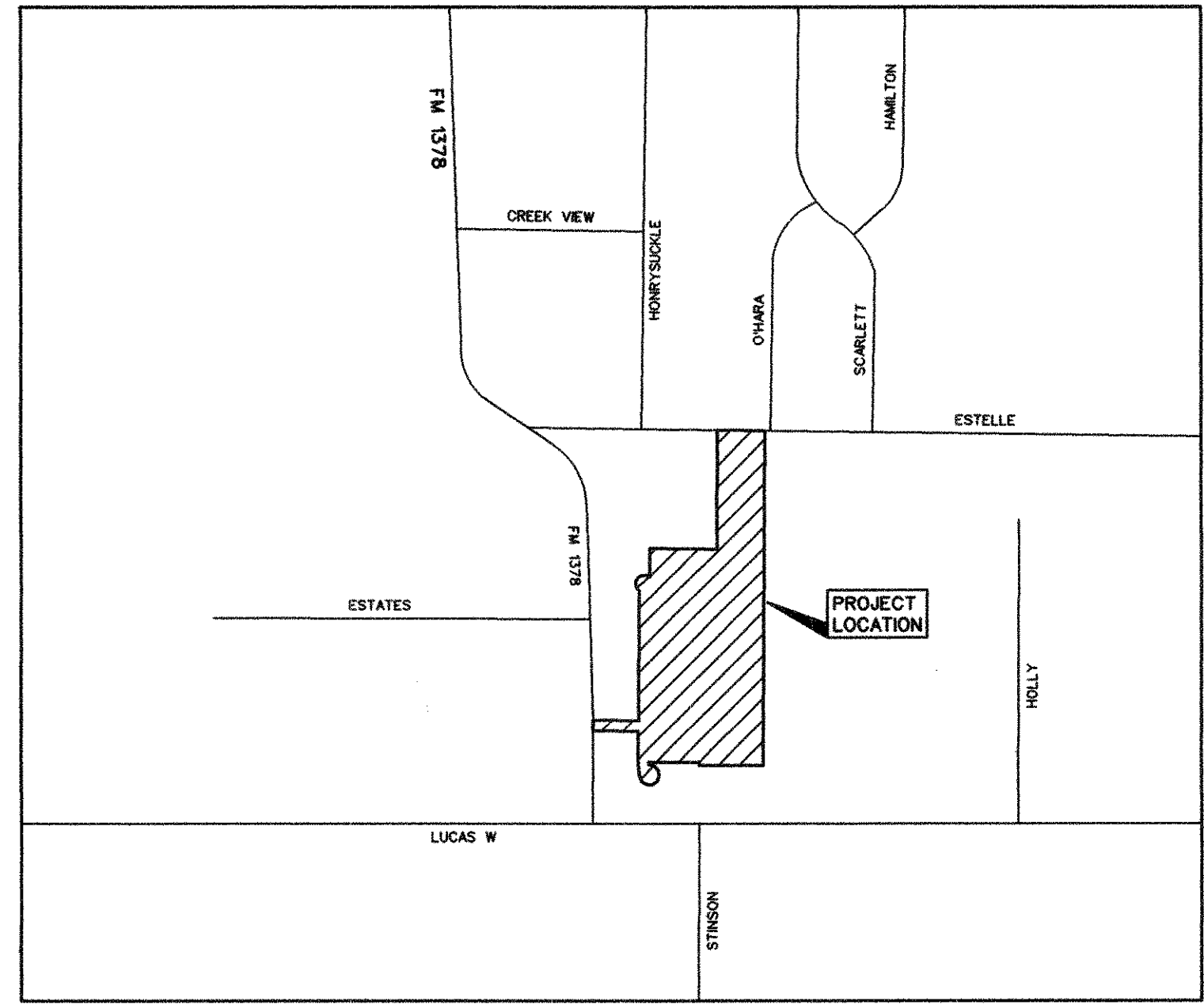


# CONSTRUCTION PLANS FOR CIMARRON CITY OF LUCAS, TEXAS

**NTMWD NOTES:**

- A. North Texas Municipal Water District (NTMWD's) 20" and 42" water transmission pipelines are located within limits of construction.
- B. A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required in all areas. In the areas where separation between the proposed bottom of the pavement and the top of the pipeline is less than 3.5 feet, then a thickened pavement section shall be used in lieu of the lime treated subgrade.
- C. Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
- D. Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
- E. Unless otherwise shown or required, a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
- F. The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.
- G. Franchised utilities are not permitted in NTMWD easement except for crossings. Water and storm sewer facilities are not permitted in NTMWD easement except for crossings.



**VICINITY MAP**  
SCALE: 1"=1000'

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- 5 RUTLEDGE LANE
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- 7 STRAIN LANE (STA. 8+00 TO 12+90)
- 8 RED STORE COURT
- 9 STRATTON MILL DRIVE
- 9A COOK LANE
- 10 WATER PLAN
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- 13 DETENTION POND PLAN
- 14 GRADING PLAN
- 15 GRADING PLAN
- 16 EROSION CONTROL PLAN
- 17 STREET SIGN PLAN
- 18 GENERAL NOTES

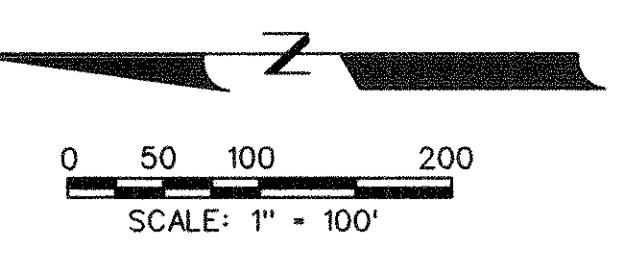
PREPARED FOR  
**BIGHORN VENTURES I, LTD.**  
 12221 MERIT DRIVE, SUITE 910, DALLAS, TEXAS 75251 972-490-770

**CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS**  
 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013

**AS-BUILT OCTOBER 2006**  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on October 25, 2006



**NOTE:**  
The NTMWD easement restricts construction of permanent structures such as foundations, walls, pools and permanent storage buildings. Items such as driveways, fences, sprinkler systems and normal landscaping plants that encroach on the NTMWD easements are allowed. Fence post foundations are restricted to an installation depth no deeper than 18 inches below final ground elevation. However, the NTMWD assumes no responsibility for damages resulting from the need to repair or maintain the NTMWD pipeline. Further, any cost to repair damage to the pipeline resulting from construction by the developer, contractor or owner will be the responsibility of the developer, contractor or owner.

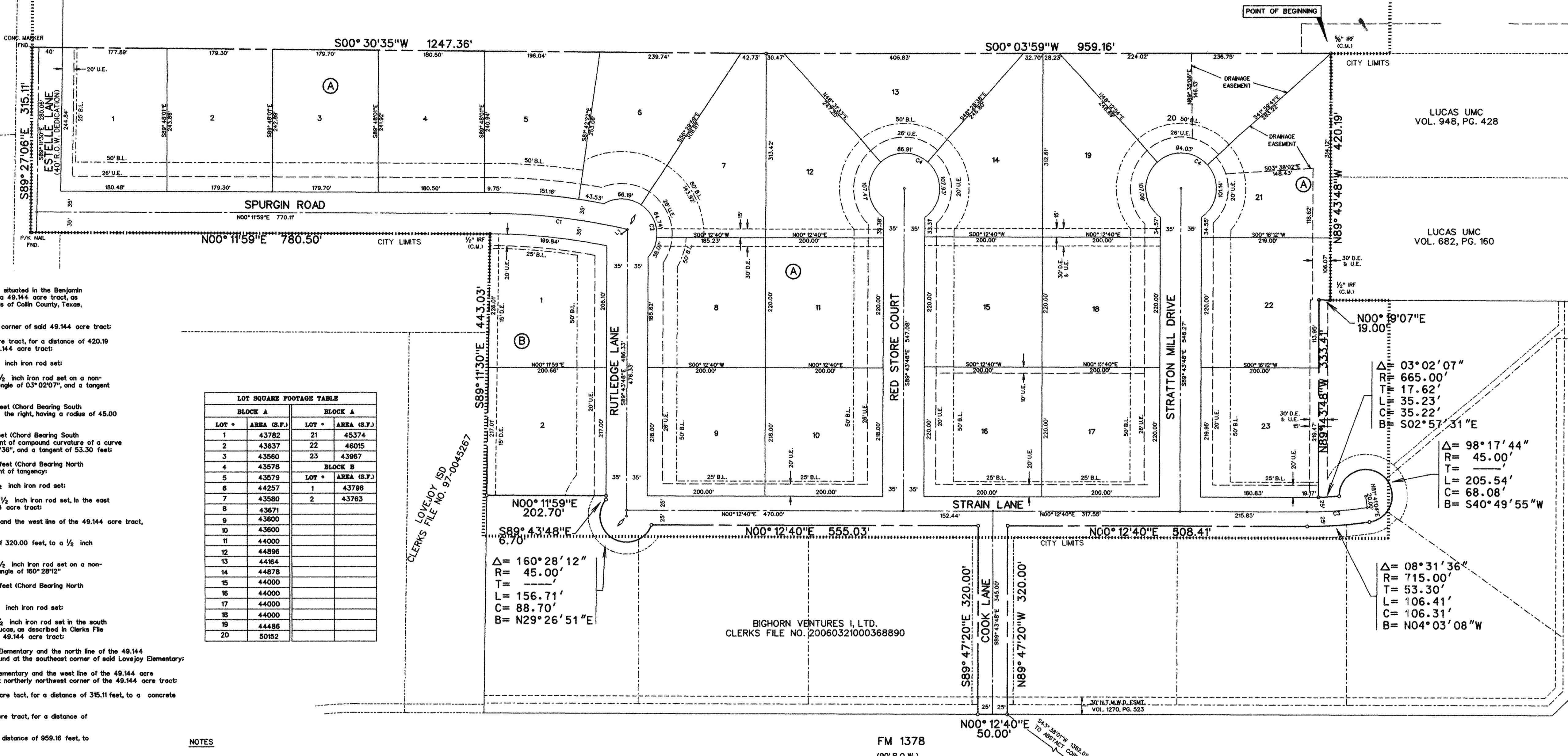
VOL. 549, PG. 333  
OUTSIDE CITY LIMITS

**LINE TABLE**

LINE NO.	BEARING	DISTANCE
1.	N 38°21'20" W	12.80'

**CURVE TABLE**

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	BEARING
1.	13°02'27"	1035.00'	235.57'	118.30'	235.07'	N06°43'13"E
2.	16°23'26"	60.00'	169.01'	118.42'	118.42'	N50°59'04"E
3.	08°31'36"	690.00'	102.69'	51.44'	102.59'	S04°03'08"E
4.	71°22'14"	60.00'	302.25'	70.00'	70.00'	S00°16'12"W



**LEGAL DESCRIPTION**

WHEREAS, BIGHORN VENTURES I, LTD., is the owner of a tract of land situated in the Benjamin Sparks Survey, Abstract No. 813, in Collin County, Texas, being out of a 49.144 acre tract, as described in Clerk's File No. 20060321000368890, in the Deed Records of Collin County, Texas, and being more particularly described as follows:

BEGINNING, at a 1/4 inch iron rod found the most easterly southeast corner of said 49.144 acre tract;

THENCE, North 89°43'48" West, along a south line of the 49.144 acre tract, for a distance of 420.19 feet, to a 1/2 inch iron rod found at the interior all corner of the 49.144 acre tract;

THENCE, North 00°19'07" East, for a distance of 19.00 feet, to a 1/2 inch iron rod set;

THENCE, North 89°43'48" West, for a distance of 333.41 feet, to a 1/2 inch iron rod set on a non-tangent curve to the left, having a radius of 665.00 feet, a central angle of 03°02'07", and a tangent of 17.62 feet;

THENCE, along said curve to the left for an arc distance of 35.23 feet (Chord Bearing South 02°57'31" East - 35.22 feet), to a 1/2 inch iron rod set a curve to the right, having a radius of 45.00 feet, a central angle of 98°17'44";

THENCE, along said curve to the right for an arc distance of 205.54 feet (Chord Bearing South 02°57'31" West - 88.08 feet), to a 1/2 inch iron rod set at the point of compound curvature of a curve to the right, having a radius of 715.00 feet, a central angle of 08°31'36", and a tangent of 53.30 feet;

THENCE, along said curve to the right for an arc distance of 106.41 feet (Chord Bearing North 04°03'08" West - 106.31 feet), to a 1/2 inch iron rod set;

THENCE, North 00°12'40" East, for a distance of 508.41 feet, to a 1/2 inch iron rod set;

THENCE, North 89°47'20" West, for a distance of 320.00 feet, to a 1/2 inch iron rod set, in the east line of F.M. 1378 (90' R.O.W.) and being in the west line of the 49.144 acre tract;

THENCE, North 00°12'40" East, along the east line of said F.M. 1378 and the west line of the 49.144 acre tract, for a distance of 50.00 feet, to a 1/2 inch iron rod set;

THENCE, South 89°47'20" East, departing said lines, for a distance of 320.00 feet, to a 1/2 inch iron rod set;

THENCE, North 00°12'40" East, for a distance of 555.03 feet, to a 1/2 inch iron rod set on a non-tangent curve to the right, having a radius of 45.00 feet, a central angle of 160°28'12";

THENCE, along said curve to the right for an arc distance of 156.71 feet (Chord Bearing North 29°26'51" East - 88.70 feet), to a 1/2 inch iron rod set;

THENCE, South 89°43'48" East, for a distance of 6.70 feet, to a 1/2 inch iron rod set;

THENCE, North 00°11'59" East, for a distance of 202.70 feet, to a 1/2 inch iron rod set in the south line of Lovejoy Elementary School No. 2, an addition to the City of Lucas, as described in Clerk's File No. 97-0045267, in said Deed Records, being in the north line of the 49.144 acre tract;

THENCE, South 89°11'30" East, along the south line of said Lovejoy Elementary and the north line of the 49.144 acre tract, for a distance of 443.03 feet, to a 1/2 inch iron rod found at the southeast corner of said Lovejoy Elementary;

THENCE, North 00°11'59" East, along the east line of said Lovejoy Elementary and the west line of the 49.144 acre tract, for a distance of 780.50 feet, to a p/k nail found at the most northerly northwest corner of the 49.144 acre tract;

THENCE, South 89°27'06" East, along the north line of the 49.144 acre tract, for a distance of 315.11 feet, to a concrete monument found at northeast corner of the 49.144 acre tract;

THENCE, South 00°30'35" West, along the east line of the 49.144 acre tract, for a distance of 1247.36 feet, to a 1/2 inch iron rod set;

THENCE, South 00°03'59" West, continuing along said east line, for a distance of 959.16 feet, to the POINT OF BEGINNING and containing 32.150 acres of land.

**LOT SQUARE FOOTAGE TABLE**

LOT #	AREA (S.F.)	LOT #	AREA (S.F.)
1	43782	21	45374
2	43637	22	46015
3	43560	23	43967
4	43578		
5	43579		
6	44257	1	43796
7	43560	2	43783
8	43671		
9	43600		
10	43600		
11	44000		
12	44896		
13	44164		
14	44878		
15	44000		
16	44000		
17	44000		
18	44000		
19	44488		
20	50152		

- NOTES**
- Bearing are referenced to a 49.144 acre tract, as recorded in Clerk's File No. 20060321000368890, in the Deed Records of Collin County, Texas.
  - All lot lines are radial or perpendicular to the street unless otherwise noted by bearing.
  - 1/2" iron rods with "CORWIN ENGR. INC." caps set at all boundary corners, block corners, points of curvature, points of tangency, and angle points in public right-of-way unless otherwise noted.
  - No floodplain exist on site.
  - "Notice: Selling a portion of this addition by metes and bounds is a violation of city ordinance and state law and is subject to fines and withholding of utilities and building permits."
  - B.L. - Building Line  
U.E. - Utility Easement  
D.E. - Drainage Easement  
/- Street Name Change
  - The OSS permit may impact trees.
  - All lots must utilize alternative type On-Site Sewage Facilities.
  - Must maintain state-mandated setback of all On-Site Sewage Facility components from any/all easements and drainage areas.
  - Final grading, per the grading plan, will be required prior to installation/operation of OSSFs.
  - Removal of some trees may be required on individual lots to meet OSSF setbacks and other requirements.
  - Individual site evaluations and OSSF design plans must be submitted to and approved by Collin County for each lot prior to construction of any OSSF system.
  - Maintenance of the drainage swales, drainage channels, culverts and detention ponds are the responsibility of the HOA or the individual landowner.

**ESTATES ROAD**  
(90' R.O.W.)

"KNOW ALL MEN BY THESE PRESENTS:  
THAT, BIGHORN VENTURES I, LTD., is the owner of the above-described project and does hereby adopt this plat designating the herein described property as CIMARRON, an addition to the City of Lucas, Texas, and does hereby dedicate to the public use forever the right-of-way, streets, easements, and alleys platted hereon.

This Plat is approved subject to all platting ordinances, rules, regulations, and resolutions of the City of Lucas, Texas.

Witness my hand this \_\_\_\_\_ day of \_\_\_\_\_, 2006

BIGHORN VENTURES I, LTD.

\_\_\_\_\_  
GEORGE GIBSON  
GENERAL PARTNER

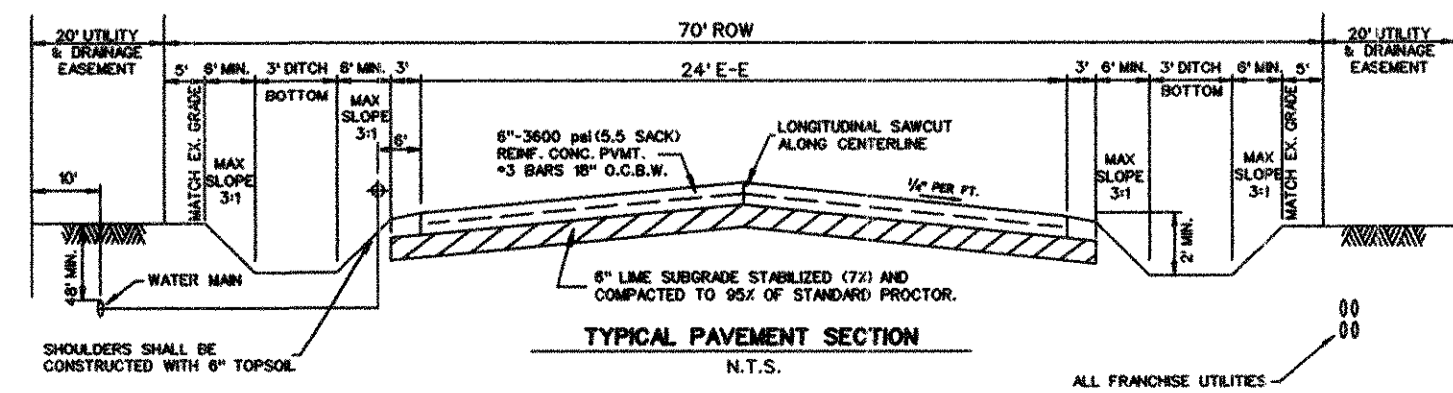
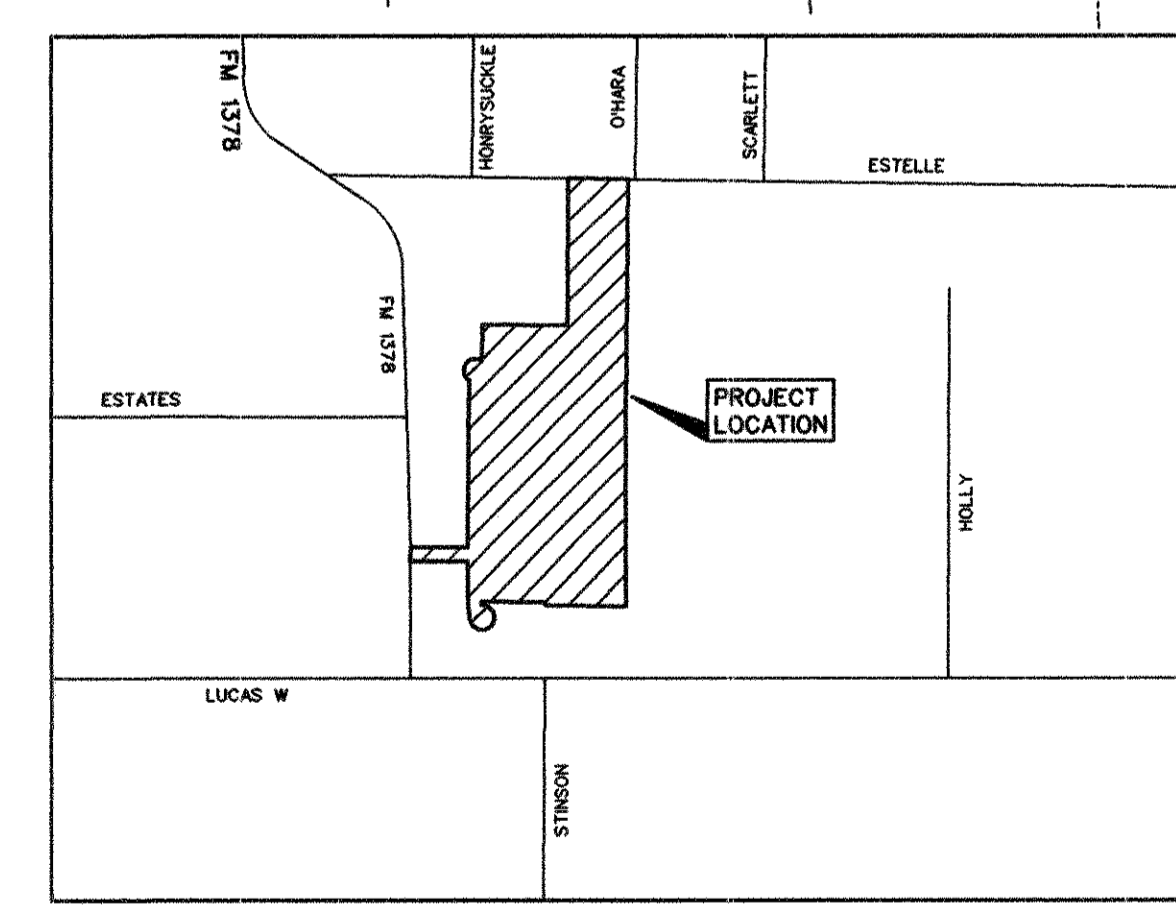
\_\_\_\_\_  
L. DEAN BAILEY  
GENERAL PARTNER

THE STATE OF TEXAS  
COUNTY OF COLLIN

BEFORE ME, the undersigned, a Notary Public for the State of Texas, on this day personally appeared GEORGE GIBSON, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed same for the purpose and considerations therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE, this the \_\_\_\_\_ day of \_\_\_\_\_ 2006.

