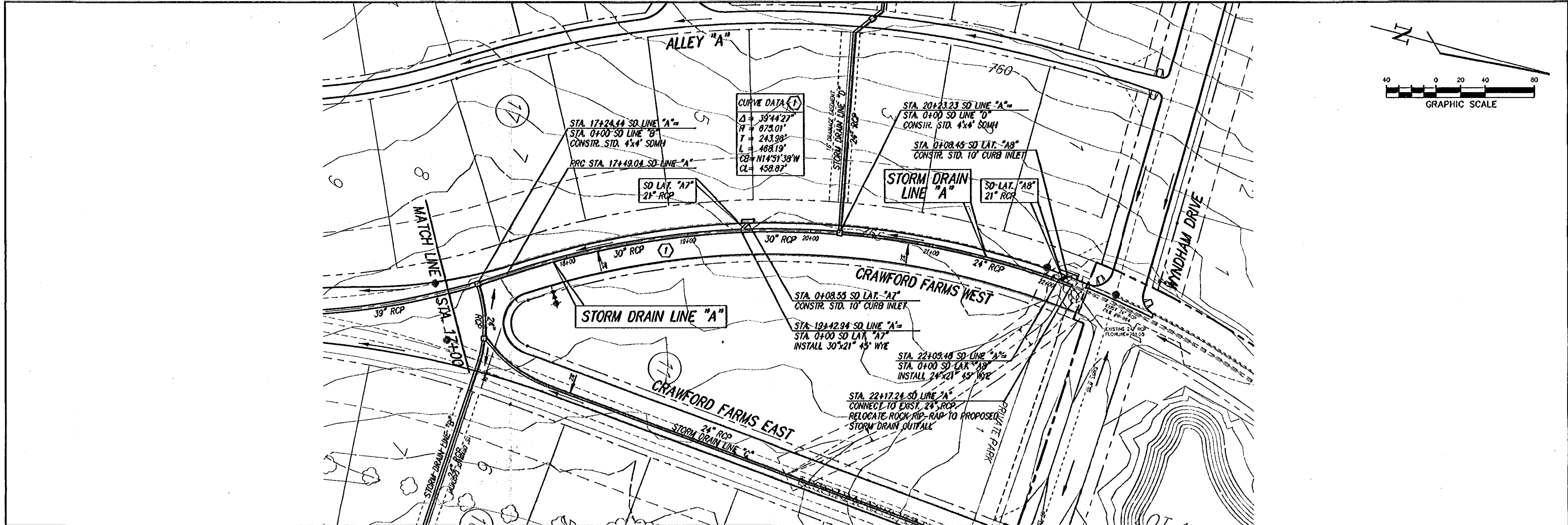
CRAWFORD FARMS, PHASE II

STORM DRAIN PLAN/PROFILE
LINE "A" (SHEET 2 of 3)

TNP PROJECT
LEB02147

SHEET
41
OF
69

RECORD DRAWING



SHS DESIGNED LCC DRAWN MJH CHECKED			SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002			TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Fort Worth, Texas 76102 (817) 338-5773 235 W Hickory Street, Suite 2100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1785			CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "A" (SHEET 3 OF 3)			TNP PROJECT LEB02147 SHEET 42 OF 69		
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RECORD DRAWING

STA. 17+24.44 SD LINE "A"
 STA. 0+00 SD LINE "B"
 CONSTR. STD. 4" X 4" SDMH

CURVE DATA (1)
 $\Delta = 34^{\circ}39'24"$
 $R = 100.00'$
 $T = 31.20'$
 $L = 60.49'$
 $CB = N74^{\circ}56'46"E$
 $CL = 59.57'$

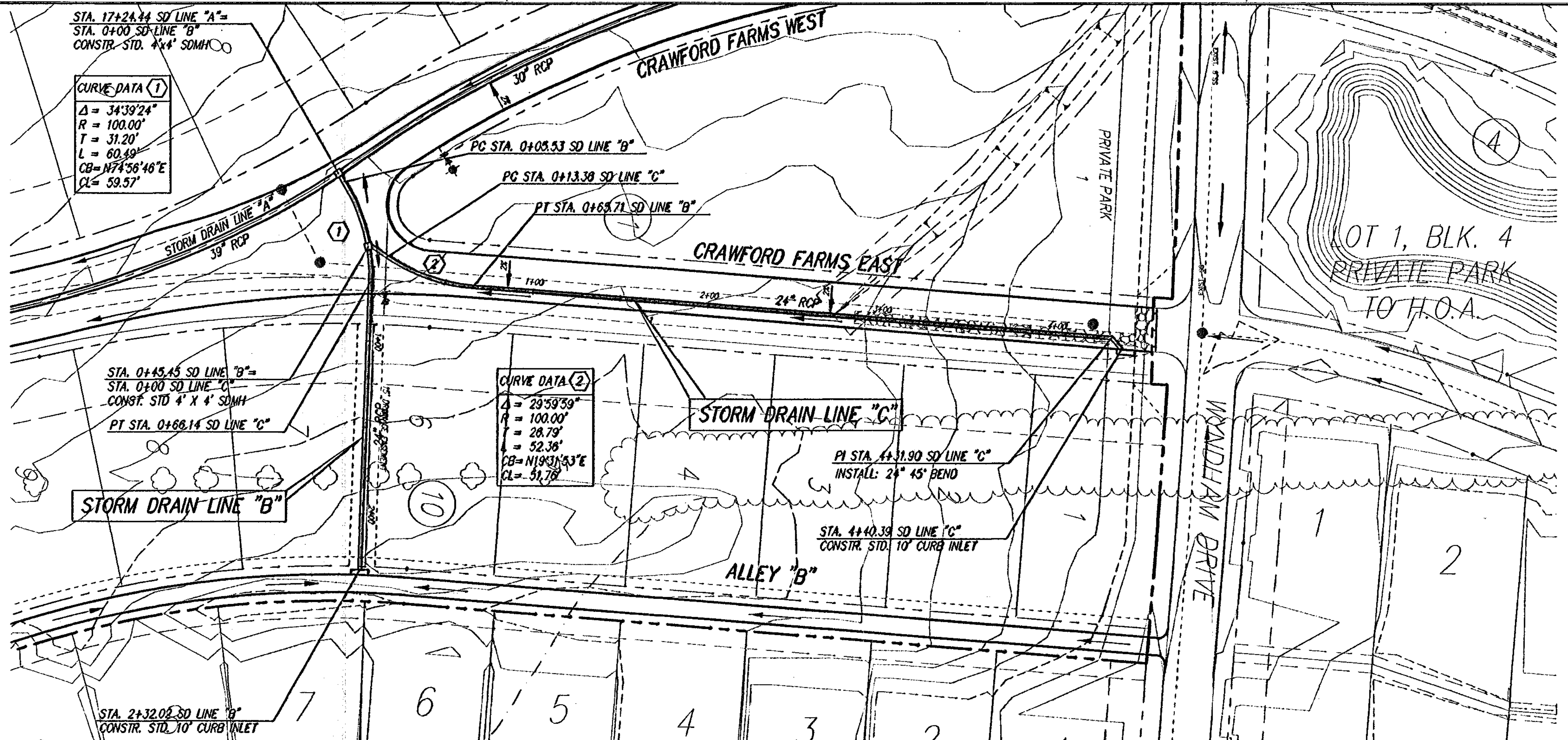
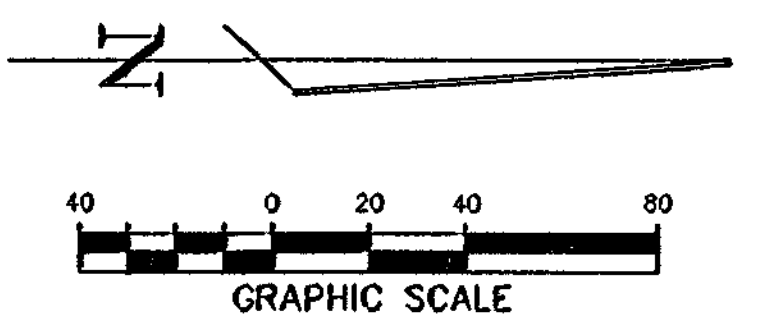
STA. 0+45.45 SD LINE "B"
 STA. 0+00 SD LINE "C"
 CONSTR. STD. 4" X 4" SDMH
 PT. STA. 0+68.14 SD LINE "C"

CURVE DATA (2)
 $\Delta = 29^{\circ}59'39"$
 $R = 100.00'$
 $T = 28.79'$
 $L = 52.36'$
 $CB = N193^{\circ}43'E$
 $CL = 51.78'$

PI STA. 4+31.90 SD LINE "C"
 INSTALL: 2" X 45" BEND

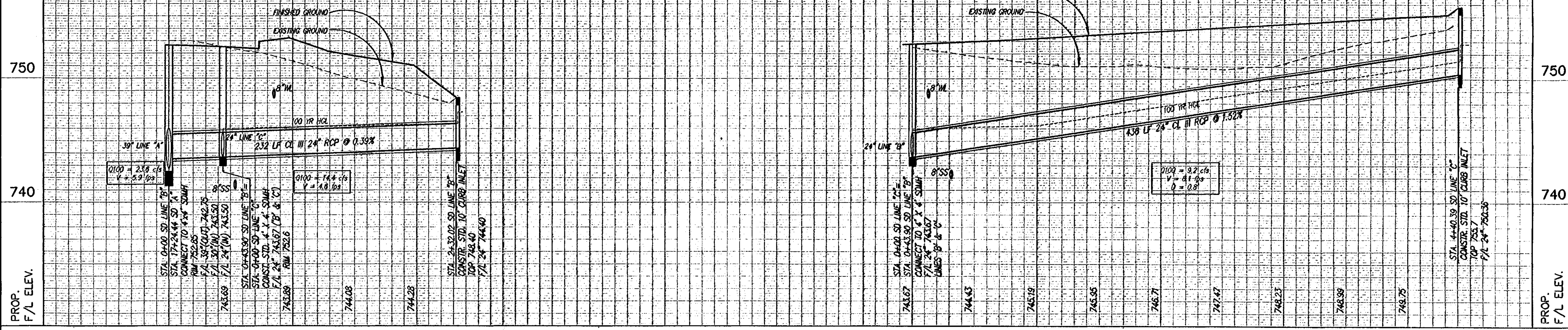
STA. 4+40.39 SD LINE "C"
 CONSTR. STD. 10" CURB INLET

STA. 2+32.02 SD LINE "B"
 CONSTR. STD. 10" CURB INLET



STORM DRAIN LINE "B"

STORM DRAIN LINE "C"



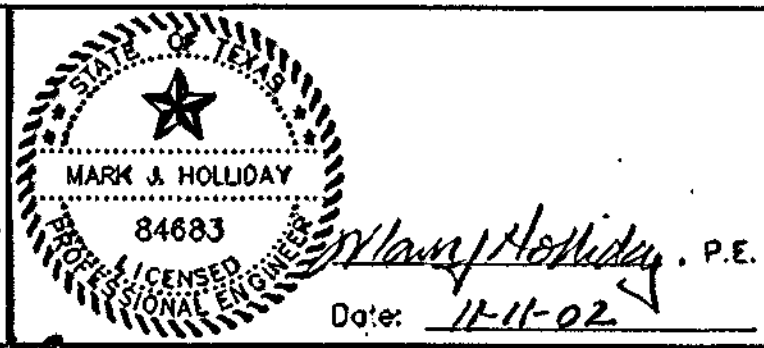
NO.	REVISION	BY	DATE

SHS
 DESIGNED
 LCC
 DRAWN
 MJH
 CHECKED

SCALE
 HORIZ
 1" = 40'
 VERT
 1" = 4'
 DATE
 OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS

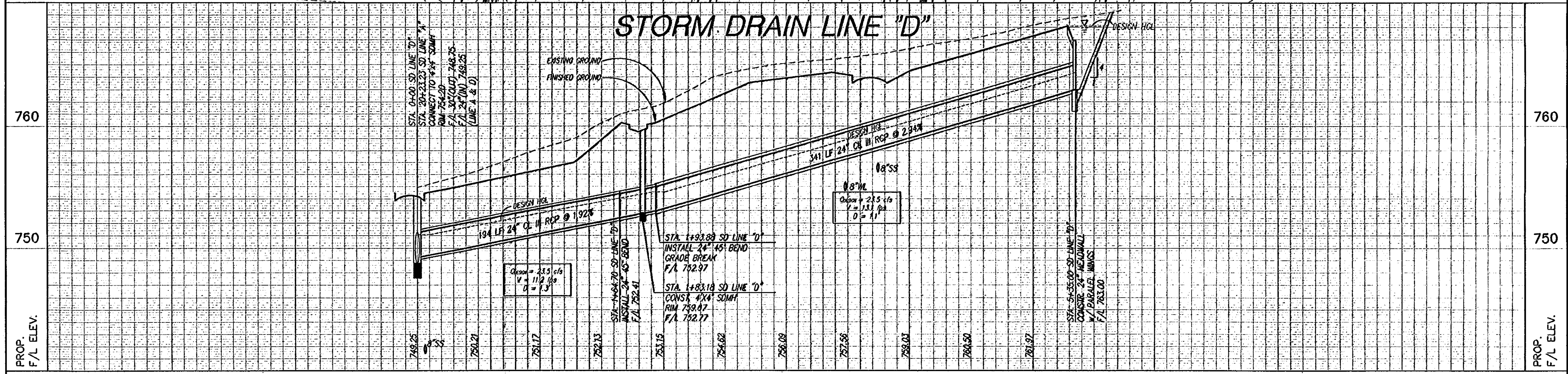
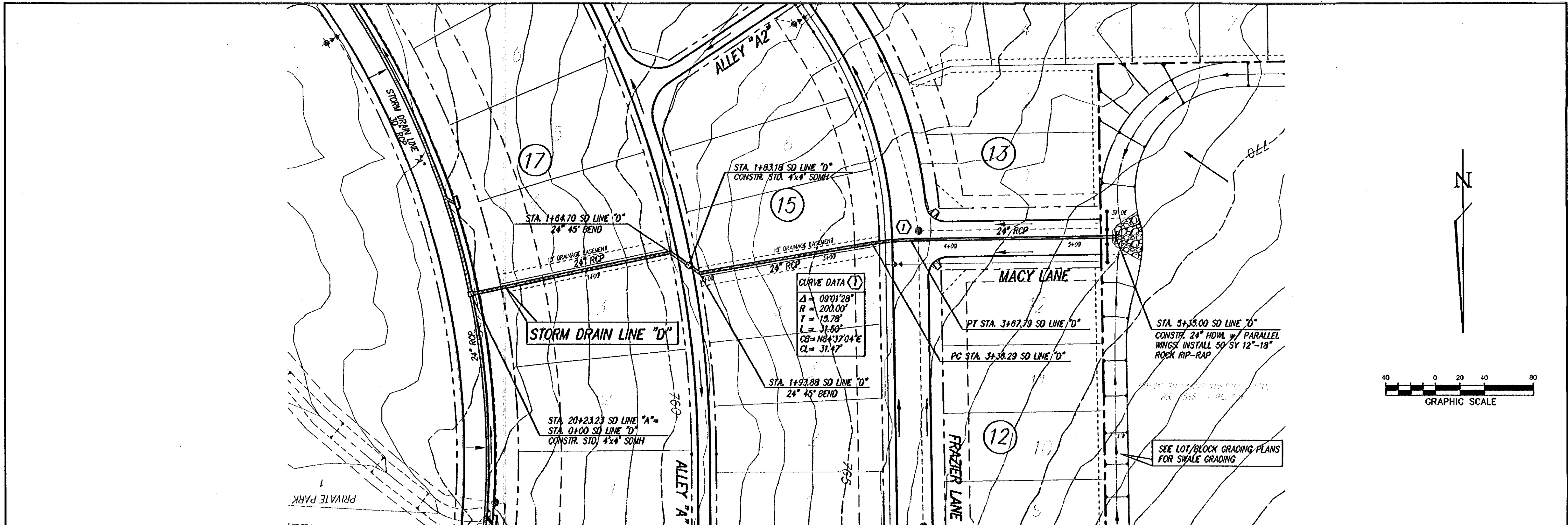
1100 Macon Street, Fort Worth, Texas 76102 (817) 338-3773
 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd, Irving, Texas 75001 (972) 254-1793



CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 STORM DRAIN PLAN/PROFILE
 LINE "B" and "C"

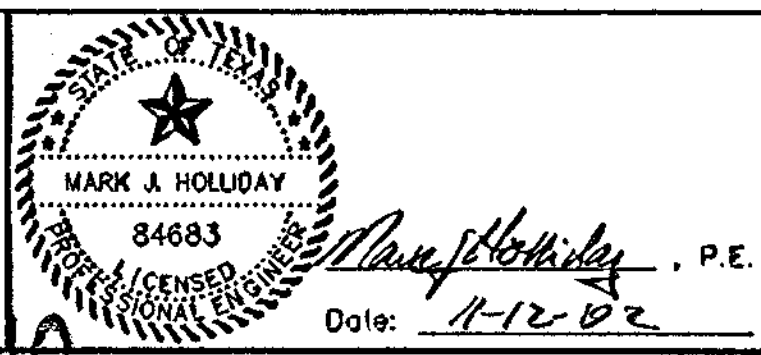
TNP PROJECT
 LEB02147
 SHEET
43
 OF
 69

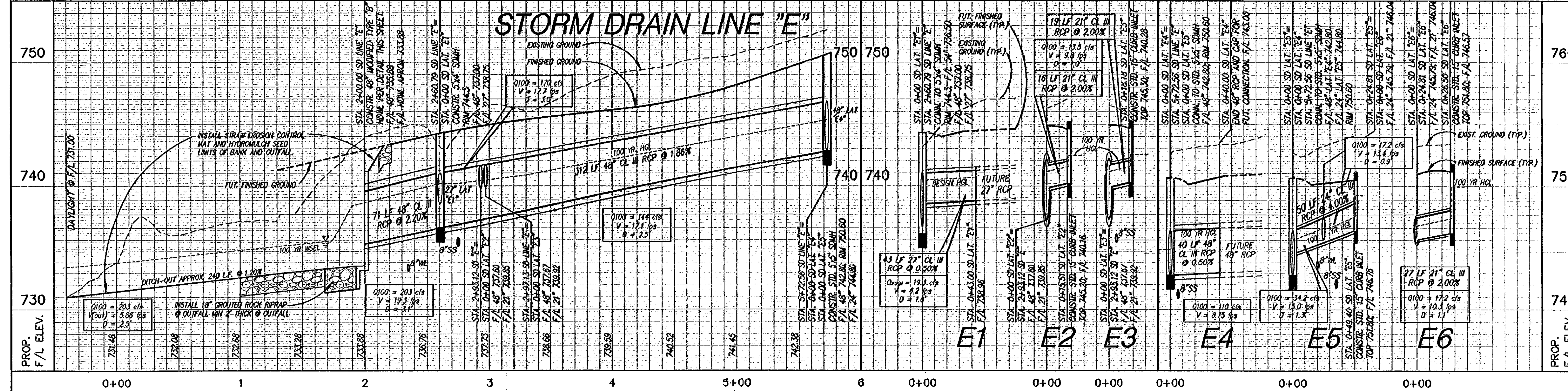
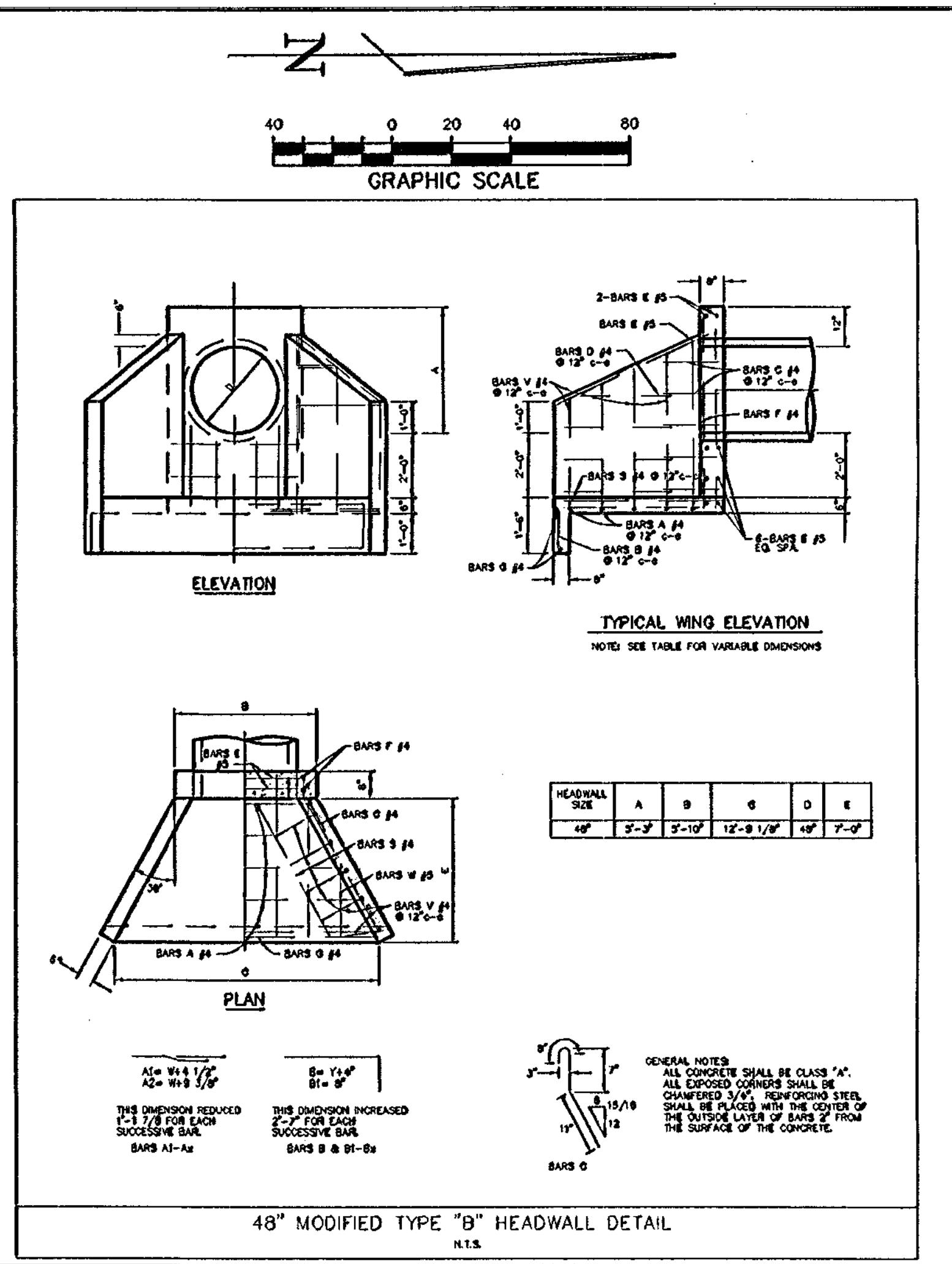
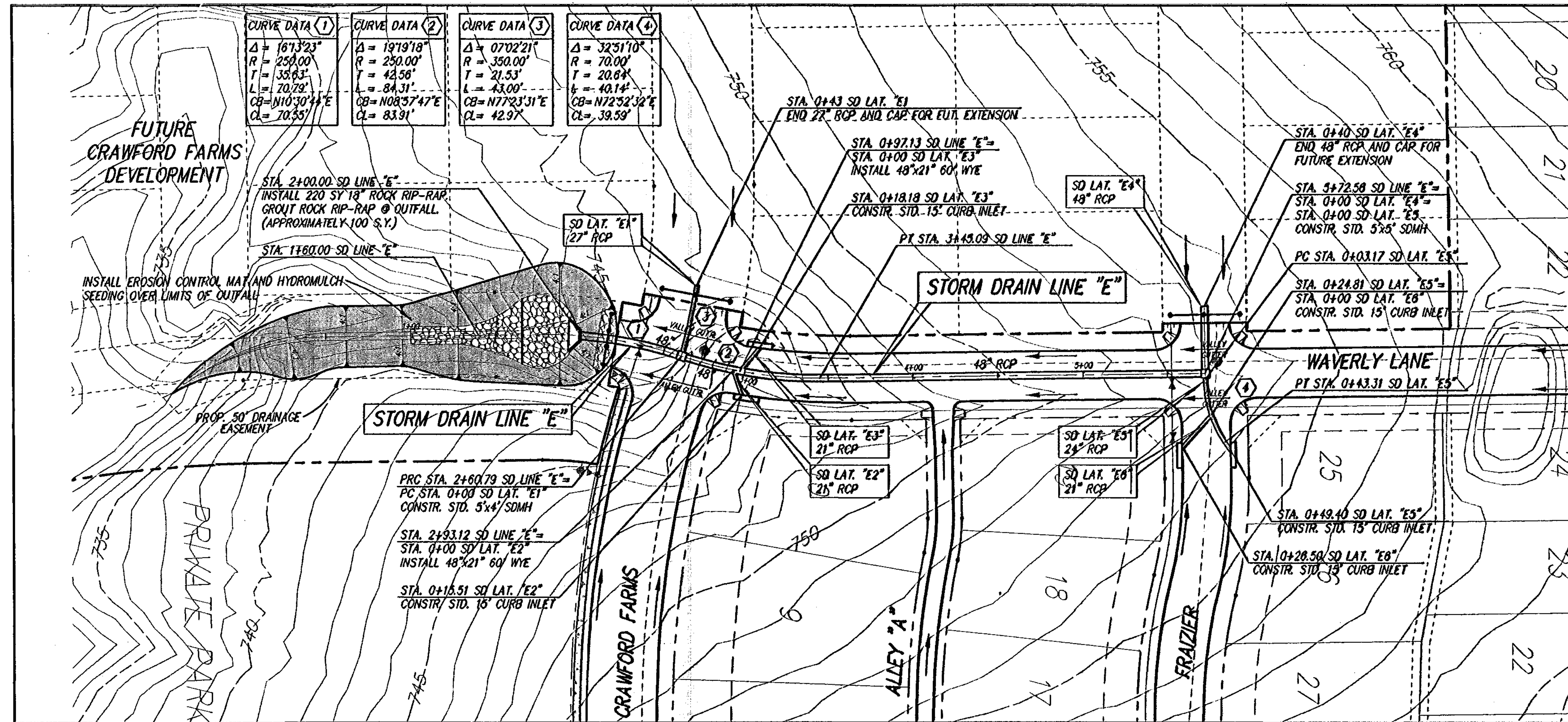
RECORD DRAWING