\_\_\_\_\_  
NOTARY PUBLIC, STATE OF TEXAS



**SURVEYOR'S CERTIFICATE**

KNOW ALL MEN BY THESE PRESENTS that I, WARREN L. CORWIN, do hereby certify that I prepared this plat and the field notes from an actual accurate survey of the land that the corner monuments shown thereon were properly placed under my personal supervision in accordance with the subdivision Regulations of the City of Lucas, Texas.

WARREN L. CORWIN  
R.P.L.S. No. 4621

THE STATE OF TEXAS  
COUNTY OF COLLIN

Before me, the undersigned, a Notary Public in and for the State of Texas, on this day personally appeared WARREN L. CORWIN, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed same for the purpose and consideration therein expressed.

Given under my hand and seal of office, this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

\_\_\_\_\_  
NOTARY PUBLIC, STATE OF TEXAS

"Recommended For Approval

\_\_\_\_\_  
Chairman  
Planning and Zoning Commission  
City of Lucas, Texas

\_\_\_\_\_  
Date"

"Approved For Construction:

\_\_\_\_\_  
Mayor  
City of Lucas, Texas

\_\_\_\_\_  
Date"

"The undersigned, the City Secretary of the City of Lucas, Texas hereby certifies that the foregoing Final Plat of CIMARRON, an addition to the City of Lucas was submitted to the City Council, by formal action, on the \_\_\_\_\_ day of \_\_\_\_\_; and that Council, by formal action, then and there accepted the dedication of right-of-ways, streets, easements, alleys, public places, and water and sewer lines, as shown and set forth in and upon said plat, and said Council further authorized the Mayor to note the acceptance thereof for construction by signing his/her name as hereinabove subscribed.

Witness my hand this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 2006

\_\_\_\_\_  
Registered Sanitarian/Designed Representative  
Collin County Development Services

\_\_\_\_\_  
City Secretary, City of Lucas, Texas

TOTAL ACRES 32.150  
TOTAL LOTS 25

FINAL PLAT  
OF  
**CIMARRON**  
OUT OF THE  
BENJAMIN SPARKS SURVEY, ABSTRACT NO. 813  
IN  
COLLIN COUNTY, TEXAS

OWNER  
BIGHORN VENTURES I, LTD.  
12221 MERIT DRIVE, SUITE 910  
DALLAS, TEXAS 75251  
972-490-7700

PREPARED BY  
CORWIN ENGINEERING, INC.  
200 W. BELMONT, SUITE E  
ALLEN, TEXAS 75013  
972-396-1200

OCTOBER 2006 SCALE: 1"=100'

LEGAL DESCRIPTION - Tract 1

WHEREAS, BIGHORN VENTURES I, LTD., is the owner of a tract of land situated in the Benjamin Sparks Survey, Abstract No. 813, in Collin County, Texas, being out of a 49.144 acre tract, as described in Clerks File No. 20060321000368890, in the Deed Records of Collin County, Texas, and being more particularly described as follows:

BEGINNING, at a 1/2 inch iron rod found the southwest corner of Lucas UMC, an addition to the City of Lucas, as described in Volume 948, Page 428, in said Deed Records, being in the north line of F.M. 1378 (90' R.O.W.), also being the most southerly southeast corner of said 49.144 acre tract;

THENCE, North 89°40'53" West, along the north line of said F.M. 1378 and the south line of the 49.144 acre tract, for a distance of 667.88 feet, to a 1/2 inch iron rod set;

THENCE, North 44°44'06" West, departing said north line and continuing along said south line, for a distance of 49.54 feet, to 1/2 inch iron rod set in the east line of said F.M. 1378 being the most westerly southwest corner of the 49.144 acre tract;

THENCE, North 00°12'40" East, along the east line of said F.M. 1378 and the west line of the 49.144 acre tract, for a distance of 925.50 feet, to a 1/2 inch iron rod set;

THENCE, South 89°47'20" East, departing said east and west lines, for a distance of 320.00 feet, to a 1/2 inch iron rod set;

THENCE, South 00°12'40" West, for a distance of 508.41 feet, to a 1/2 inch iron rod set at the point of curvature of a curve to the left, having a radius of 715.00 feet, a central angle of 08°31'36", and a tangent of 53.30 feet;

THENCE, along said curve to the left for an arc distance of 106.41 feet (Chord Bearing South 04°03'08" East - 88.31 feet), to a 1/2 inch iron rod set at the point of compound curvature a curve to the left, having a radius of 45.00 feet, a central angle of 98°17'44";

THENCE, along said curve to the left for an arc distance of 205.54 feet (Chord Bearing North 40°49'55" East - 68.08 feet), to a 1/2 inch iron rod set on a non-tangent curve to the right, having a radius of 665.00 feet, a central angle of 03°02'07" and a tangent of 17.62 feet;

THENCE, along said curve to the right for an arc distance of 35.23 feet (Chord Bearing North 02°57'31" West - 35.22 feet), to a 1/2 inch iron rod set;

THENCE, South 89°43'48" East, for a distance of 333.41 feet, to a 1/2 inch iron rod set;

THENCE, South 00°19'07" West, at 19.00 feet, passing a 1/2 inch iron rod found at the northwest corner of said Lucas UMC and being an interior corner of the 49.144 acre tract, and continuing for a total distance of 433.90 feet, to the POINT OF BEGINNING and containing 10.660 acres of land.

LEGAL DESCRIPTION - Tract 2

WHEREAS, BIGHORN VENTURES I, LTD., is the owner of a tract of land situated in the Benjamin Sparks Survey, Abstract No. 813, in Collin County, Texas, being out of a 49.144 acre tract, as described in Clerks File No. 20060321000368890, in the Deed Records of Collin County, Texas, and being more particularly described as follows:

BEGINNING, at a 1/2 inch iron rod set at the southwest corner of Lovejoy ISD tract, as described in Clerks File No. 97-0045267, in said Deed Records, being in the east line of F.M. 1378 (90' R.O.W.) also being the most westerly northwest corner of said 41.144 acre tract;

THENCE, South 89°11'30" East, along the south line of said Lovejoy ISD and being in the north line of the 49.144 acre tract, for a distance of 370.00 feet, to a 1/2 inch iron rod set;

THENCE, South 00°11'59" West, departing said lines, for a distance of 202.70 feet, to a 1/2 inch iron rod set;

THENCE, North 89°43'48" West, for a distance of 6.70 feet, to a 1/2 inch iron rod set on a non-tangent curve to the left, having a radius of 45.00 feet, a central angle of 160°28'12";

THENCE, along said curve to the left for an arc distance of 156.71 feet (Chord Bearing South 29°26'51" West - 88.70 feet), to a 1/2 inch iron rod set;

THENCE, South 00°12'40" West, for a distance of 555.03 feet, to a 1/2 inch iron rod set;

THENCE, North 89°47'20" West, for a distance of 320.00 feet, to a 1/2 inch iron rod set in the east line of said F.M. 1378 and in the west line of the 49.144 acre tract;

THENCE, North 00°12'40" East, along said east and west lines, for a distance of 838.98 feet, to the POINT OF BEGINNING and containing 6.333 acres of land.

SURVEYOR'S CERTIFICATE

KNOW ALL MEN BY THESE PRESENTS that I, WARREN L. CORWIN, do hereby certify that I prepared this Plat and the field notes from an actual and accurate survey of the land, that the corner monuments shown thereon were properly placed under my personal supervision in accordance with the subdivision Regulations of the City of Lucas, Texas.

WARREN L. CORWIN  
R.P.L.S. No. 4621

THE STATE OF TEXAS §  
COUNTY OF COLLIN §

Before me, the undersigned, a Notary Public in and for the State of Texas, on this day personally appeared WARREN L. CORWIN, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed same for the purpose and consideration therein expressed.

Given under my hand and seal of office, this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

NOTARY PUBLIC, STATE OF TEXAS

"Recommended For Approval

Chairman Date"  
Planning and Zoning Commission  
City of Lucas, Texas

"Approved For Construction:

Mayor Date"  
City of Lucas, Texas

"The undersigned, the City Secretary of the City of Lucas, Texas hereby certifies that the foregoing Final Plat of CIMARRON PHASE II, an addition to the City of Lucas was submitted to the City Council, by formal action, on the \_\_\_\_\_ day of \_\_\_\_\_, and that Council, by formal action, then and there accepted the dedication of right-of-ways, streets, easements, alleys, public places, and water and sewer lines, as shown and set forth in and upon said plat, and said Council further authorized the Mayor to note the acceptance thereof for construction by signing his/her name as hereinabove subscribed.

Witness my hand this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 2006

City Secretary  
City of Lucas, Texas

NOTES

- Bearing are referenced to a 49.144 acre tract, as recorded in Clerks File No. 20060321000368890, in the Deed Records of Collin County, Texas.
- All lot lines are radial or perpendicular to the street unless otherwise noted by bearing.
- 1/2" iron rods with "CORWIN ENGR. INC." caps set at all boundary corners, block corners, points of curvature, points of tangency, and angle points in public right-of-way unless otherwise noted.
- No floodplain exist on site.
- "Notice: Selling a portion of this addition by metes and bounds is a violation of city ordinance and state law and is subject to fines and withholding of utilities and building permits."
- B.L. - Building Line  
S.E. - Street Easement  
U.E. - Utility Easement  
D.E. - Drainage Easement  
/- Street Name Change
- The OSS permit may impact trees.
- All lots must utilize alternative type On-Site Sewage Facilities.
- Must maintain state-mandated setback of all On-Site Sewage Facility components from any/all easements and drainage areas.
- Final grading, per the grading plan, will be required prior to installation/operation of OSSFS.
- Removal of some trees may be required on individual lots to meet OSSF setbacks and other requirements.
- Individual site evaluations and OSSF design plans must be submitted to and approved by Collin County for each lot prior to construction of any OSSF system.
- Maintenance of the drainage swales, drainage channels, culverts and detention ponds are the responsibility of the HOA or the individual landowner.

NOTE:

The NTMWD easement restricts construction of permanent structures such as foundations, walls, pools and permanent storage buildings. Items such as driveways, fences, sprinkler systems and normal landscaping plants that encroach on the NTMWD easements are allowed. Fence post foundations are restricted to an installation depth no deeper than 18 inches below final ground elevation. However, the NTMWD assumes no responsibility for damages resulting from the need to repair or maintain the NTMWD pipeline. Further, any cost to repair damage to the pipeline resulting from construction by the developer, contractor or owner will be the responsibility of the developer, contractor or owner.

Health Department Certificate:  
I hereby certify that the on-site sewage facilities described on this plat conform to applicable health laws of the State of Texas, that site evaluations have been submitted representing the site conditions in the areas in which on-site sewage facilities are planned to be used.

Registered Sanitarian/Designed Representative  
Collin County Development Services

"KNOW ALL MEN BY THESE PRESENTS:

THAT, BIGHORN VENTURES I, LTD., is the owner of the above-described project and does hereby adopt this plat designating the herein described property as CIMARRON, an addition to the City of Lucas, Texas, and does hereby dedicate to the public use forever the right-of-way, streets, easements, and alleys plotted hereon.

This Plat is approved subject to all platting ordinances, rules, regulations, and resolutions of the City of Lucas, Texas.

Witness my hand this \_\_\_\_\_ day of \_\_\_\_\_, 2006

BIGHORN VENTURES I, LTD.

GEORGE GIBSON  
GENERAL PARTNER

L. DEAN BAILEY  
GENERAL PARTNER

THE STATE OF TEXAS  
COUNTY OF COLLIN

BEFORE ME, the undersigned, a Notary Public for the State of Texas, on this day personally appeared GEORGE GIBSON, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed same for the purpose and considerations therein expressed.

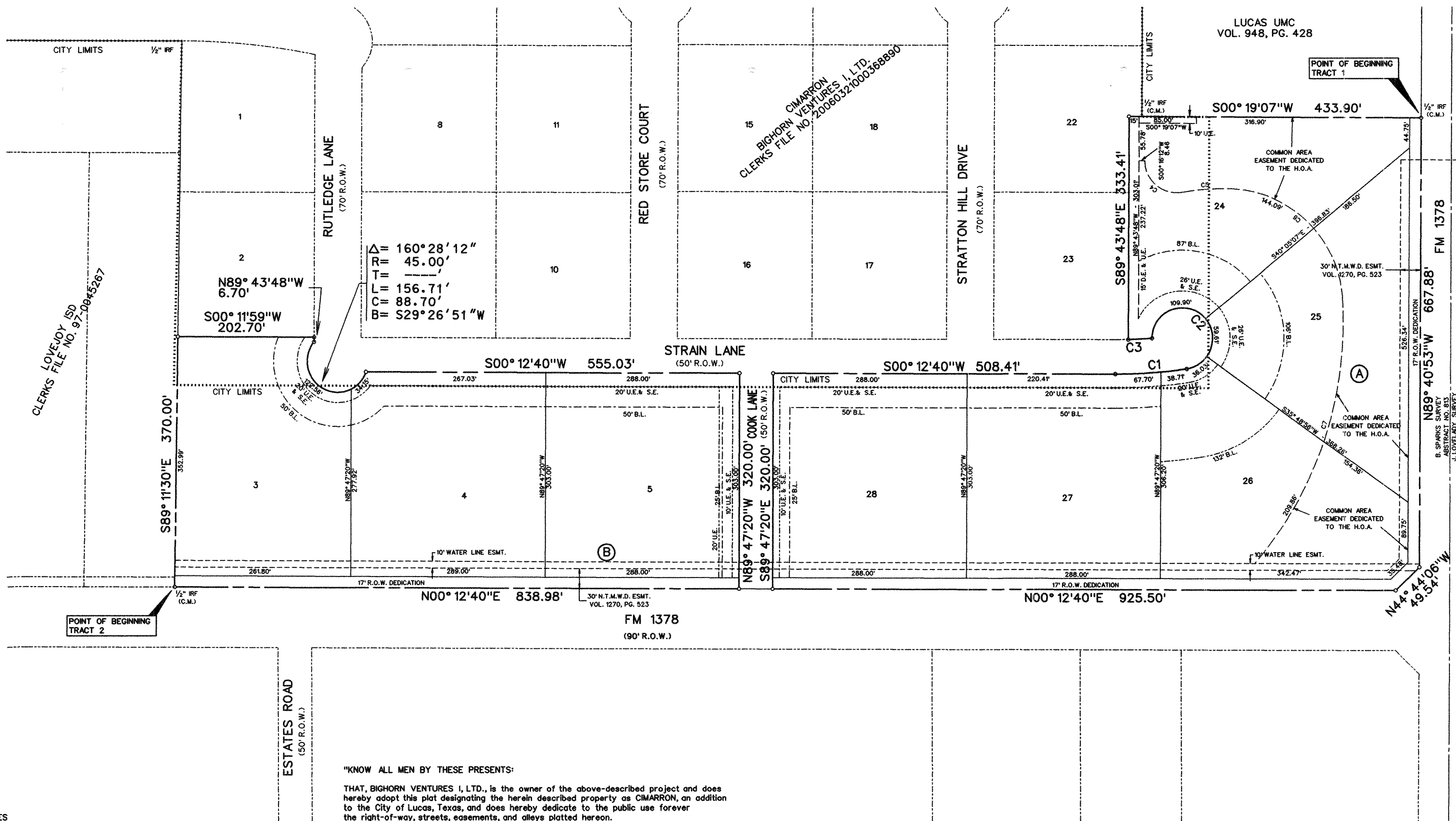
WITNESS MY HAND AND SEAL OF OFFICE, this \_\_\_\_\_ day of \_\_\_\_\_ 2006.

THE STATE OF TEXAS  
COUNTY OF COLLIN

BEFORE ME, the undersigned, a Notary Public for the State of Texas, on this day personally appeared L. DEAN BAILEY, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed same for the purpose and considerations therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE, this \_\_\_\_\_ day of \_\_\_\_\_ 2006.

NOTARY PUBLIC, STATE OF TEXAS

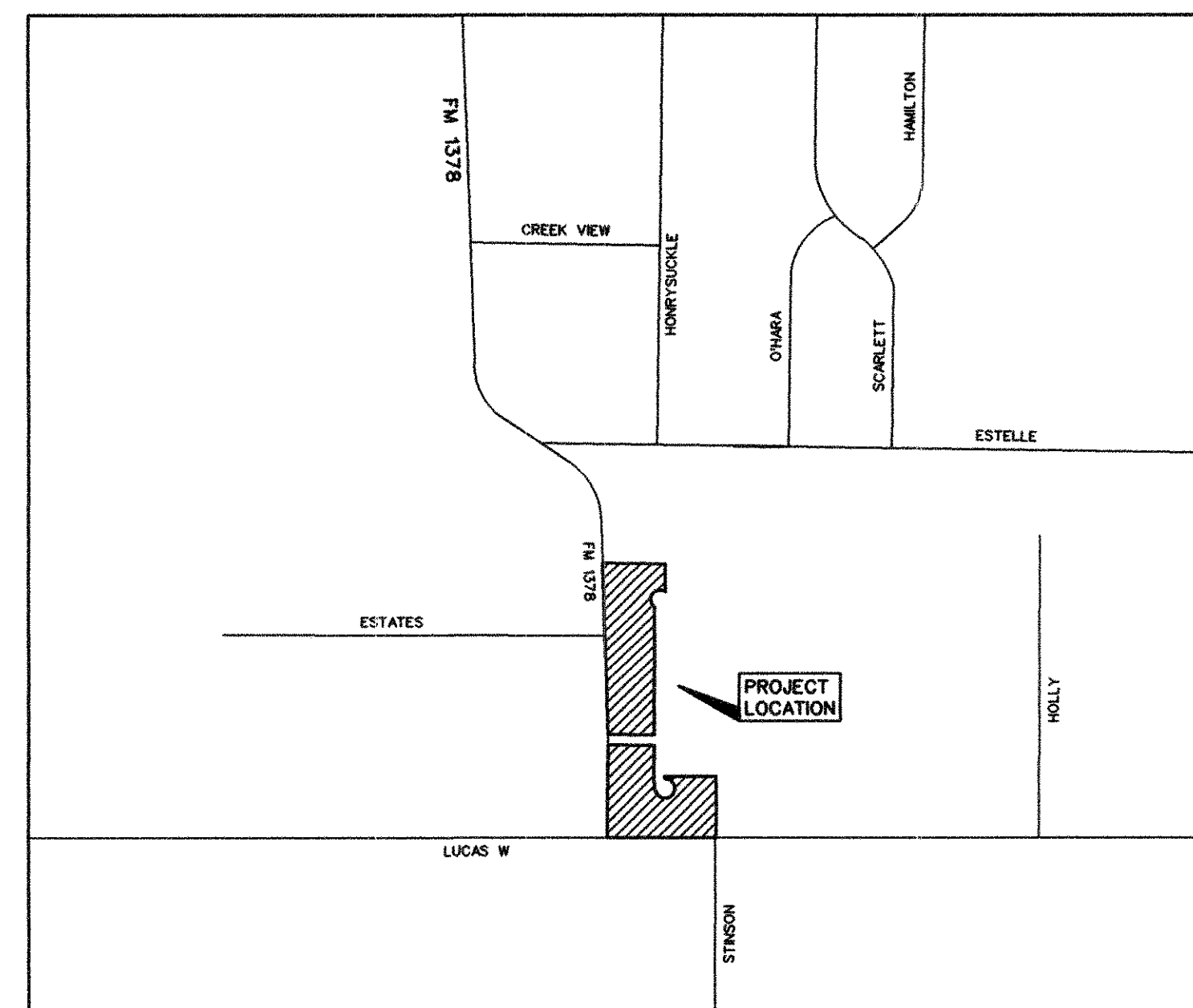


CURVE TABLE

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	BEARING
1.	08°31'36"	715.00'	106.41'	53.30'	106.31'	S04°03'08"E
2.	98°17'44"	45.00'	205.54'	---	68.08'	N40°49'55"E
3.	03°02'07"	665.00'	35.23'	17.62'	35.22'	N02°57'31"W
4.	100°22'53"	48.00'	84.10'	57.59'	73.75'	S40°04'46"W
5.	11°13'39"	346.09'	67.82'	34.02'	67.71'	S04°29'51"E
6.	85°00'03"	173.04'	256.72'	158.57'	233.81'	S43°36'59"W
7.	44°26'49"	550.14'	426.77'	224.77'	416.15'	N71°39'34"W

LOT SQUARE FOOTAGE TABLE			
BLOCK A		BLOCK B	
LOT #	AREA (S.F.)	LOT #	AREA (S.F.)
24	87409	3	87152
25	87202	4	87219
26	87485	5	87624
27	87336		
28	87264		

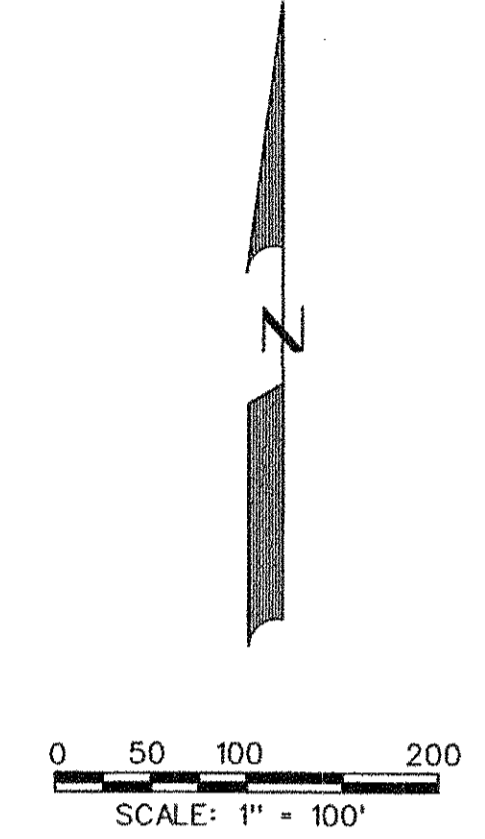
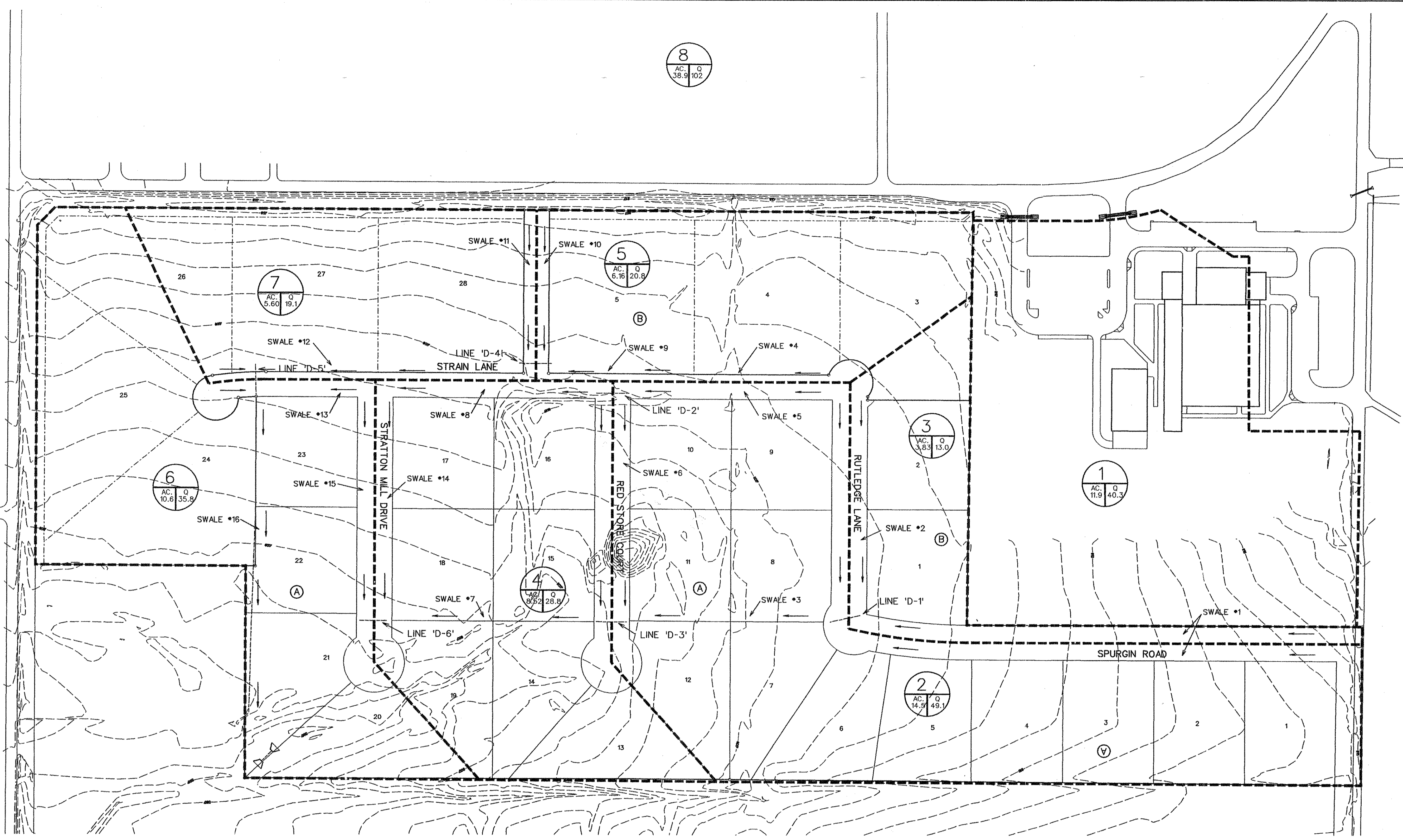
TOTAL ACRES 16.993  
TOTAL LOTS 8



LOCATION MAP  
SCALE: 1"=100'

FINAL PLAT  
OF  
**CIMARRON PHASE II**  
OUT OF THE  
BENJAMIN SPARKS SURVEY, ABSTRACT NO. 813  
IN THE  
CITY OF LUCAS  
COLLIN COUNTY, TEXAS  
OWNER  
BIGHORN VENTURES I, LTD.  
12221 MERIT DRIVE, SUITE 910  
DALLAS, TEXAS 75251  
972-490-7700  
PREPARED BY  
CORWIN ENGINEERING, INC.  
200 W. BELMONT, SUITE E  
ALLEN, TEXAS 75013  
972-396-1200  
OCTOBER 2006 SCALE: 1"=100'

8  
AC: 0  
38.9 102



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on October 25, 2006

AS-BUILT OCTOBER 2006  
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

Block	Lot	Area (AC)	Lots Draining to Culvert	Flow In (cfs)	Pipe Dia. (in.)	Culvert Capacity (cfs)
A	1	1.0	1	3.4	18"	9.4
A	2	2.0	1-2	6.8	18"	9.4
A	3	3.0	1-3	10.1	21"	14.2
A	4	4.0	1-4	13.5	21"	14.2
A	5	5.0	1-5	16.9	21"	18.8
A	6	6.0	1-6	20.2	2-21"	28.4
A	7	7.0	1-7	23.6	2-21"	28.4
A	8	2.0	8-9	6.8	18"	7.4
A	9	1.0	9	3.4	18"	7.4
A	10	1.0	10	3.4	18"	7.6
A	11	2.0	10-11	6.8	18"	7.6
A	12	1.0	12	3.4	18"	7.6
A	13	2.0	12-13	6.8	18"	7.6
A	14	3.0	12-14	10.1	21"	12.0
A	15	2.0	15-16	6.8	18"	7.9
A	16	1.0	16	3.4	18"	7.9
A	17	1.0	17	3.4	18"	10.6
A	18	2.0	17-18	6.8	18"	10.6
A	19	1.0	19	3.4	18"	10.6
A	20	1.0	20	3.4	18"	10.6
A	21	3.0	21-23	10.1	21"	10.8
A	22	2.0	22-23	6.8	18"	10.8
A	23	1.0	23	3.4	18"	10.8
A	24	0.4	24-26	1.4	18"	10.8
A	25	0.2	25-26	0.7	18"	10.8
A	26	1.0	26	3.4	18"	10.8
A	27	49.7	27-28, 3-5	139	3-36"	10.8
A	28	47.5	28, 3-5	131	3-36"	10.8
B	1	2.0	1-2	6.8	18"	7.4
B	2	1.0	2	3.4	18"	7.4
B	3	1.4	3	4.7	18"	10.8
B	4	3.8	3-4	12.8	21"	7.4
B	5	45.1	3-5	123	4-27"	7.4

NO.	AC.	RUNOFF COEFF. (C)	Tc min.	I(100) in/hr	Q (100) cfs
1	11.9	0.45	15	7.5	40.3
2	14.5	0.45	15	7.5	49.1
3	3.83	0.45	15	7.5	13.0
4	8.52	0.45	15	7.5	28.8
5	8.60	0.45	15	7.5	29.1
6	10.6	0.45	15	7.5	35.8
7	3.20	0.45	15	7.5	16.8
8	38.9	0.35	15	7.5	102

SWALE #	Q (cfs)	SLOPE (ft/ft)	BOTTOM WIDTH (ft)	DEPTH (ft)	VELOCITY (fps)
1	20.2	0.80	3	1.1	2.9
2	13.0	0.50	3	1.0	2.2
3	53.3	0.75	10	1.1	3.6
4	16.8	0.62	3	1.1	2.5
5	0.1	0.87	3	0.1	0.5
6	17.7	0.52	3	1.2	2.4
7	102	0.50	15	1.6	3.4
8	0.1	0.59	3	0.1	0.5
9	29.1	0.56	3	1.4	2.8
10	0.8	2.56	3	0.1	1.7
11	0.8	2.76	3	0.1	1.7
12	32.8	0.59	3	1.5	3.0
13	0.5	1.91	3	0.1	1.3
14	16.0	1.02	3	0.9	3.0
15	1.5	1.06	3	0.3	1.5
16	142	0.50	12	2.0	3.8

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BENCHMARK: SQUARE CUT "□" TOP OF CURB CENTERLINE OF INLET 100' WEST OF FM 1378 ON SOUTH SIDE OF COUNTRY BROOK LANE.  
ELEV. = 619.06

NO.	REVISIONS	BY	DATE
CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200			
CONSTRUCTION PLANS FOR CIMARRON LUCAS, TEXAS			
DRAINAGE AREA MAP			
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO. 3 OF 18
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=100'	



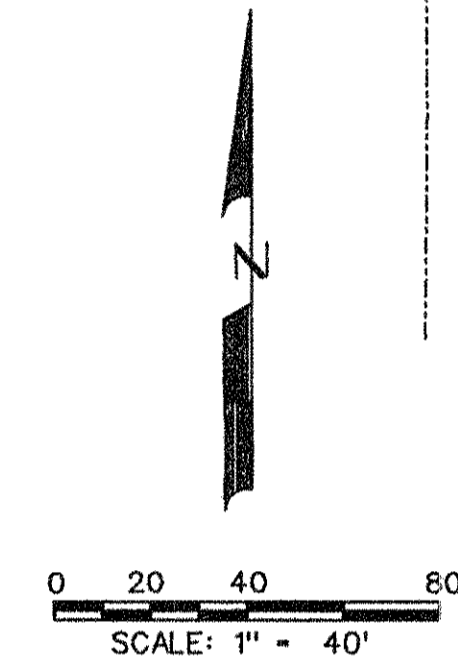




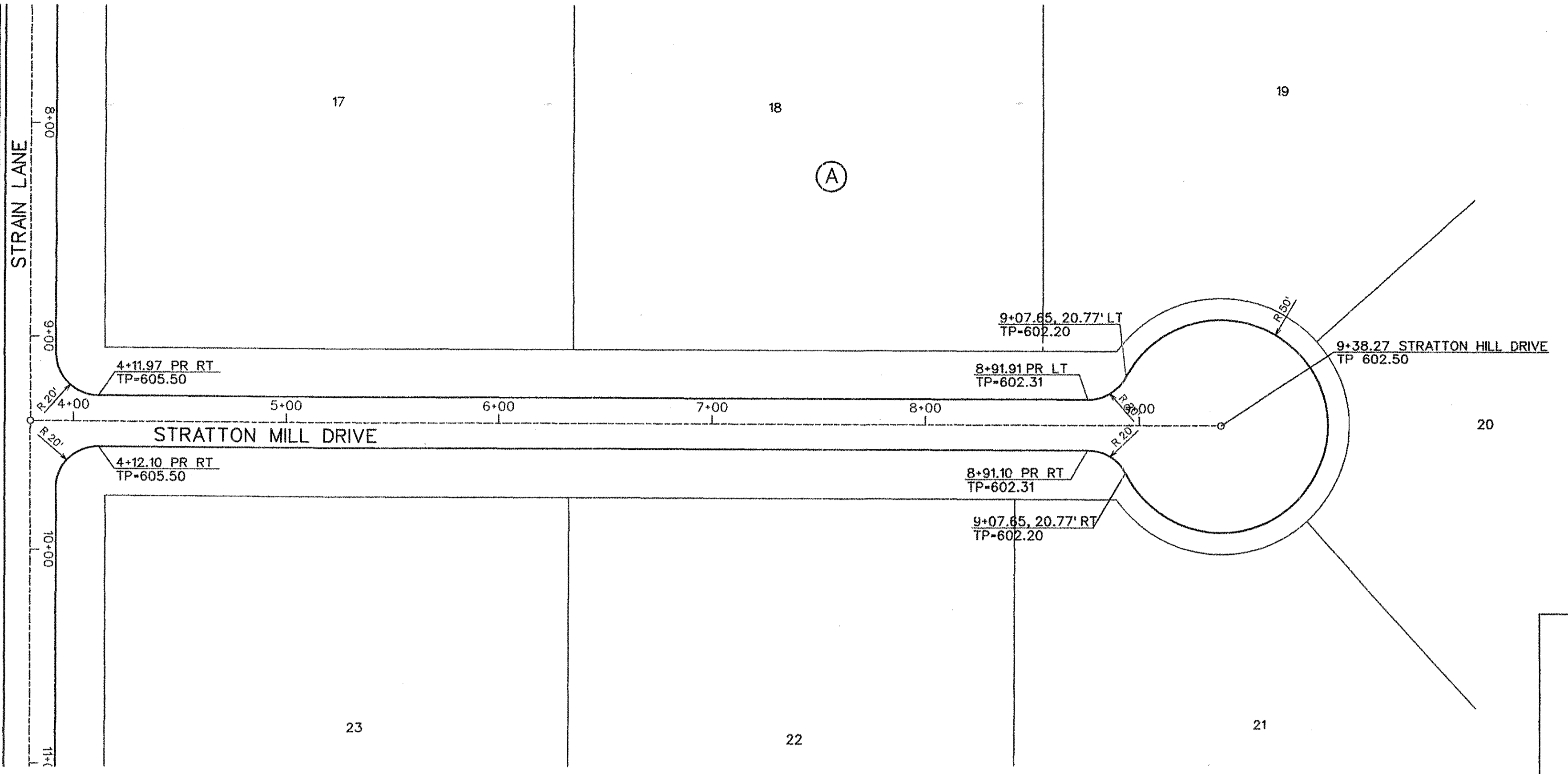




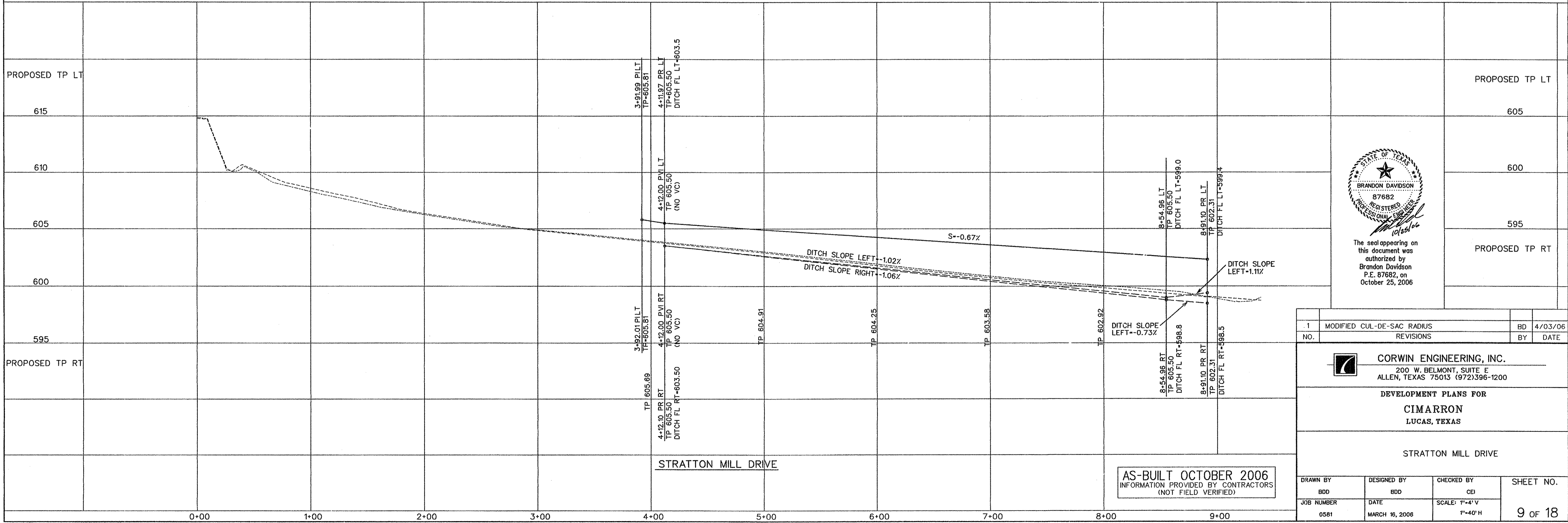
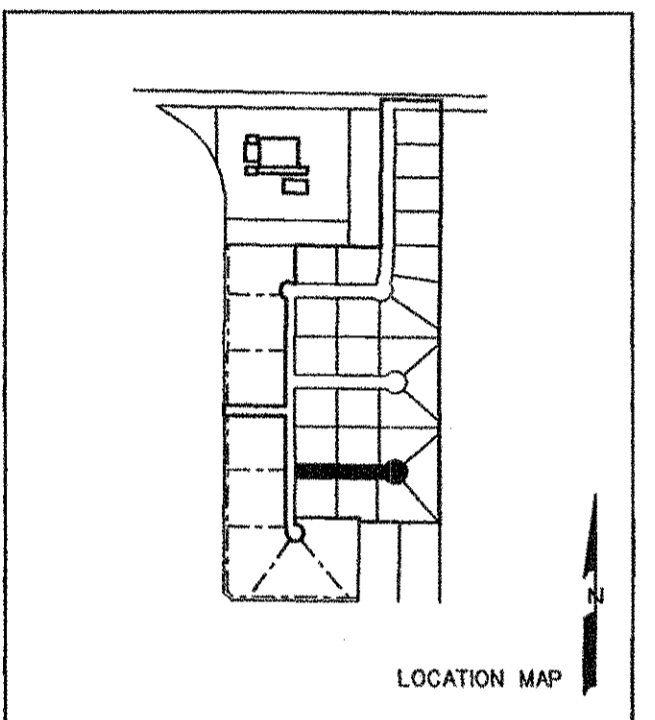