NO.		REVISION		BY		DATE		SHS DESIGNED LCC DRAWN MJH CHECKED		SCALE HORIZ 1"=40' VERT 1"=4' DATE OCT 2002		TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Moon Street, Fort Worth, Texas 76102 (817) 338-3773 235 W Hickory Street, Suite 100, Denton, Texas 76201 (940) 393-4177 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1765			CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "D"		TNP PROJECT LEB02147 SHEET 44 OF 69	
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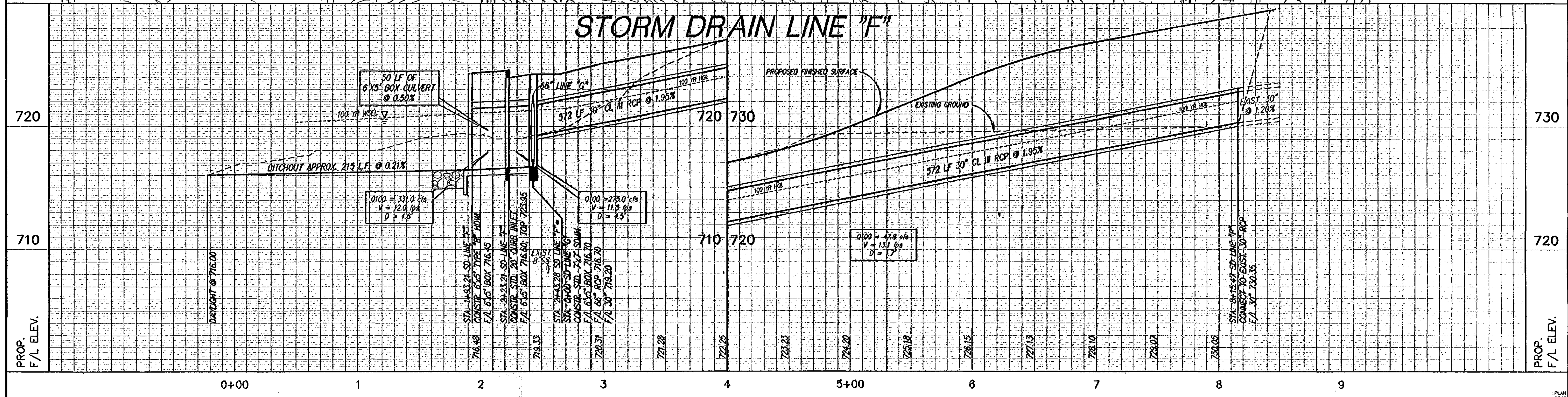
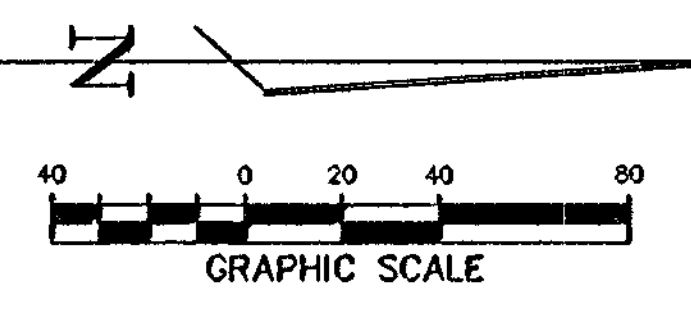
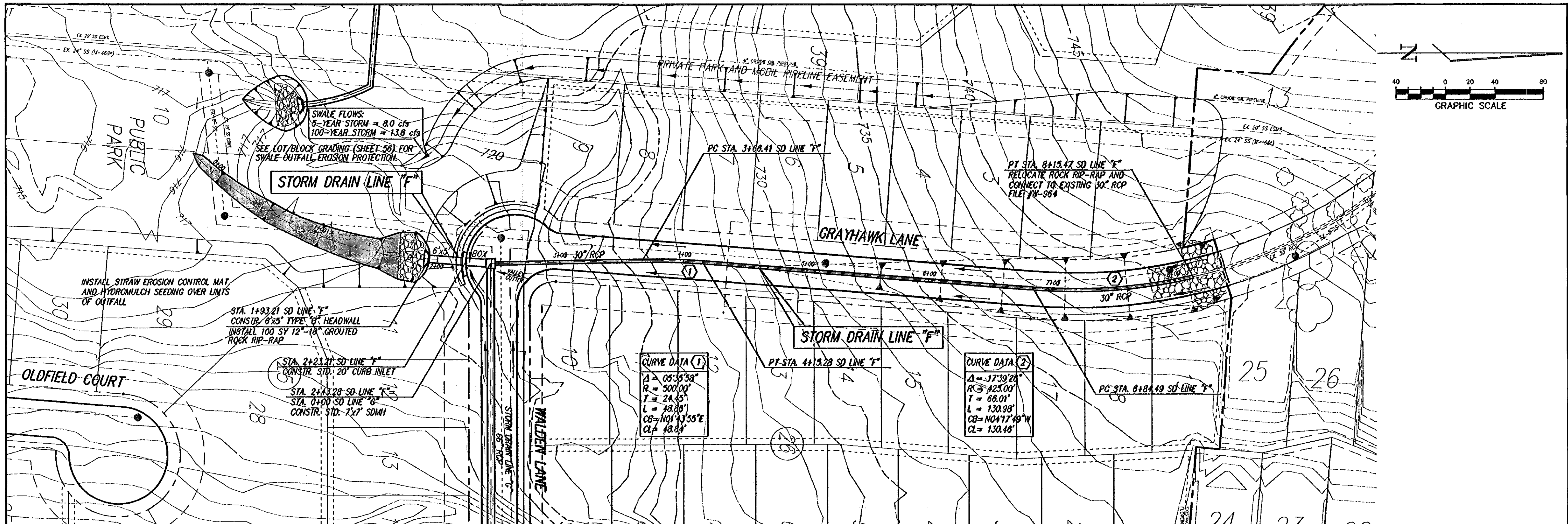
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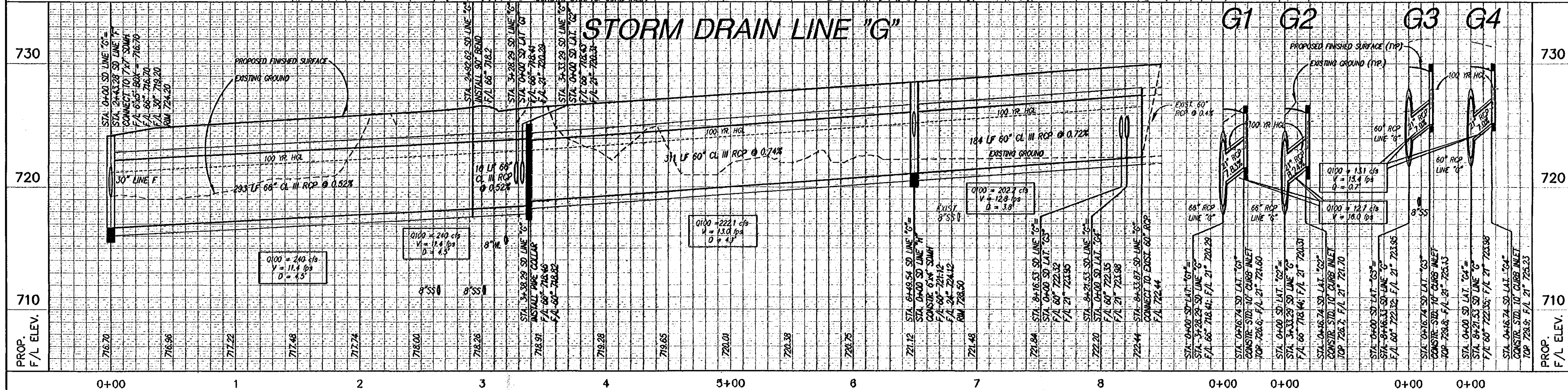
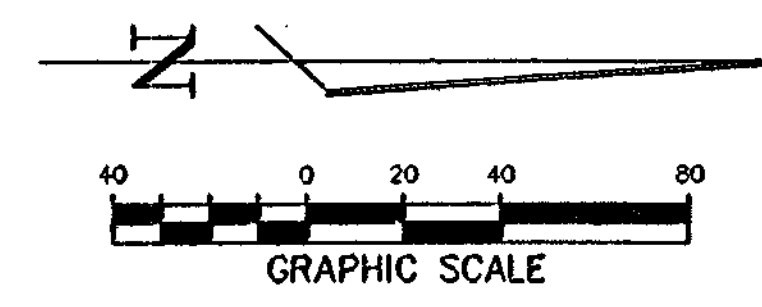
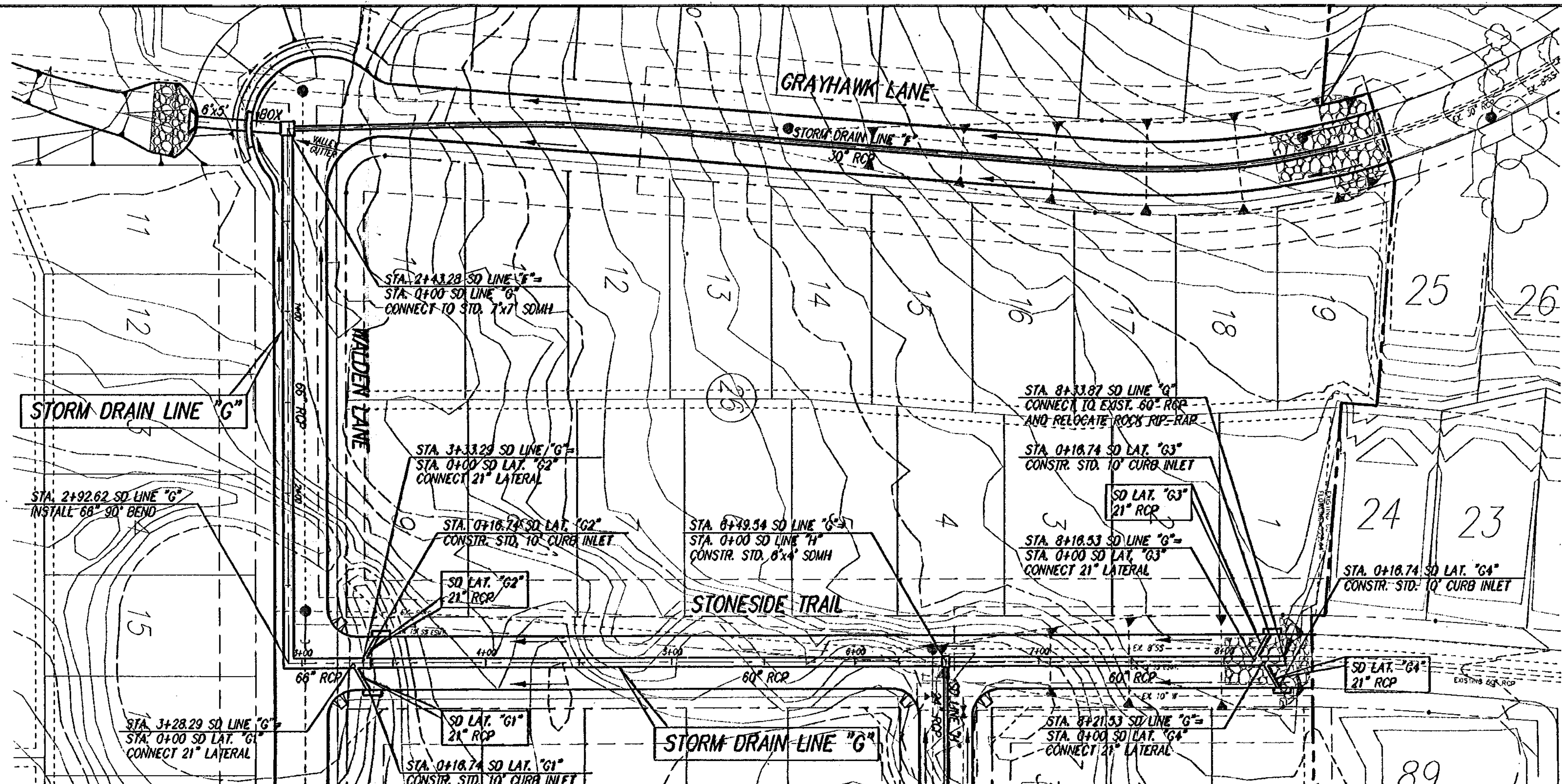
NO.	REVISION	BY	DATE	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	 TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Suite #100, Fort Worth, Texas 76102 (817) 338-5773 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd., Irving, Texas 75061 (972) 254-1785	 MARK J. HOLLIDAY P.E. Date: 11/10/02	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "E"	TNP PROJECT LEOB2147 SHEET 45 OF 69

RECORD DRAWING



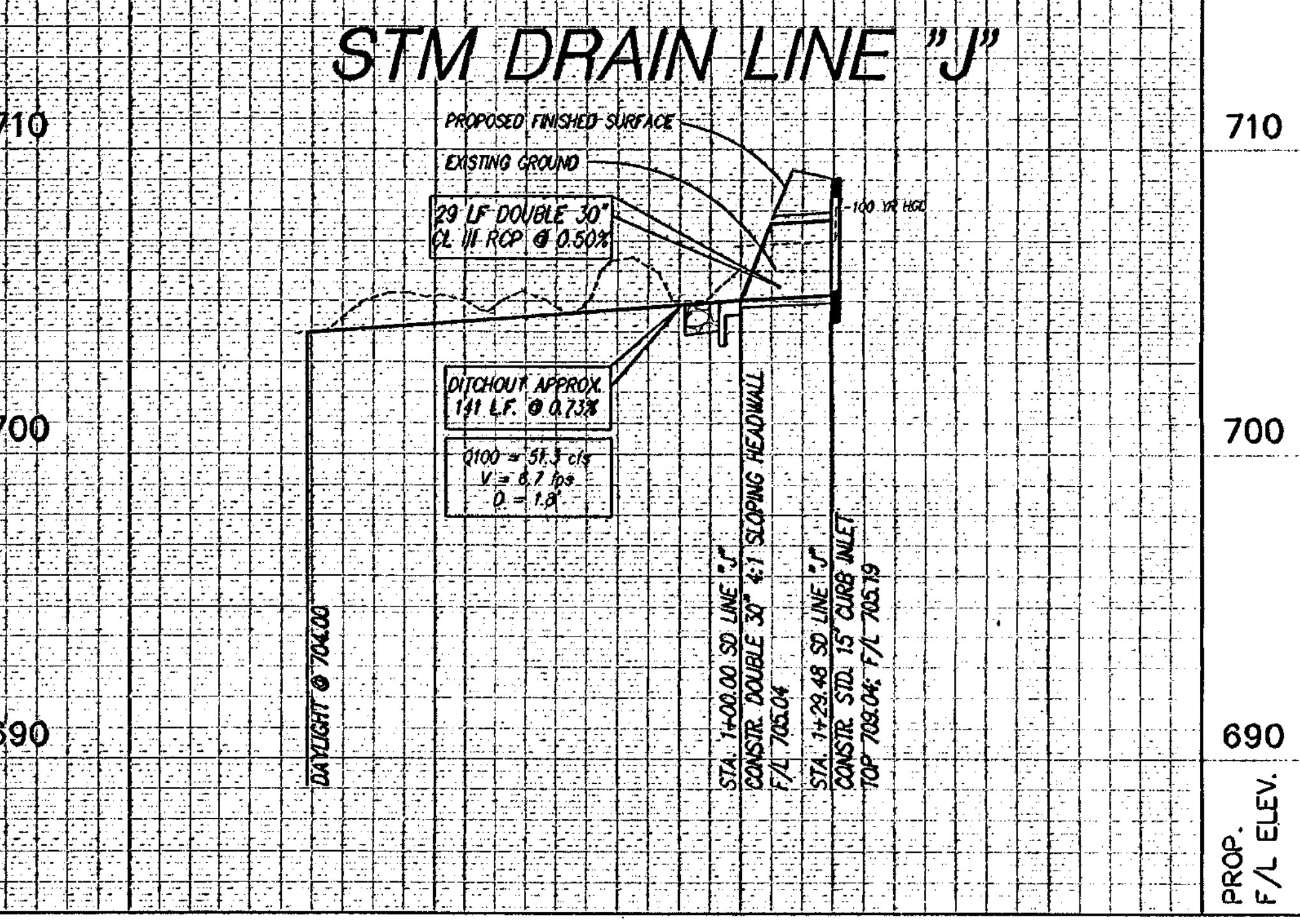
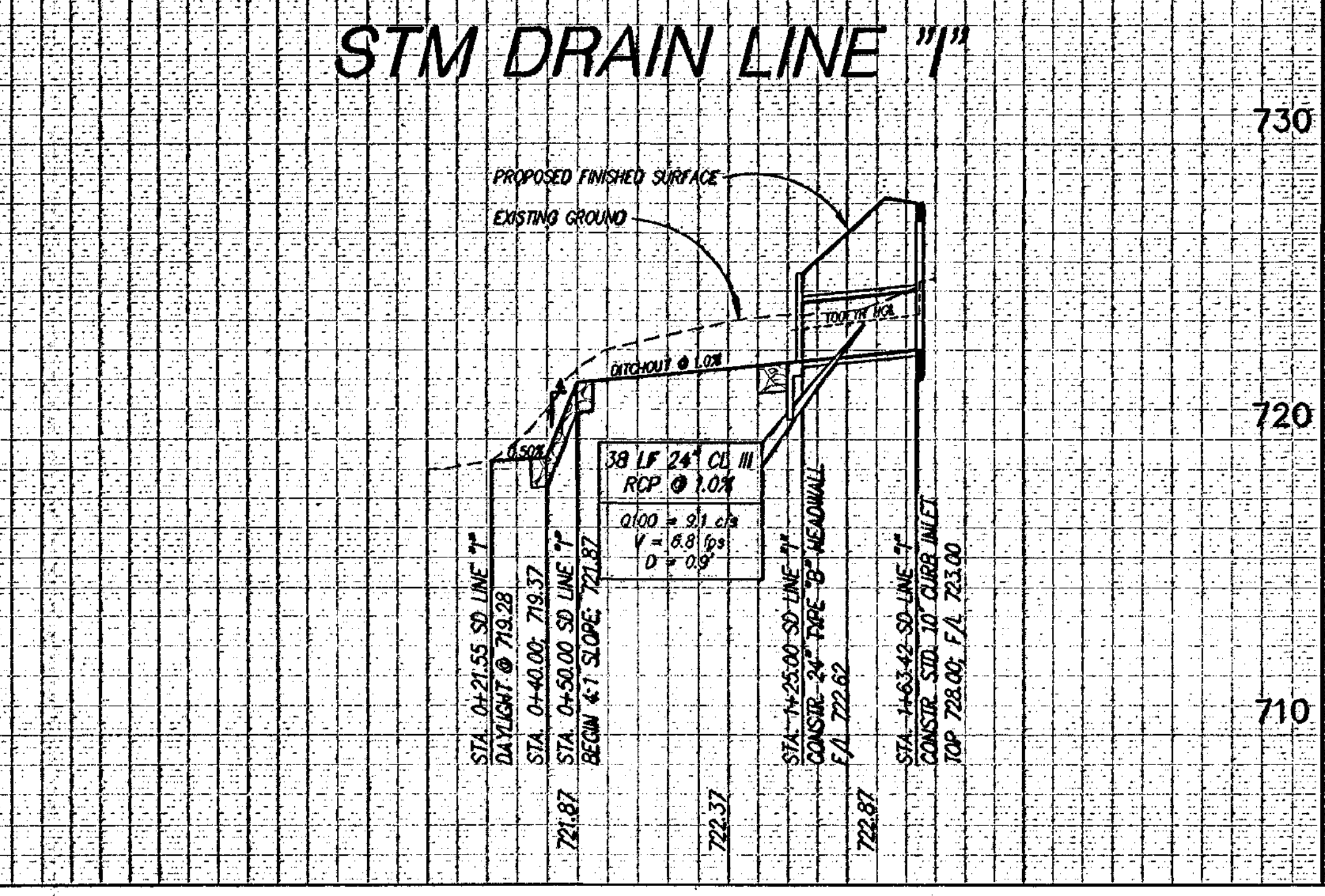
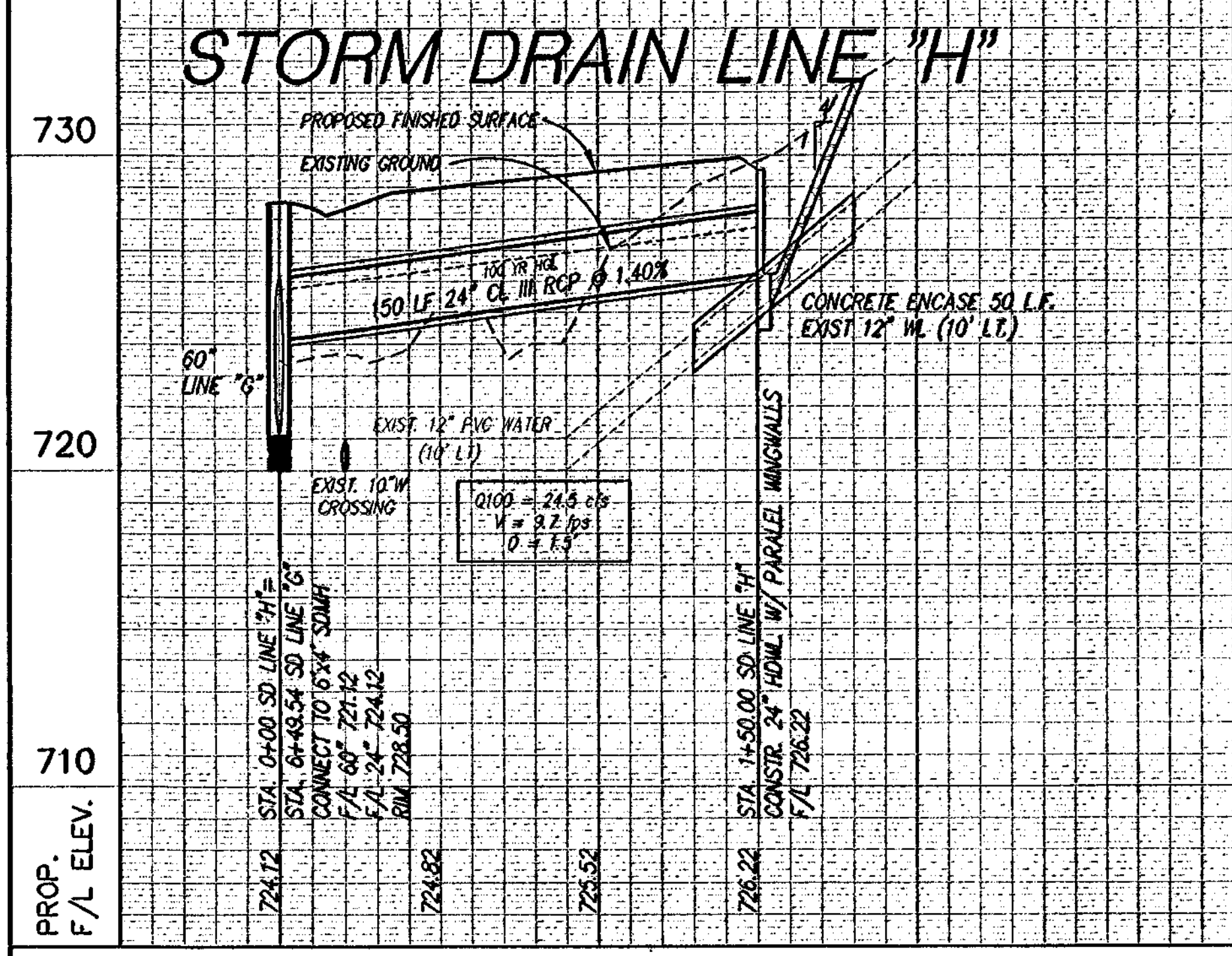
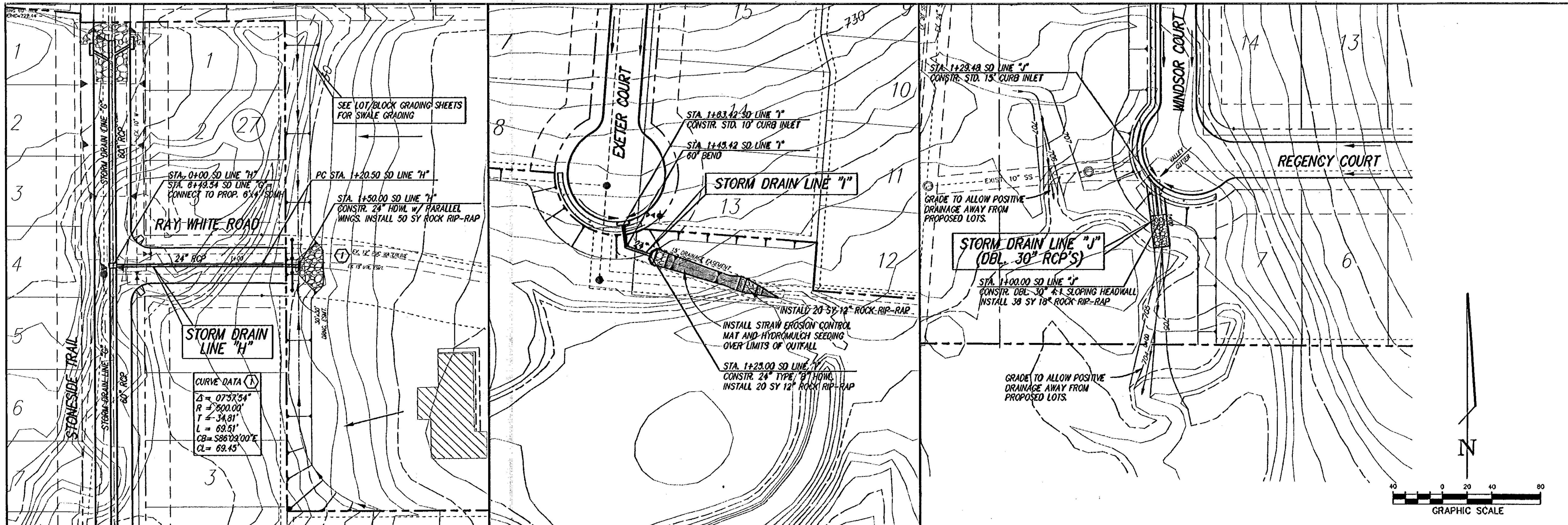
	SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street Fort Worth, Texas 76102 (817) 336-5773 235 W Hickory Street Suite 9100 Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd Irving, Texas 75061 (972) 254-1785		CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "F"	TNP PROJECT LEB02147 SHEET 46 OF 69
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RECORD DRAWING



		SHS DESIGNED LCC DRAWN MJH CHECKED	SCALE HORIZ 1" = 40' VERT 1" = 4' DATE OCT 2002	<p>TEAGUE NALL AND PERKINS INC. CONSULTING ENGINEERS</p> <p>1100 Moon Street, Fort Worth, Texas 76102 (817) 338-5775 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd., Irving, Texas 75001 (972) 254-1785</p>	<p>MARK J. HOLLIDAY 84683 P.E. Date: 11-11-02</p>	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "G"	INP PROJECT LEB02147 SHEET 47 OF 69
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RECORD DRAWING



NO.	REVISION	BY	DATE

SHS
DESIGNED

LCC
DRAWN

MJH
CHECKED

SCALE
HORIZ
1" = 40'

VERT
1" = 4'

DATE
OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street, Fort Worth, Texas 76102 (817) 338-5773

235 W Hickory Street, Suite 1100, Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1765

MARK J. HOLLIDAY
84683
LICENSED PROFESSIONAL ENGINEER
Date: 11-11-02

CITY OF FORT WORTH, TEXAS

CRAWFORD FARMS, PHASE II

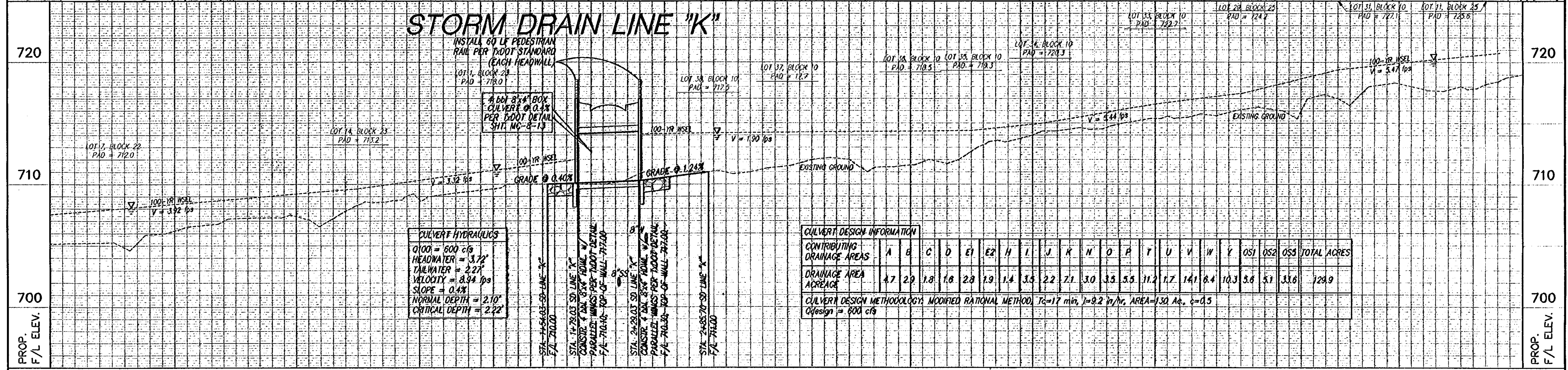
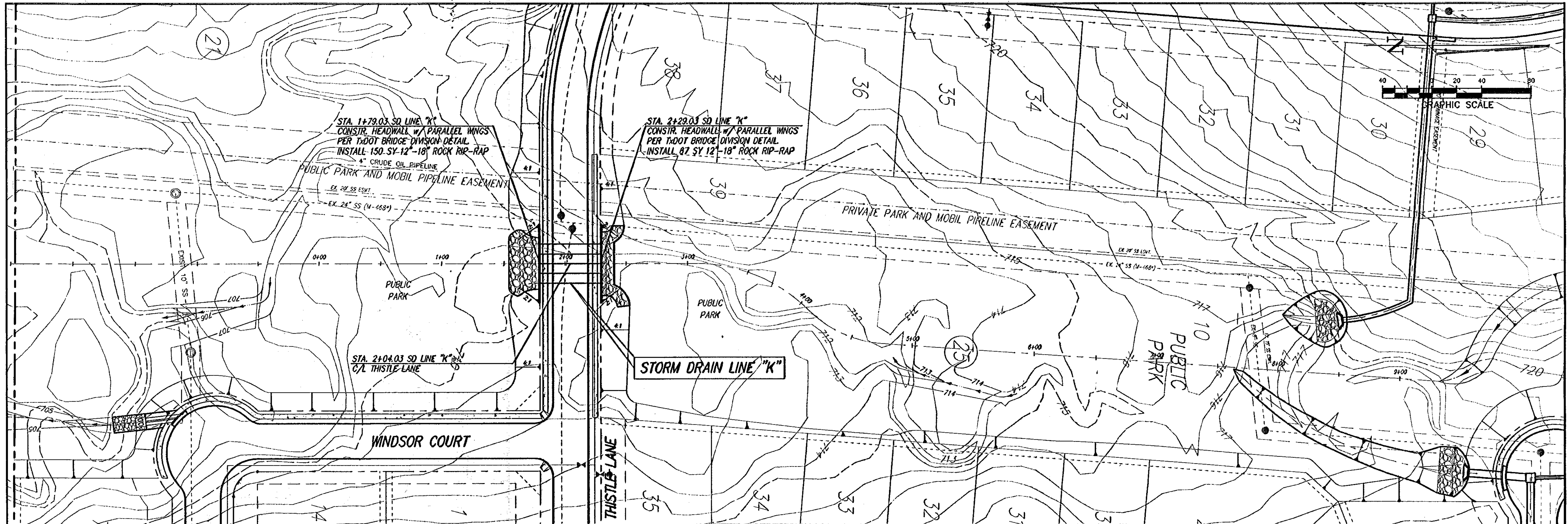
STORM DRAIN PLAN/PROFILE

LINE "H", "I" & "J"

TNP PROJECT
LEB02147

SHEET
48
OF
69

RECORD DRAWING



STORM DRAIN LINE "K"

INSTALL 60 LB PEDESTRIAN RAIL PER TxDOT STANDARD (EACH HEADWALL)

4' BY 8' BOX CULVERT @ 0.4% PER TxDOT DETAIL SH1 MC-8-13

CULVERT HYDRAULICS
 Q100 = 600 cfs
 HEADWATER = 3.72'
 TAILWATER = 2.27'
 VELOCITY = 8.94 fps
 SLOPE = 0.4%
 NORMAL DEPTH = 2.10'
 CRITICAL DEPTH = 2.22'

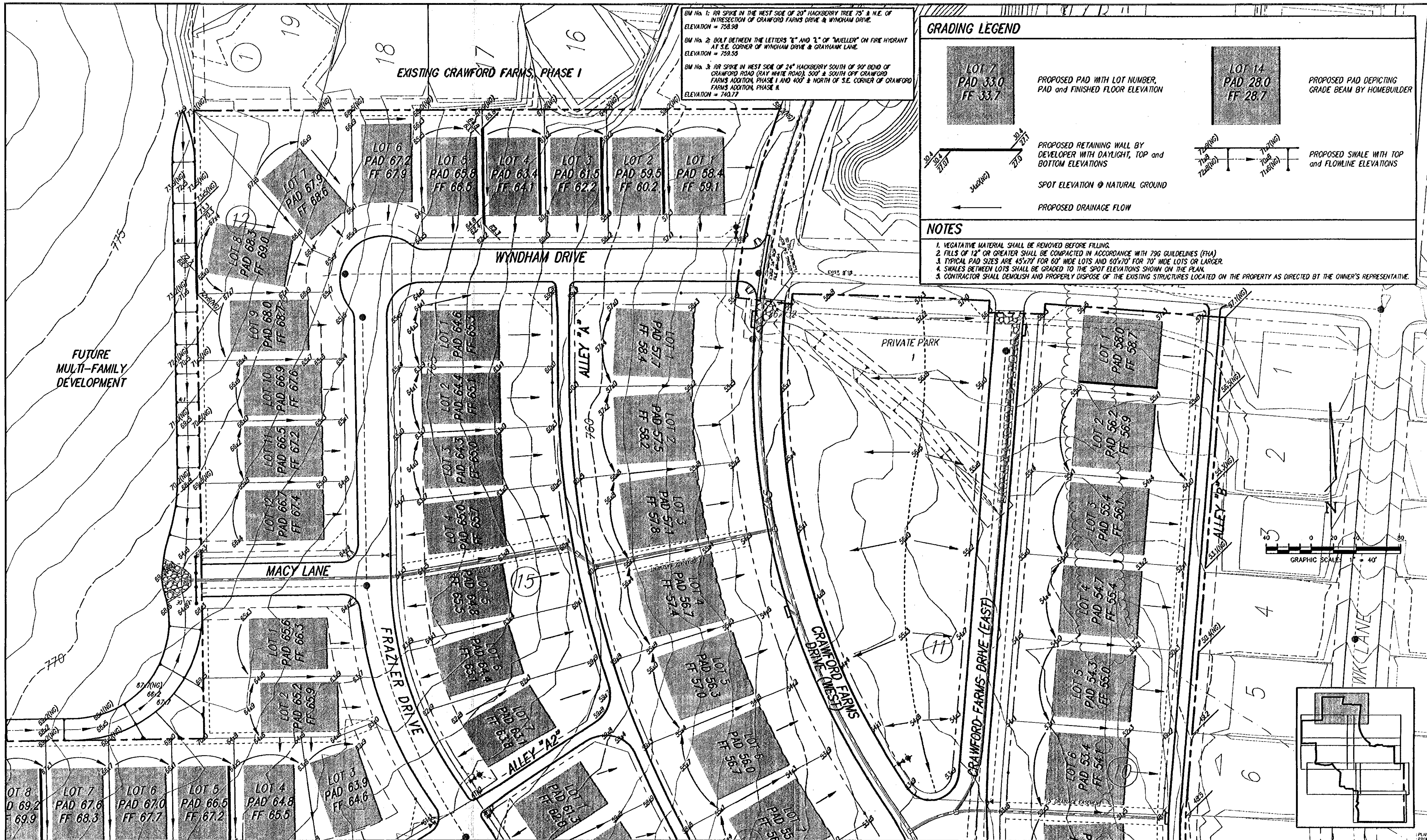
CULVERT DESIGN INFORMATION

CONTRIBUTING DRAINAGE AREAS	A	B	C	D	E1	E2	H	I	J	K	N	O	P	T	U	V	W	Y	OS1	OS2	OS3	TOTAL ACRES
DRAINAGE AREA ACREAGE	4.7	2.9	1.8	1.8	2.8	1.9	1.4	3.5	2.2	7.1	3.0	3.5	5.5	11.2	1.7	14.1	8.4	10.3	3.8	5.1	33.6	129.9

CULVERT DESIGN METHODOLOGY: MODIFIED RATIONAL METHOD. $T_c=17$ min, $I=8.2$ in/hr, AREA=130 Ac., $c=0.5$
 $Q_{design} = 600$ cfs

NO.	REVISION	BY	DATE	SCALE HORIZ 1"=40' VERT 1"=4' DATE OCT 2002	 TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Suite 4100, Irving, TX 75039-3001 Fort Worth, TX 76102 (817) 338-9773 Dallas, TX 75201 (972) 254-1783 Houston, TX 77002 (940) 383-4177	 KELLY D. DILLARD P.E. Date: 11/12/02	CITY OF FORT WORTH, TEXAS CRAWFORD FARMS, PHASE II STORM DRAIN PLAN/PROFILE LINE "K"	TNP PROJECT LEB02147 SHEET 49 OF 69
	DESIGNED SHS	DRAWN LCC	CHECKED MJH					

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED	LCC DRAWN	MJH CHECKED
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SCALE HORIZ 1" = 40'
VERT N/A
DATE OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

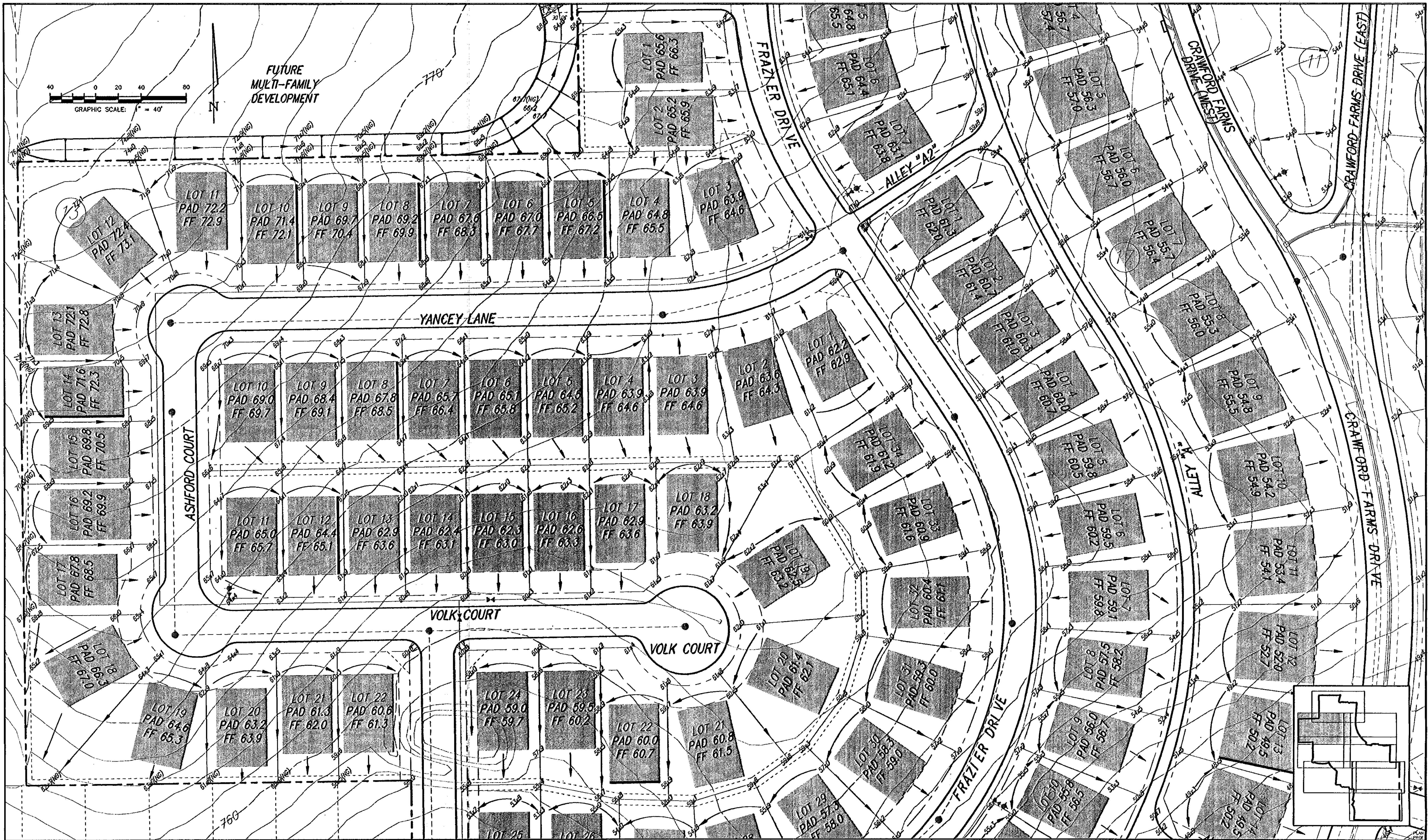
1100 Moon Street, Suite 200, Fort Worth, Texas 76102 (817) 336-9773
235 W. Hickory Street, Suite 200, Denton, Texas 76201 (940) 383-4177
2001 West Irving Blvd., Suite 200, Irving, Texas 75061 (972) 254-1765

MARK HOLIDAY
84683
PROFESSIONAL ENGINEER
CITY OF FORT WORTH, TEXAS
Date: 11-1-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
LOT/BLOCK GRADING (1 OF 8)

TNP PROJECT LEB02147
SHEET 50
OF 69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED
LCC DRAWN
MJH CHECKED

SCALE
HORIZ 1" = 40'
VERT N/A
DATE OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Mason Street, Fort Worth, Texas 76102 (817) 336-5773
 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1783

MARK J. HOLLIDAY
 84683
 P.E.
 Date: 10-1-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 LOT/BLOCK GRADING (2 OF 8)

TMP PROJECT
 LEG02147
 SHEET
51
 OF
 69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED
LCC DRAWN
MJH CHECKED

SCALE HORIZ 1" = 40'
VERT N/A
DATE OCT 2002

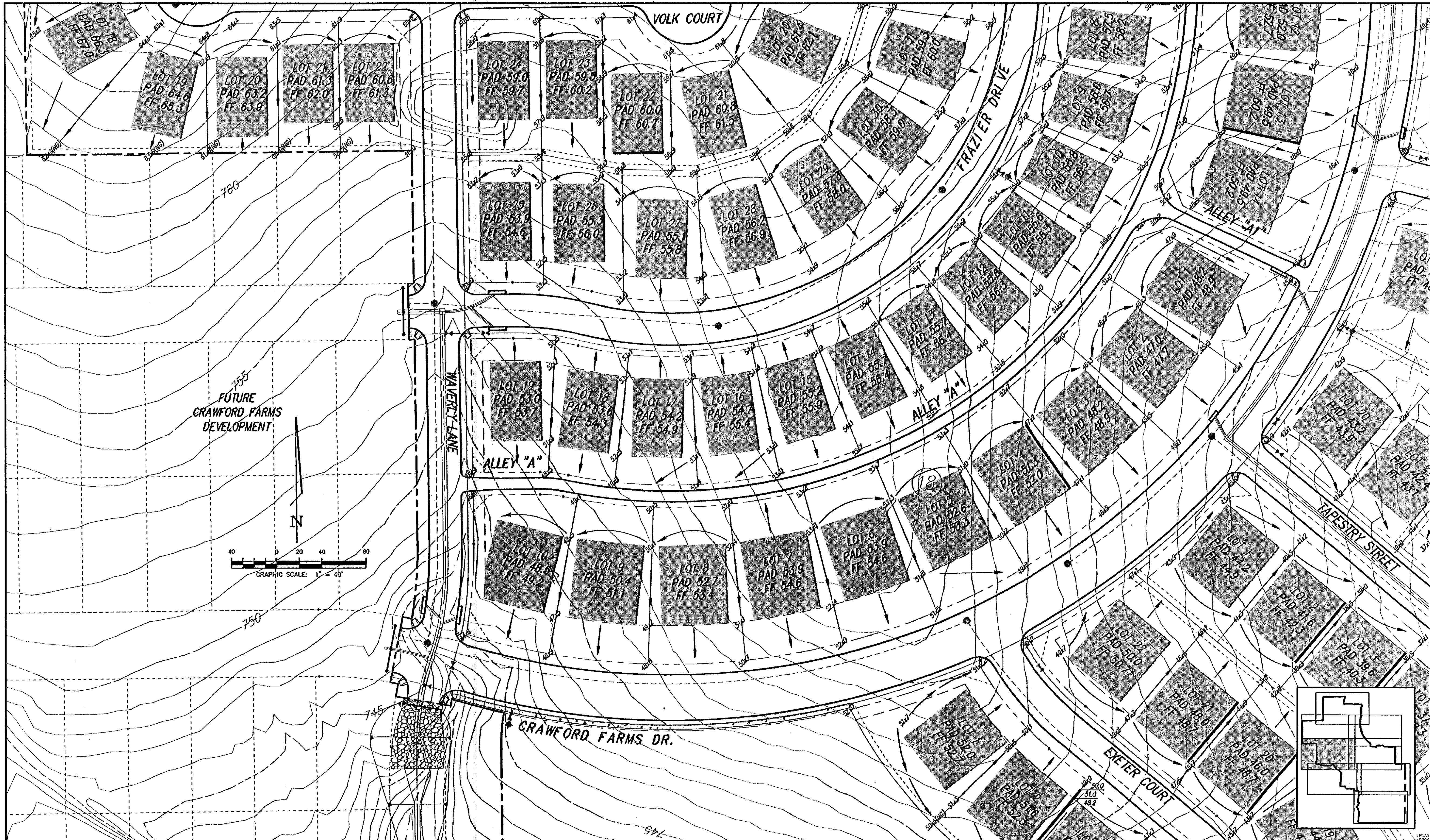
TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Mason Street, Fort Worth, Texas 76102 (817) 336-3773
 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1703

MARK & HOLIDAY
 84693
 License No. 11-11-02
 Date: 11-11-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 LOT/BLOCK GRADING (3 OF 8)

TNP PROJECT
 LEB02147
 SHEET
52
 OF
 69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS
DESIGNED
LCC
DRAWN
MJH
CHECKED

FUTURE
CRAWFORD FARMS
DEVELOPMENT

SCALE
HORIZ
1" = 40'
VERT
N/A
DATE
OCT 2002

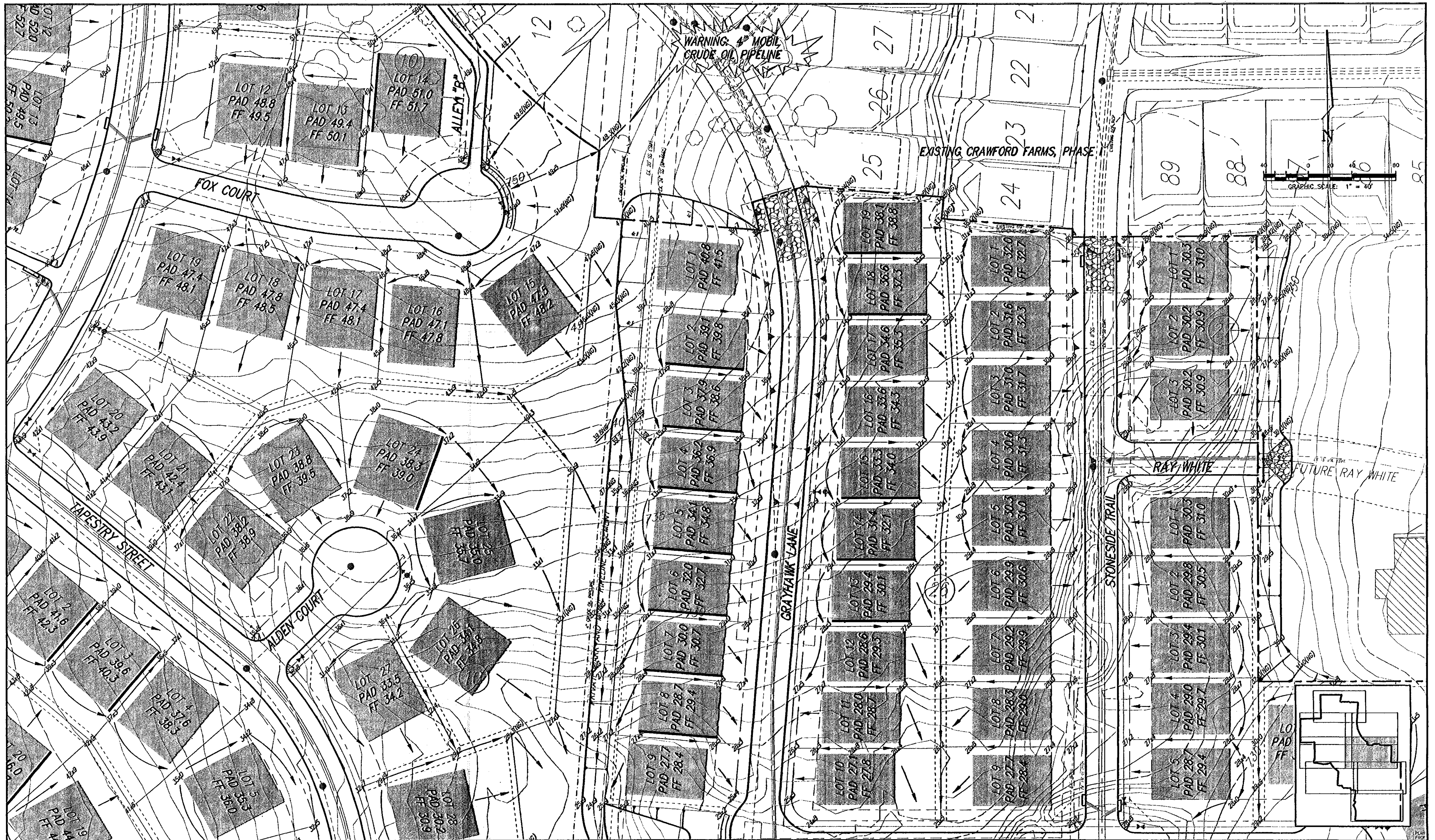
TEAGUE NALL AND PERKINS
INC. CONSULTING ENGINEERS
1100 Mason Street Suite #100 Fort Worth, Texas 76102 (817) 336-5773
235 W Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177
2001 West Irving Blvd Irving, Texas 75061 (972) 254-1189

MARK J. HOLLADAY
Professional Engineer
No. 84683
Date: 11-10-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
LOT/BLOCK GRADING (4 OF 8)

PLAN PROJECT
LEB02147
SHEET
53
OF
69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS
 DESIGNED
 LCC
 DRAWN
 MJH
 CHECKED

SCALE
 HORIZ
 1" = 40'
 VERT
 N/A
 DATE
 OCT 2002

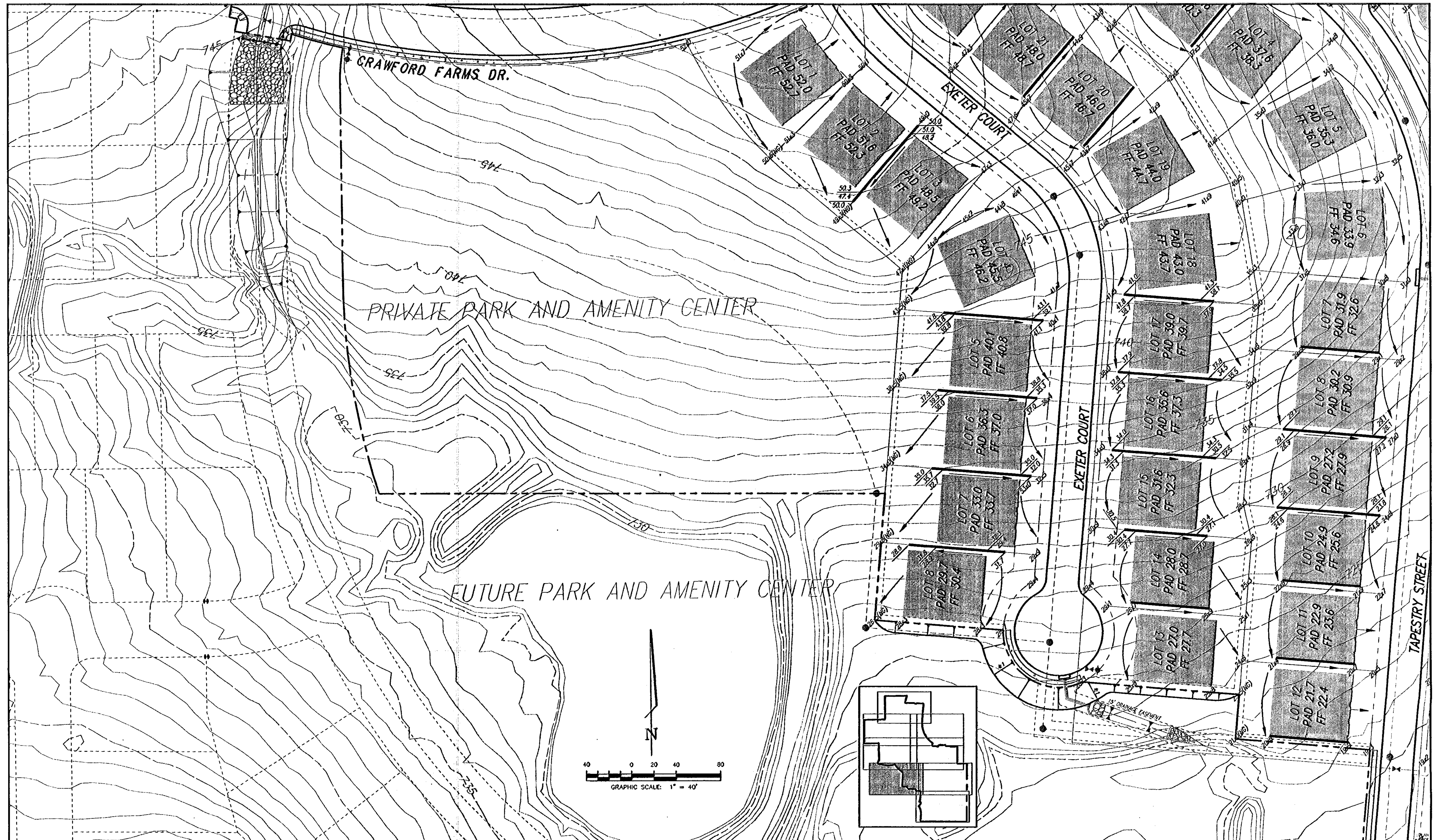
TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Moon Street Fort Worth, Texas 76102 (817) 336-3773
 235 W. Hickory Street Suite #100 Irving, Texas 75041 (972) 234-1765
 2001 West Irving Blvd. Irving, Texas 75041 (972) 234-1765

MARK A. HOLLIDAY
 84683
 P.E.
 Date: 10-1-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 LOT/BLOCK GRADING (5 OF 8)

TNP PROJECT
 LEB02147
 SHEET
54
 OF
 69

RECORD DRAWING



NO.	REVISION	BY	DATE

DESIGNED	SHS
DRAWN	LCC
CHECKED	MJH

SCALE	HORIZ	1" = 40'
	VERT	N/A
DATE		OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS

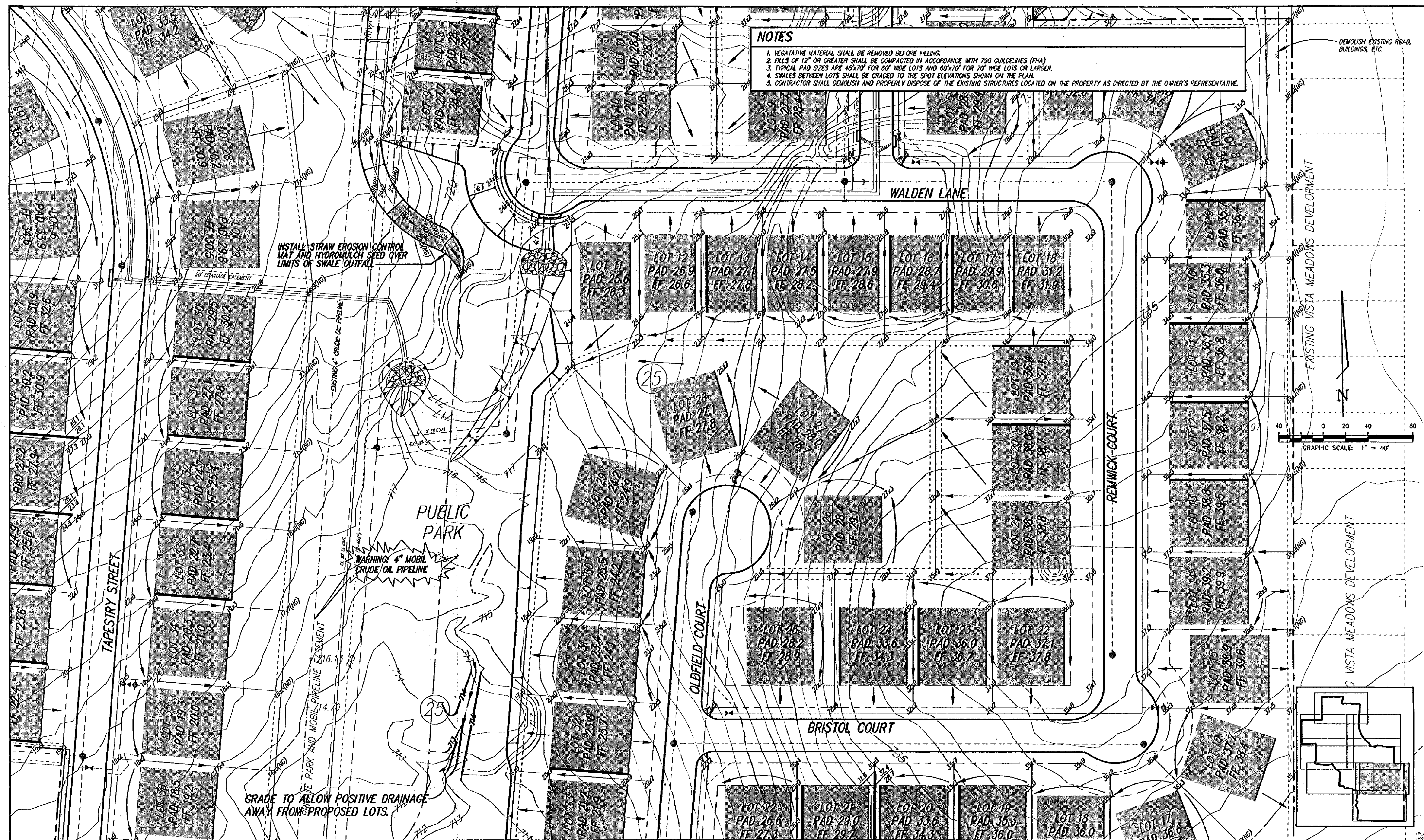
1100 Mason Street, Suite 1100, Fort Worth, Texas 76102 (817) 338-5773
 235 W. Hickory Street, Dallas, Texas 75201 (940) 383-4177
 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1785

Professional Engineer Seal for Mark & Holiday, P.E. No. 84683, State of Texas. Date: 11-1-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
 LOT/BLOCK GRADING (6 OF 8)

TNP PROJECT
 LEB02147
 SHEET
55
 OF
 69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED	CHECKED
LCC DRAWN	
MJH	

SCALE
HORIZ 1" = 40'
VERT N/A
DATE OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mason Street, Suite #100, Fort Worth, Texas 76102 (817) 338-5773

235 W. Highway Street, Suite #100, Denton, Texas 76201 (940) 383-4177

2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1765

MARK J. HOLLIDAY
84683
LICENSED PROFESSIONAL ENGINEER
Date: 11-12-02

CITY OF FORT WORTH, TEXAS

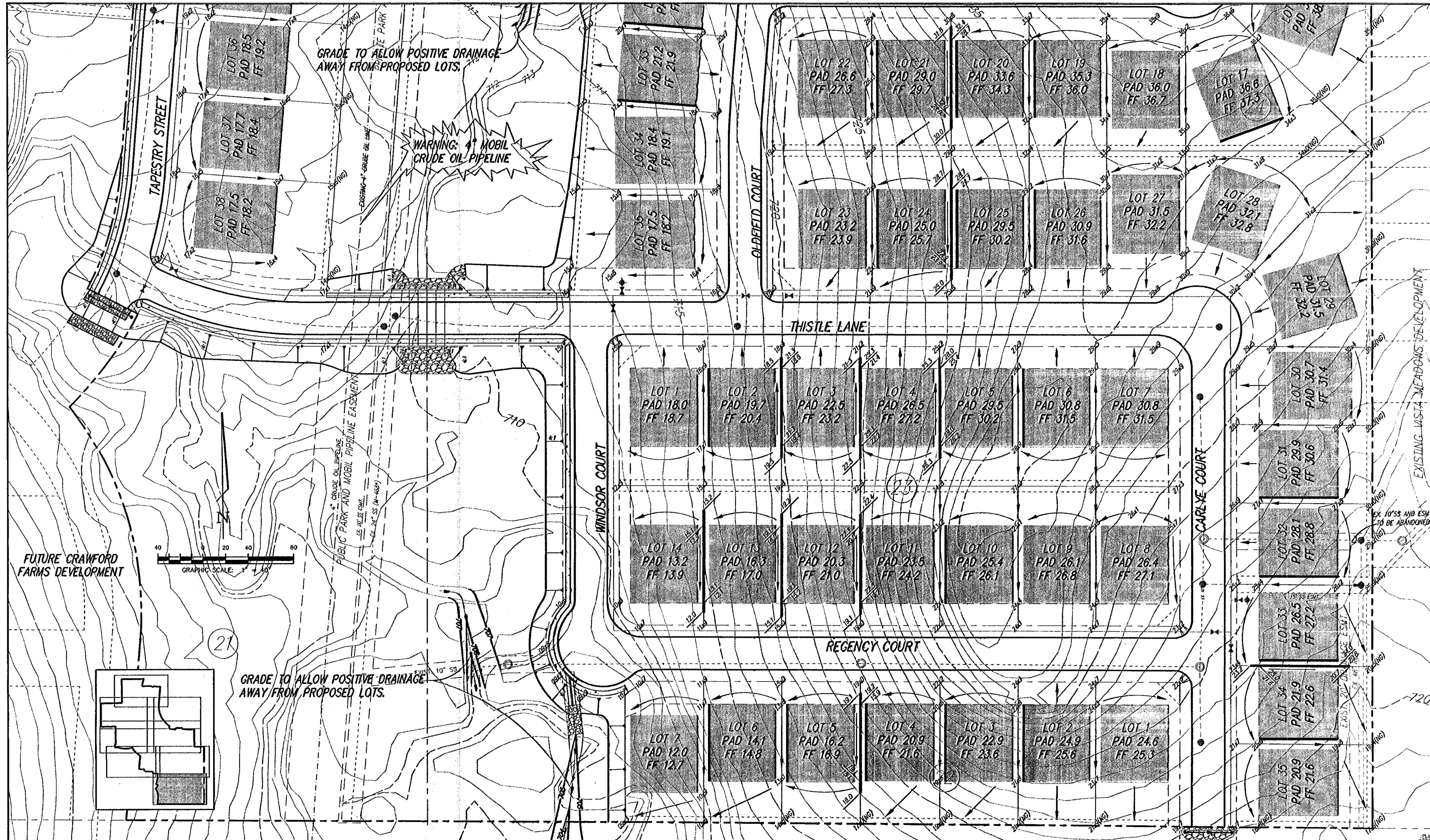
CRAWFORD FARMS, PHASE II

LOT/BLOCK GRADING (7 OF 8)

TNP PROJECT
LEB02147

SHEET
56
OF
69

RECORD DRAWING



NO.	REVISION	BY	DATE

SHS DESIGNED
LCC DRAWN
MJH CHECKED

SCALE HORIZ 1"=40'
VERT N/A
DATE OCT 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Moon Street, Suite 4100, Fort Worth, Texas 76102 (817) 336-3773
235 W. Hickory Street, Suite 4100, Denton, Texas 76201 (940) 383-4177
2001 West Irving Blvd., Suite 4100, Irving, Texas 75039 (972) 254-1705