FM 1378

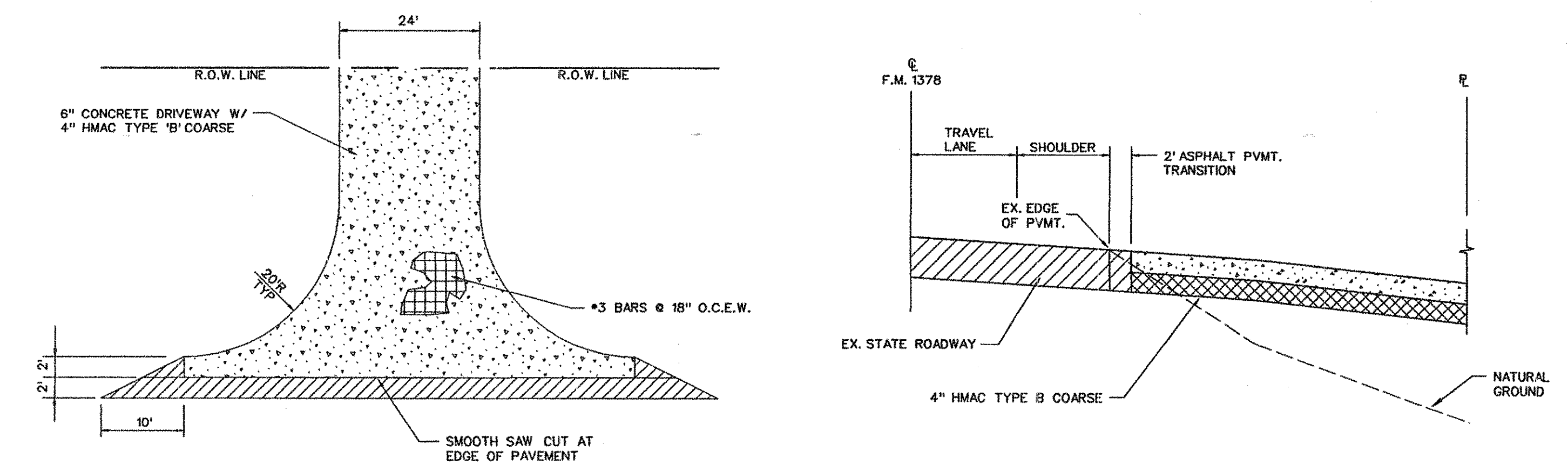
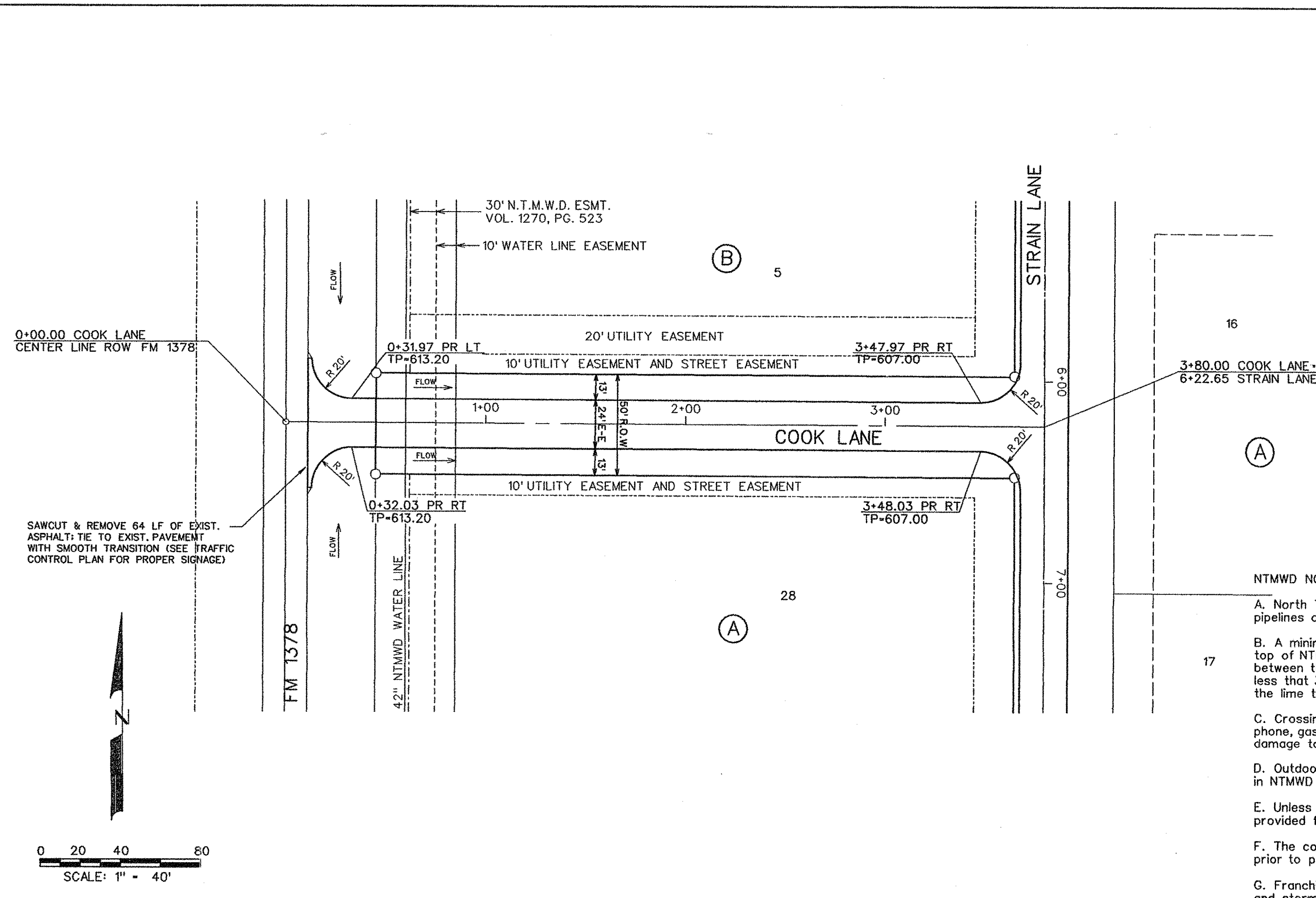


BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. - 619.06



1		MODIFIED CUL-DE-SAC RADIUS	BD	4/03/06
NO.	REVISIONS			BY DATE
 CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200				
DEVELOPMENT PLANS FOR <b>CIMARRON</b> LUCAS, TEXAS				
STRATTON MILL DRIVE				
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.	
BDD	BDD	CEI	9 OF 18	
JOB NUMBER	DATE	SCALE: 1"=4' V 1"=40' H		
0581	MARCH 16, 2006			

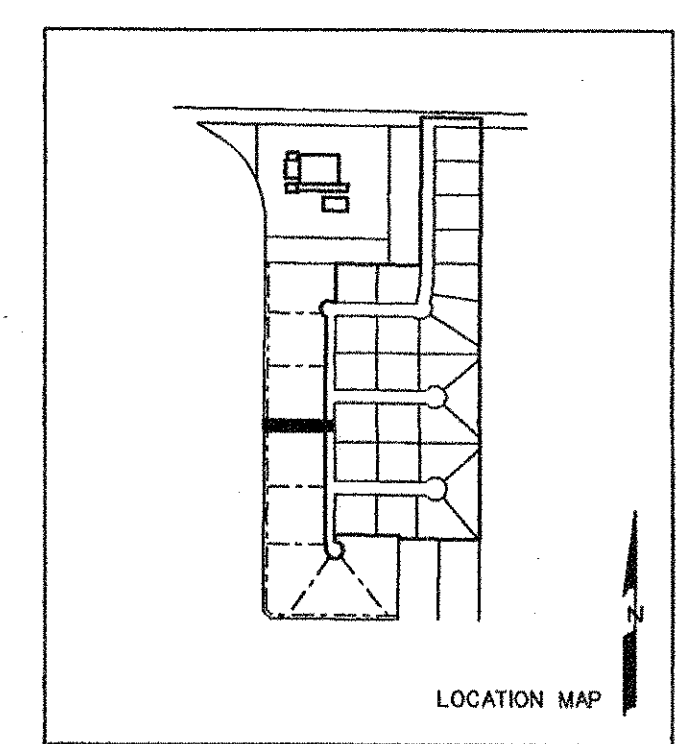
AS-BUILT OCTOBER 2006  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)



- TxDOT DRIVEWAY CONNECTION PAVING GENERAL NOTES**
- ALL CONCRETE PAVING SHALL BE OF THE THICKNESS & STRENGTH SHOWN ON THE PLANS. CONCRETE STRENGTH TO BE DETERMINED AT 28 DAYS. CONCRETE WILL HAVE A ONE INCH TO FIVE INCH SLUMP AND REINFORCED WITH #3 BARS @ 18" O.C.E.W. REINFORCING SHALL BE SUPPORTED BY CHAIRS SPACED AT 16 SF (4"x4" PATTERN) MAXIMUM INTERVAL.
  - SCARIFY SUBGRADE TO A DEPTH OF 9" AND UNIFORMLY COMPACTED TO A MINIMUM 95 PERCENT (95%) OF STANDARD PROCTOR PER ASTM D-698 AT +/- 3% OPTIMUM MOISTURE.
  - SEALANT FOR SITE PLAN TO BE SELF LEVELING TWO PART POLYURETHANE SEALANT SPECIFICATIONS TO BE SUBMITTED TO THE ENGINEER PRIOR TO INSTALLATION. SEALANT NOT REQUIRED AT CONTROL JOINTS.
  - BREAKOUTS FOR REMOVAL OF EXISTING PAVEMENT SHALL BE MADE BY SAW CUT WHEN ADJACENT TO PROPOSED PAVING.
  - CONCRETE TO BE FLOAT FINISHED AND CURED FOR A MINIMUM OF 72 HOURS.
- ROADWAY CONNECTION TO STATE HIGHWAY**  
NTS

- NTMWD NOTES:**
- North Texas Municipal Water District (NTMWD)'s 20" and 42" water transmission pipelines are located within limits of construction.
  - A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required in all areas. In the areas where separation between the proposed bottom of the pavement and the top of the pipeline is less than 3.5 feet, then a thickened pavement section shall be used in lieu of the lime treated subgrade.
  - Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
  - Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
  - Unless otherwise shown or required, a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
  - The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.
  - Franchised utilities are not permitted in NTMWD easement except for crossings. Water and storm sewer facilities are not permitted in NTMWD easement except for crossings.

BENCHMARK:  
SQUARE CUT "D" TOP OF CURB CENTERLINE  
OF INLET 100' WEST OF FM 1378 ON SOUTH  
SIDE OF COUNTRY BROOK LANE.  
ELEV. - 619.06



PROPOSED TP LT	PROPOSED TP RT	STATIONING	VERTICAL CURVE DATA	PROPOSED TP LT
615	605	0+00	100' VC	605
610	600	1+00	100' VC	600
605	595	2+00	100' VC	595
600		3+00	100' VC	
595		4+00	100' VC	
		5+00		
		6+00		
		7+00		
		8+00		
		9+00		

STATE OF TEXAS  
REGISTERED PROFESSIONAL ENGINEER  
87682  
BRANDON DAVIDSON  
The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on October 25, 2006

NO.	REVISIONS	BY	DATE

**CORWIN ENGINEERING, INC.**  
200 W. BELMONT, SUITE E  
ALLEN, TEXAS 75013 (972)396-1200

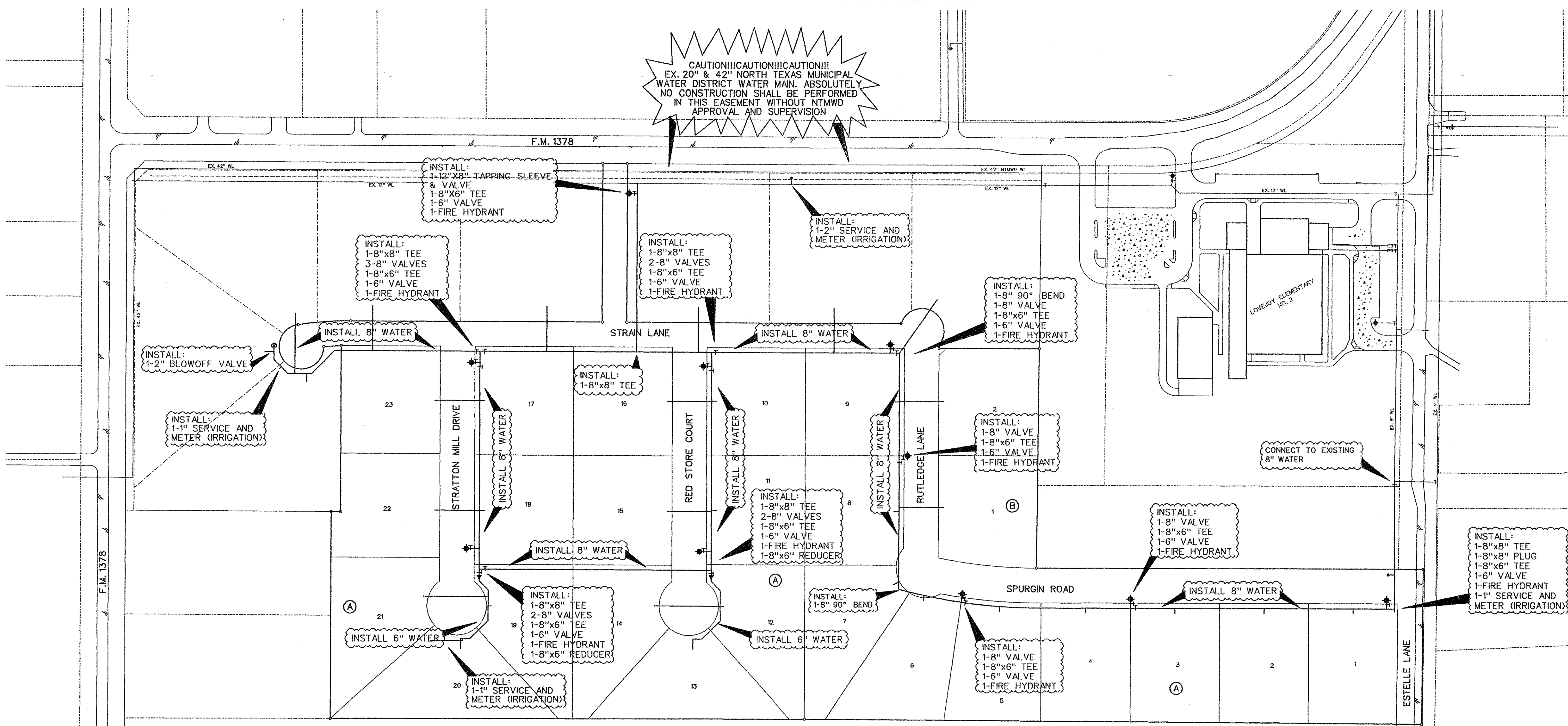
**DEVELOPMENT PLANS FOR**  
**CIMARRON**  
LUCAS, TEXAS

**COOK LANE**

**AS-BUILT OCTOBER 2006**  
INFORMATION PROVIDED BY CONTRACTORS  
(NOT FIELD VERIFIED)

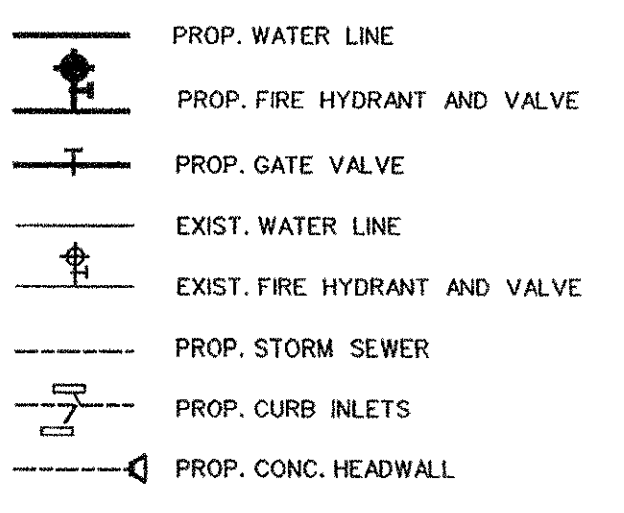
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY CEI	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=4' V 1"=40' H	9A OF 18

**CAUTION!!! CAUTION!!! CAUTION!!!**  
 EX. 20" & 42" NORTH TEXAS MUNICIPAL  
 WATER DISTRICT WATER MAIN. ABSOLUTELY  
 NO CONSTRUCTION SHALL BE PERFORMED  
 IN THIS EASEMENT WITHOUT NTMWD  
 APPROVAL AND SUPERVISION

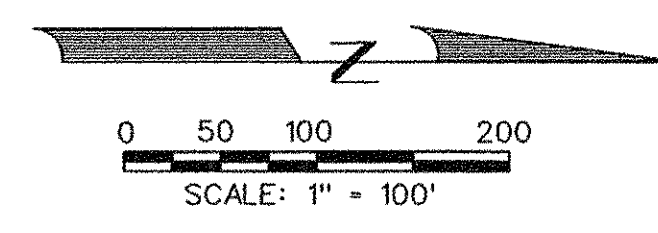


- NTMWD NOTES:**
- A. North Texas Municipal Water District (NTMWD's) 20" and 42" water transmission pipelines are located within limits of construction.
  - B. A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required in all areas. In the areas where separation between the proposed bottom of the pavement and the top of the pipeline is less than 3.5 feet, then a thickened pavement section shall be used in lieu of the lime treated subgrade.
  - C. Crossing of the NTMWD easement with other utilities, such as TV, cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
  - D. Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
  - E. Unless otherwise shown or required, a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
  - F. The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.
  - G. Franchised utilities are not permitted in NTMWD easement except for crossings. Water and storm sewer facilities are not permitted in NTMWD easement except for crossings.

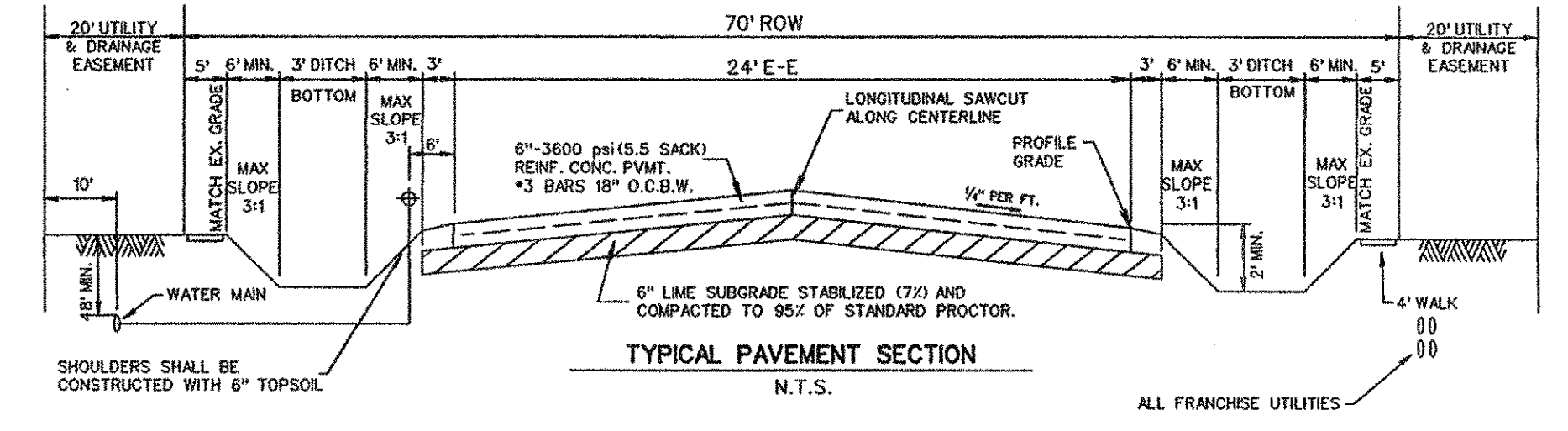
**LEGEND**



SERVICE SCHEDULE		
TYPE	SIZE	NO.
WATER	1"	33
IRRIGATION	2"	1
IRRIGATION	1"	3



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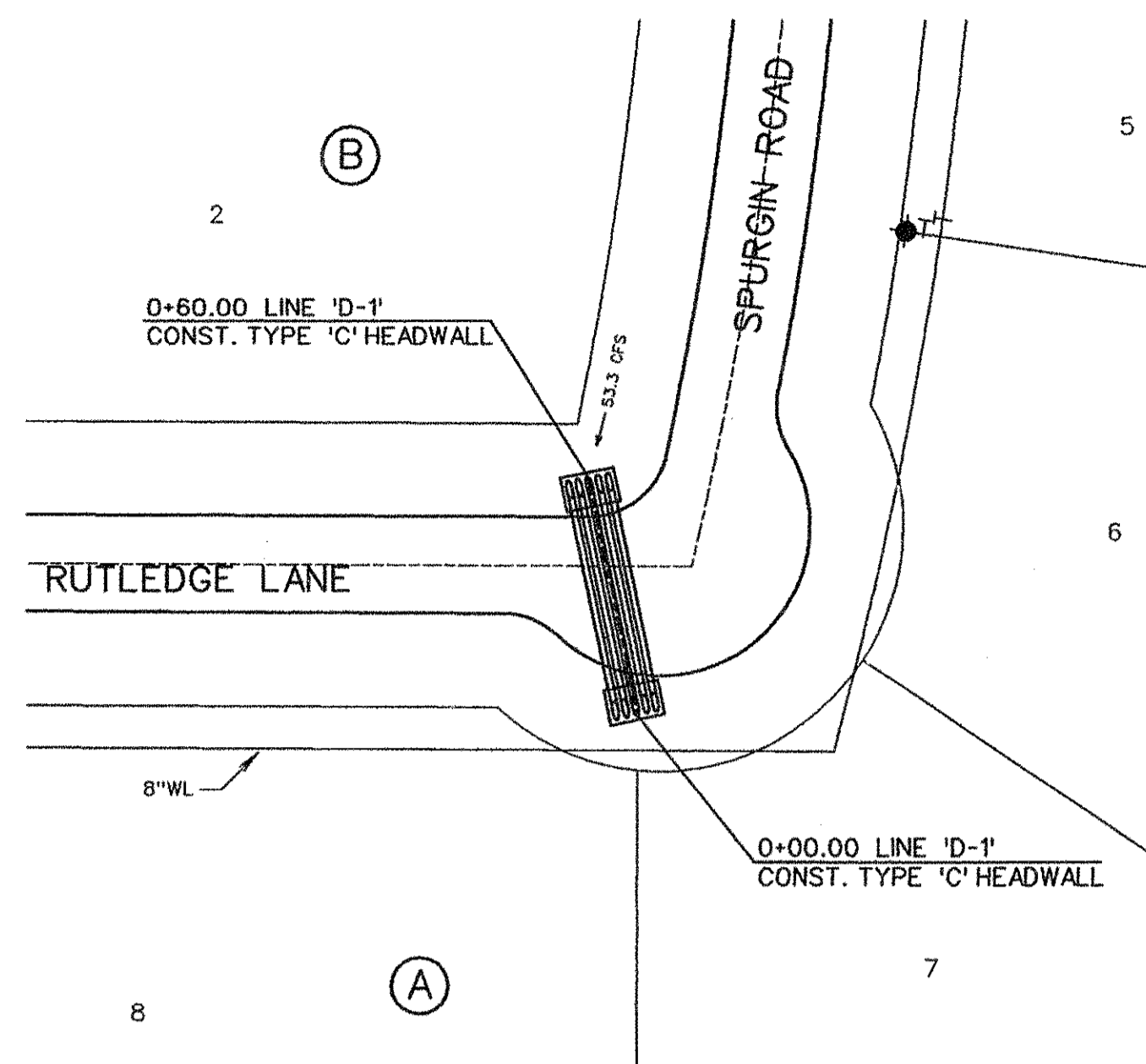
BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. - 619.06

**AS-BUILT OCTOBER 2006**  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

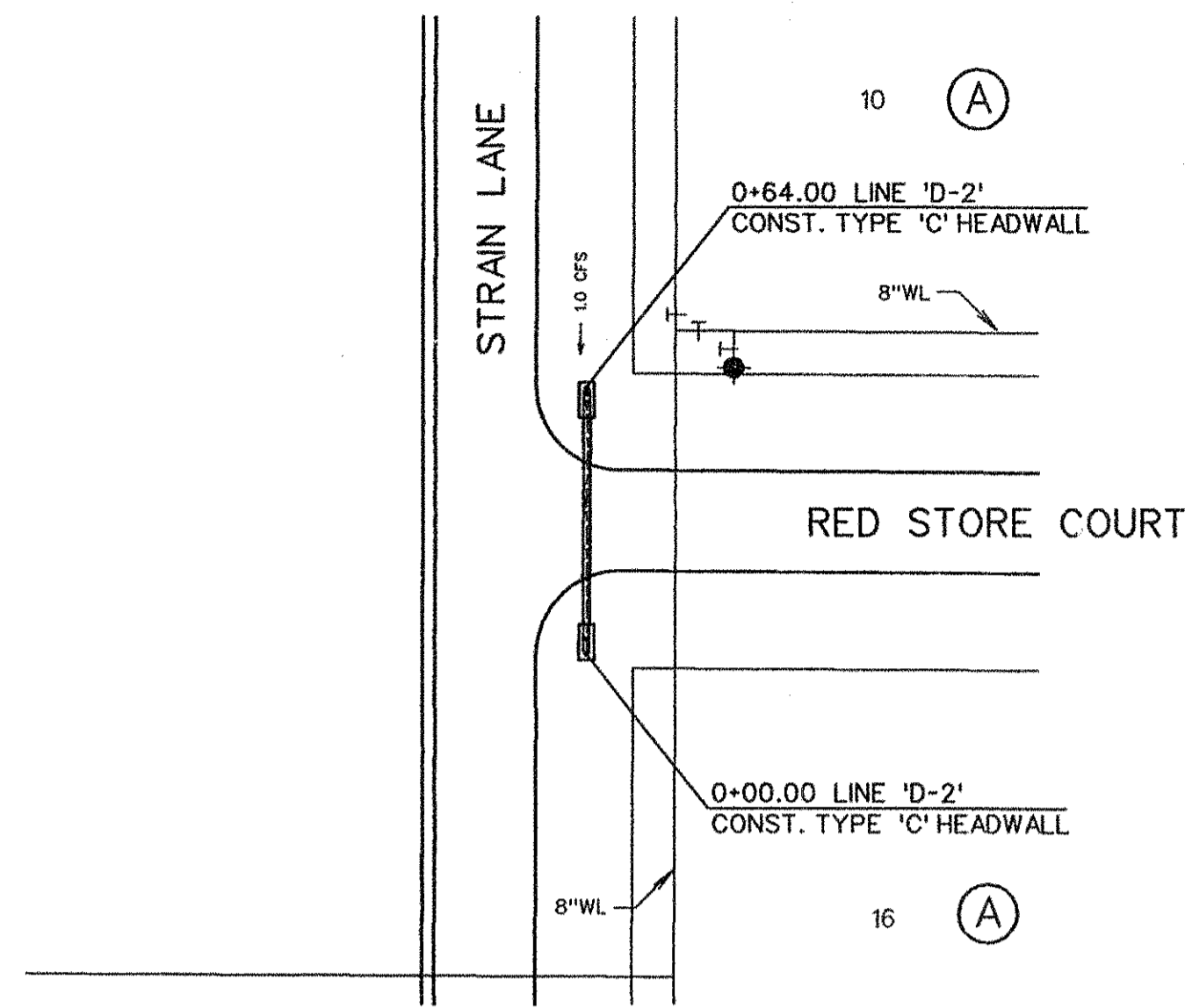


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 Brandon Davidson  
 P.E. 87682, on  
 October 25, 2006

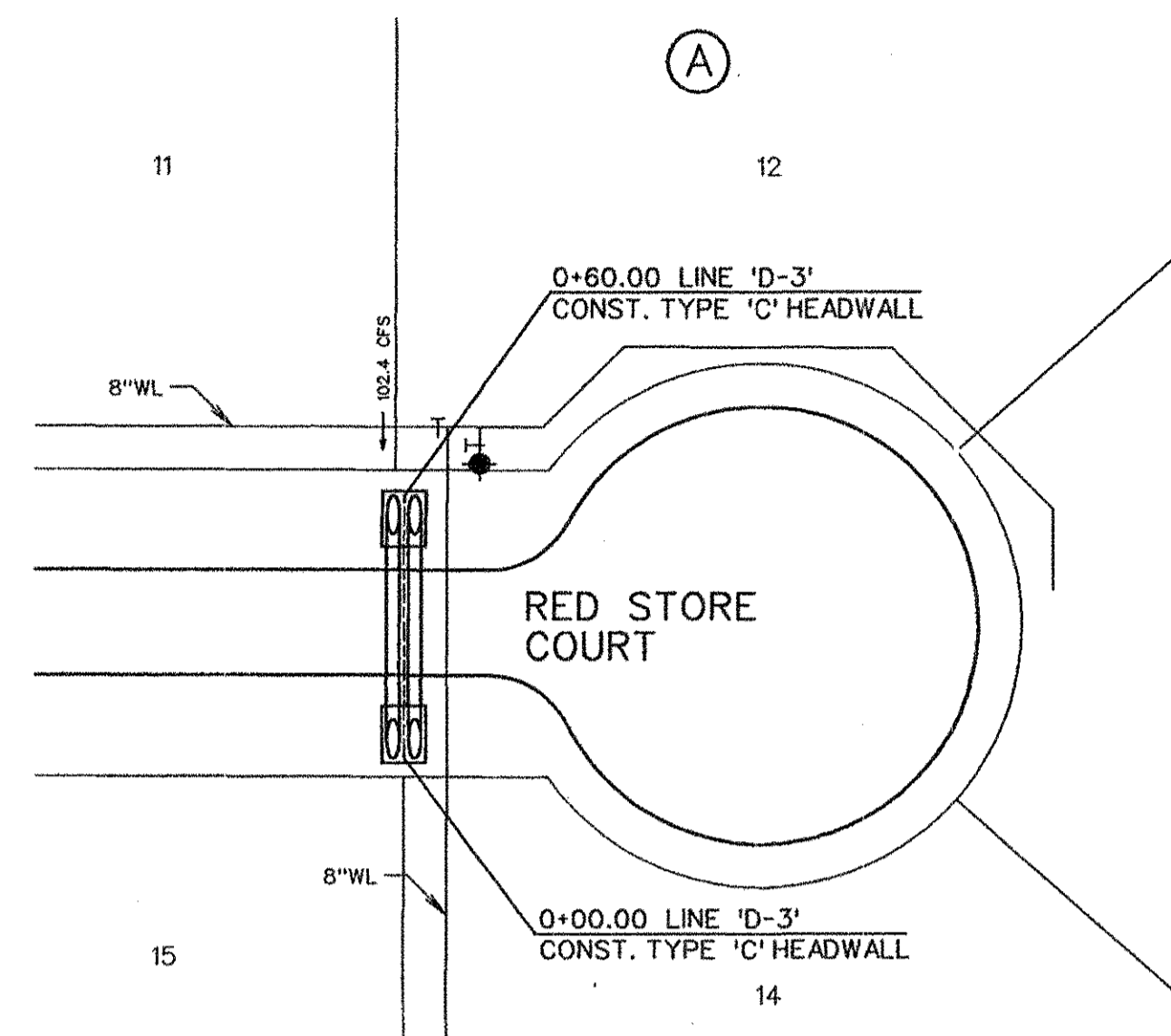
NO.		REVISIONS		BY	DATE
 <b>CORWIN ENGINEERING, INC.</b> 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200					
<b>CONSTRUCTION PLANS FOR</b> <b>CIMARRON</b> LUCAS, TEXAS					
<b>WATER PLAN</b>					
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.		
BDD	BDD	BDD	10 OF 18		
JOB NUMBER	DATE	SCALE:			
0581	MARCH 16, 2006	1"=100'			



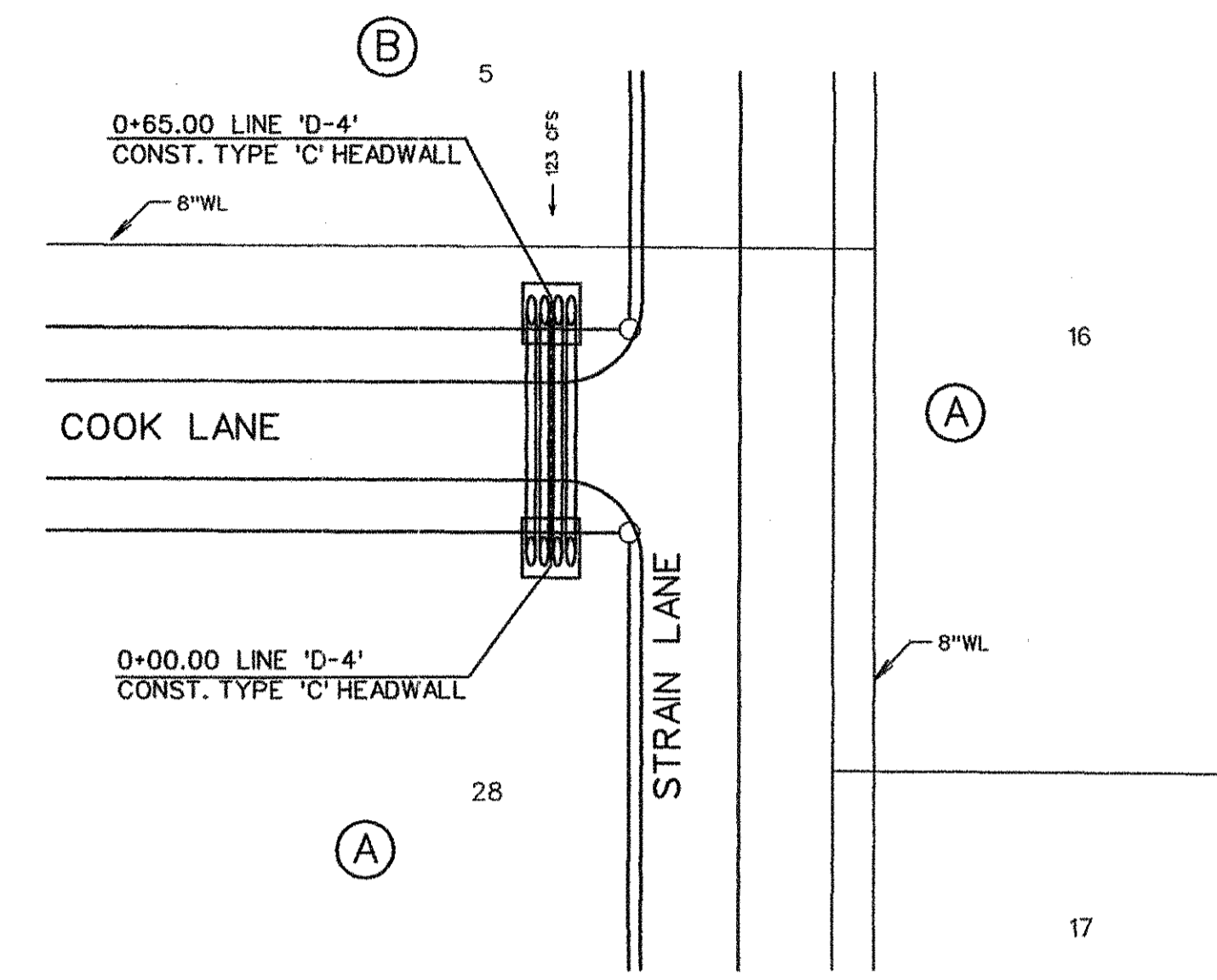
LINE 'D-1'



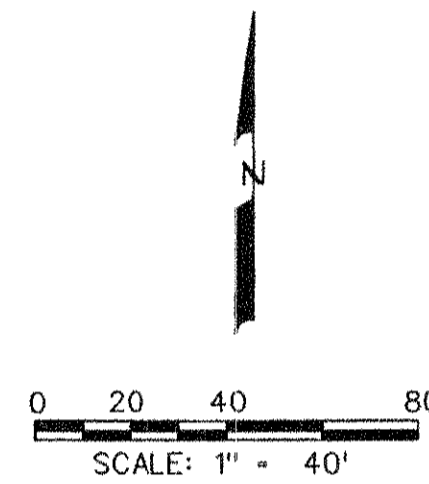
LINE 'D-2'



LINE 'D-3'



LINE 'D-4'



BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. = 619.06

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON  
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 UTILITIES PRIOR TO CONSTRUCTION.