MARK J. HOLLIDAY
84683
LICENSED PROFESSIONAL ENGINEER
Date: 11-1-02

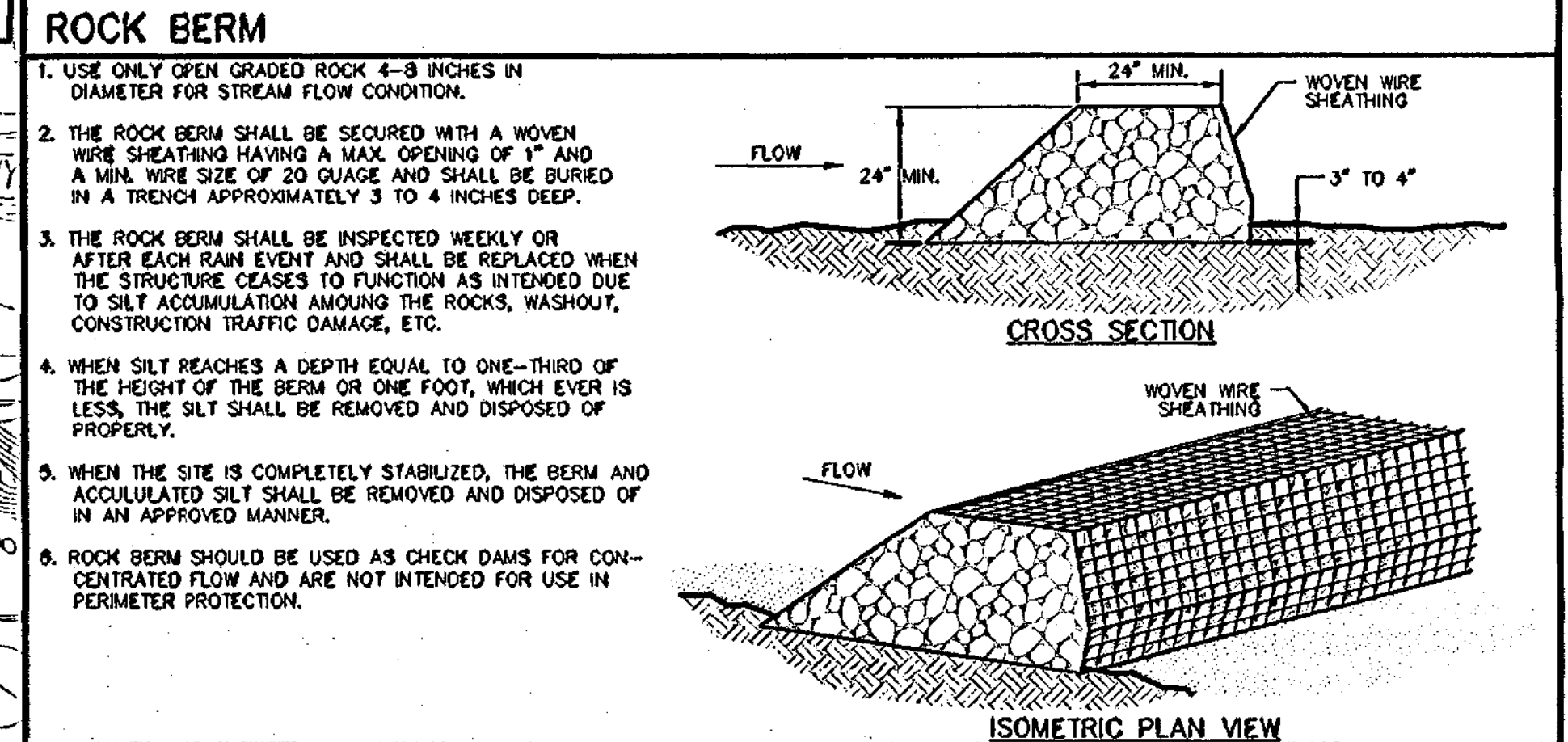
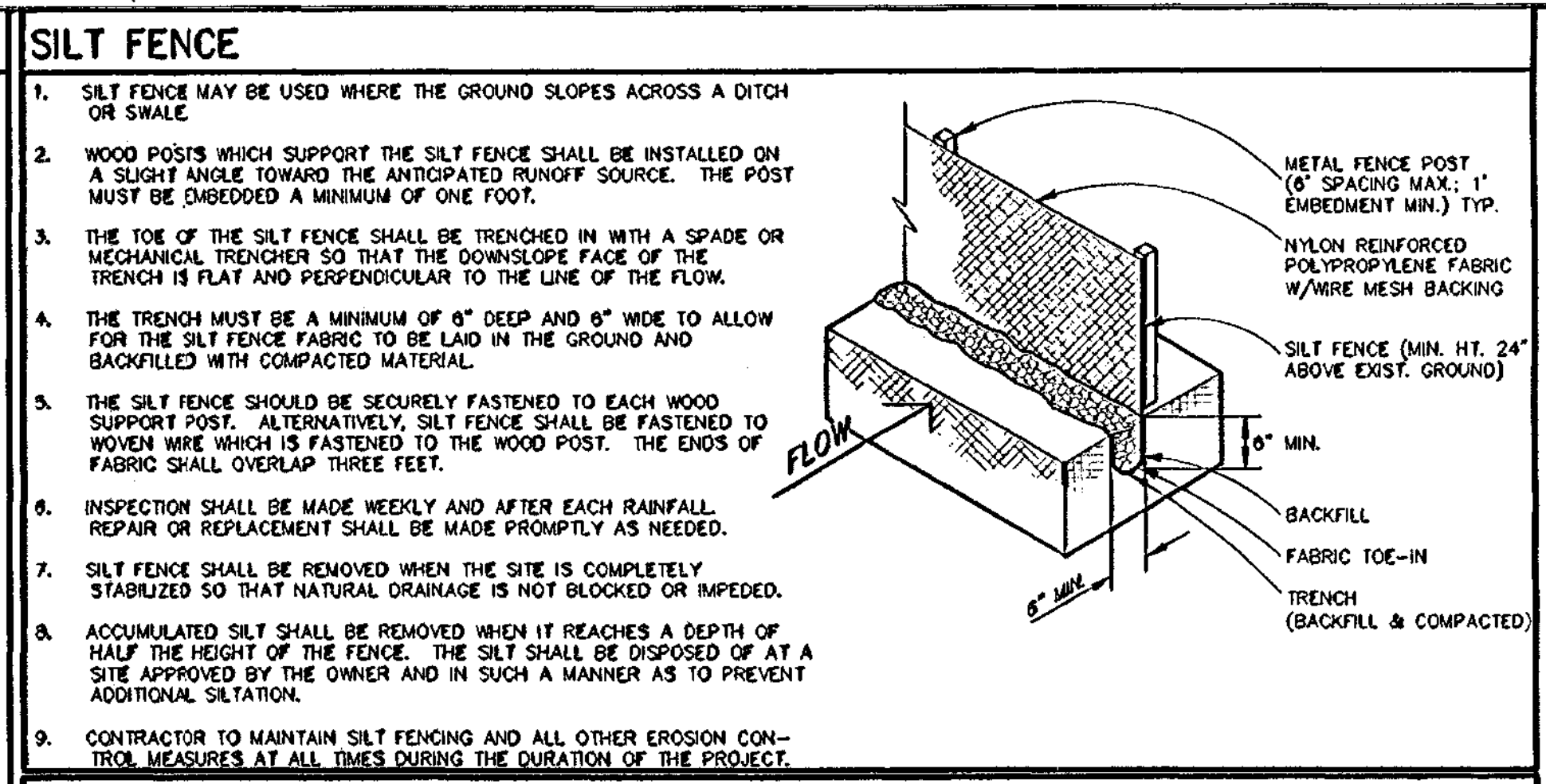
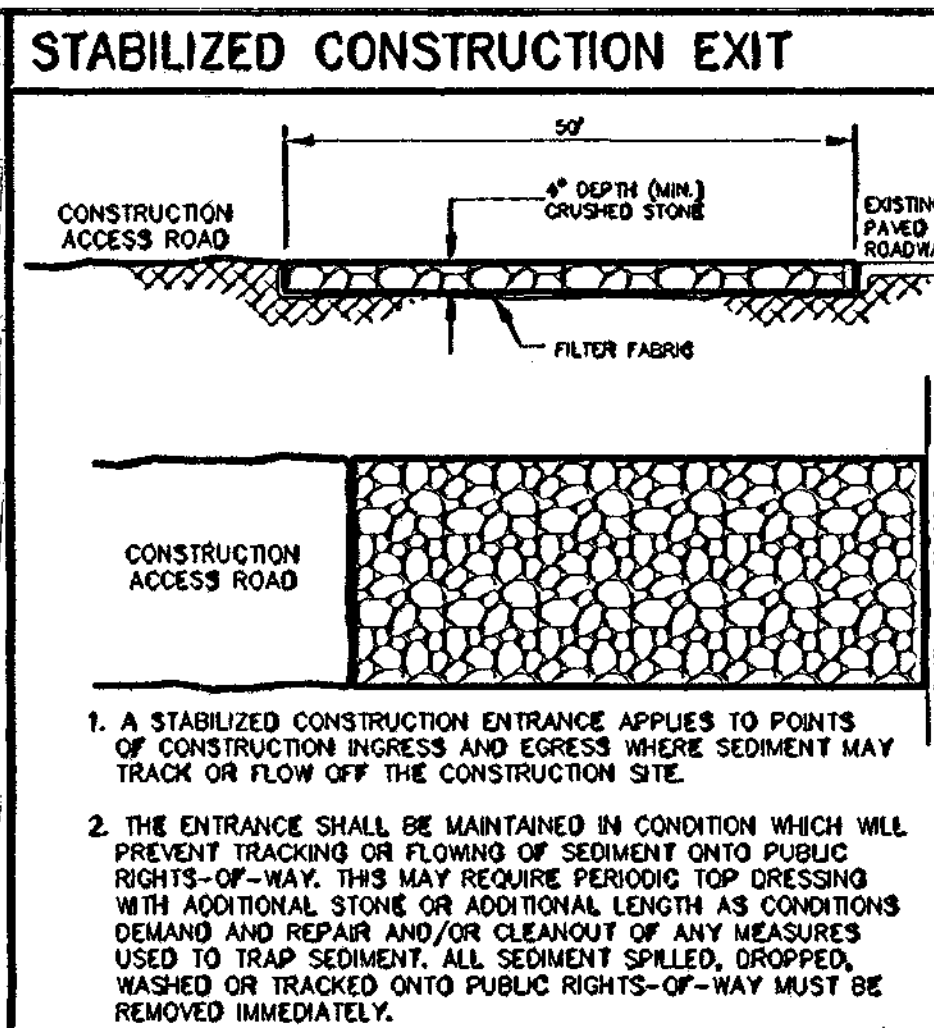
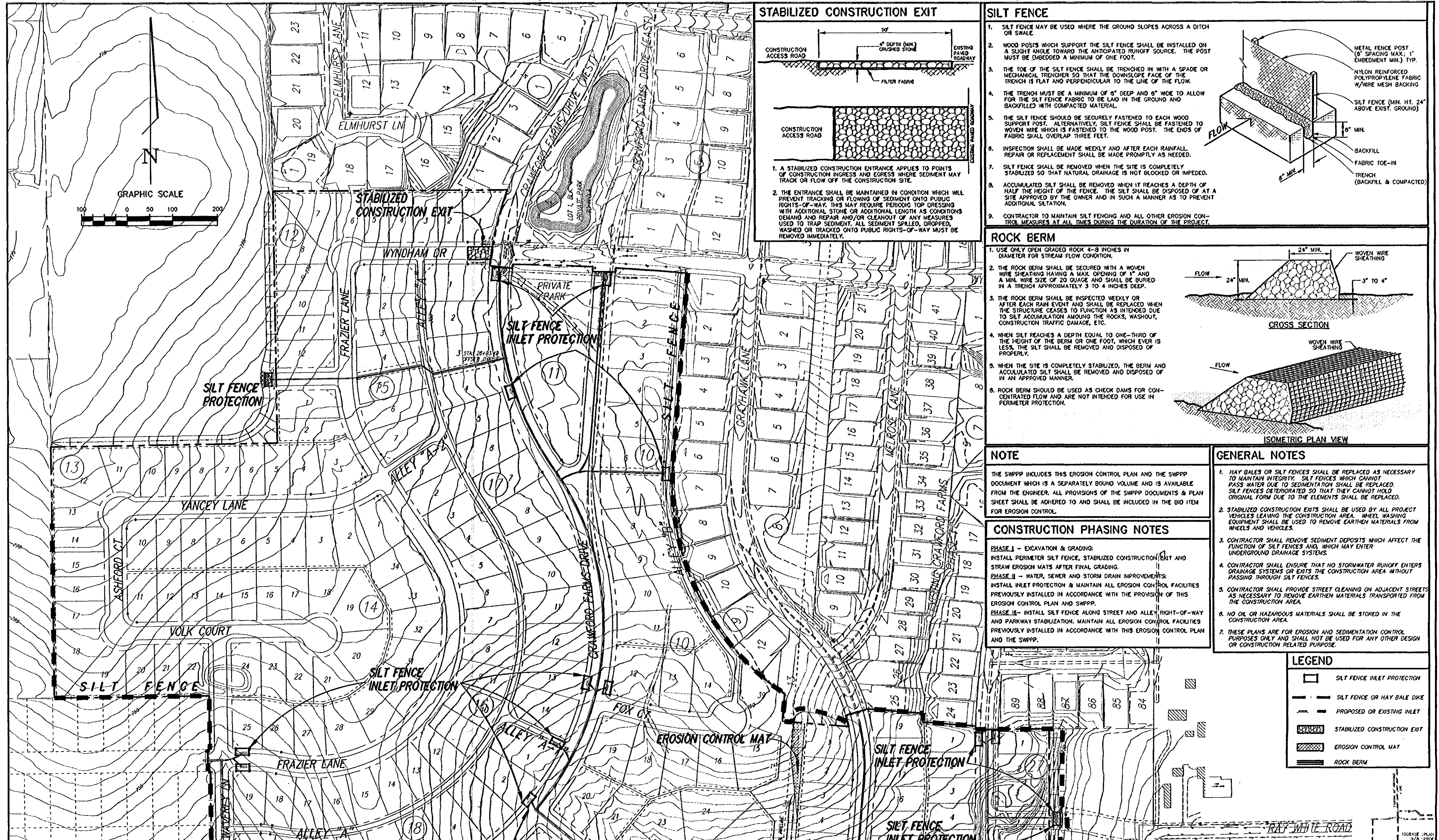
CITY OF FORT WORTH, TEXAS

CRAWFORD FARMS, PHASE II

LOT/BLOCK GRADING (8 OF 8)

TNP PROJECT LEB02147
SHEET 57
OF 69

RECORD DRAWING



NOTE

THE SWPPP INCLUDES THIS EROSION CONTROL PLAN AND THE SWPPP DOCUMENT WHICH IS A SEPARATELY BOUND VOLUME AND IS AVAILABLE FROM THE ENGINEER. ALL PROVISIONS OF THE SWPPP DOCUMENTS & PLAN SHEET SHALL BE ADHERED TO AND SHALL BE INCLUDED IN THE BID ITEM FOR EROSION CONTROL.

GENERAL NOTES

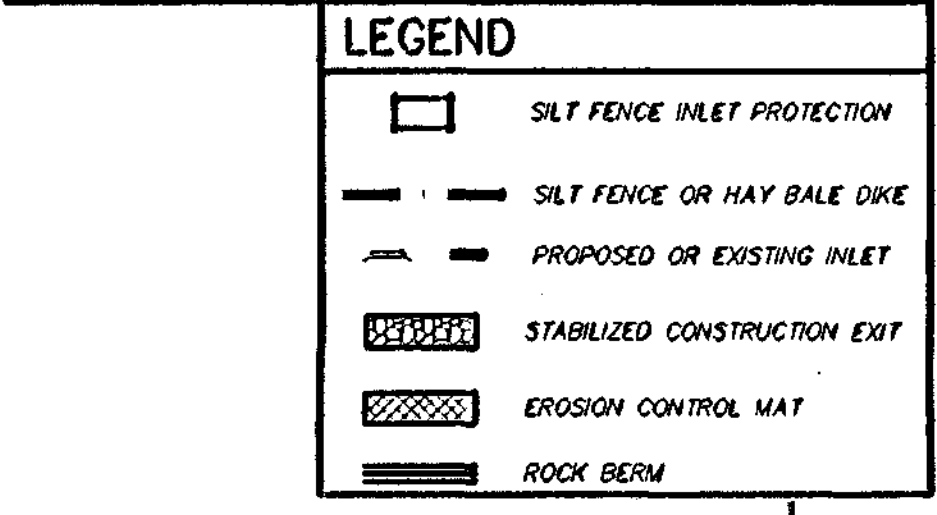
1. HAY BALES OR SILT FENCES SHALL BE REPLACED AS NECESSARY TO MAINTAIN INTEGRITY. SILT FENCES WHICH CANNOT PASS WATER DUE TO SEDIMENTATION SHALL BE REPLACED. SILT FENCES DETERIORATED SO THAT THEY CANNOT HOLD ORIGINAL FORM DUE TO THE ELEMENTS SHALL BE REPLACED.
2. STABILIZED CONSTRUCTION EXITS SHALL BE USED BY ALL PROJECT VEHICLES LEAVING THE CONSTRUCTION AREA. WHEEL WASHING EQUIPMENT SHALL BE USED TO REMOVE EARTHEN MATERIALS FROM WHEELS AND VEHICLES.
3. CONTRACTOR SHALL REMOVE SEDIMENT DEPOSITS WHICH AFFECT THE FUNCTION OF SILT FENCES AND, WHICH MAY ENTER UNDERGROUND DRAINAGE SYSTEMS.
4. CONTRACTOR SHALL ENSURE THAT NO STORMWATER RUNOFF ENTERS DRAINAGE SYSTEMS OR EXITS THE CONSTRUCTION AREA WITHOUT PASSING THROUGH SILT FENCES.
5. CONTRACTOR SHALL PROVIDE STREET CLEANING ON ADJACENT STREETS AS NECESSARY TO REMOVE EARTHEN MATERIALS TRANSPORTED FROM THE CONSTRUCTION AREA.
6. NO OIL OR HAZARDOUS MATERIALS SHALL BE STORED IN THE CONSTRUCTION AREA.
7. THESE PLANS ARE FOR EROSION AND SEDIMENTATION CONTROL PURPOSES ONLY AND SHALL NOT BE USED FOR ANY OTHER DESIGN OR CONSTRUCTION RELATED PURPOSE.

CONSTRUCTION PHASING NOTES

PHASE I - EXCAVATION & GRADING:
INSTALL PERIMETER SILT FENCE, STABILIZED CONSTRUCTION EXIT AND STRAW EROSION MATS AFTER FINAL GRADING.

PHASE II - WATER, SEWER AND STORM DRAIN IMPROVEMENTS:
INSTALL INLET PROTECTION & MAINTAIN ALL EROSION CONTROL FACILITIES PREVIOUSLY INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS EROSION CONTROL PLAN AND SWPPP.

PHASE III - INSTALL SILT FENCE ALONG STREET AND ALLEY RIGHT-OF-WAY AND PARKWAY STABILIZATION. MAINTAIN ALL EROSION CONTROL FACILITIES PREVIOUSLY INSTALLED IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND THE SWPPP.



NO.	REVISION	BY	DATE

JKW
DESIGNED
ASB
DRAWN
MJH
CHECKED

SCALE
HORIZ
1"=100'
VERT
N/A
DATE
JULY 2002

TEAGUE NALL AND PERKINS
CONSULTING ENGINEERS

1100 Mecon Street Fort Worth, Texas 76102 (817) 338-3773
235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177
2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765

MARK J. HOLLADAY
84683
Professional Engineer
Date: 10-11-02

CITY OF FORT WORTH, TEXAS
CONSTRUCTION PLANS FOR
CRAWFORD FARMS, PHASE II
EROSION CONTROL PLAN (1 OF 2)

TNP PROJECT
LEB02147
SHEET
58
OF
69

RECORD DRAWING



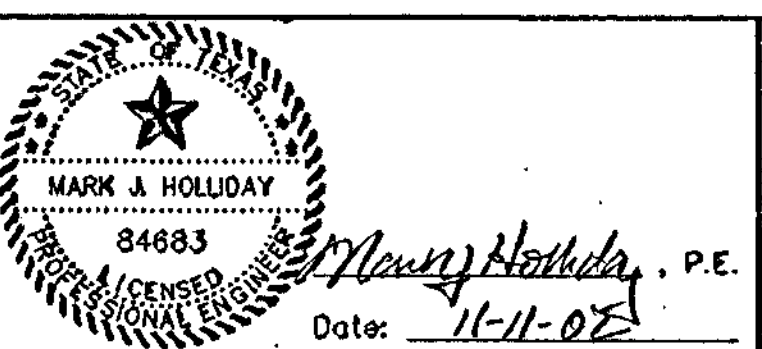
LEGEND	
	SILT FENCE INLET PROTECTION
	SILT FENCE OR HAY BALE DIKE
	PROPOSED OR EXISTING INLET
	STABILIZED CONSTRUCTION EXIT
	EROSION CONTROL MAT
	ROCK BERM

NO.	REVISION	BY	DATE

JKW
 DESIGNED
 ASB
 DRAWN
 MJH
 CHECKED

SCALE
 HORIZ
 1"=100'
 VERT
 N/A
 DATE
 JULY 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Mason Street Fort Worth, Texas 76102 (817) 338-5773
 235 W. Hickory Street Suite #100 Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765



CITY OF FORT WORTH, TEXAS
 CONSTRUCTION PLANS FOR
CRAWFORD FARMS, PHASE II
 EROSION CONTROL PLAN (2 OF 2)

TNP PROJECT
 LEB02147
 SHEET
59
 OF
 69

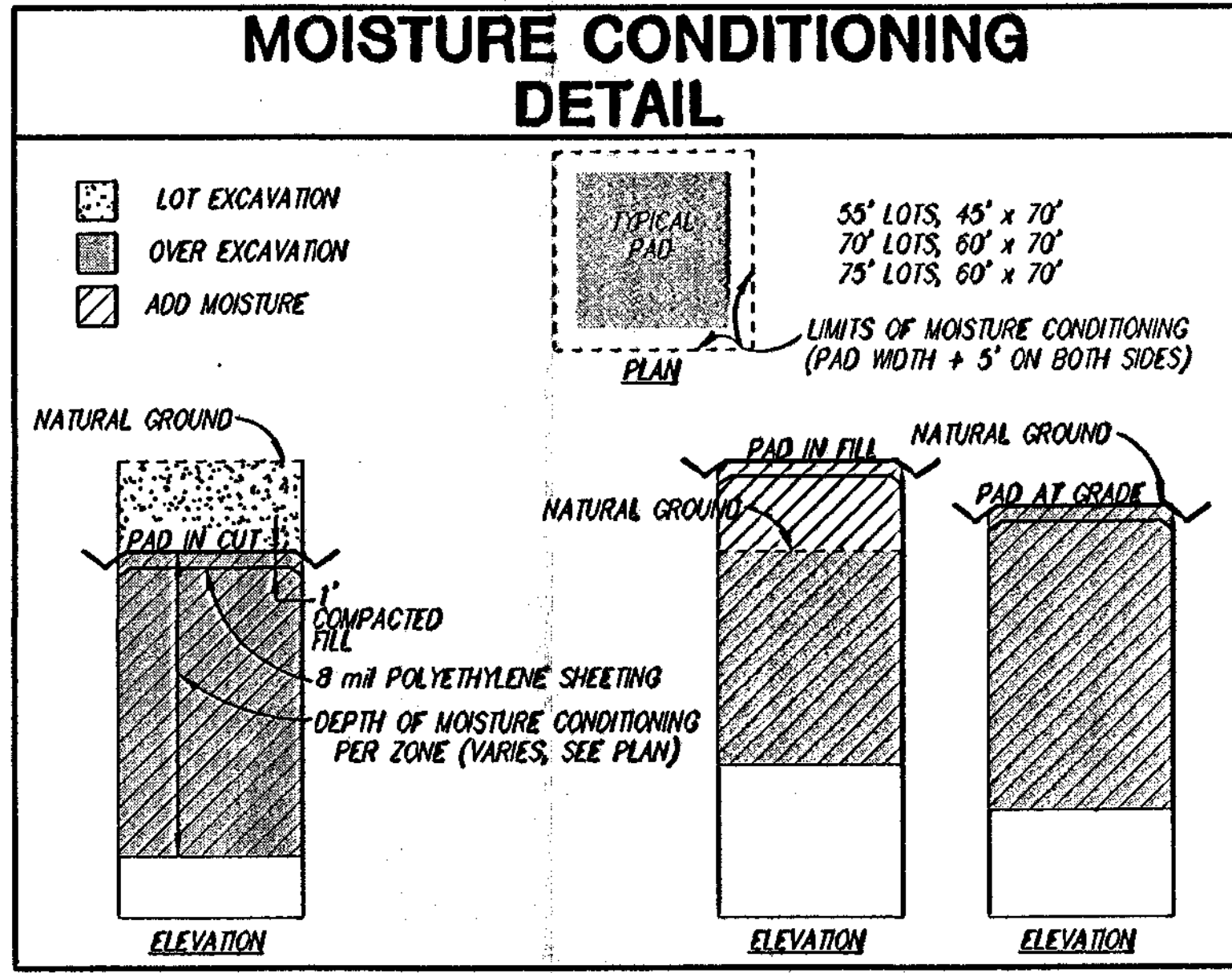
RECORD DRAWING

ZONE	BLOCK	LOT	DEPTH OF TREATMENT BELOW F.P. (FT)	PAD CUT (-) OR FILL (+) (FT)	DEPTH OF OVER EXCAVATION (FT)	PAD AREA (SF)	VOLUME OF OVER EXCAVATION (CY)
IV	10	36	3	+1.0	2.0	5600	415
		37	3	+0.7	2.3	5600	471
		38	3	+0.5	2.5	5600	519
		39	3	+4.0	0.0	5600	0
		40	3	+2.9	0.1	5600	21
		41	3	+3.1	0.0	5600	0
		42	3	+3.5	0.0	5600	0
		43	3	-0.1	3.0	5600	622
		44	3	+1.4	1.6	5600	332
		45	3	+4.7	0.0	5600	0
		46	3	+2.9	0.1	5600	21
		47	3	+2.2	0.8	5600	166
V	10	19	10	+2.4	7.6	5600	1576
		20	10	+1.2	8.8	5600	1825
		21	10	+3.9	6.1	5600	1265
		22	10	+2.2	7.8	5600	1618
		23	10	+0.8	9.2	5600	1928
		24	10	-0.7	10.0	5600	2074
		25	10	0	10.0	5600	2074
		26	10	+4.1	5.9	5600	1224
		27	10	+2.5	7.5	5600	1556
		28	10	+0.2	9.8	5600	2033
		29	10	+0.8	9.2	5600	1908
		30	10	+2.0	8.0	5600	1659
		31	10	+1.1	8.9	5600	1848
		32	10	+0.7	9.3	5600	1929
		33	10	+0.7	9.3	5600	1929
		34	10	+0.3	9.7	5600	2012
		35	10	+0.8	9.2	5600	1908
		36	10	-1.0	10.0	5600	2074
		37	10	-1.3	10.0	5600	2074
		38	10	-0.5	10.0	5600	2074
		39	10	+0.5	9.5	5600	1970
		40	10	+0.1	9.9	5600	2053
		41	10	+0.3	9.7	5600	2012
		42	10	+1.0	9.0	5600	1867
		43	10	+1.7	8.3	5600	1721
		44	10	-0.8	10.0	5600	2074
		45	10	-1.9	10.0	5600	2074
		46	10	-2.4	10.0	5600	2074
		47	10	-2.9	10.0	5600	2074
		48	10	-3.2	10.0	5600	2074
		49	10	-4.1	10.0	5600	2074
		50	10	-4.1	10.0	5600	2074
		51	10	-2.3	10.0	5600	2074
		52	10	-2.3	10.0	5600	2074
		53	10	-2.6	10.0	5600	2074
		54	10	-1.1	10.0	5600	2074
		55	10	-0.8	10.0	5600	2074
		56	10	+1.0	9.0	5600	1867
		57	10	0	10.0	5600	2074
		58	10	-0.4	10.0	5600	2074
		59	10	-0.4	10.0	5600	2074
		60	10	-1.0	10.0	5600	2074
		61	10	-1.0	10.0	5600	2074
		62	10	-1.0	10.0	5600	2074
		63	10	-1.0	10.0	5600	2074
		64	10	-1.0	10.0	5600	2074
		65	10	-1.0	10.0	5600	2074
		66	10	-1.0	10.0	5600	2074
		67	10	0	10.0	5600	2074
		68	10	+0.1	9.9	5600	2053
		69	10	+1.1	8.9	5600	1848
		70	10	-2.6	10.0	5600	2074
		71	10	-0.1	10.0	5600	2074
		72	10	-1.8	10.0	5600	2074
		73	10	-0.4	10.0	5600	2074
		74	10	+4.5	5.5	5600	1141
		75	10	+1.7	8.3	5600	1721
		76	10	0	10.0	5600	2074
		77	10	-0.5	10.0	5600	2074
		78	10	-3.0	10.0	5600	2074
		79	10	-4.2	10.0	5600	2074
		80	10	-2.2	10.0	5600	2074
		81	10	-3.1	10.0	5600	2074
		82	10	-6.9	10.0	5600	2074
		83	10	-8.6	10.0	5600	2074
		84	10	-5.0	10.0	5600	2074
		85	10	-1.2	10.0	5600	2074
		86	10	-0.7	10.0	5600	2074
		87	10	-0.3	10.0	5600	2074
		88	10	+3.8	6.2	4400	1010
		89	10	+4.4	5.6	4400	913
		90	10	+4.0	6.0	4400	978
		91	10	+1.7	8.3	4400	1353
		92	10	+0.9	9.1	4400	1483
		93	10	+0.1	9.9	5600	2053
		94	10	-1.0	10.0	5600	2074
		95	10	-0.7	10.0	5600	2074
		96	10	+0.1	9.9	5600	2053
		97	10	0	10.0	5600	2074
		98	10	+2.1	7.9	5600	1639
		99	10	+0.7	9.3	5600	1929
		100	10	-2.0	10.0	5600	2074
		101	10	-1.5	10.0	5600	2074
		102	10	-3.6	10.0	5600	2074
		103	10	-3.5	10.0	5600	2074
		104	10	-1.9	10.0	5600	2074
		105	10	+0.5	9.5	5600	1970
		106	10	+1.7	8.3	5600	1721
		107	10	-0.8	10.0	4400	1830
		108	10	+0.1	9.9	4400	1813
		109	10	+1.0	9.0	4400	1467
		110	10	+1.5	8.5	4400	1385
		111	10	+3.7	6.3	4400	1027
		112	10	+6.7	3.3	4400	538
		113	10	+2.8	8.2	4400	1173
		114	10	+3.7	6.3	4400	1027
		115	10	+1.9	8.1	4400	1320
		116	10	+7.3	2.7	4400	440
		117	10	+6.7	3.3	4400	538
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ZONE	TREATMENT
I	NONE
II	NONE
III	NONE
IV	3' MOISTURE CONDITION
V	10' MOISTURE CONDITION

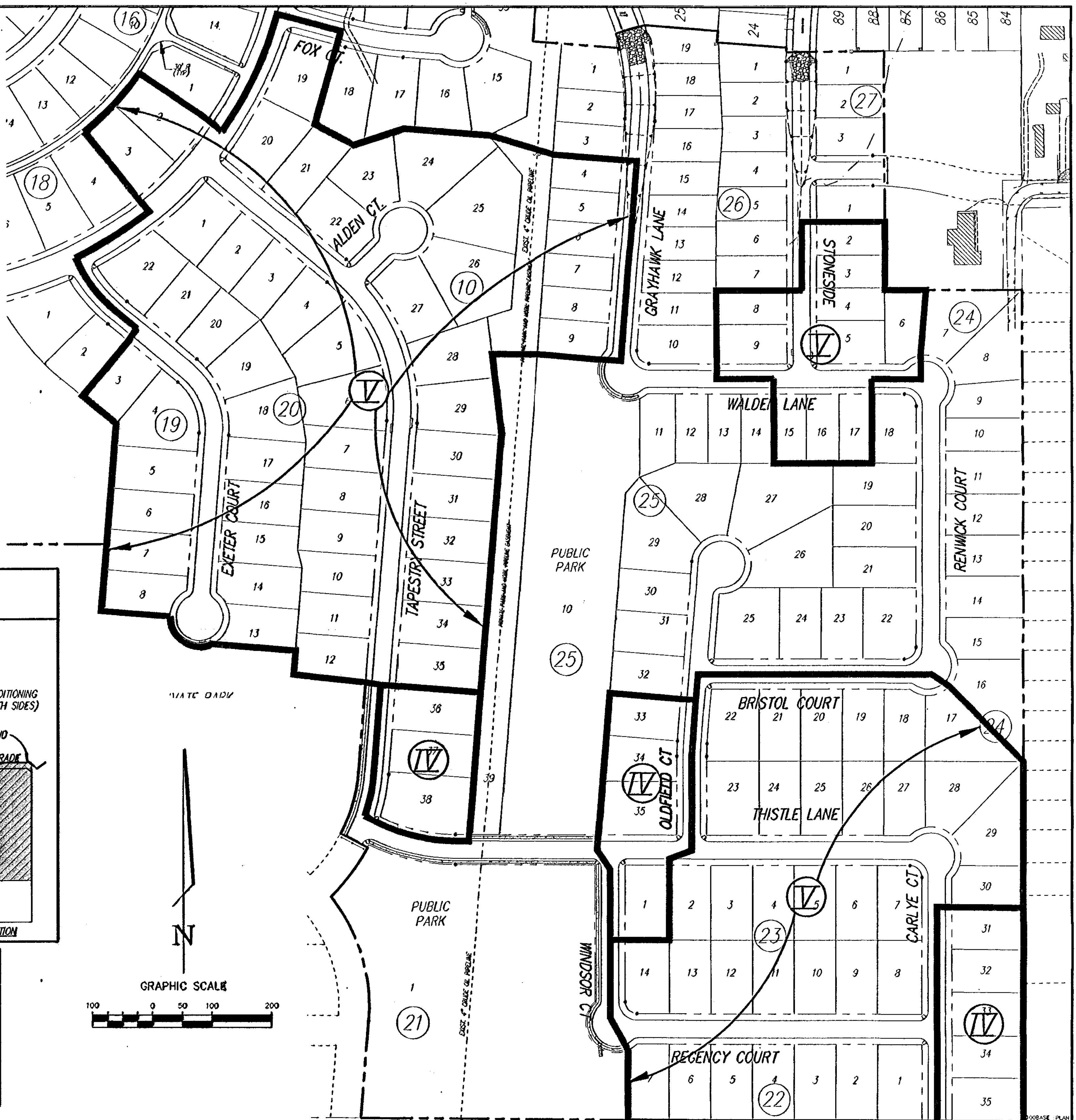
NOTE: ZONES IV - V INCLUDE POLYETHYLENE SHEETING

- ### NOTES
- CONTRACTOR SHALL CONTACT ALPHA TESTING (972-263-4937) 72 HOURS PRIOR TO BEGINNING MOISTURE CONDITIONING WORK. A REPRESENTATIVE OF ALPHA TESTING SHALL BE PRESENT DURING CONSTRUCTION TO PERFORM NECESSARY TESTING.
 - CONTRACTOR SHALL ADHERE TO THE RECOMMENDATIONS MADE BY ALPHA TESTING AS PROVIDED IN THE CONSTRUCTION CONTRACT SPECIFICATIONS.
 - PLACEMENT OF POLYETHYLENE SHEETING SHALL OCCUR IMMEDIATELY AFTER PLACEMENT OF CONDITIONED MATERIAL. THE UPPER SURFACE SHALL NOT BE ALLOWED TO DRY PRIOR TO PLACEMENT OF SHEETING.
 - MOISTURE CONDITIONING SHALL EXTEND TO 5' BEYOND THE LIMITS OF EACH PAD ON ALL SITES.
 - MOISTURE CONTENT OF COMPACTED MATERIAL SHALL BE AT LEAST 2 POINTS ABOVE OPTIMUM.



NOTES

THE ATTACHED TABLE IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY TO ASSIST THE CONTRACTOR IN EVALUATING THE SCOPE OF WORK FOR LOT TREATMENT. PAYMENT FOR MOISTURE CONDITIONING SHALL BE MADE ON A PER CUBIC YARD BASIS FOR ALL LOTS REQUIRING TREATMENT. CONTRACTOR IS ADVISED THAT THE TREATMENT DEPTHS SHOWN ARE RELATIVE TO FINAL PAD GRADES. PAYMENT FOR OVER EXCAVATION SHALL INCLUDE THE MOISTURE CONDITIONING PROCESS AS SHOWN IN THE MOISTURE CONDITIONING DETAIL ON THIS SHEET.



NO.	REVISION	BY	DATE

SHS
DESIGNED
ASB
DRAWN
M.J.H.
CHECKED

SCALE
HORIZ
1"=100'
VERT
N/A
DATE
OCT 2002

TEAGUE NALL AND PERKINS
INC. CONSULTING ENGINEERS

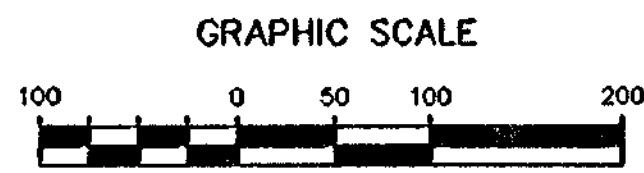
1100 Moon Street, Fort Worth, Texas 76102 (817) 356-3773
235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-2177
2001 West Irving Blvd., Irving, Texas 75061 (972) 294-1765

MARK & HOLLIDAY
84893
P.E.
Date: 10-9-02

CITY OF FORT WORTH, TEXAS
CRAWFORD FARMS, PHASE II
MOISTURE CONDITIONING PLAN

TNP PROJECT
LEB02147
SHEET
60
OF
69

RECORD DRAWING



- underground primary in 2" conduit
- underground secondary in 2" conduit unless noted as 3"
- underground light wire in 1.25" conduit
- Pod mounted transformer
- Secondary pedestal
- Street light

NO.	REVISION	BY	DATE

DESIGNED	JKW
DRAWN	MJH
CHECKED	

SCALE
 HORIZ 1"=100'
 VERT N/A
 DATE OCT 2002

TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Moon Street Fort Worth, Texas 76102 (817) 338-9773
 235 W. Hickory Street, Suite #100 Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd Irving, Texas 75061 (972) 254-1765

Mark J. Holliday, P.E.
 Date: 10-9-02

CITY OF FORT WORTH, TEXAS
 CRAWFORD FARMS, PHASE II
 STREET LIGHT LAYOUT (1 OF 2)
 SHEET 61 OF 69
 INP PROJECT LEB02147

RECORD DRAWING



NO.	REVISION	BY	DATE

JKW DESIGNED	CHECKED
JKW DRAWN	
MJH	

SCALE
HORIZ 1"=100'
VERT N/A
DATE OCT 2002

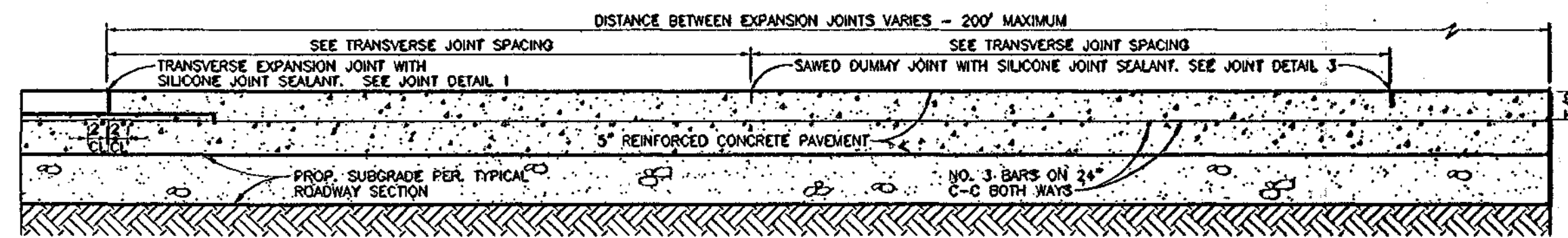
TEAGUE NALL AND PERKINS
 CONSULTING ENGINEERS
 1100 Mason Street, Fort Worth, Texas 76102 (817) 336-3773
 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177
 2001 West Irving Blvd., Irving, Texas 75061 (972) 254-1763

Professional Engineer Seal for Mark J. Holiday, No. 84683, State of Texas. Date: 10-2-02.

CITY OF FORT WORTH, TEXAS
 CRAWFORD FARMS, PHASE II
 STREET LIGHT LAYOUT (2 OF 2)

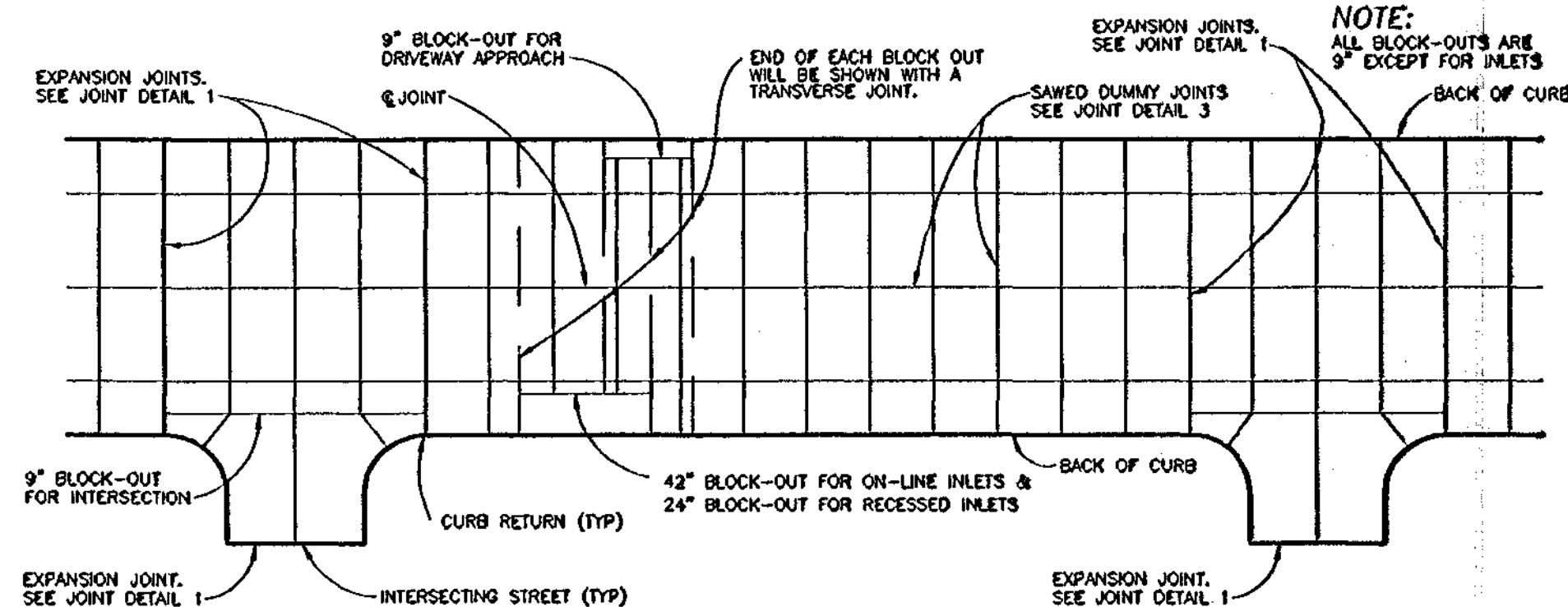
100BASE PLAN
 12/2/02
 TNP PROJECT
 LEB02147
 SHEET
62
 OF
 69

RECORD DRAWING



LONGITUDINAL PAVING SECTION

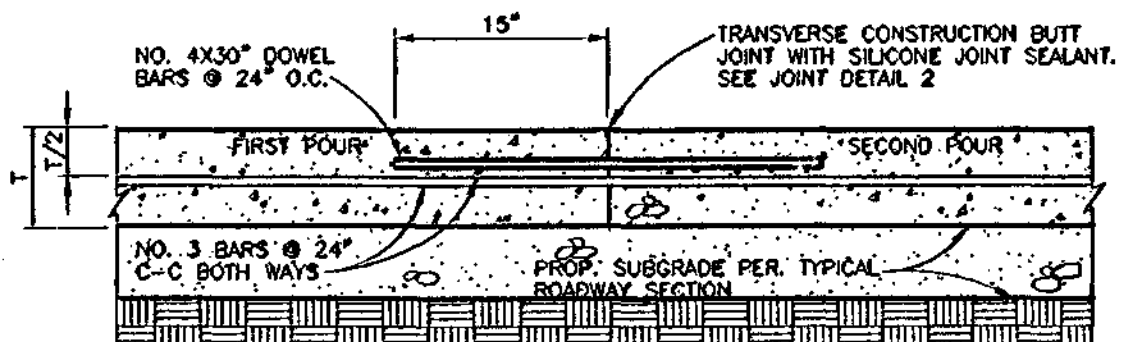
NOT TO SCALE



SPACING DIAGRAM FOR JOINTS

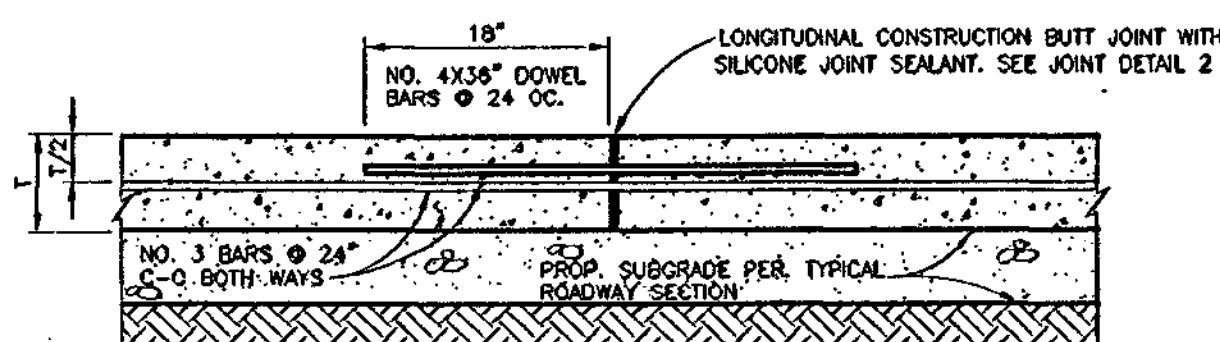
NOT TO SCALE

NOTE:
 1. POLYETHYLENE FOAM BACKER ROD DOES NOT SIT ON BOTTOM OF SAW - CUT JOINT
 2. SILICONE HAS GENERAL WIDTH TO DEPTH RATIO OF 2:1
 3. ALL EXPANSION JOINTS SHALL BE REDWOOD WITH CAPS.



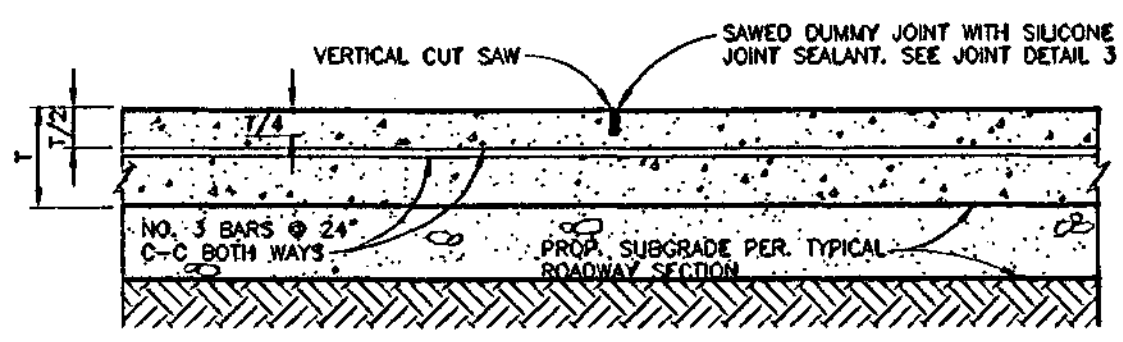
TRANSVERSE CONSTRUCTION BUTT JOINT

NOT TO SCALE



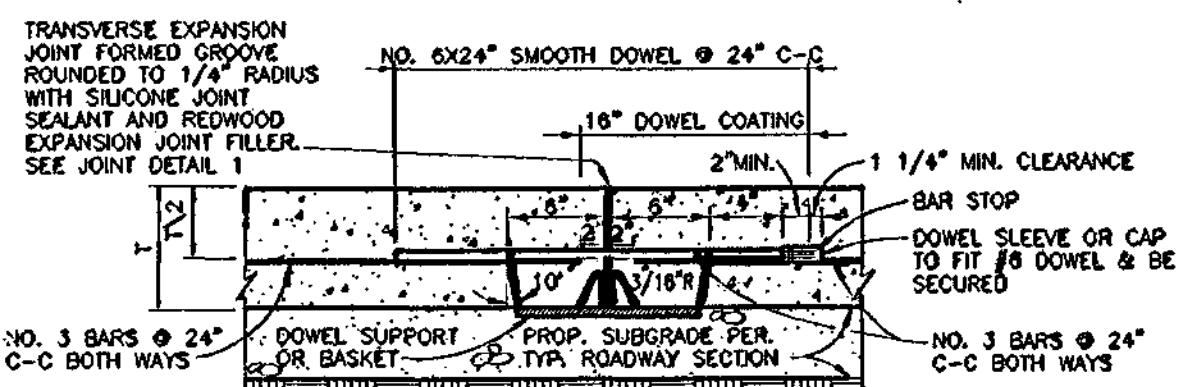
LONGITUDINAL CONSTRUCTION BUTT JOINT

NOT TO SCALE



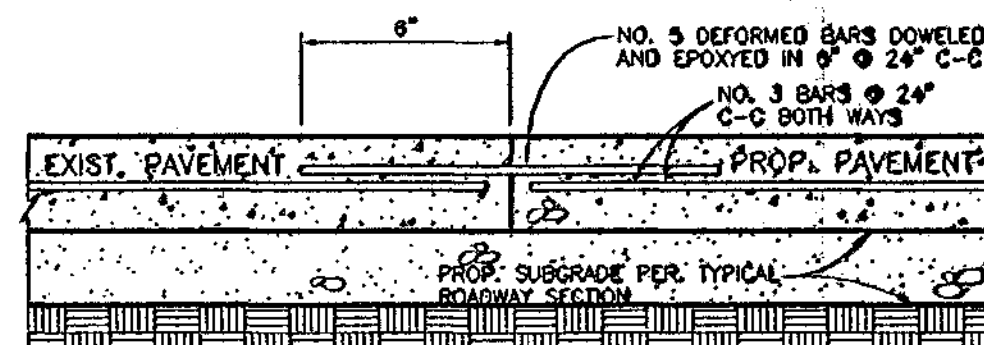
SAWED DUMMY JOINT

NOT TO SCALE



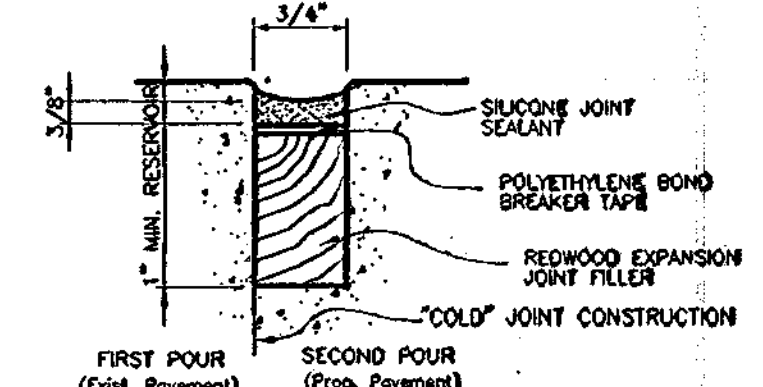
TRANSVERSE EXPANSION JOINT

NOT TO SCALE



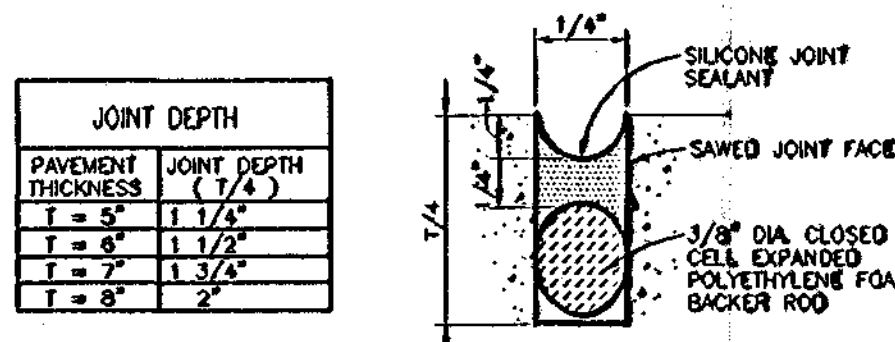
CONSTRUCTION BUTT JOINT (BETWEEN EXIST. AND PROP. PAVEMENT)

NOT TO SCALE



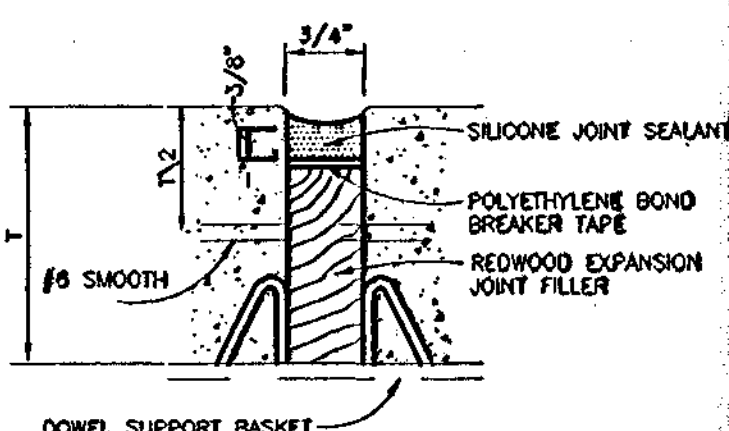
JOINT DETAIL NO. 2 SEAL FOR LONGITUDINAL AND TRANSVERSE CONSTRUCTION BUTT JOINT

NOT TO SCALE



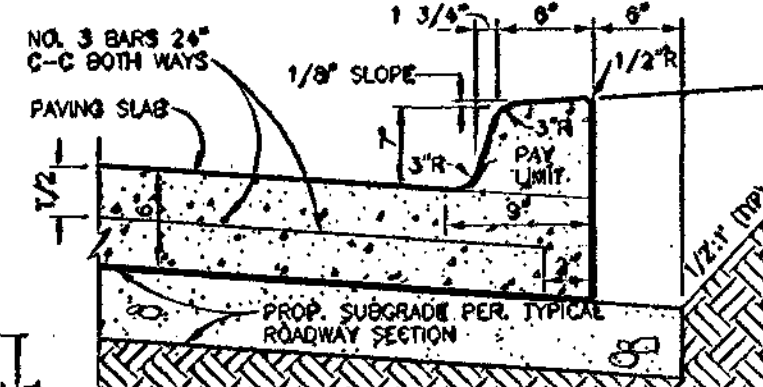
JOINT DETAIL NO. 3 SEAL FOR SAWED DUMMY JOINT

NOT TO SCALE



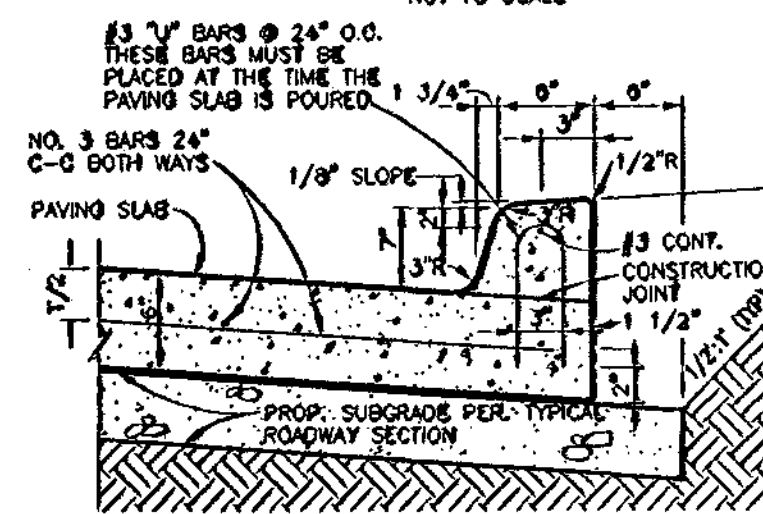
JOINT DETAIL NO. 1 SEAL FOR EXPANSION JOINT

NOT TO SCALE



MONOLITHIC CURB

NOT TO SCALE



SUPERIMPOSED CURB

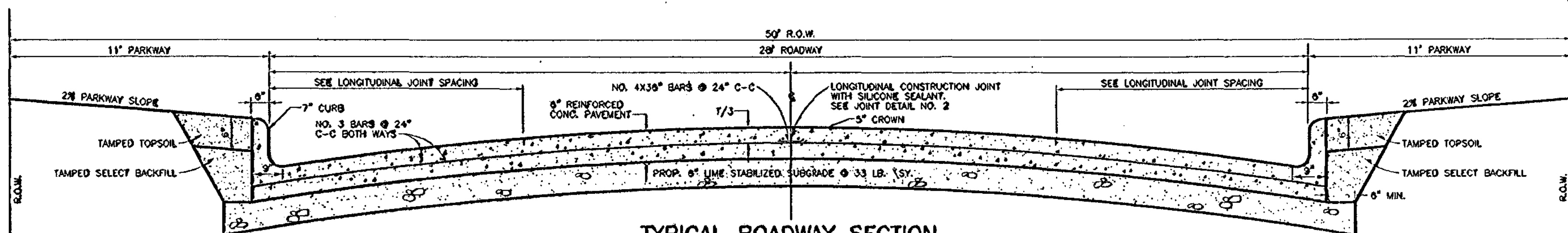
NOT TO SCALE

NOTE:
 IF CURB SECTION IS POURED AFTER THE PAVING SLAB HAS BEEN CONSTRUCTED, THE SECTION MAY BE USED AS AN ALTERNATE METHOD FOR CONSTRUCTING THE ATTACHED CURB.

X	Y	Z
0	0.0000	0.4167
1	0.0021	0.4148
2	0.0085	0.4082
3	0.0191	0.3976
4	0.0340	0.3827
5	0.0531	0.3637
6	0.0765	0.3402
7	0.1042	0.3129
8	0.1361	0.2806
9	0.1722	0.2445
10	0.2126	0.2041
11	0.2572	0.1598
12	0.3061	0.1198
13	0.3593	0.0755
14	0.4167	0.0000

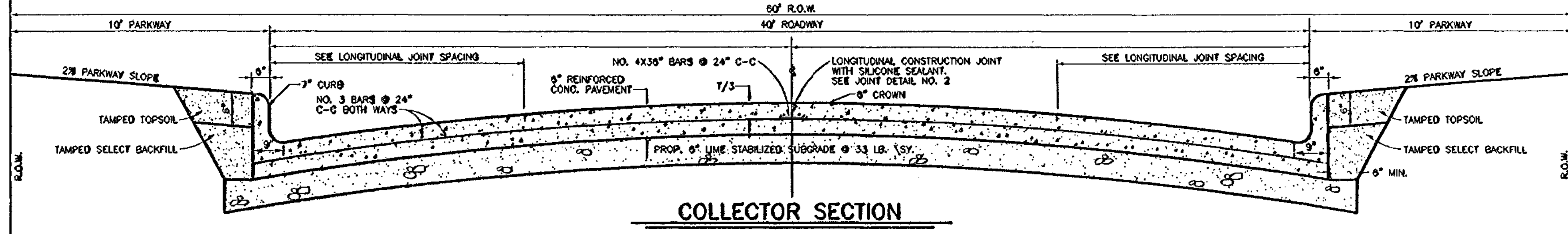
ORDINATES FOR PARABOLIC CROWNS

NOT TO SCALE



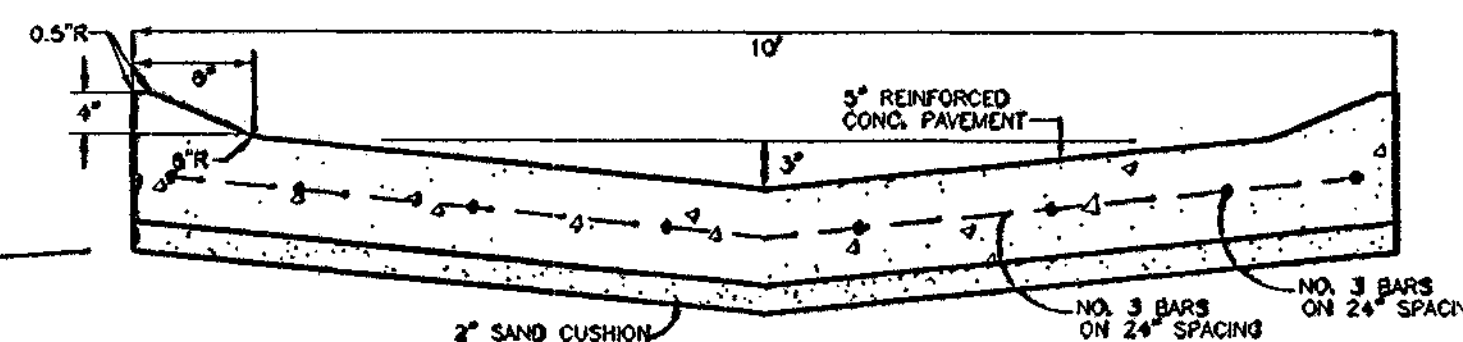
TYPICAL ROADWAY SECTION

NOT TO SCALE



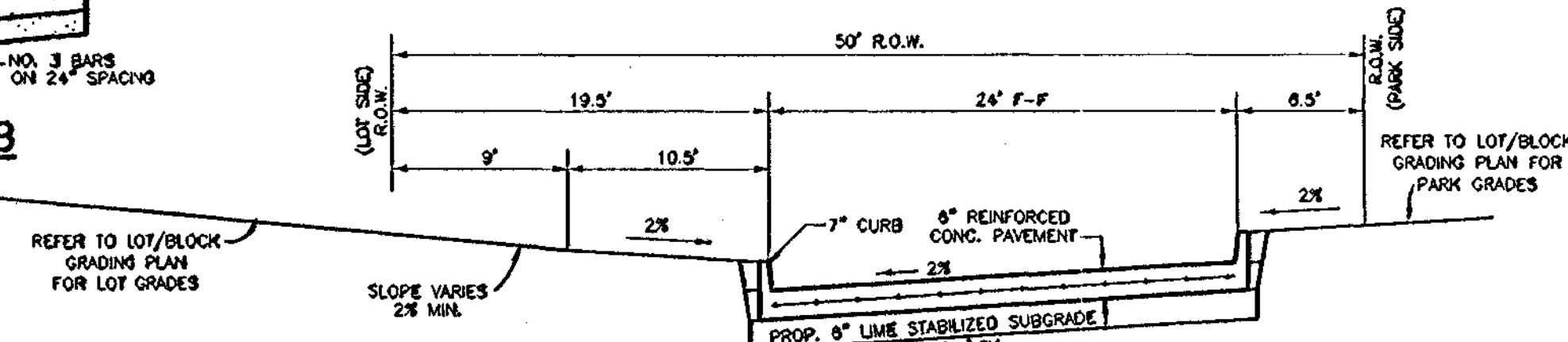
COLLECTOR SECTION

NOT TO SCALE



STANDARD ALLEY & 4" ROLLOVER CURB

NOT TO SCALE

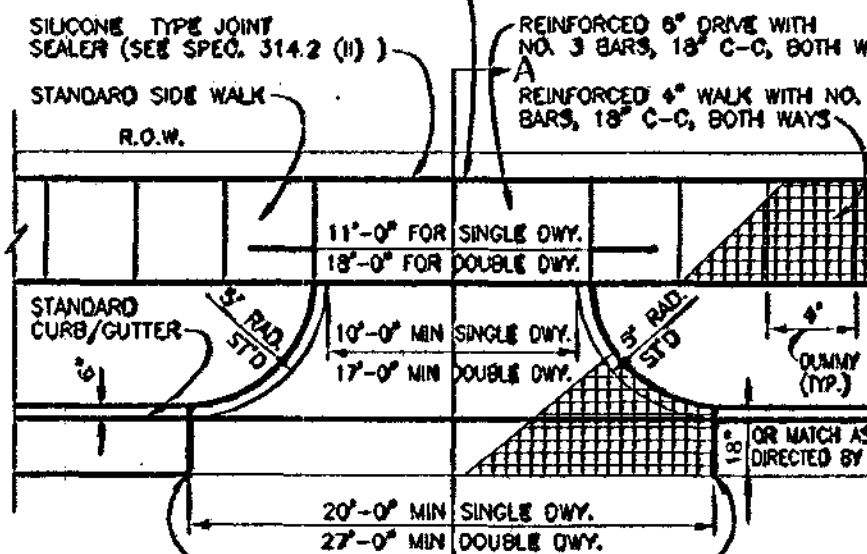


TYPICAL SECTION - CRAWFORD FARMS DRIVE EAST AND WEST

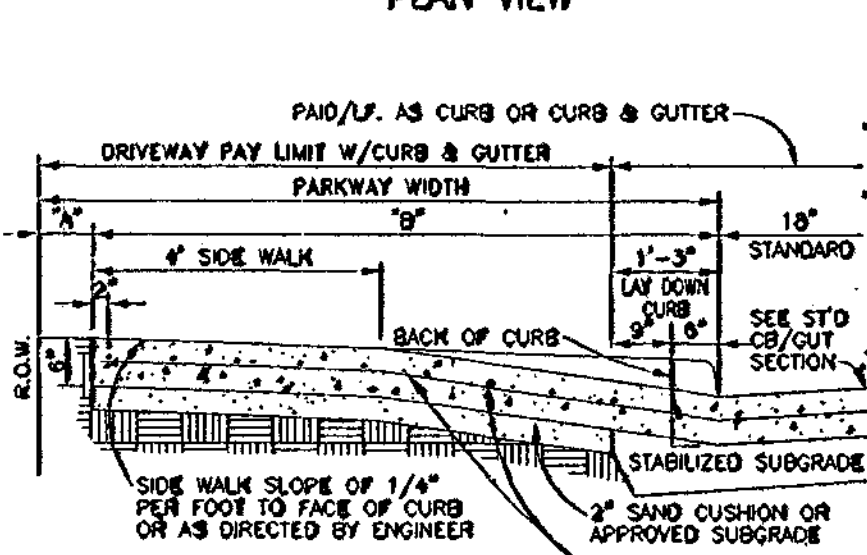
NOT TO SCALE

GENERAL NOTES:
 1. FOR DEFORMED BAR SPLICES, LAP BARS 40 DIAMETERS AND TIE.
 2. FOR DRIVE APPROACHES, AND WALK USE NO. 3 @ 18" C-C BOTH WAYS.