Station	Line 'D-1' (5-18" RCP)	Line 'D-2' (18" RCP)	Line 'D-3' (2-36" RCP)	Line 'D-4' (4-27" RCP)
0+00	5-18" RCP @ 0.67% FL=604.20	18" RCP @ 0.63% FL=603.50	2-36" RCP @ 0.33% FL=601.20	4-27" RCP @ 0.50% FL=602.9
0+100	600	600	600	600
0+200	605	605	605	605
0+300	610	610	610	610
0+400	610	610	610	610
0+500	610	610	610	610
0+600	610	610	610	610
0+700	610	610	610	610
0+800	610	610	610	610
0+900	610	610	610	610
1+000	610	610	610	610

LINE 'D-1'

LINE 'D-2'

LINE 'D-3'

LINE 'D-4'

AS-BUILT OCTOBER 2006  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

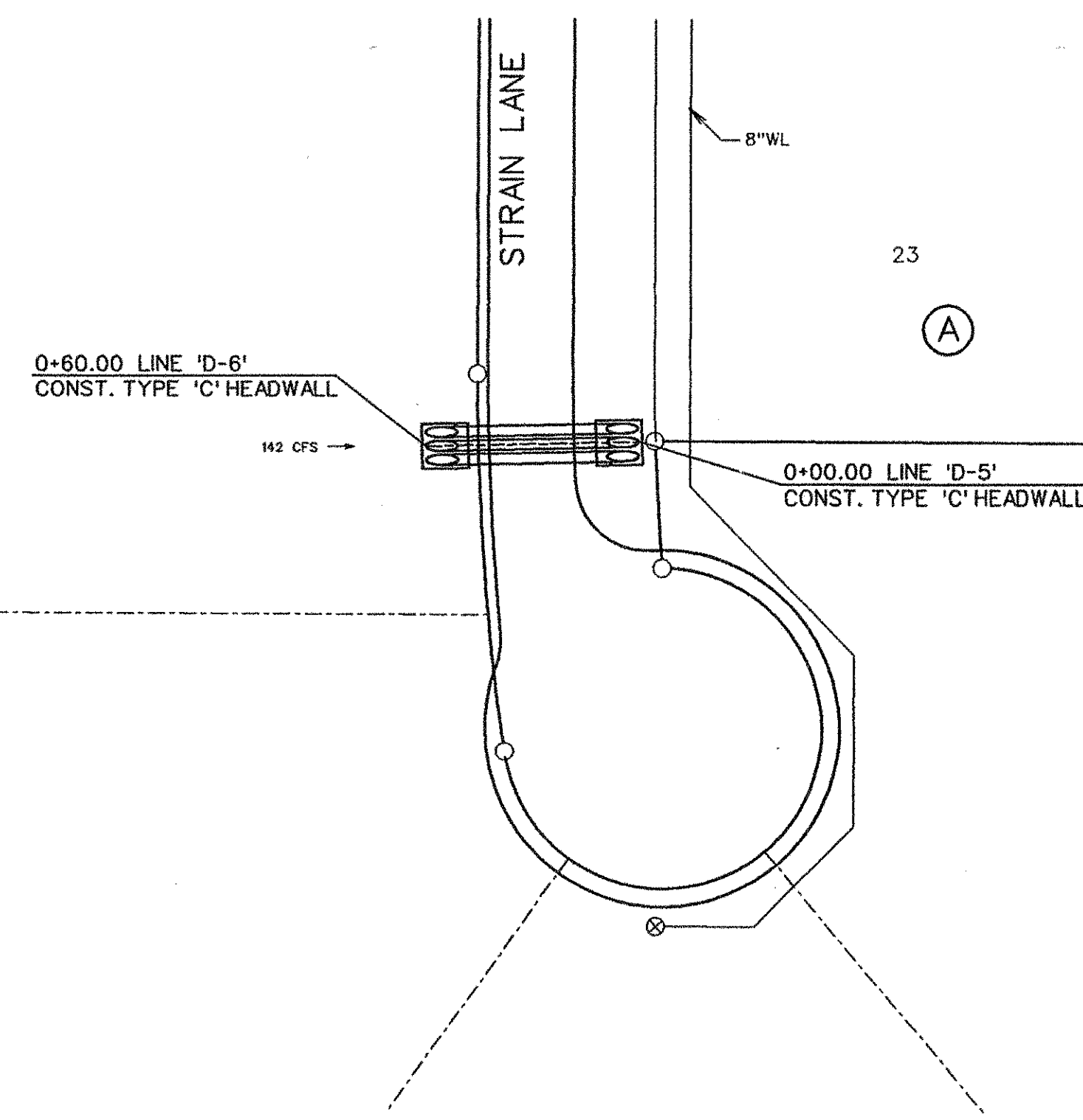


CORWIN ENGINEERING, INC.  
 200 W. BELMONT, SUITE E  
 ALLEN, TEXAS 75013 (972) 396-1200

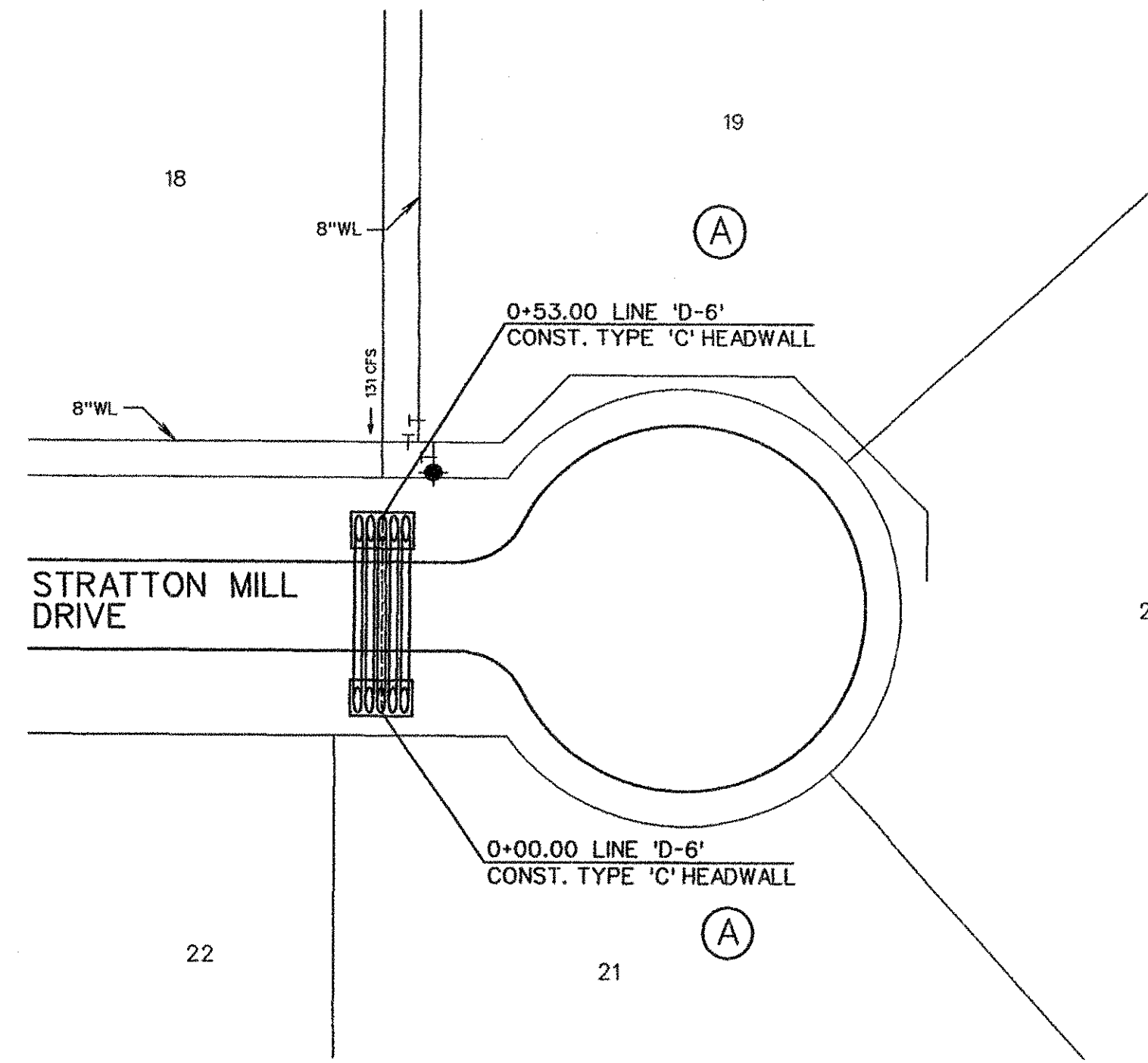
CONSTRUCTION PLANS FOR  
**CIMARRON**  
 LUCAS, TEXAS

STORM SEWER PLAN AND PROFILES  
 LINES 'D-1', 'D-2', 'D-3', & 'D-4'

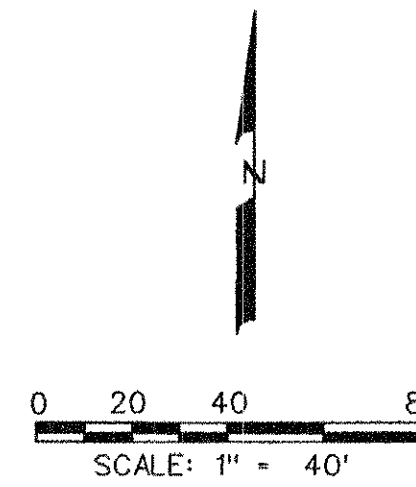
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO. 11 OF 18
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE 1"=40'	



LINE 'D-5'



LINE 'D-6'



BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. - 619.06

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3-36" RCP  
 $Q_{100} = 142$  cfs  
 $V_{100} = 6.7$  fps  
 $S = 0.0050$   
 $Q_{CAP} = 142$  cfs

5-27" RCP  
 $Q_{100} = 131$  cfs  
 $V_{100} = 6.6$  fps  
 $S = 0.0072$   
 $Q_{CAP} = 131$  cfs

610

0+60.00 LINE 'D-5'  
 CONST. TYPE 'C' HEADWALL  
 HG+603.40

0+00.00 LINE 'D-5'  
 CONST. TYPE 'C' HEADWALL  
 HG+603.10

610

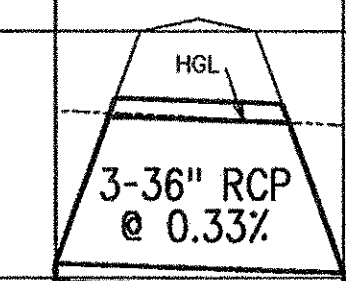
610

0+00.00 LINE 'D-6'  
 CONST. TYPE 'C' HEADWALL  
 HG+601.06

0+53.00 LINE 'D-6'  
 CONST. TYPE 'C' HEADWALL  
 HG+601.43

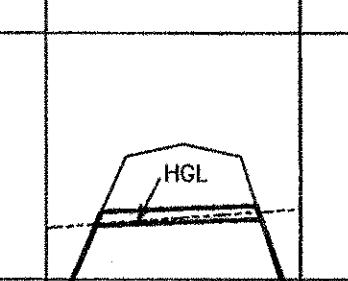
610

605



605

605



605

600

3-36" FL+600.30  
 3-36" FL+600.10  
 LINE 'D-5'

600

600

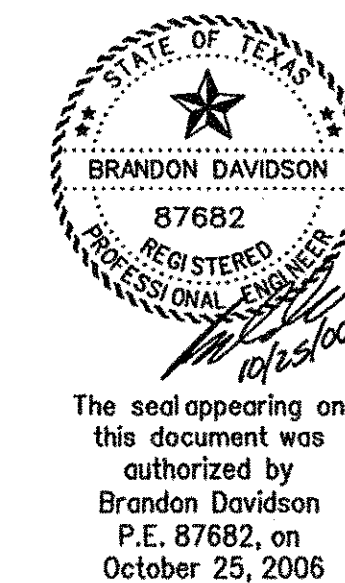
5-27" FL+599.80  
 5-27" FL+599.00  
 5-27" RCP  
 @ 0.38%  
 LINE 'D-6'

600

595

595

AS-BUILT OCTOBER 2006  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

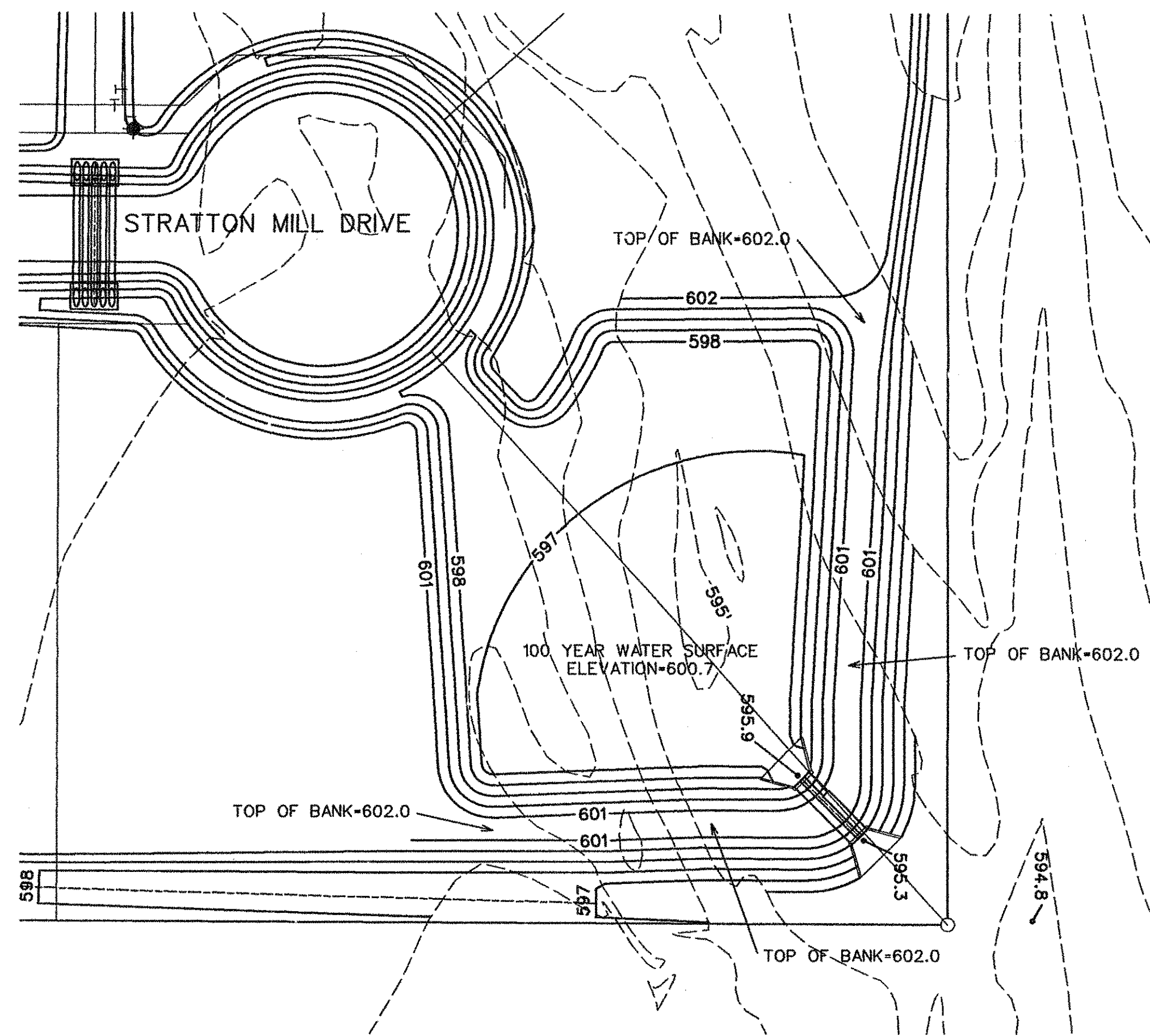


**CORWIN ENGINEERING, INC.**  
 200 W. BELMONT, SUITE E  
 ALLEN, TEXAS 75013 (972) 396-1200

CONSTRUCTION PLANS FOR  
**CIMARRON**  
 LUCAS, TEXAS

STORM SEWER PLAN AND PROFILES  
 LINES 'D-5' & 'D-6'

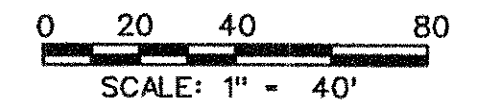
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO. 12 of 18
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=40'	



STORAGE-ELEVATION TABLE

POND ELEVATION (FEET)	STORAGE PROVIDED (CUBIC FEET)
596	0
597	214
598	15,101
599	34,768
600	56,750
601	81,173

100-YEAR WSEL BASED ON VOLUME REQUIRED=600.7



OUTFLOW CALCULATIONS - 100-YEAR FOR DETENTION POND OUTLET INLET CONTROL CALCULATIONS

ORIFICE EQUATION:  $Q = C \cdot A \cdot \sqrt{2gh}$

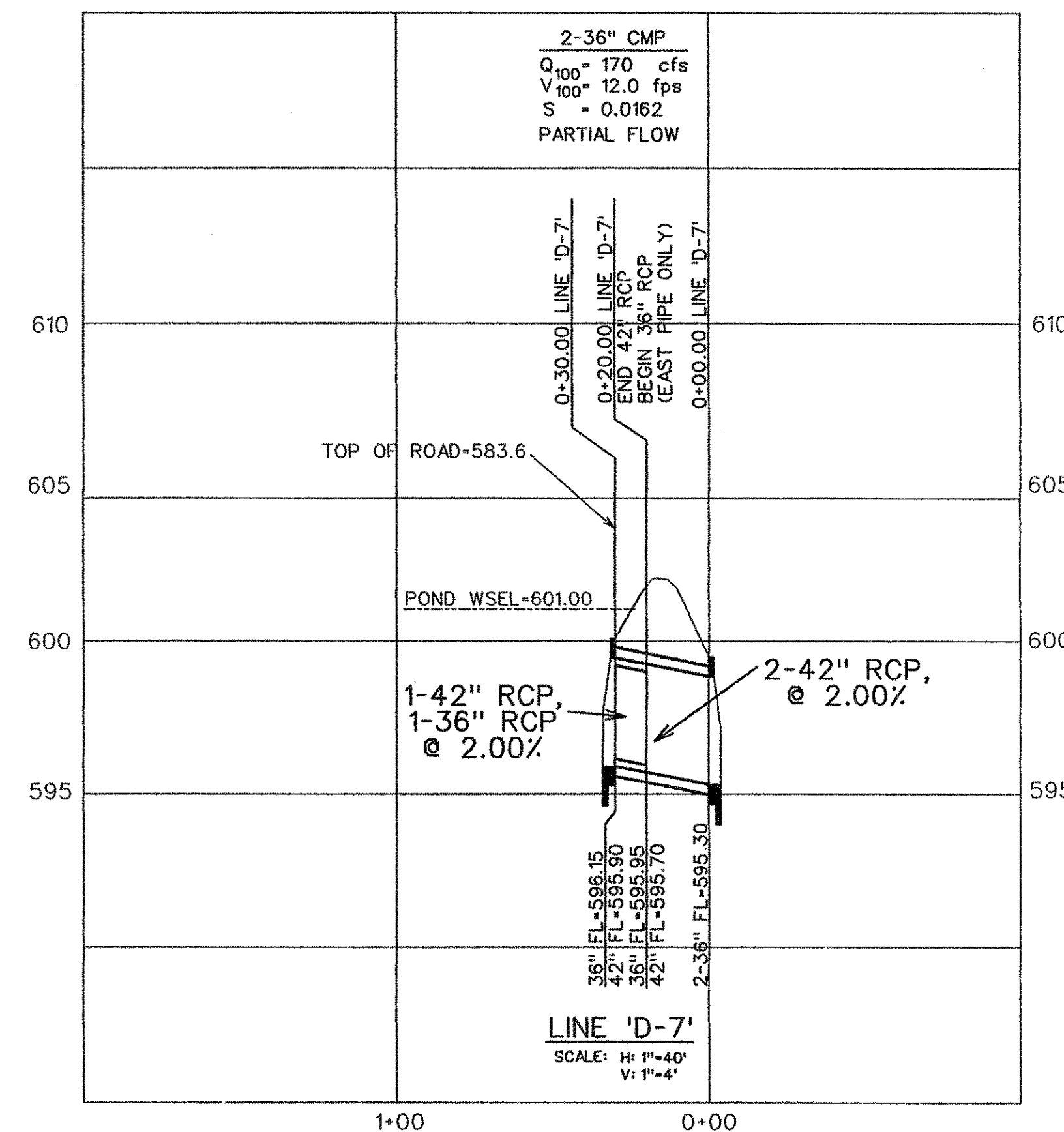
C=0.67  
g=32.16  
A=16.6898 SF  
h=100 YR POND ELEV - CENTERLINE OF OUTLET PIPE  
h=601.00 - 597.65= 3.35'  
 $Q = 0.67 \cdot 14.1372 \cdot (215.5)^{1/2}$   
Q=164.1 CFS

164.1 CFS < 169.9 CFS EXISTING

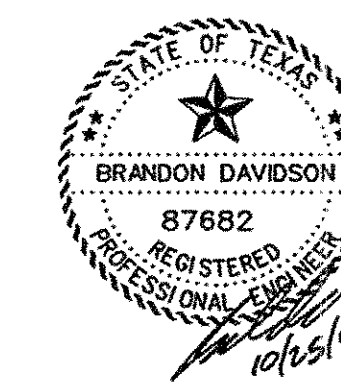
DETENTION POND CALCULATIONS

Storm Duration	Inflow Duration	Area (AC.)	Future $\frac{mm}{in} C_{u}$	Future $\frac{mm}{in} K_{p}$	Future $\frac{mm}{in} CA^{0.76}$	Rainfall intensity	Inflow (cfs)	Volume (cubic ft.)	Volume (cubic ft.)	Volume (cubic ft.)	Volume (acre-ft.)	Outflow (cfs)
10	20	61.15	0.45	1.00	27.52	8.88	244.4	146613	101940	44673	1.03	169.9
20	30	61.15	0.45	1.00	27.52	6.80	187.1	224543	152970	71633	1.64	169.9
30	40	61.15	0.45	1.00	27.52	5.80	154.1	277376	203880	73496	1.69	169.9
40	50	61.15	0.45	1.00	27.52	4.85	133.5	320304	254850	65454	1.50	169.9
50	60	61.15	0.45	1.00	27.52	4.30	118.3	354976	305820	49156	1.13	169.9
60	70	61.15	0.45	1.00	27.52	3.85	105.9	381393	356790	24603	0.56	169.9
70	80	61.15	0.45	1.00	27.52	3.50	96.3	404507	407760	-3235	-0.07	169.9
80	90	61.15	0.45	1.00	27.52	3.35	92.2	442481	458730	-16249	-0.37	169.9
90	100	61.15	0.45	1.00	27.52	3.15	86.7	468073	509700	-41627	-0.96	169.9
100	110	61.15	0.45	1.00	27.52	2.95	81.2	487060	560670	-73610	-1.69	169.9
110	120	61.15	0.45	1.00	27.52	2.80	77.0	508523	616440	-103117	-2.37	169.9
120	130	61.15	0.45	1.00	27.52	2.50	68.8	496315	662610	-167295	-3.64	169.9