NOTE:
 PROVIDE EXPANSION JOINT ONLY IF CONNECTING TO EXIST. CONC. DRIVE



PLAN VIEW



DETAILS OF LAYDOWN CURB AND DRIVEWAY

NOT TO SCALE



CONSTRUCTION LEGEND

EXISTING	PROPOSED
CONCRETE CURB & GUTTER	
EDGE OF ASPHALT	
EDGE OF GRAVEL	
CENTERLINE UNLESS NOTED AS SURVEY BASELINE	
PROPERTY MARKER, I.P., B.S.D., ETC.	
PROPERTY LINE AND R.O.W. LINE	
CONCRETE DRIVEWAY OR SIDEWALK	
LAY-DOWN CURB (DRIVEWAY OPENING)	
GRAVEL DRIVEWAY	
CONCRETE INLET	
3'-707' 30" R.C.C.P.	
STORM DRAIN SYSTEM (SIZE AND PLAN FILE NUMBER NOTED)	
EASEMENT LINE	
DRAINAGE FLOW ARROWS	
EXISTING CONCRETE TO BE REMOVED AND REPLACED	
EXISTING CONCRETE TO BE REMOVED	
H.M.A.C. TRANSITION	
PROPOSED CONCRETE	

PLAN OF STEEL LAYOUT

NOT TO SCALE

TRANSVERSE JOINT SPACING		LONGITUDINAL JOINT SPACING	
PAVEMENT THICKNESS	SPACING	STREET WIDTH	SPACING
T = 5"	10'	28' & 30'	ON &
T = 6"	12'	38' & 40'	ON & 8" FROM BACK OF CURB
T = 7"	14'	44'	ON & 11" OFF &
T = 8"	16'	48'	ON & 12" OFF &
T = 9"	18'	50'	8" & 12" OFF &

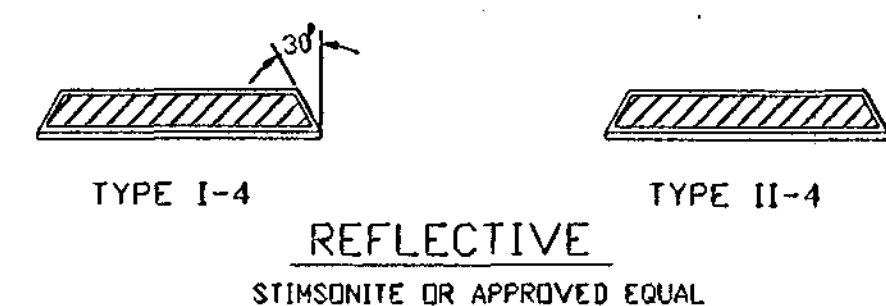
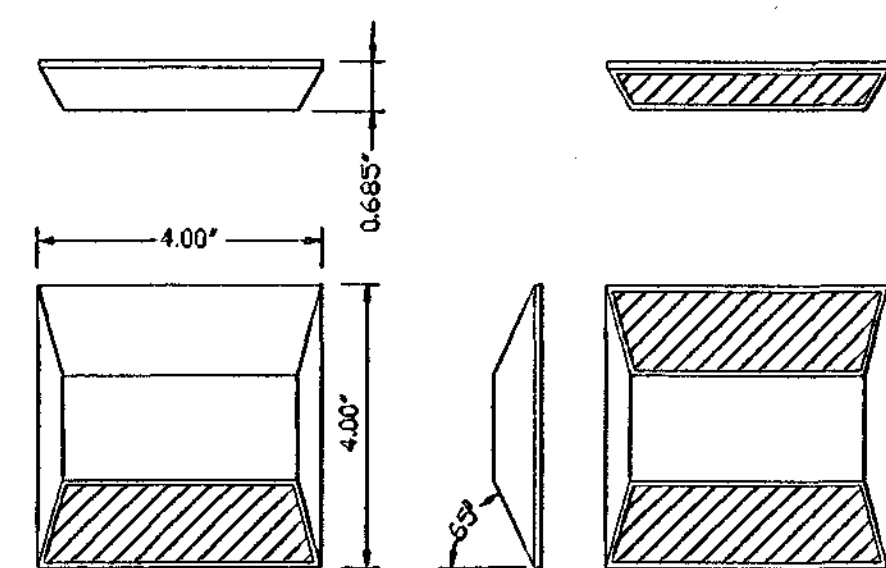
CRAWFORD FARMS PHASE II

PAVING DETAILS

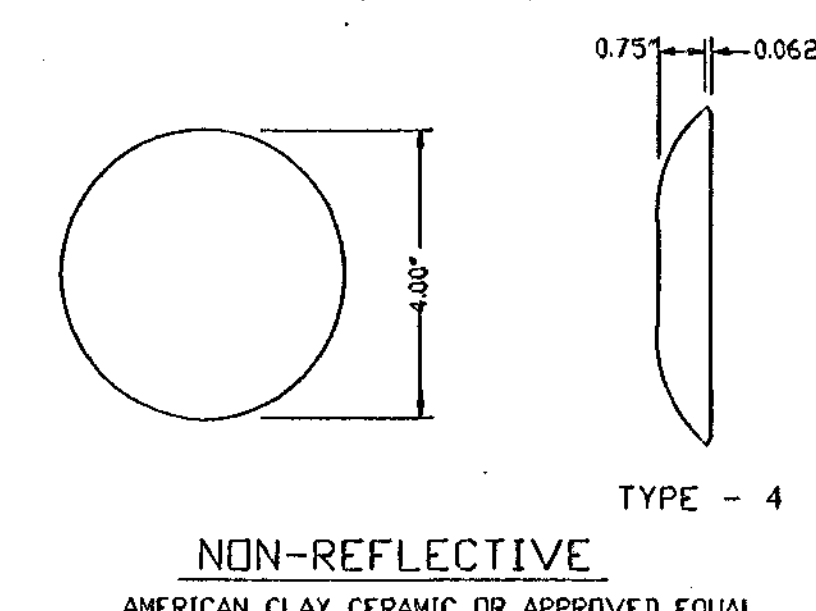
CITY OF FORT WORTH, TEXAS
 DEPARTMENT OF ENGINEERING ENGINEERING SERVICES DIVISION

REC.	DESIGNED	FILE	DATE	SHEET
	J.M.S.			84 OF 89

RECORD DRAWING



TYPE I-4 REFLECTIVE
STIMONSITE OR APPROVED EQUAL



TYPE - 4 NON-REFLECTIVE
AMERICAN CLAY CERAMIC OR APPROVED EQUAL

BUTTON DESIGN

EPOXY ADHESIVE TO BE USED IN THE CITY OF FORT WORTH

TYPE III & III-M
(HAND MIX) (MACHINE MIX)

PAVEMENT TEMP., °F	APPROX. SET TIME (HR) TYPE III & III-M
(a) 115	(a) 1
(b) 95	(b) 2
(c) 77	(c) 4
(d) 60	(d) 8
(e) 50	(e) -

NOTES:

- ALL ROADWAY MARKERS SHALL MEET CURRENT CITY OF FORT WORTH SPECS & SHALL BE APPROVED BY CITY OF FORT WORTH SIGNS & MARKINGS DIV. (871-7861) PRIOR TO INSTALLATION.
- A 1/16" CHALK LINE SHALL BE USED TO MARK LOCATION OF MARKERS TO BE PLACED ON PAVEMENT. ALL MARKERS SHALL BE IN LINE WITH NO VARIANCES OTHER THAN NECESSARY FOR PROPER ALIGNMENT OF TRAVEL LANES.
- MARKERS SHALL NOT BE PLACED ON SAW JOINTS OF CONCRETE PAVEMENTS, BUT SHALL BE TWO (2) INCHES OFF OF THE SAW JOINT (AS APPROVED BY SIGNS & MARKINGS DIV.).
- THE SURFACES ON WHICH MARKINGS ARE TO BE APPLIED SHALL BE CLEAN, DRY SURFACES & FREE OF LOOSE PARTICLES, DIRT, ACCUMULATIONS OF TAR & GREASE OR OTHER DELETERIOUS MATERIALS.
- WHEN MARKINGS ARE TO BE PLACED ON PORTLAND CEMENT CONCRETE PAVEMENT LESS THAN 1 YEAR OLD, THE PAVEMENT SHALL BE CLEANED OF ALL RESIDUE & CURING COMPOUNDS PRIOR TO THE PLACEMENT OF THE MARKING MATERIAL.
- YELLOW MARKERS PLACED SIDE BY SIDE TO FORM A DOUBLE LINE SHALL HAVE A 4" SPACE BETWEEN MARKERS
- WHITE MARKERS PLACED SIDE BY SIDE TO FORM A DOUBLE LINE SHALL HAVE A 4" SPACE BETWEEN MARKERS
- WHITE MARKERS PLACED SIDE BY SIDE TO FORM A WIDE LINE SHALL BE ADJACENT TO EACH OTHER

NOTE: CROSSWALKS WITH LONGITUDINAL LINES SHALL BE USED AT MID-BLOCK CROSSINGS AND NON PROTECTED CROSSINGS.

ROADWAY MARKERS SPECIFICATIONS

COLOR OF MARKERS:
A: YELLOW BODY-AMBER REFLECTOR
C: WHITE BODY-CRYSTAL REFLECTOR
R: RED BODY-RED REFLECTOR
Y: YELLOW BODY-NON REFLECTIVE
W: WHITE BODY-NON REFLECTIVE

REFLECTIVE FACES:
I: ONE FACE REFLECTORIZED
II: BOTH FACES REFLECTORIZED

SIZES & KINDS OF MARKERS:
4: 4" LANE MARKER

EXAMPLES OF ROADWAY MARKERS:
TYPE II-CR-4: 4" REFLECTORIZED LANE MARKER, ONE FACE REFLECTS CRYSTAL, ONE FACE REFLECTS RED LIGHT.
TYPE Y-4: 4" NON-REFLECTIVE YELLOW LANE MARKER

ROADWAY MARKERS TO BE USED IN THE CITY OF FORT WORTH

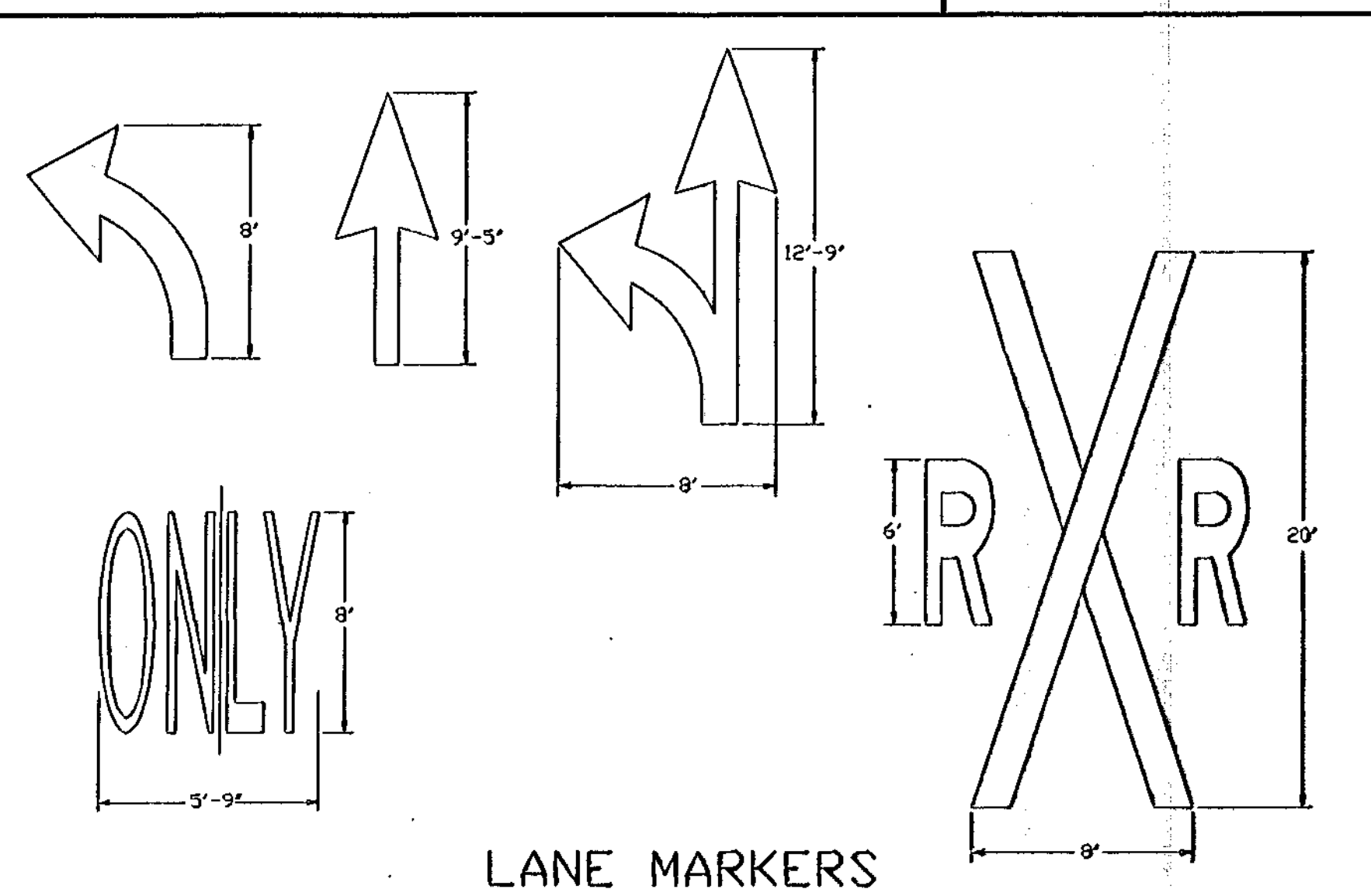
LANE MARKERS:
TYPE Y-4 TYPE I-C-4 TYPE II-AA-4
TYPE W-4 TYPE II-CR-4

STOP BARS, CROSSWALKS, AND PAVEMENT MESSAGES

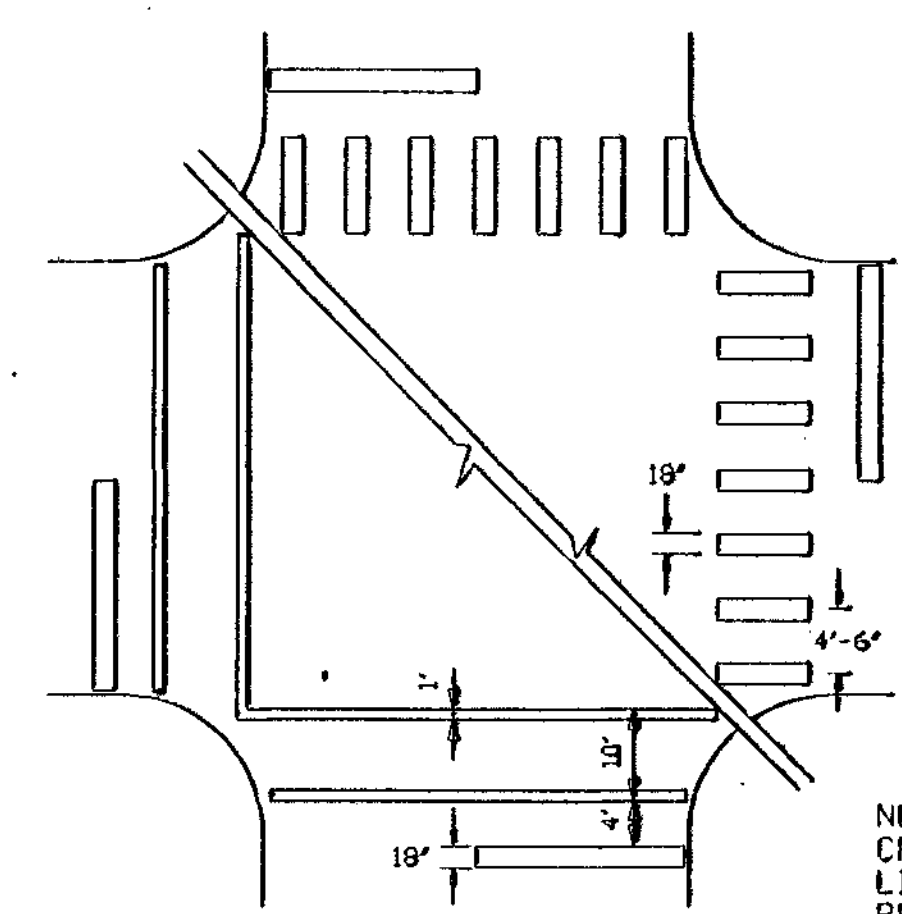
ALL STOP BARS, CROSSWALKS, & PAVEMENT MESSAGES SHALL MEET CITY OF FORT WORTH SIGNS & MARKINGS DIV. SPECIFICATIONS. BEFORE INSTALLATION, CONTACT CITY OF FORT WORTH SIGNS & MARKINGS DIV. FOR SPECIFICATIONS @ 871-7861.

EIGHTEEN INCH TAPE SHALL BE USED FOR STOP BARS, AND CROSSWALKS WITH LONGITUDINAL LINES. TWELVE INCH TAPE SHALL BE USED AT CROSSWALKS WITH PARALLEL LINES. NO TAPE COMBINATIONS WILL BE ALLOWED. FOUR INCH TAPE WILL BE USED FOR LANE LINES, IF APPLICABLE. TAPE TO BE USED IS 3M STA-MARK, A-420 OR APPROVED EQUAL. PREFORMED THERMOPLASTIC TAPE MAY BE USED DURING COLD WEATHER WITH PRIOR APPROVAL FROM SIGNS & MARKINGS. CONTACT CEMENT E-44 MUST FOLLOW MANUFACTURERS APPLICATION INSTRUCTIONS. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES PER THE LATEST AMENDMENT.

REVISED 1-28-00 FOR TITLE BLOCK & TEXT BY JOE RADENZ
REVISED 4-3-00 FOR CROSSWALKS BY JOE RADENZ



LANE MARKERS



NOTE: CROSSWALKS WITH PARALLEL LINES SHALL BE USED AT PROTECTED CROSSINGS.

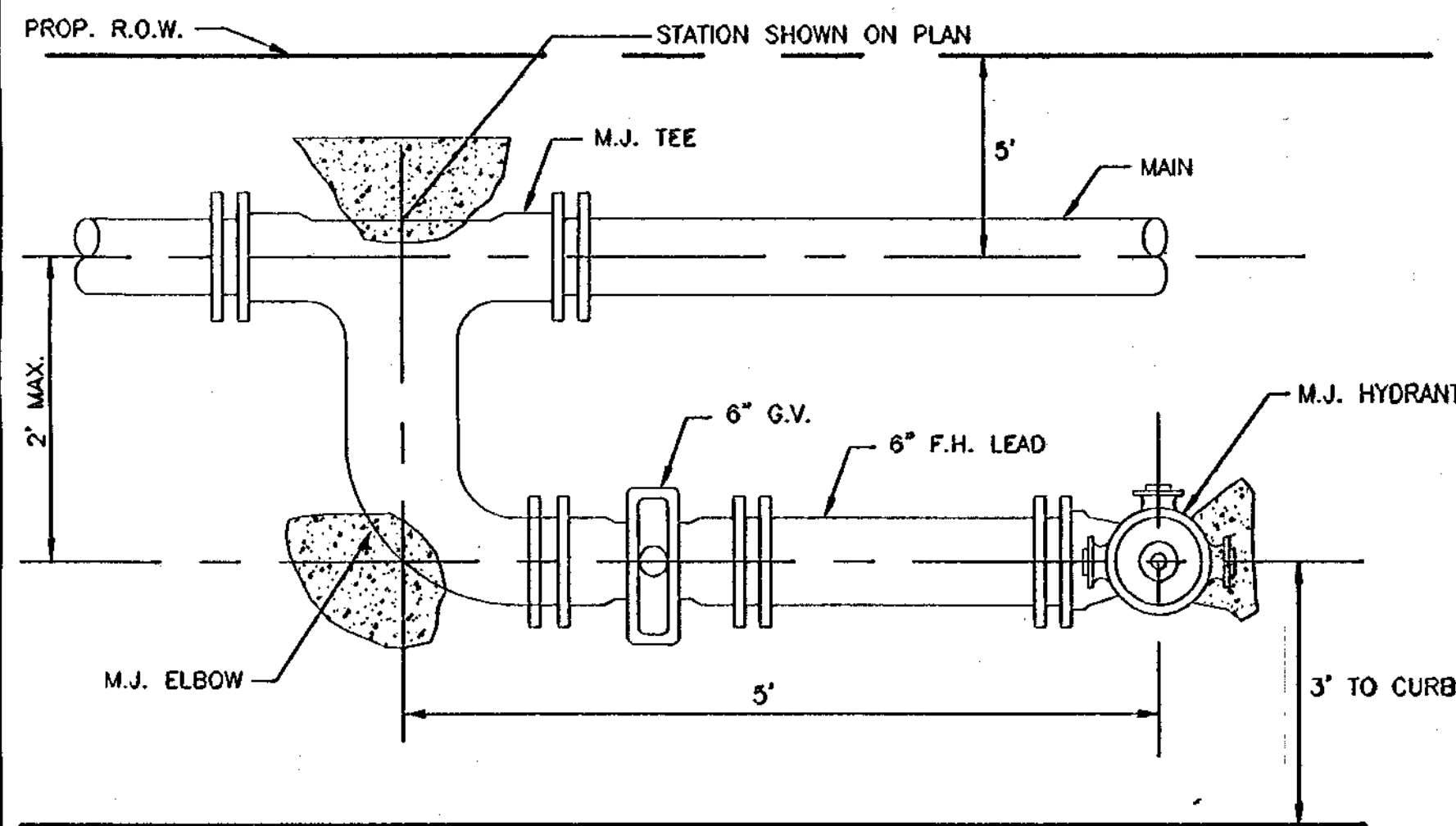
STANDARD CROSSWALKS AND STOP BARS PAVEMENT MARKINGS

NO.		REVISION		BY		DATE		SHS DESIGNED SHS DRAWN MJH CHECKED		SCALE HORIZ N/A VERT N/A DATE OCT 2002		TEAGUE NALL AND PERKINS CONSULTING ENGINEERS 1100 Mason Street, Suite #100, Fort Worth, Texas 76102 (817) 338-9773 235 W. Hickory Street, Suite #100, Denton, Texas 76201 (940) 383-4177 2001 West Irving Blvd, Irving, Texas 75061 (972) 254-1765			CITY OF FORT WORTH CONSTRUCTION PLANS FOR CRAWFORD FARMS, PHASE II PAVEMENT MARKING DETAILS		TNP PROJECT LEB02147 SHEET 64A OF 69	
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RECORD DRAWING

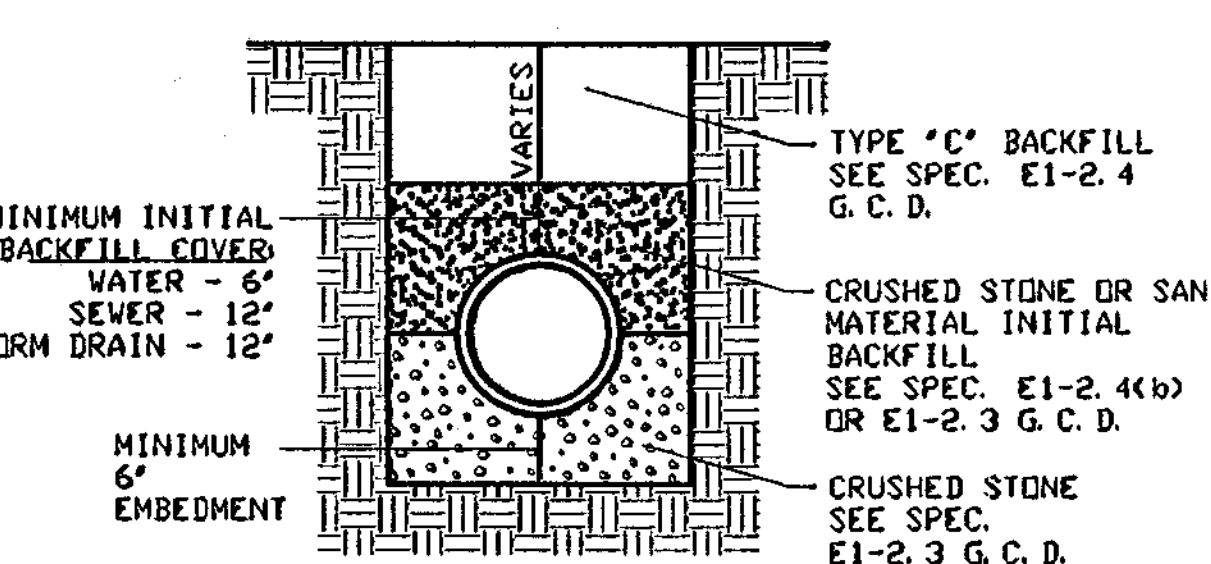
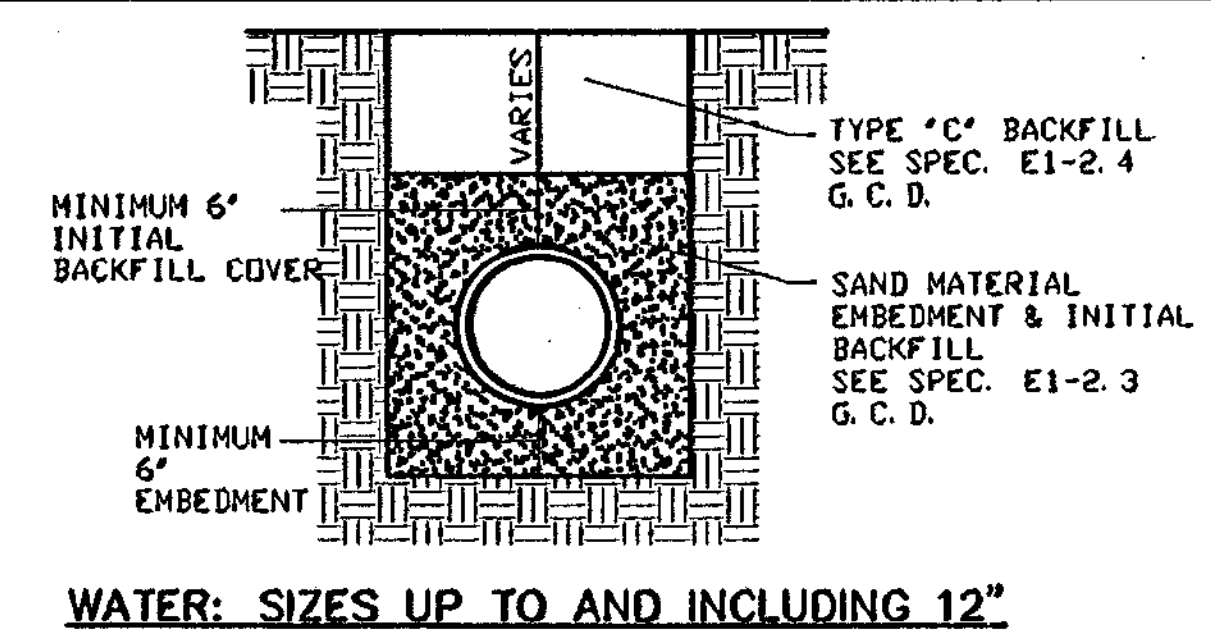
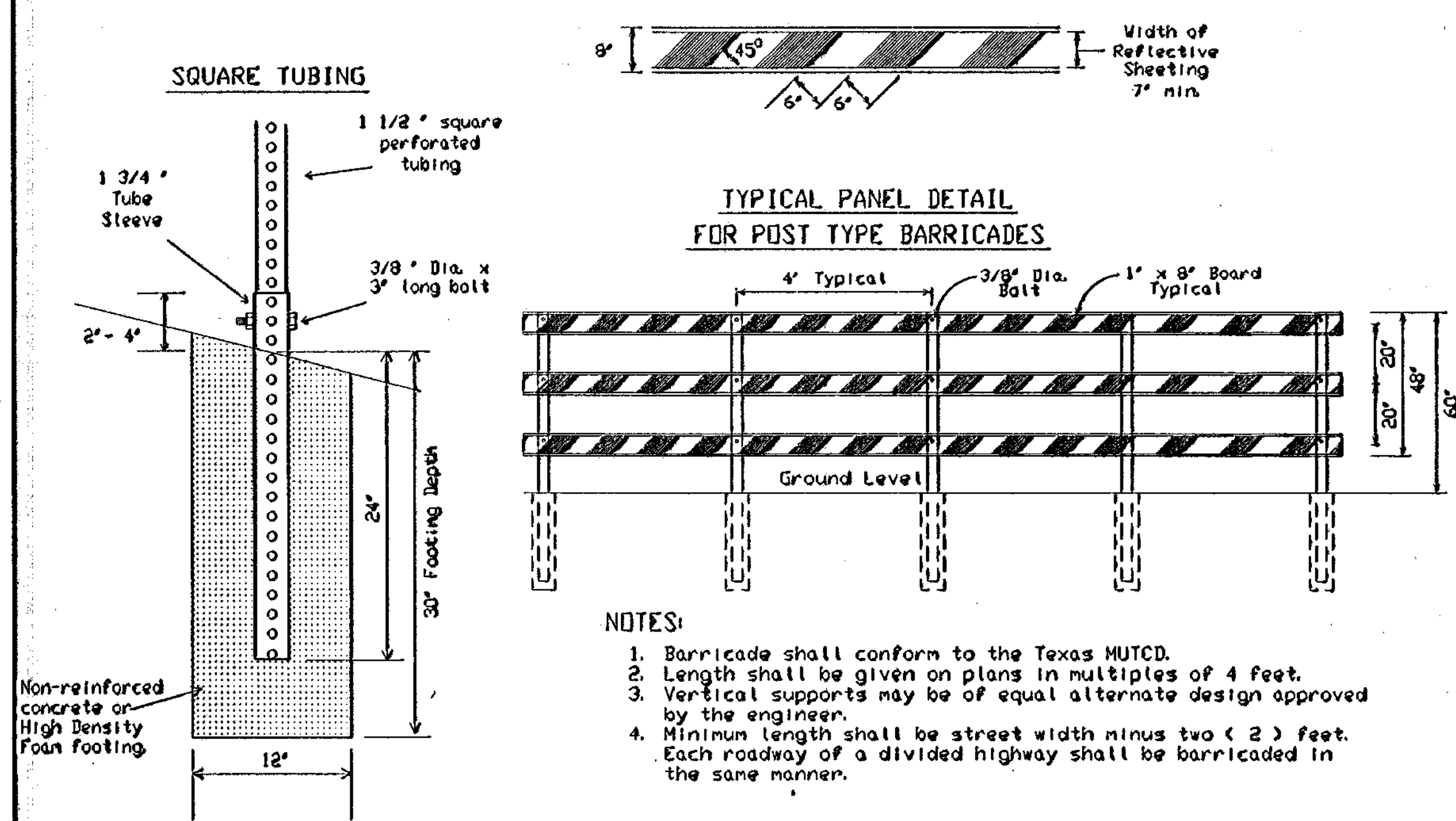
TYPICAL FIRE HYDRANT SETTING

NOT TO SCALE



TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

NOT TO SCALE



SAND GRADATION

- LESS THAN 10% PASSING #200 SIEVE
- P. I. = 10 OR LESS

MATERIAL SPECIFICATIONS

THE EMBEDMENT AND BACKFILL DETAILS PROVIDED ON THIS SHEET SHALL REPLACE APPROPRIATE PROVISIONS OF BOTH THE E1-2.4(b) AND E1-2.3 OF THE G.C.D. AND STD. SPEC. ITEM 402 OF THE TPW STANDARD SPECIFICATIONS FOR STREET & STORM DRAIN CONSTRUCTION. ALL OTHER PROVISIONS OF THESE ITEMS SHALL APPLY.