Notes: Difference between undeveloped and developed runoff 100 Year  
0.35 undeveloped runoff coefficient



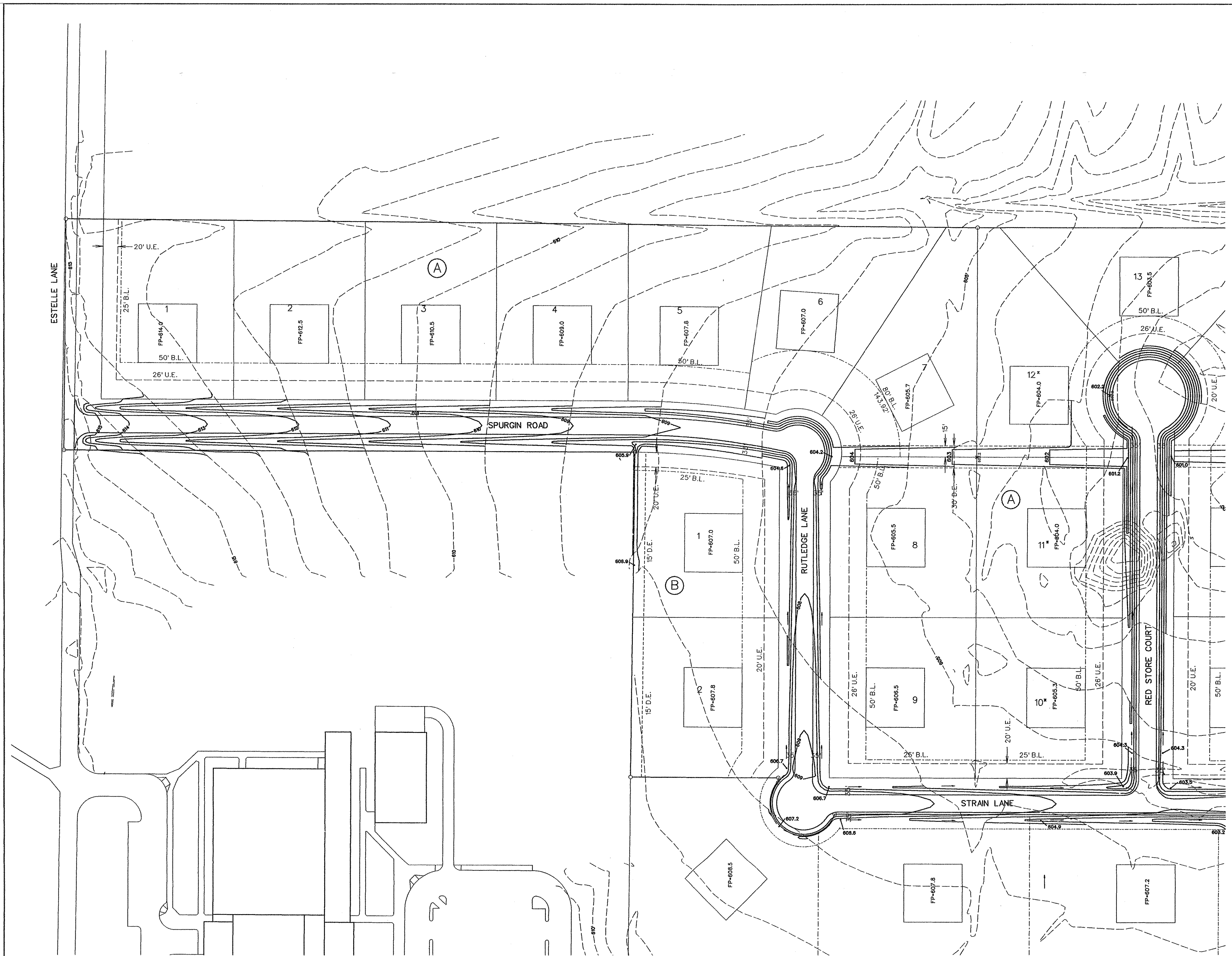
BENCHMARK: SQUARE CUT "□" TOP OF CURB CENTERLINE OF INLET 100' WEST OF FM 1378 ON SOUTH SIDE OF COUNTRY BROOK LANE.  
ELEV. = 619.06



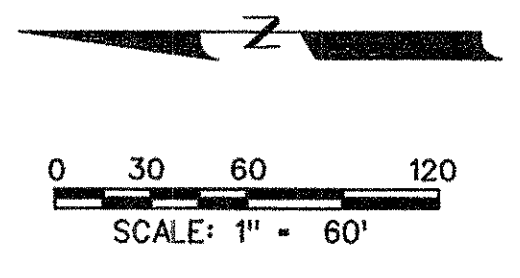
The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on October 25, 2006

AS-BUILT OCTOBER 2006  
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

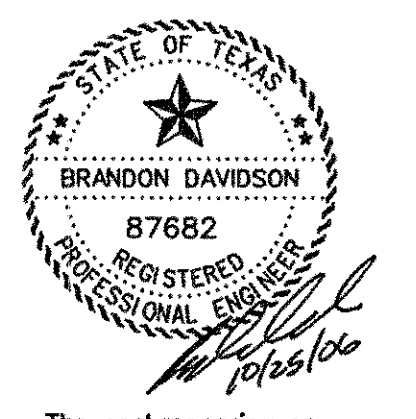
NO.	REVISIONS	BY	DATE
CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200			
DEVELOPMENT PLANS FOR CIMARRON LUCAS, TEXAS			
DETENTION POND PLAN			
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY CEI	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=40' H	13 OF 18



- NTMWD NOTES:
- A. North Texas Municipal Water District (NTMWD's) 20" and 42" water transmission pipelines are located within limits of construction.
  - B. A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required in all areas. In the areas where separation between the proposed bottom of the pavement and the top of the pipeline is less than 3.5 feet, then a thickened pavement section shall be used in lieu of the lime treated subgrade.
  - C. Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
  - D. Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
  - E. Unless otherwise shown or required, a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
  - F. The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.
  - G. Franchised utilities are not permitted in NTMWD easement except for crossings. Water and storm sewer facilities are not permitted in NTMWD easement except for crossings.



- NOTES:
1. Finish Floor Elevation to be 0.70 Feet above Finished Pad (FP)
  2. Additional Erosion Control to be installed in Parkways as determined by the City Inspector.
  3. Finished Pad Elevations are within ± 0.3 Feet.
  4. \* - Indicates a wooded lot. Final pad shall be graded at time of home construction



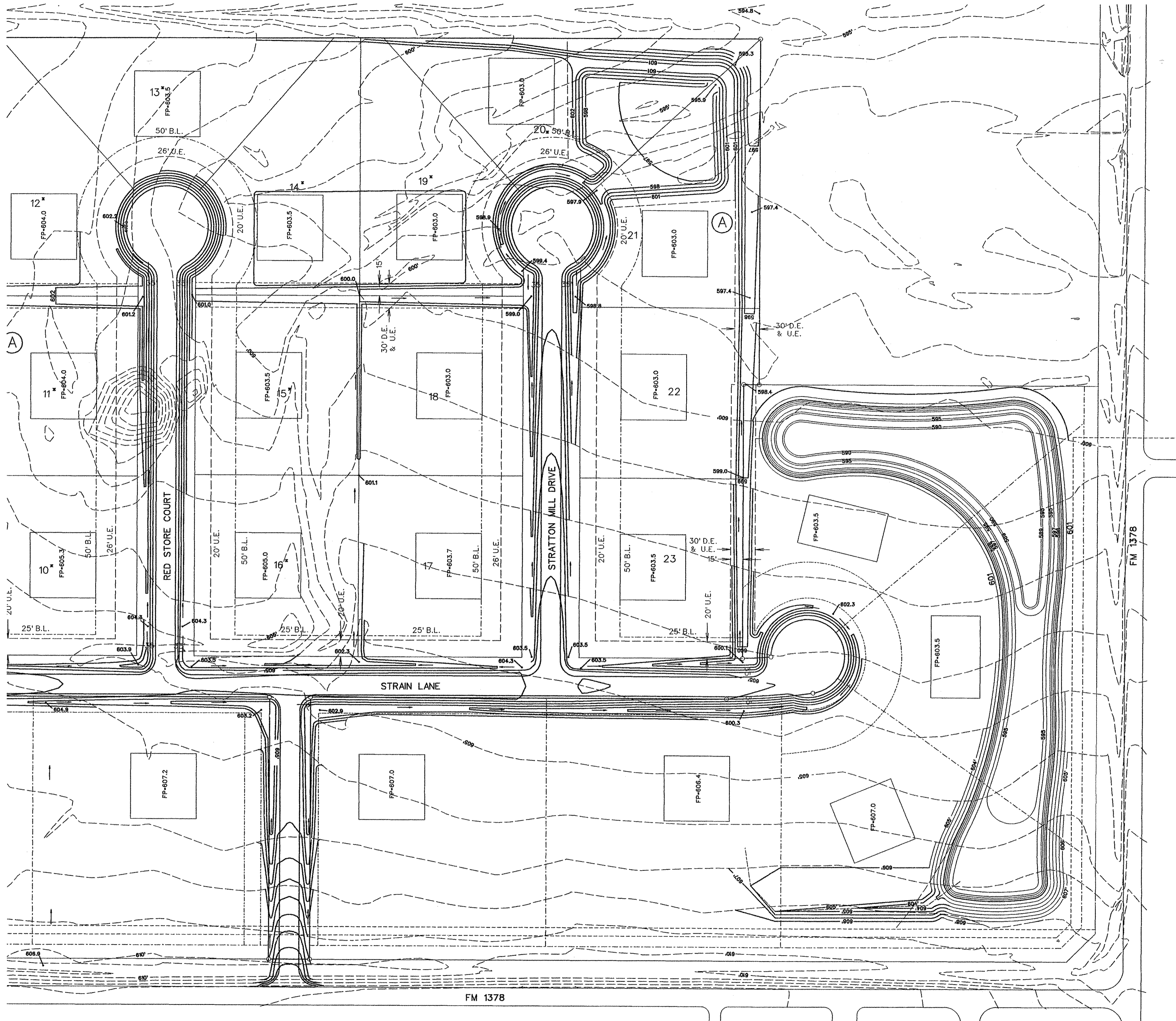
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AS-BUILT OCTOBER 2006  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

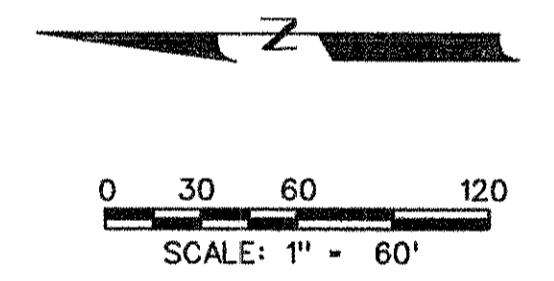
<b>CORWIN ENGINEERING, INC.</b> 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200			
<b>CONSTRUCTION PLANS FOR</b> <b>CIMARRON</b> LUCAS, TEXAS			
GRADING PLAN			
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=60'	14 OF 18

BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. = 619.06





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  - C. Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
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  3. Finished Pad Elevations are within ± 0.3 Feet.
  4. \* -indicates a wooded lot. Final pad shall be graded at time of home construction

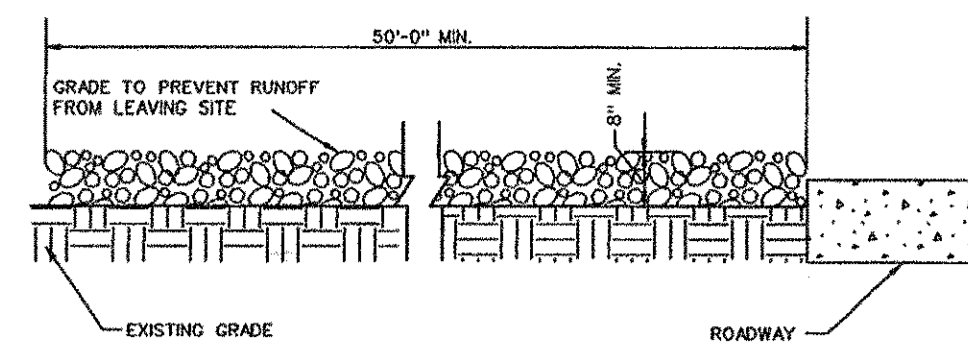
BENCHMARK:  
 SQUARE CUT "□" TOP OF CURB CENTERLINE  
 OF INLET 100' WEST OF FM 1378 ON SOUTH  
 SIDE OF COUNTRY BROOK LANE.  
 ELEV. = 619.06

**AS-BUILT OCTOBER 2006**  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

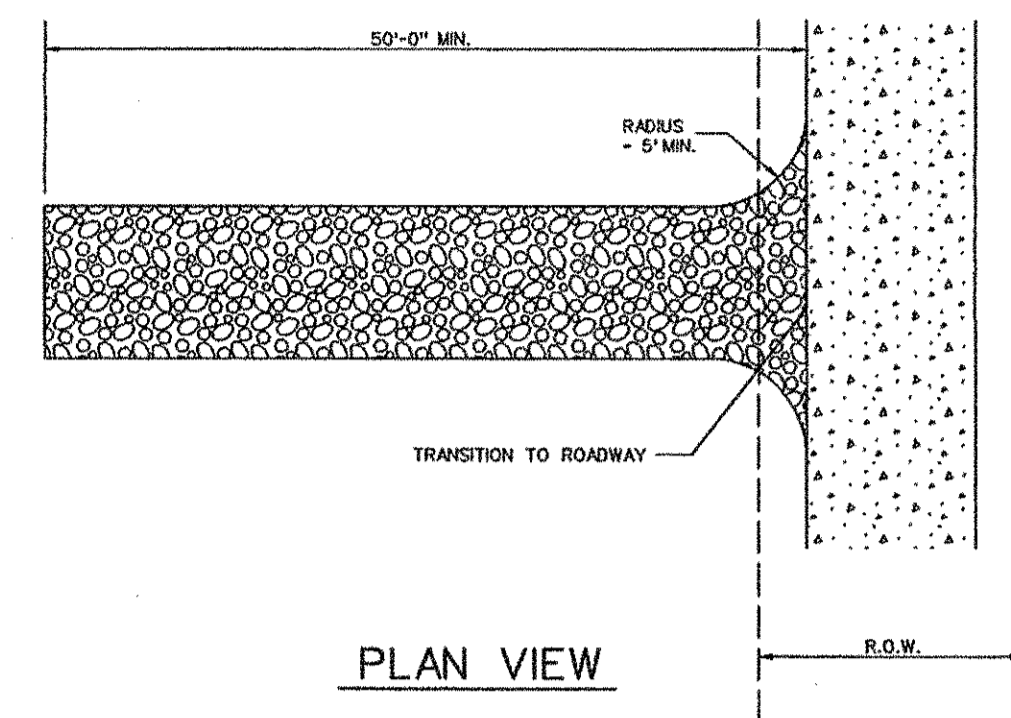


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<b>CORWIN ENGINEERING, INC.</b> 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200			
<b>CONSTRUCTION PLANS FOR</b> <b>CIMARRON</b> LUCAS, TEXAS			
GRADING PLAN			
DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=60'	15 OF 18

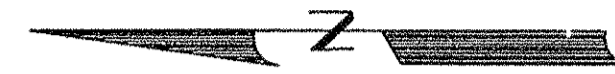


PROFILE

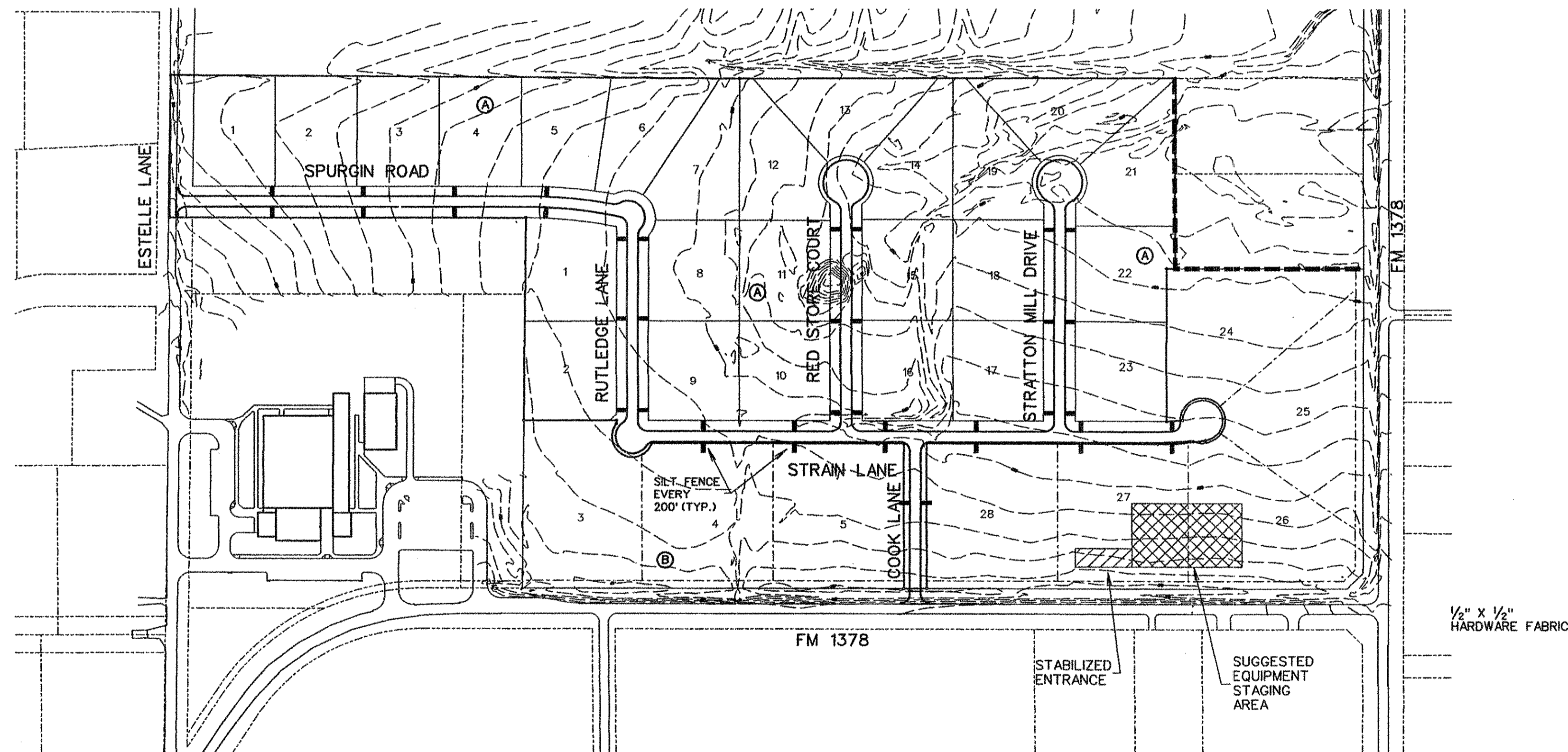


PLAN VIEW

STABILIZED ENTRANCE DETAIL



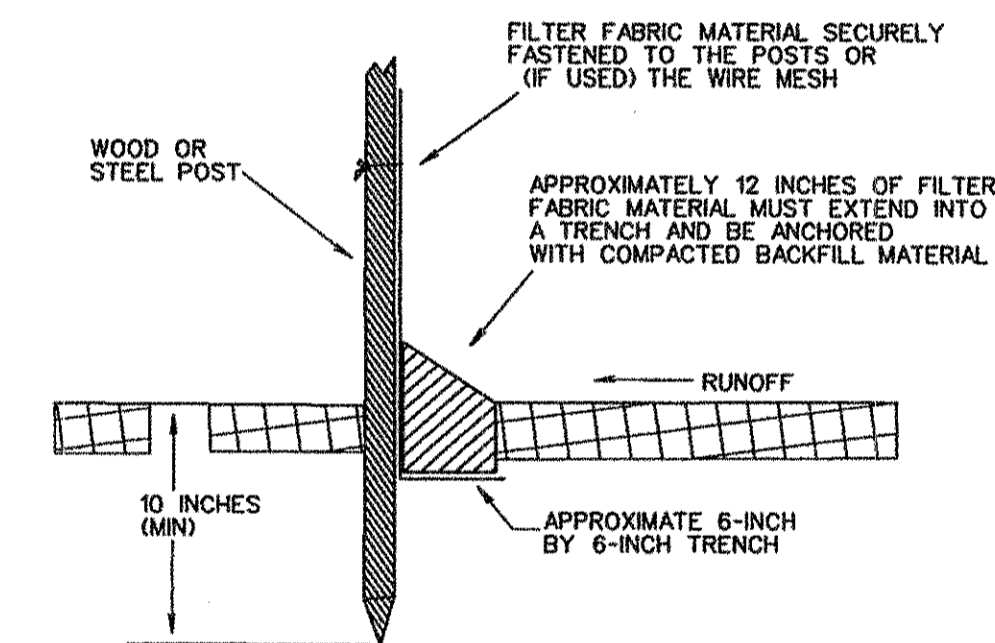
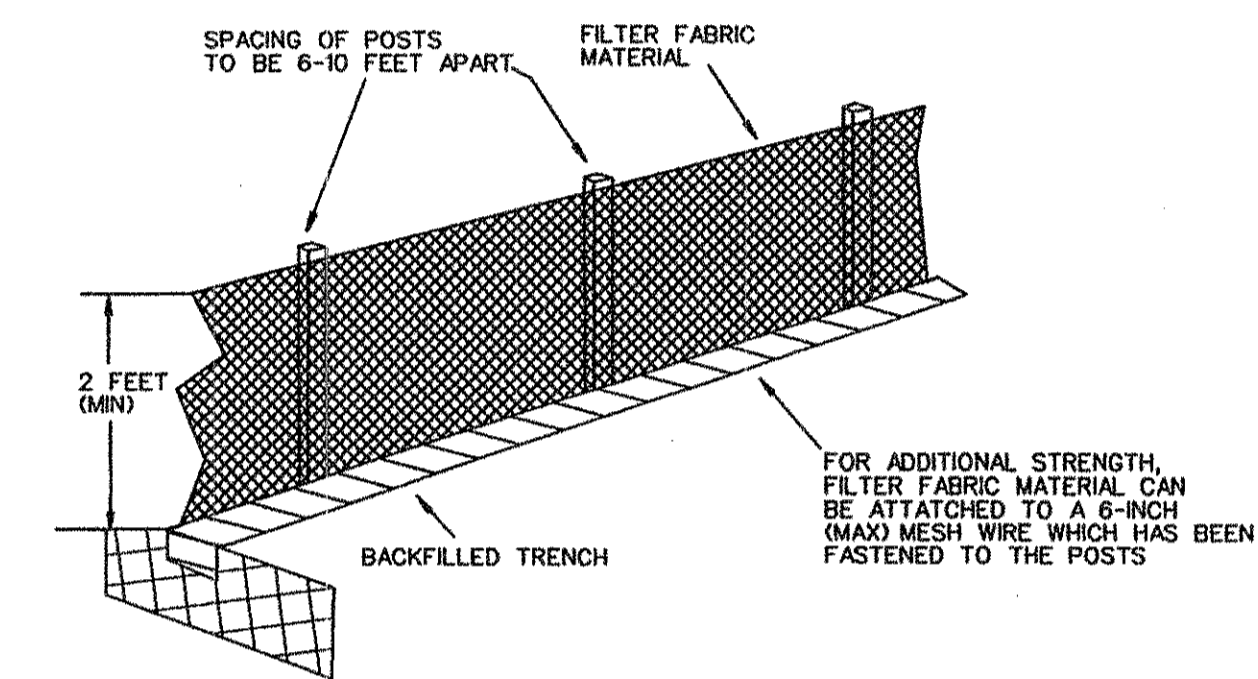
0 100 200 400  
SCALE: 1" = 200'



1/2" x 1/2" HARDWARE FABRIC

CONSTRUCTION SEQUENCE

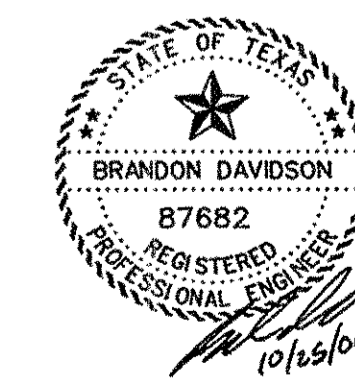
1. GRADING CONTRACTOR TO INSTALL TEMPORARY STABILIZED ENTRANCE.
2. INSTALL SILT FENCE AS SHOWN, (TS-600 POLY FELT) PER C.O.G. SPECIFICATIONS.
3. PERFORM GRADING AND UTILITY CONSTRUCTION.
4. SILT FENCE SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETED.
5. PAVING CONTRACTOR SHALL REMOVE TEMPORARY STABILIZED ENTRANCE.
6. PRIOR TO CITY ACCEPTANCE THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MUD OR SILT WHICH COLLECTS ON THE EXISTING AND NEW PAVEMENT AND INSTALLING EROSION MAT.



FILTER FABRIC FENCE DETAIL

LEGEND

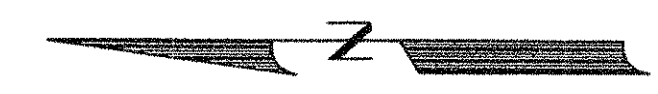
SILT FENCE (BEFORE CONSTRUCTION) - - - - -



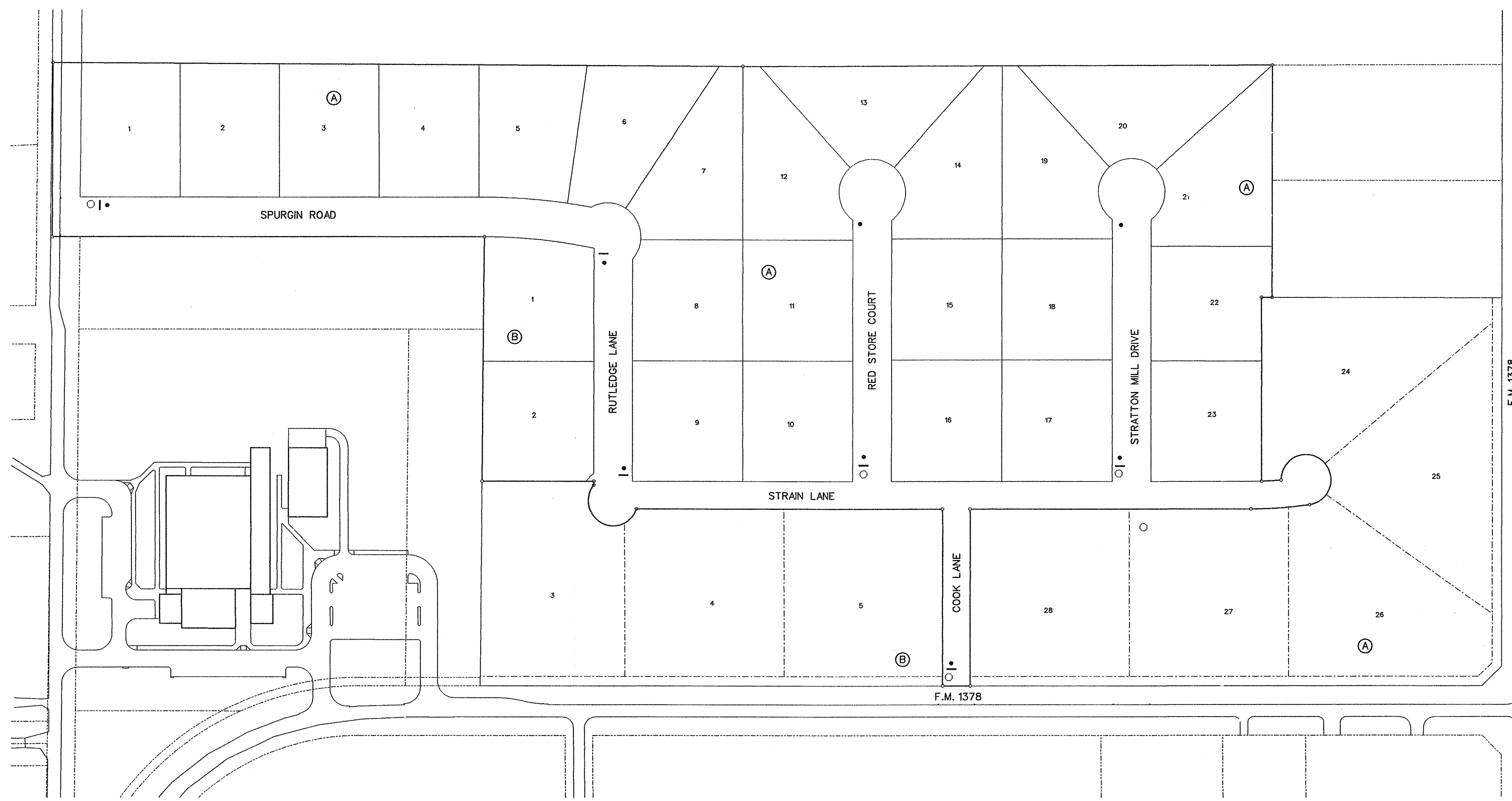
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AS-BUILT OCTOBER 2006  
INFORMATION PROVIDED BY CONTRACTORS  
(NOT FIELD VERIFIED)

NO.	REVISIONS	BY	DATE
<p><b>CORWIN ENGINEERING, INC.</b> 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200</p> <p>CONSTRUCTION PLANS FOR <b>CIMARRON</b> LUCAS, TEXAS</p> <p>POLLUTION PREVENTION PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
CMF	CEI	CEI	16 OF 18
JOB NUMBER	DATE	SCALE	
0581	MARCH 16, 2006	1"=200'	



0 50 100 200  
SCALE: 1" = 100'



**LEGEND**  
 ○ - 30" STOP SIGN  
 ● - STREET LIGHT  
 - - STREET SIGN

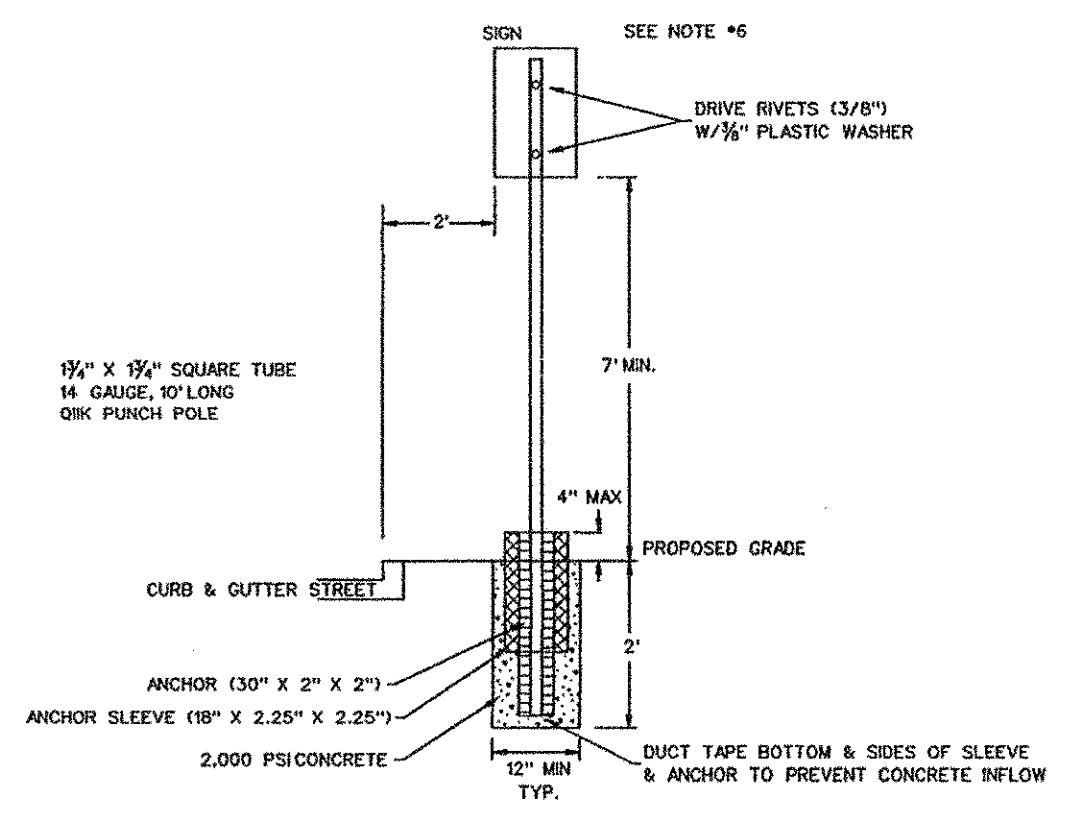


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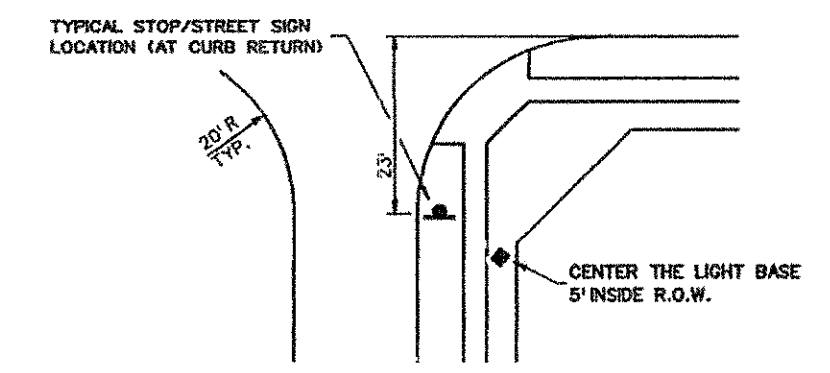
**AS-BUILT OCTOBER 2006**  
 INFORMATION PROVIDED BY CONTRACTORS  
 (NOT FIELD VERIFIED)

**TRAFFIC CONTROL NOTES:**

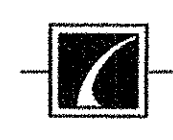
1. ALL SIGNAGE, BARRICADES, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (1980).
2. LOCATIONS SHOWN FOR SIGNAGE AND PAVEMENT MARKINGS ARE APPROXIMATE; FINAL LOCATIONS MAY CHANGE DUE TO POST CONSTRUCTION CONDITIONS AND PRESENCE OF OTHER PHYSICAL FEATURES. FINAL LOCATION OF ALL TRAFFIC CONTROL DEVICES SHALL BE FIELD VERIFIED WITH CITY PRIOR TO INSTALLATION.
3. ALL PAVEMENT MARKINGS OTHER THAN BUTTONS SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED.
4. ALL SIGNS SHALL BE HIGH INTENSITY AND THE SIZES SHALL BE STANDARD UNLESS OTHERWISE NOTED.
5. ALL TRAFFIC SIGNS, POSTS, AND MATERIALS SHALL BE INSTALLED PER DETAIL THIS SHEET.
6. FOR STOP SIGNS THAT WILL ACCEPT FUTURE STREET SIGNS, EXTEND POST ABOVE STOP SIGN SO THAT 2 HOLES ARE AVAILABLE FOR MOUNTING. (FOR ALL OTHERS, POST SHALL NOT EXTEND ABOVE SIGN.)
7. CHANGES TO TYPICAL SIGN POST LOCATION MADE AT ENGINEER'S DISCRETION.



**SIGN POST DETAIL**  
 N.T.S.



**STREET LIGHT & STOP SIGN TYP. LOCATION (RESIDENTIAL/LOCAL STREETS)**  
 N.T.S.

NO.	REVISIONS	BY	DATE
 <b>CORWIN ENGINEERING, INC.</b> 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200			
<b>CONSTRUCTION PLANS FOR</b> <b>CIMARRON</b> <b>LUCAS, TEXAS</b>			
<b>STREET SIGN &amp; LAYDOWN CURB PLAN</b>			
DRAWN BY CMF	DESIGNED BY CEI	CHECKED BY CEI	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE: 1"=100'	17 OF 18

**WATER SYSTEM**  
General Notes

All work and materials shall be in accordance with City's standard specifications and general design standards.

- All tapping sleeves and valves shall be fullbody ductile iron.
- Valves to be Mueller, Waterous, or Clow -150 psi test.
- Fittings shall of the mechanical joint type, flanged where applicable, and be manufactured by US Pipe, American, or other as approved by the City - Class 250. All fittings shall be restrained by the use of Mega-Lugs or approved equal and concrete thrust blocking.
- Fire hydrants to be American Darling, and Waterous three-way standard thread with valve in lead or approved equal. All mains steamer nozzles shall have a nominal inside diameter of 4-inches.
- Water lines in the area of storm drain inlets shall be constructed behind the inlet by pulling the pipe using longitudinal bending in accordance with the manufacturer's requirements. Fittings may be used if bending is impractical consult the project City Construction Inspector.
- Water lines crossing under storm drains and sanitary sewer lines shall have a minimum of 18" clearance below storm drains and two (2) feet clearance below sanitary sewer lines or otherwise as governed by TNRCC Chapter 290 requirements. Parallel water lines shall be at least nine (9) feet clear horizontally to sanitary sewer lines and manholes. Where minimum clearance cannot be achieved, water lines shall be encased six (6) inches around in concrete to ten (10) feet either side of utility crossing. Where water lines cross creeks or ditches the water line shall be protected by concrete encasement at least ten (10) feet past the embankment slope on each side.
- Water mains: All water lines shall have a minimum of 48" cover over the top of the pipe. All new water mains shall be PVC pipe in accordance with the following: C900 DR 14 for 4"-8", C900 DR 18 for 12", and C905 DR 18 for over 12". All "blue in color as per City specifications: the pipe shall be laid on a minimum of class "B" embedment (see Detail Drawing No. 14-A). Water mains up to 12" shall be installed 2' back of curb; mains larger than 12" shall be installed at least 3' from the back of curb depending upon conditions. Detectable metallic top ("Blue-Caution Buried Water Below" or approved equal) shall be installed to a maximum depth of 12" below finished grade (after compaction) above all PVC mains.
- The Contractor shall install fire hydrants as the locations shown. A M.J. and flanged tee with a flanged end to M.J. gate valve is required so that the gate valve is anchored to the main.
- Fire Hydrants shall be painted as follows:  
A. Tnemec Series 43-38H Diffused Aluminum, Silver for 6 inch mains  
B. Tnemec Series 2H Hi-Build Tnemec-Gloss, True Blue Safety for 8 inch mains.  
C. Tnemec Series 2H Hi-Build Tnemec-Gloss, Yellow Safety for 12 inch or larger water mains.

All hydrants shall be painted with two coats of Tnemec Series 43-38H Diffused Aluminum, Silver paint. When a color code other than Tnemec Series 43-38H Diffused Aluminum Silver is required the top bonnet, including the lip and nozzle caps shall be painted the appropriate color.

- All bolts and nuts used with mechanical joint fitting shall be "Cor-Ten" steel or approved equal.
- The installation of a blue stemonite (or equal) model 88-SSA fire hydrant marker will be installed opposite fire hydrants just off center to the side of the street adjacent to the hydrant.
- Polyethylene encasement - The Contractor shall furnish and install polyethylene wrap around the ductile iron pipe and related fittings and valves. This wrap shall be a 5 mil. thickness polytube. Seams and overlaps shall be wrapped and held in place by two (2) inch wide plastic backed adhesive tape, Polyken 900 or Scotchrap no. 50, or an approved equal, with approximate two (2) foot laps on the polytube. The wrap on the barrel of the pipe shall be loose enough to allow the film to shift with the soil. The wrap shall be installed without breaks, tears, or holes in the film. The cost of the polyethylene tube, wrap and complete installation shall be included in the unit price bid for the furnishing and the installation of ductile iron pipe and related fittings and valves.
- Valve boxes shall be furnished at the required length in order to be set to final grade on each gate valve. After the final clean up and alignment has been completed, the Contractor shall pour a reinforced concrete block 24"x 24" x 6" around all valve boxes so the finished grade is level with the finished parkway. All valve stack components shall be cast iron. Valve boxes over four (4) feet deep will require extensions. All valves shall be marked with a saw on the curb or pavement with "V". The "V" shall point to the location of the valve as follows: If the valve is in the paving, the "V" shall be marked upright; if the valve is outside the paving, the "V" shall be marked upside down.
- The Contractor shall coordinate operation of all existing valves with the City. Contact the City Construction Inspector at the Construction Inspection Department at 972-335-5580.
- All water lines shall be pressure tested to 200 psi