CRUSHED STONE GRADATION

SIEVE SIZE	% RETAINED
1"	0-10
1/2"	40-75
3/8"	55-90
#4	90-100
#8	95-100

WATER, SEWER & STORM DRAIN EMBEDMENT AND BACKFILL DETAILS
CITY OF FORT WORTH-CONSTRUCTION STANDARD
FIGURE A DATE 2-19-02

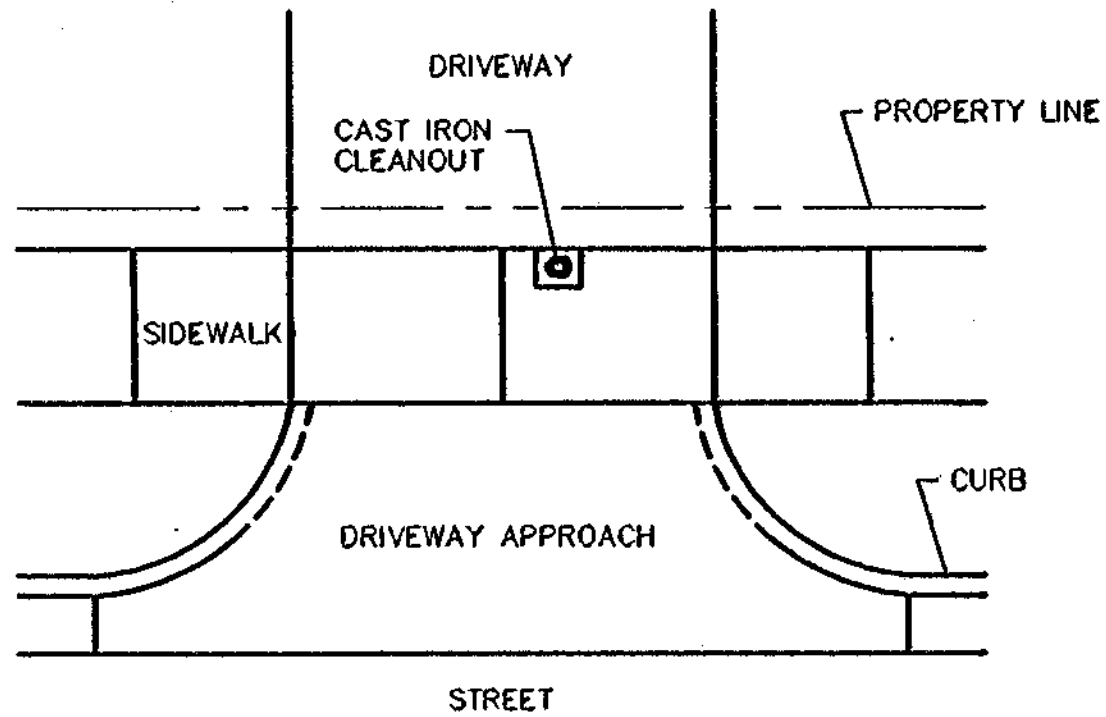
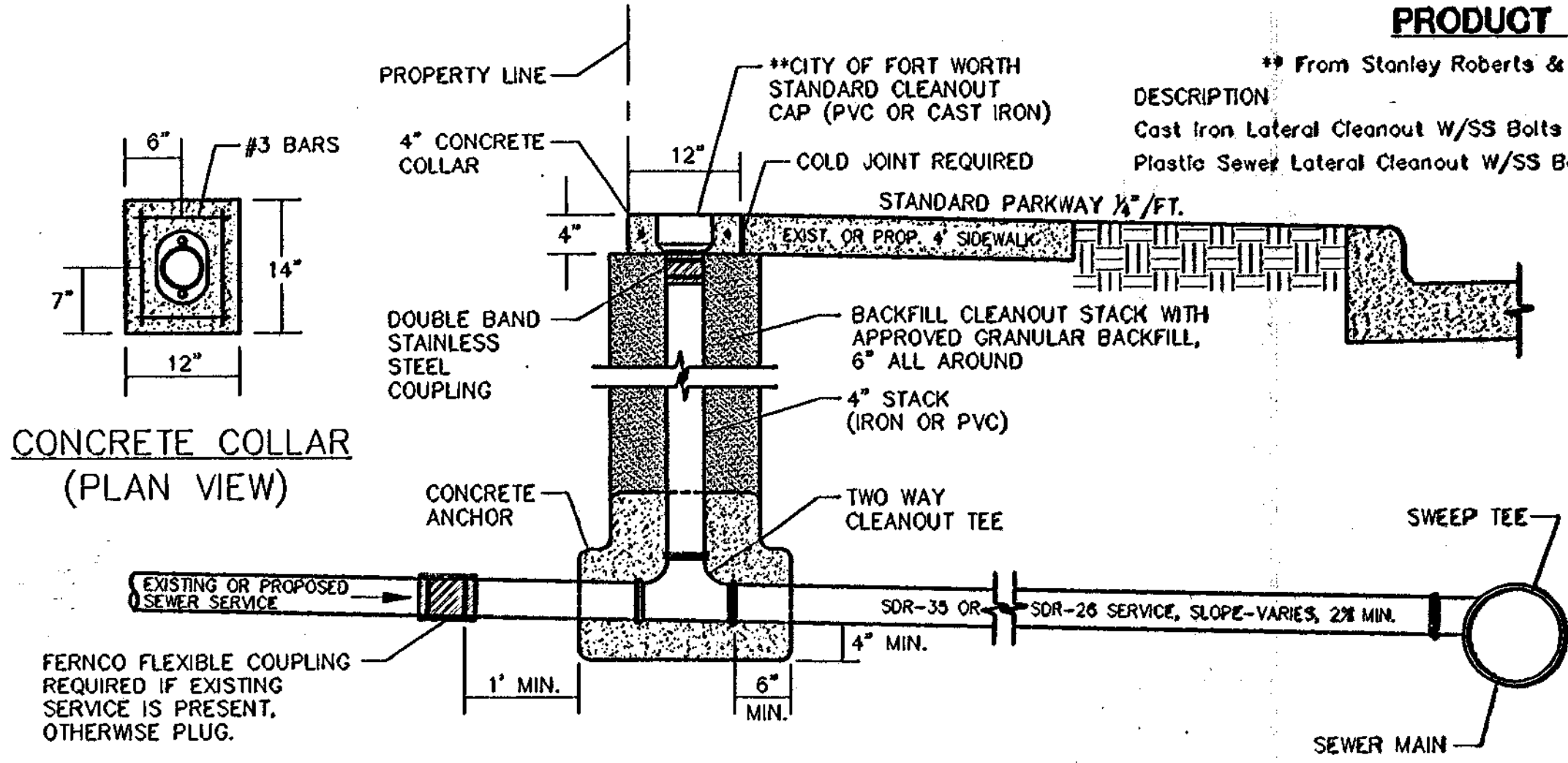
PRODUCT INFORMATION

** From Stanley Roberts & Assoc., Information Subject To Change.

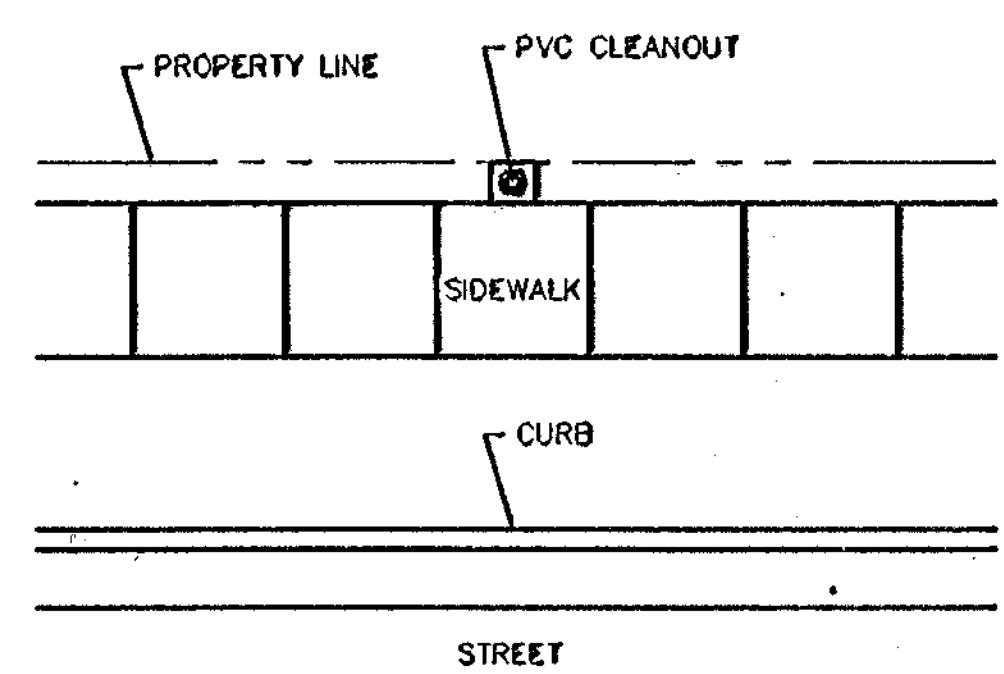
DESCRIPTION	WEIGHT	PART NO.
Cast Iron Lateral Cleanout W/SS Bolts and Coupling	18 lbs	ATL-424
Plastic Sewer Lateral Cleanout W/SS Bolts and Coupling	2.25 lbs	ATL-1524

CLEANOUT NOTES

- 1) THE SWEEP TEE AND PIPE FITTINGS INSTALLED SHALL BE SDR-35 OR SDR-26 PVC MATERIAL.
- 2) CONNECTIONS TO THE EXISTING SERVICE SHALL BE MADE USING RUBBER SLEEVE COUPLINGS WITH STAINLESS STEEL DOUBLE BAND REPAIR SLEEVES. THE SLEEVES SHALL BE TIGHTENED TO THE TORQUE RECOMMENDED BY THE MANUFACTURER.
- 3) THE EMBEDMENT MATERIAL USED SHALL BE SAND, GRAVEL OR OTHER APPROVED BEDDING MATERIAL.
- 4) SLOPE OF THE SANITARY SEWER SERVICE SHALL BE A MINIMUM OF 2 PERCENT.
- 5) IN HIGH TRAFFIC AREAS (STREETS, DRIVEWAYS, SIDEWALKS & WALKWAYS) SERVICE CLEANOUT STACK AND CAP SHALL BE OF CAST IRON.
- 6) IN NON-TRAFFIC AREAS SERVICE CLEANOUT STACK AND CAP SHALL BE PVC MATERIAL.
- 7) CONCRETE USED AROUND CLEANOUT ASSEMBLY SHALL BE 5 SACK, 3,000 PSI MIX.
- 8) PIPE AND FITTINGS SHALL BE SDR-35 OR SDR-26 PVC WHEN NOT IN HIGH TRAFFIC AREAS.



REQUIRED MATERIAL
PVC OR CAST IRON CLEANOUT CAP
SDR-35 OR SDR-26 TWO WAY CLEANOUT TEE
SDR-35 OR SDR-26 SERVICE AND RISER PIPE
DOUBLE BAND REPAIR/TRANSITION COUPLINGS
5 SACK, 3000 PSI (CLASS B) CONCRETE
SAND OR GRAVEL BEDDING MATERIAL

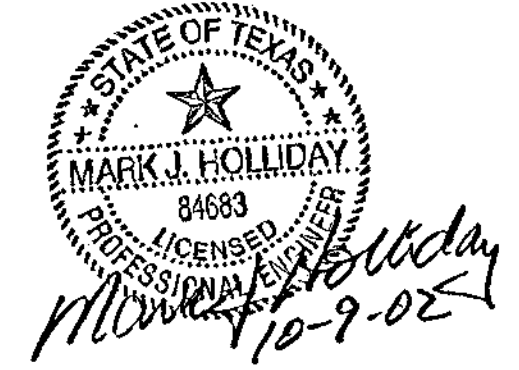


CAST IRON CLEANOUT BOOT

TWO WAY SERVICE CLEANOUT

PVC CLEANOUT BOOT

NOT TO SCALE



CRAWFORD FARMS PHASE II

DETAILS

CITY OF FORT WORTH, TEXAS
DEPARTMENT OF ENGINEERING ENGINEERING SERVICES DIVISION

REC. MANAGER, ENGINEERING SERVICES

DESIGNED	FILE	DATE	SHEET
DRAWN <i>L.H.S.</i>			84b OF 69

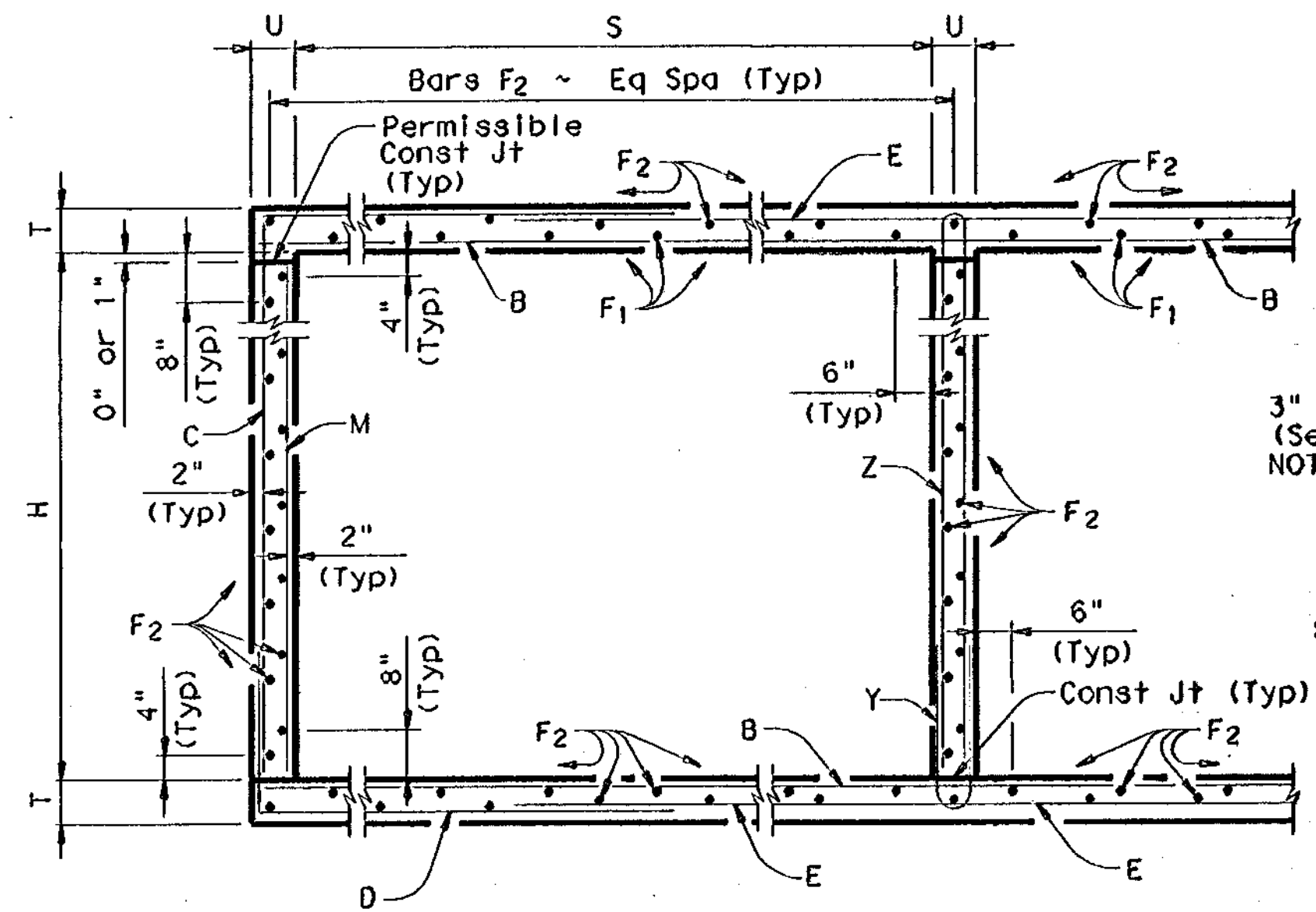
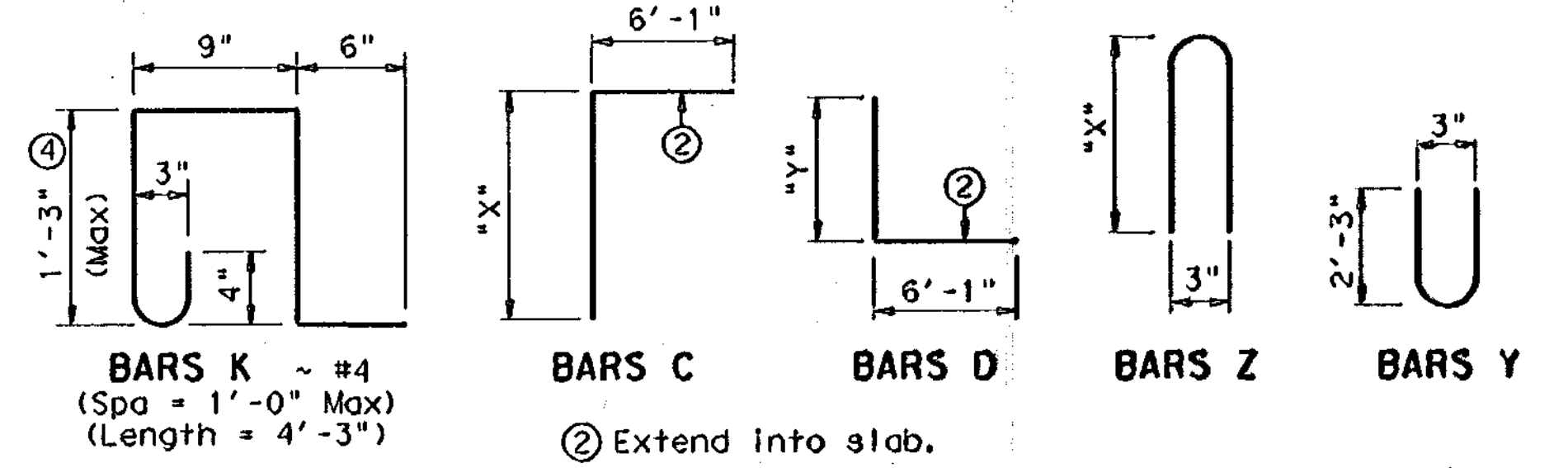
RECORD DRAWING

THIS DETAIL CONTROLS OVER ALL DETAILS SHOWING EMBEDMENT & BACKFILL IN ANY FORM

NUMBER OF SPANS	SECTION DIMENSIONS		BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																												QUANTITIES															
			Bars B				Bars C & D				Bars E				Bars F ₁ ~ #4				Bars F ₂ ~ #4 at 1'-6" Max				Bars M ~ #4 at 1'-6" Max				Bars Y & Z ~ #4 at 10" Max				Bars H 4~#4		Bars K		Per foot of Barrel		Curb		Total							
			S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)
2	8'-0"	4'-0"	8"	7"	162	#5	6"	17'-6"	2,957	194	#4	5"	10'-7"	1,372	8'-4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	56	39'-9"	1,487	56	4'-0"	150	49	4'-8"	153	9'-2"	300	17'-6"	47	38	108	1.136	266.4	1.3	155	46.7	10,812
3	8'-0"	4'-0"	8"	7"	162	#5	6"	26'-1"	4,407	194	#4	5"	10'-7"	1,372	8'-4"	1,080	194	#6	5"	17'-5"	5,075	36	8"	39'-9"	956	80	39'-9"	2,124	56	4'-0"	150	98	4'-8"	305	9'-2"	600	26'-1"	70	54	153	1.646	401.7	2.0	223	67.8	16,292
4	8'-0"	4'-0"	8"	7"	162	#5	6"	34'-8"	5,857	194	#4	5"	10'-7"	1,372	8'-4"	1,080	194	#6	5"	26'-0"	7,576	48	8"	39'-9"	1,275	104	39'-9"	2,762	56	4'-0"	150	147	4'-8"	458	9'-2"	900	34'-8"	93	72	204	2.156	535.8	2.6	297	88.8	21,727
5	8'-0"	4'-0"	8"	7"	162	#5	6"	43'-3"	7,308	194	#4	5"	10'-7"	1,372	8'-4"	1,080	194	#6	5"	34'-7"	10,077	60	8"	39'-9"	1,593	128	39'-9"	3,399	56	4'-0"	150	196	4'-8"	611	9'-2"	1,200	43'-3"	116	90	256	2.667	669.8	3.2	372	109.9	27,162
6	8'-0"	4'-0"	8"	7"	162	#5	6"	51'-10"	8,758	194	#4	5"	10'-7"	1,372	8'-4"	1,080	194	#6	5"	43'-2"	12,578	72	8"	39'-9"	1,912	152	39'-9"	4,036	56	4'-0"	150	245	4'-8"	764	9'-2"	1,500	51'-10"	138	106	301	3.177	803.8	3.9	439	131.0	32,589
2	8'-0"	5'-0"	8"	7"	194	#5	5"	17'-6"	3,541	194	#4	5"	11'-7"	1,501	8'-4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	62	39'-9"	1,846	56	5'-0"	187	49	4'-8"	153	11'-2"	366	17'-6"	47	38	108	1.201	290.8	1.3	155	49.3	11,787
3	8'-0"	5'-0"	8"	7"	194	#5	5"	26'-1"	5,278	194	#4	5"	11'-7"	1,501	8'-4"	1,080	194	#6	5"	17'-5"	5,075	36	8"	39'-9"	956	88	39'-9"	2,337	56	5'-0"	187	98	4'-8"	305	11'-2"	731	26'-1"	70	54	153	1.733	436.3	2.0	223	71.3	17,673
4	8'-0"	5'-0"	8"	7"	194	#5	5"	34'-8"	7,015	194	#4	5"	11'-7"	1,501	8'-4"	1,080	194	#6	5"	26'-0"	7,576	48	8"	39'-9"	1,275	114	39'-9"	3,027	56	5'-0"	187	147	4'-8"	458	11'-2"	1,097	34'-8"	93	72	204	2.264	580.4	2.6	297	93.2	23,513
5	8'-0"	5'-0"	8"	7"	194	#5	5"	43'-3"	8,751	194	#4	5"	11'-7"	1,501	8'-4"	1,080	194	#6	5"	34'-7"	10,077	60	8"	39'-9"	1,593	140	39'-9"	3,717	56	5'-0"	187	196	4'-8"	611	11'-2"	1,462	43'-3"	116	90	256	2.796	724.5	3.2	372	115.0	29,351
6	8'-0"	5'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	11'-7"	1,501	8'-4"	1,080	194	#6	5"	43'-2"	12,578	72	8"	39'-9"	1,912	166	39'-9"	4,408	56	5'-0"	187	245	4'-8"	764	11'-2"	1,828	51'-10"	138	106	301	3.328	868.7	3.9	439	137.0	35,185
2	8'-0"	6'-0"	8"	7"	194	#5	5"	17'-6"	3,541	194	#4	5"	12'-7"	1,631	8'-4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	68	39'-9"	1,806	56	6'-0"	224	49	4'-8"	153	13'-2"	431	17'-6"	47	38	108	1.265	300.6	1.3	155	51.9	12,179
3	8'-0"	6'-0"	8"	7"	194	#5	5"	26'-1"	5,278	194	#4	5"	12'-7"	1,631	8'-4"	1,080	194	#6	5"	17'-5"	5,075	36	8"	39'-9"	956	96	39'-9"	2,549	56	6'-0"	224	98	4'-8"	305	13'-2"	862	26'-1"	70	54	153	1.819	449.0	2.0	223	74.8	18,183
4	8'-0"	6'-0"	8"	7"	194	#5	5"	34'-8"	7,015	194	#4	5"	12'-7"	1,631	8'-4"	1,080	194	#6	5"	26'-0"	7,576	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	6'-0"	224	147	4'-8"	458	13'-2"	1,293	34'-8"	93	72	204	2.372	596.1	2.6	297	97.5	24,142
5	8'-0"	6'-0"	8"	7"	194	#5	5"	43'-3"	8,751	194	#4	5"	12'-7"	1,631	8'-4"	1,080	194	#6	5"	34'-7"	10,077	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	6'-0"	224	196	4'-8"	611	13'-2"	1,724	43'-3"	116	90	256	2.926	743.2	3.2	372	120.2	30,099
6	8'-0"	6'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	12'-7"	1,631	8'-4"	1,080	194	#6	5"	43'-2"	12,578	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	6'-0"	224	245	4'-8"	764	13'-2"	2,155	51'-10"	138	106	301	3.479	890.3	3.9	439	143.1	36,051
2	8'-0"	7'-0"	8"	7"	194	#5	5"	17'-6"	3,541	194	#4	5"	13'-7"	1,760	8'-4"	1,080	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	68	39'-9"	1,806	56	7'-0"	262	49	4'-8"	153	15'-2"	496	17'-6"	47	38	108	1.330	306.4	1.3	155	54.5	12,411
3	8'-0"	7'-0"	8"	7"	194	#5	5"	26'-1"	5,278	194	#4	5"	13'-7"	1,760	8'-4"	1,080	194	#6	5"	17'-5"	5,075	36	8"	39'-9"	956	96	39'-9"	2,549	56	7'-0"	262	98	4'-8"	305	15'-2"	993	26'-1"	70	54	153	1.905	456.5	2.0	223	78.2	18,481
4	8'-0"	7'-0"	8"	7"	194	#5	5"	34'-8"	7,015	194	#4	5"	13'-7"	1,760	8'-4"	1,080	194	#6	5"	26'-0"	7,576	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	7'-0"	262	147	4'-8"	458	15'-2"	1,489	34'-8"	93	72	204	2.480	605.2	2.6	297	101.8	24,505
5	8'-0"	7'-0"	8"	7"	194	#5	5"	43'-3"	8,751	194	#4	5"	13'-7"	1,760	8'-4"	1,080	194	#6	5"	34'-7"	10,077	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	7'-0"	262	196	4'-8"	611	15'-2"	1,986	43'-3"	116	90	256	3.056	753.9	3.2	372	125.4	30,528
6	8'-0"	7'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	13'-7"	1,760	8'-4"	1,080	194	#6	5"	43'-2"	12,578	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	7'-0"	262	245	4'-8"	764	15'-2"	2,482	51'-10"	138	106	301	3.631	902.7	3.9	439	149.1	36,545
2	8'-0"	8'-0"	8"	7"	194	#5	5"	17'-6"	3,541	162	#5	6"	14'-7"	2,464	8'-9"	1,478	194	#6	5"	8'-10"	2,574	22	9"	39'-9"	584	74	39'-9"	1,965	56	8'-0"	299	49	4'-8"	153	17'-2"	562	17'-6"	47	38	108	1.395	340.5	1.3	155	57.1	13,775
3	8'-0"	8'-0"	8"	7"	194	#5	5"	26'-1"	5,278	162	#5	6"	14'-7"	2,464	8'-9"	1,478	194	#6	5"	17'-5"	5,075	36	8"	39'-9"	956	104	39'-9"	2,762	56	8'-0"	299	98	4'-8"	305	17'-2"	1,124	26'-1"	70	54	153	1.992	493.5	2.0	223	81.7	19,964
4	8'-0"	8'-0"	8"	7"	194	#5	5"	34'-8"	7,015	162	#5	6"	14'-7"	2,464	8'-9"	1,478	194	#6	5"	26'-0"	7,576	48	8"	39'-9"	1,275	134	39'-9"	3,558	56	8'-0"	299	147	4'-8"	458	17'-2"	1,686	34'-8"	93	72	204	2.588	645.2	2.6	297	106.1	26,106
5	8'-0"	8'-0"	8"	7"	194	#5	5"	43'-3"	8,751	162	#5	6"	14'-7"	2,464	8'-9"	1,478	194	#6	5"	34'-7"	10,077	60	8"	39'-9"	1,593	164	39'-9"	4,355	56	8'-0"	299	196	4'-8"	611	17'-2"	2,248	43'-3"	116	90	256	3.185	796.9	3.2	372	130.6	32,248
6	8'-0"	8'-0"	8"	7"	194	#5	5"	51'-10"	10,488	162	#5	6"	14'-7"	2,464	8'-9"	1,478	194	#6	5"	43'-2"	12,578	72	8"	39'-9"	1,912	194	39'-9"	5,151	56	8'-0"	299	245	4'-8"	764	17'-2"	2,809	51'-10"	138	106	301	3.782	948.6	3.9	439	155.2	38,382

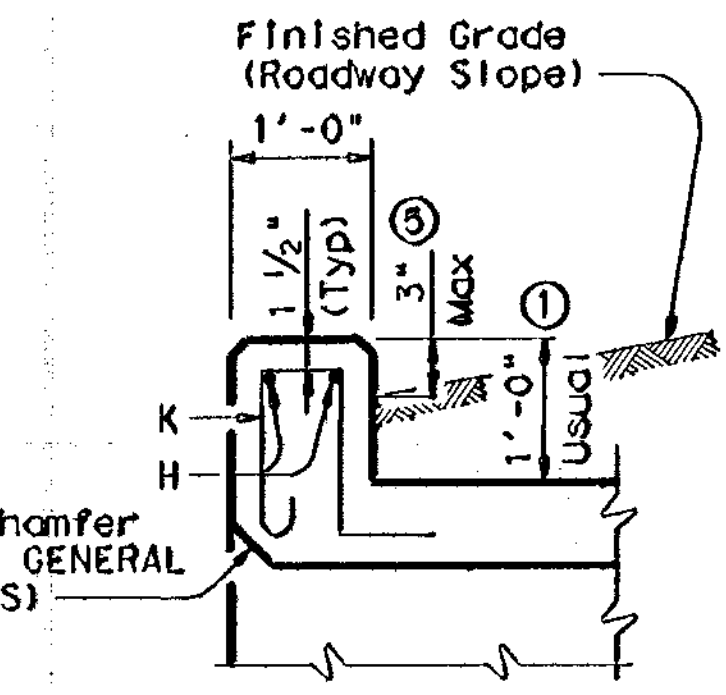
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

H	Bar Dimensions	
	"X"	"Y"
4'-0"	4'-6"	2'-3"
5'-0"	5'-6"	2'-3"
6'-0"	6'-6"	2'-3"
7'-0"	7'-6"	2'-3"
8'-0"	8'-6"	2'-8"



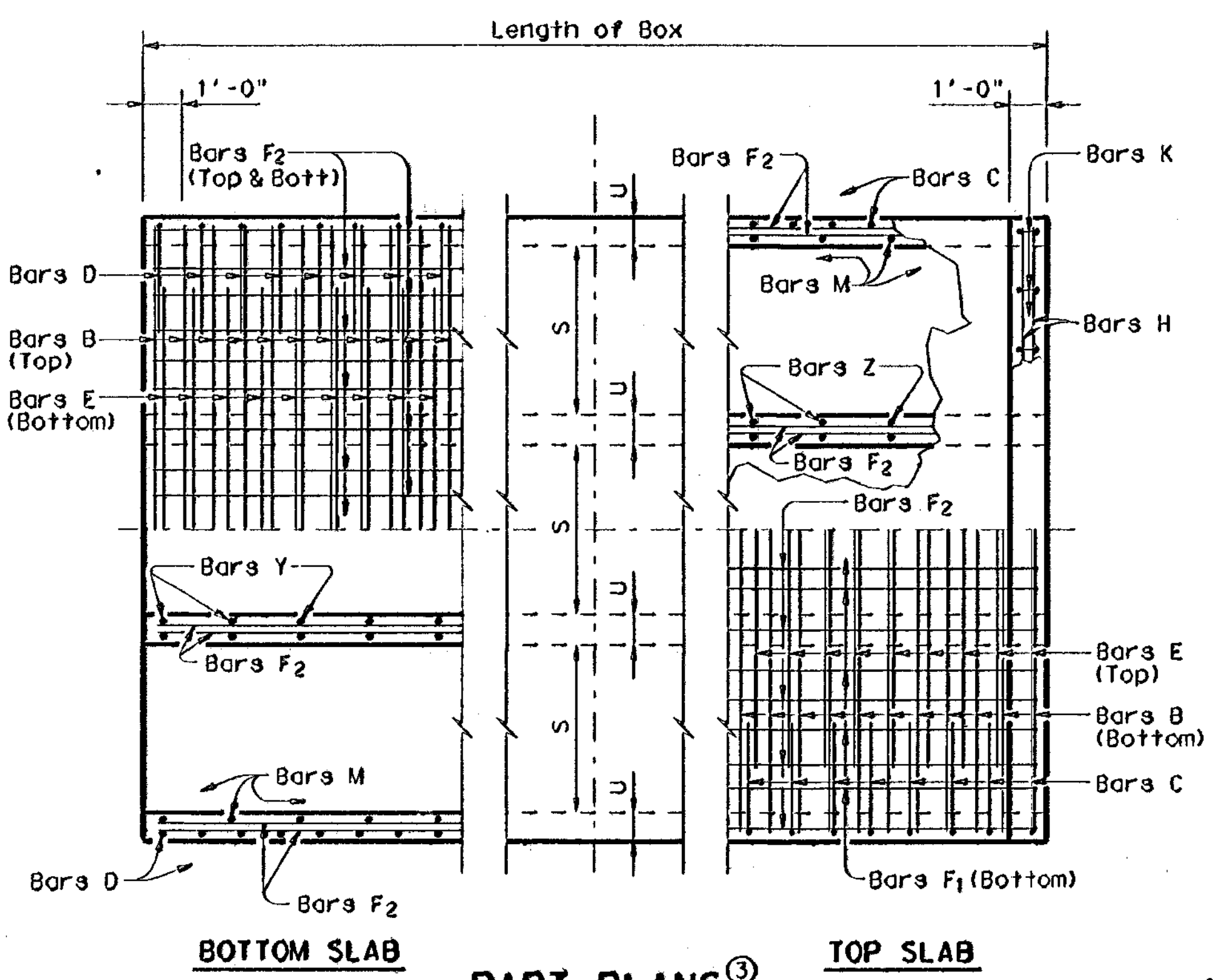
TYPICAL SECTION

Reinforcing shown for orientation purposes only. See table for number and spacing of bars.



SECTION THRU CURB

- 1) 0" min to 5'-0" max. For T6 or C6 Rail, see T&E standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details.
- 2) For curbs less than 1'-0" high, tilt bars K and reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.



BOTTOM SLAB

PART PLANS

TOP SLAB

GENERAL NOTES:
 Designed according to current AASHTO Standard and Interim Specifications.
 Designed for HS20 Loading and to the maximum fill height shown.
 All reinforcing steel shall be Grade 60.
 All concrete shall be Class "C" concrete with a minimum 28 day compressive strength of 3600 psi; except for the top slab of direct traffic culverts, which shall be Class "S" concrete with a minimum 28 day compressive strength of 4000 psi.
 The bottom edge of the top slab shall be chamfered 3" at the entrance.
 Reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.
 Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.
 See standard MC-MD for skewed ends, angle sections and lengthening details.
 For Direct Traffic, construct top slab to conform to crown of roadway while maintaining constant thickness of slab. Bar Dimensions "X" and "Y" shall be adjusted as necessary. The maximum permissible variation in dimension H is 6 inches.

HS20 LOADING

Texas Department of Transportation
Bridges Division

MULTIPLE BOX CULVERTS
8'-0" SPAN
DIRECT TRAFFIC TO 13' MAX FILL

MC-8-13

FILE# inc813ste.dgn	DN# GAF	CR# LMW	DR# BWH	CK# LDS
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REVISIONS				
COUNTY	CONTROL	SECT	JOB	HIGHWAY

RECORD DRAWING

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COMMENTS:
LEVELS DISPLAYED

TABLE OF DIMENSIONS & REINFORCING STEEL (Wings for One Structure End)										
Maximum Wingwall Height Hw	Dimensions				Variable Reinforcing				Estimated Quantities per ft of wing length (2-Wings)	
	W	X	Y	Z	Bars J1		Bars J2		Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-Wings)			
Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES			
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)	2.45		
Conc (CY/Ft)	0.037		

- Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
- Adjust to fit as necessary to maintain 1/4" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
- Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
- When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required. Payment for riprap shall be as required by the pertinent item.
- At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
- 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.
- For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'
 A = (Hw - 0.333') (SL)
 B = (A) Tangent (30°)
 Lw = (A) ÷ Cosine (30°)

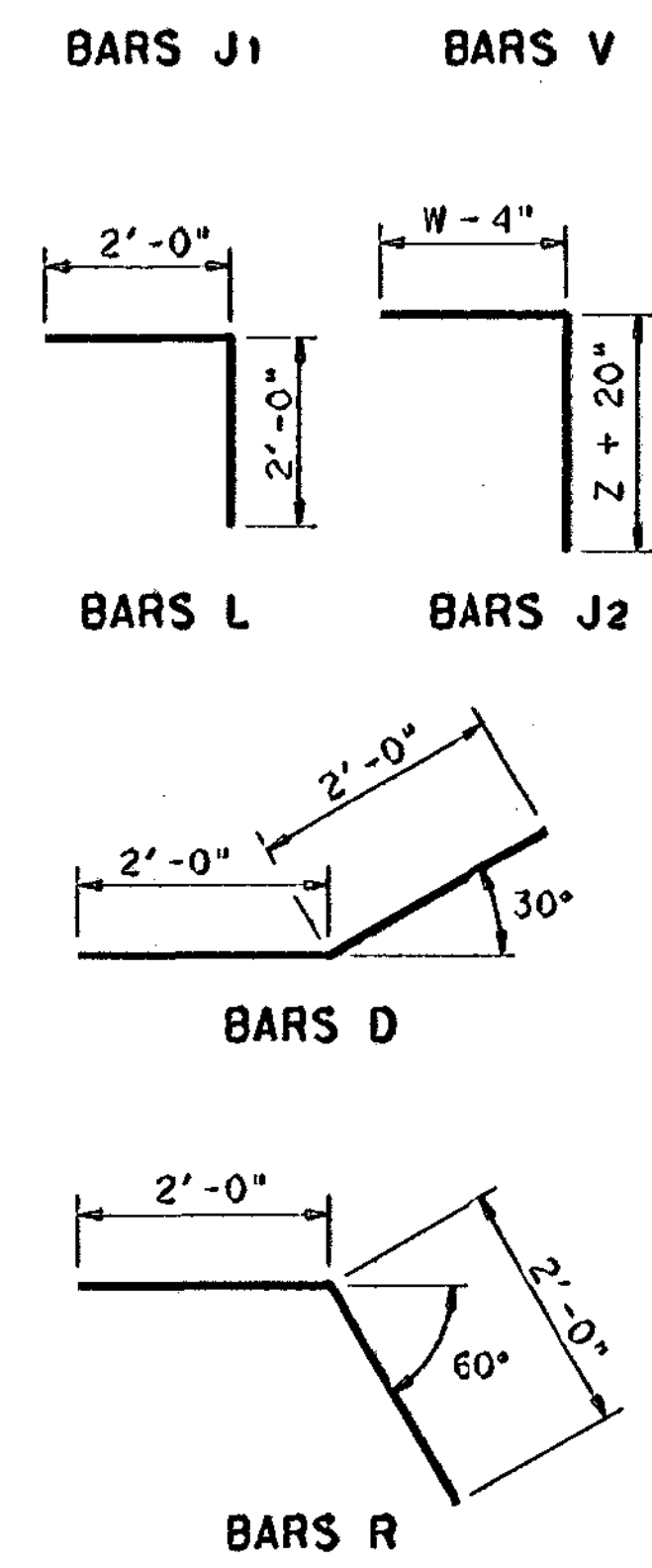
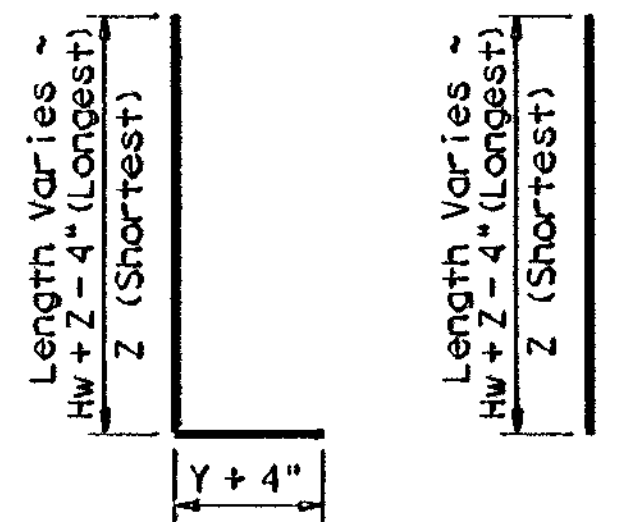
For Cast-in-place culverts:
 Ltw = (N) (S) + (N+1) (U)

For Precast culverts:
 Ltw = (N) (2U+S) + (N-1) (0.500')

Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall
 SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
 Lw = Length of Wingwall
 Ltw = Culvert Toewall Length
 N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values.



GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

All reinforcing steel shall be Grade 60.

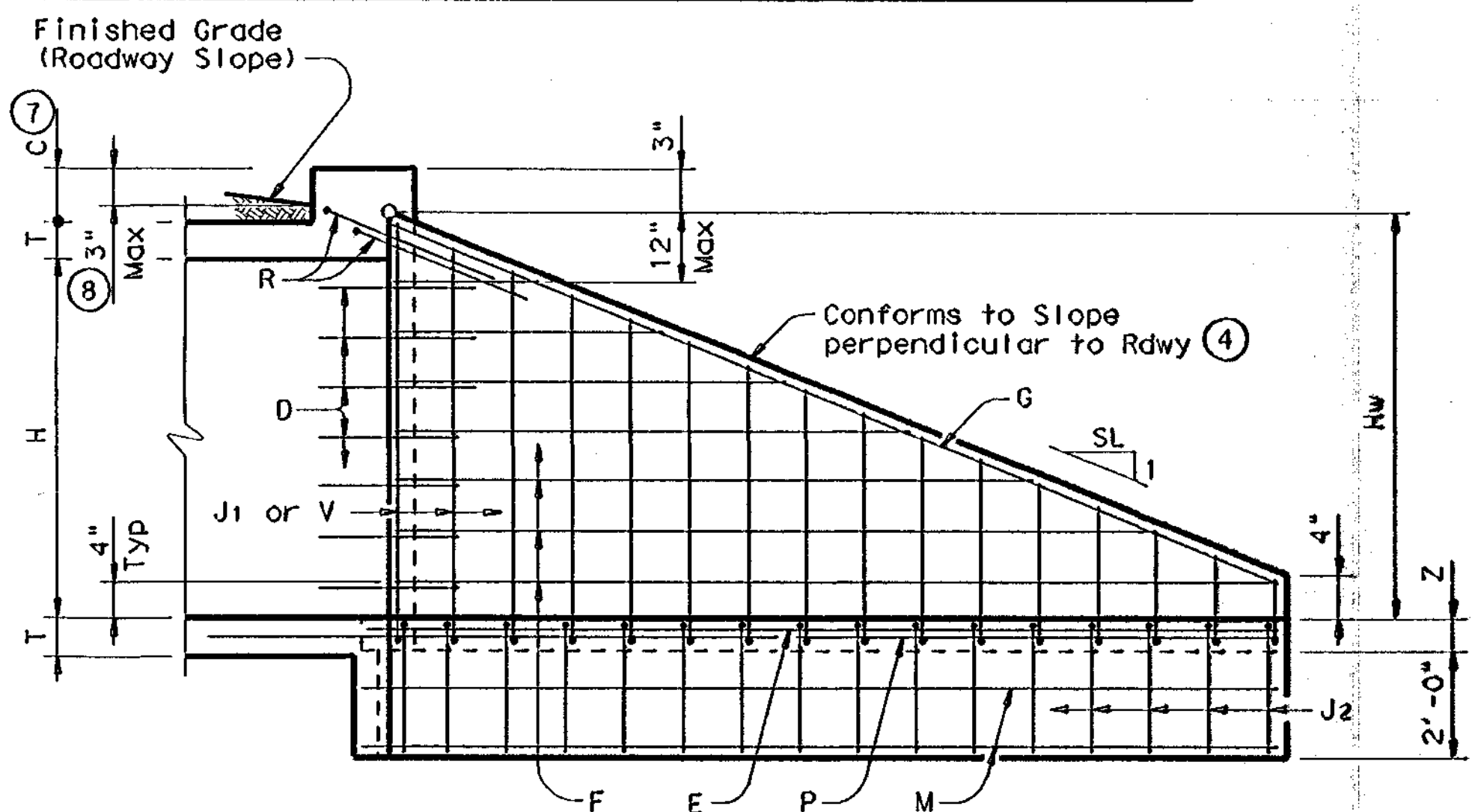
All concrete shall be Class "C" and shall have a minimum 28 day compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1/4" clear cover.

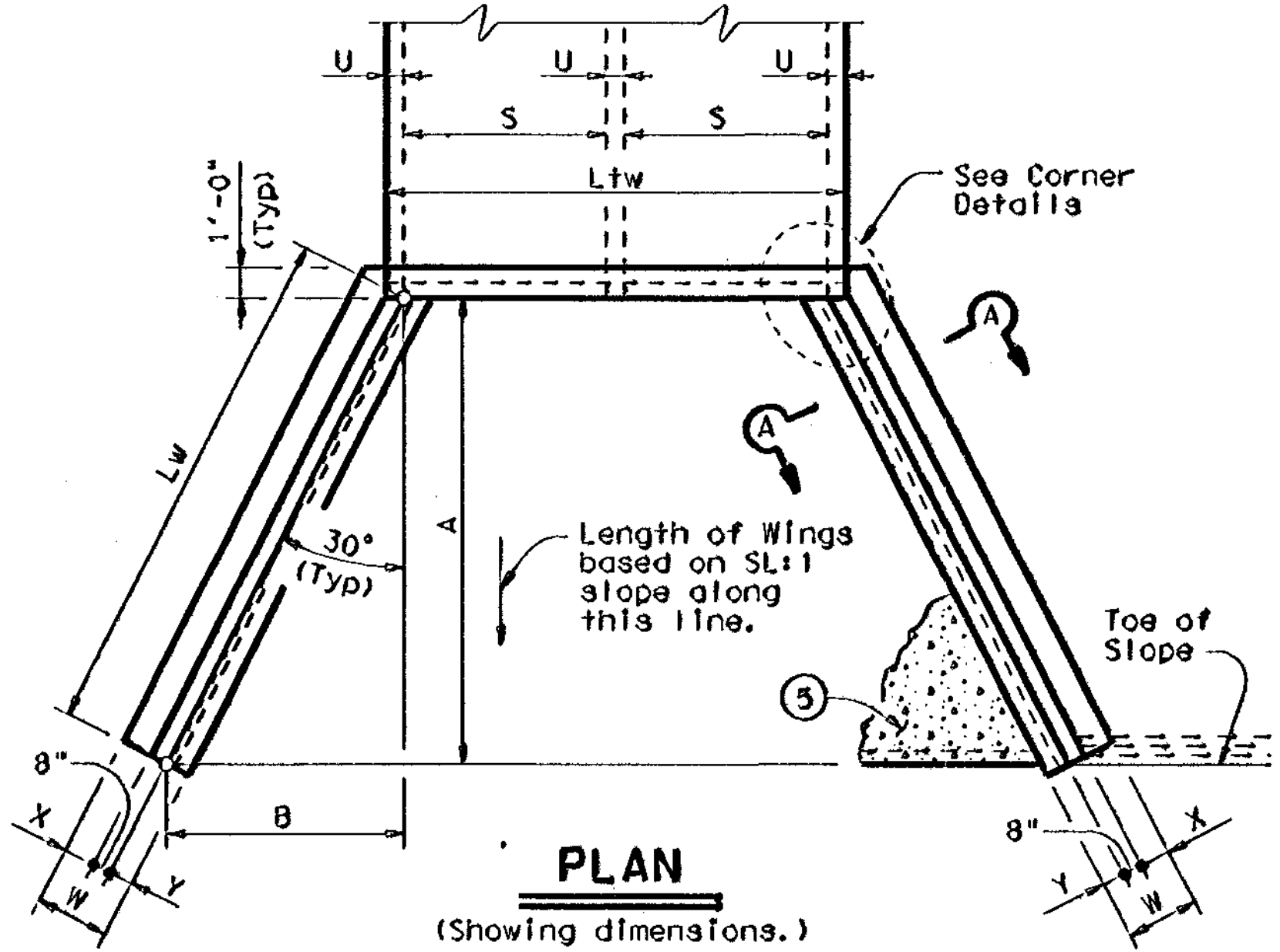
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

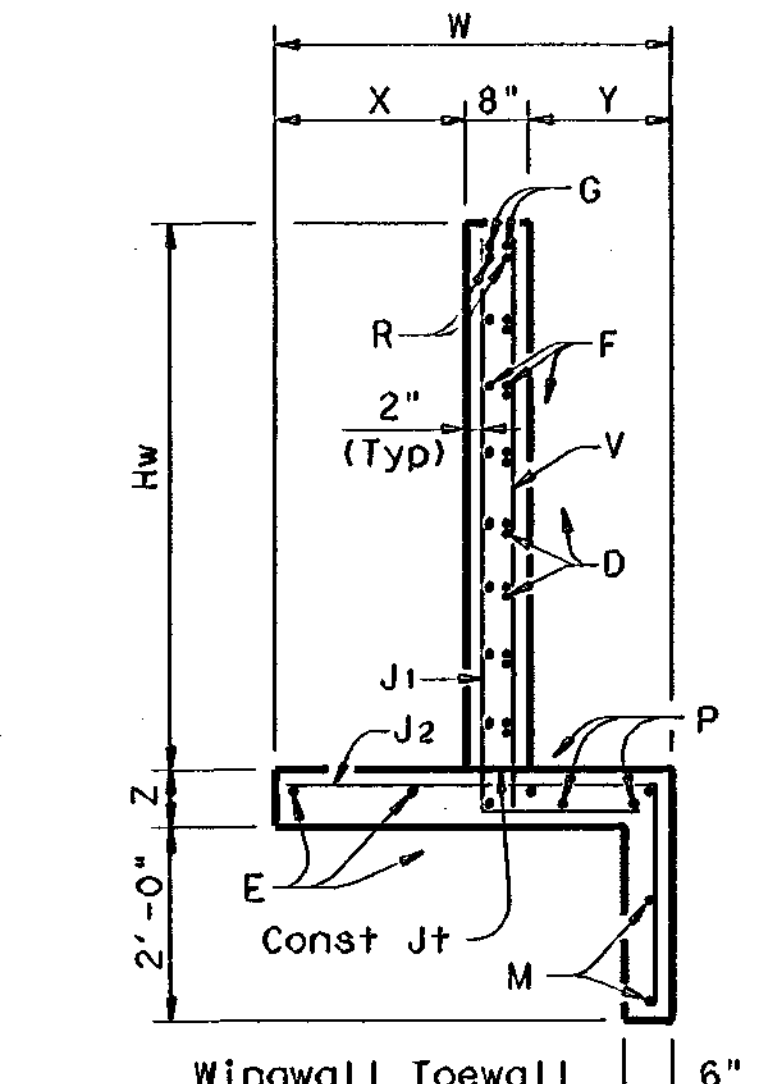
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.



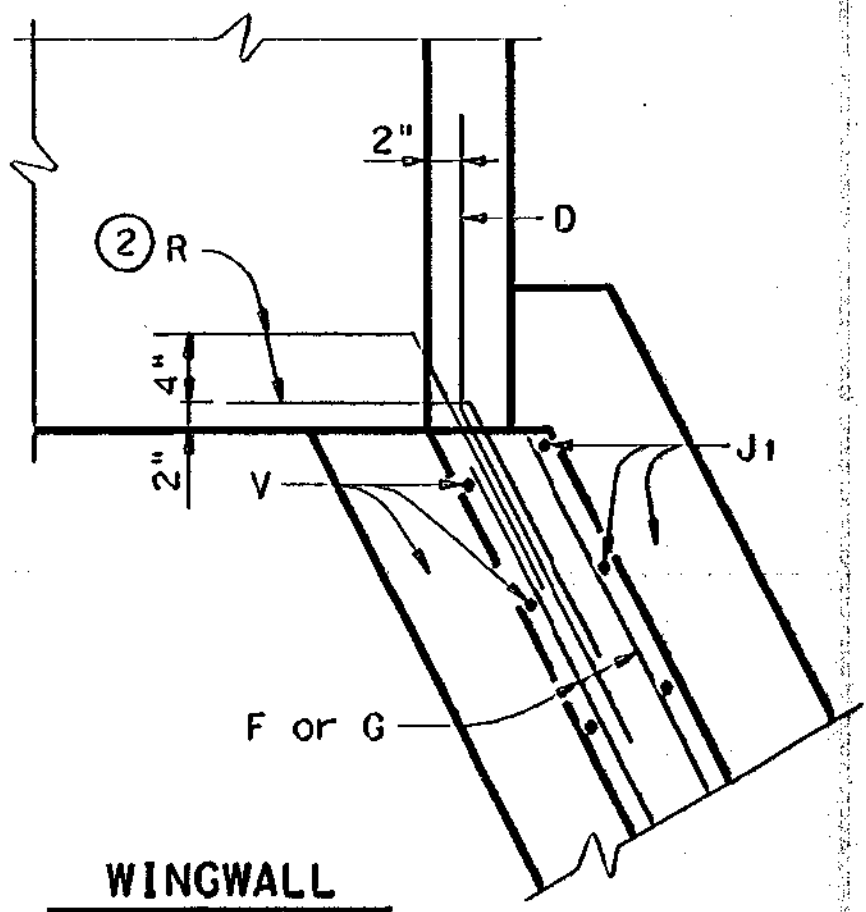
INSIDE ELEVATION
 (Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



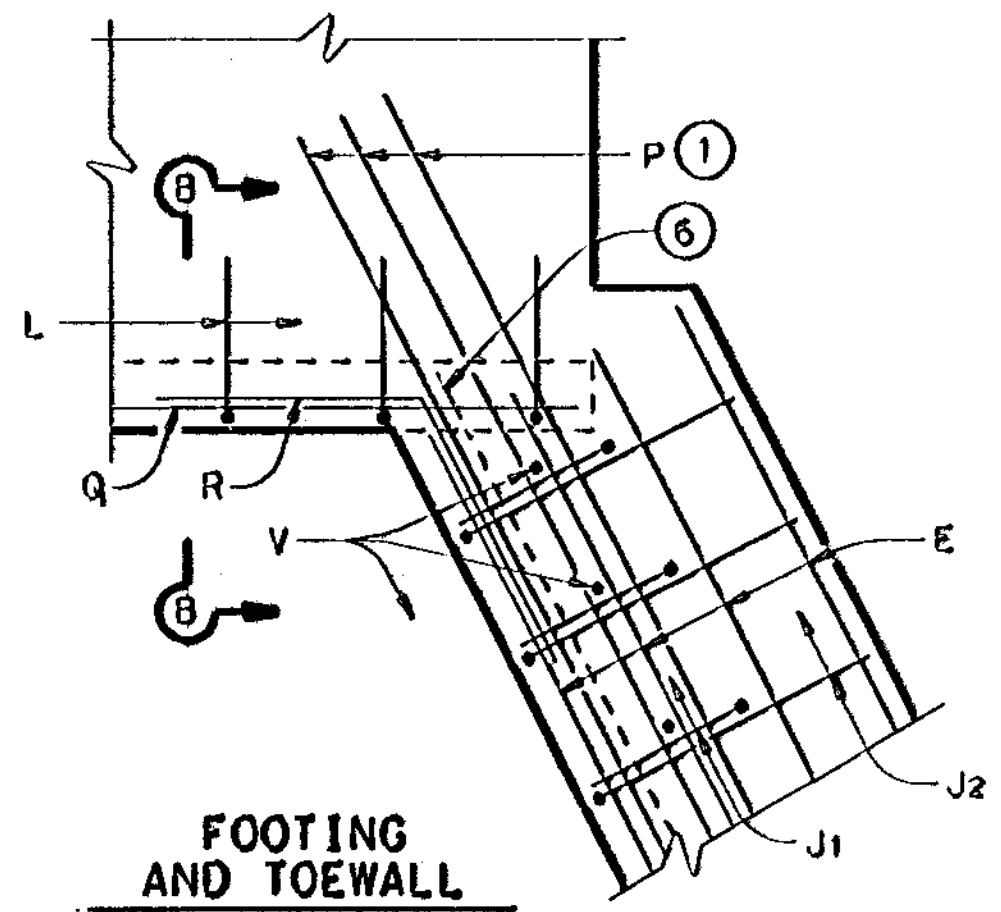
PLAN
 (Showing dimensions.)



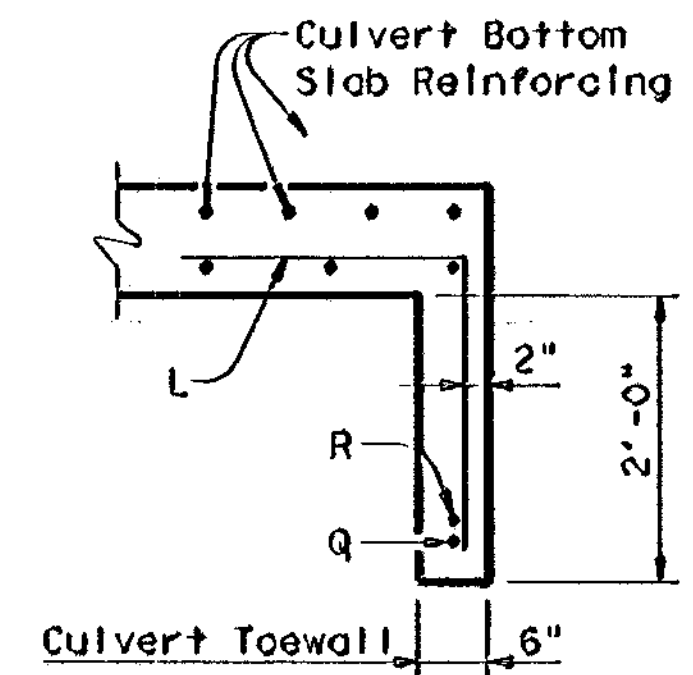
SECTION A-A



CORNER DETAILS
 (Culvert and Culvert Toewall reinforcing not shown for clarity.)

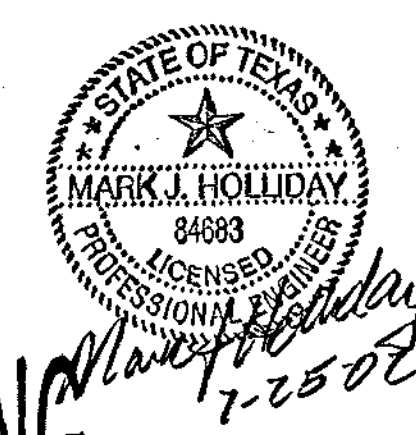


FOOTING AND TOEWALL



SECTION B-B

RECORD DRAWING



Texas Department of Transportation
 Bridge Division

FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: fw-0std.dgn	DWG: CAF	CHK: CAT	DATE: TxDOT	CHK: GAF
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REVISIONS	COUNTY:	CONTROL:	SECT:	JOB:
				HIGHWAY:

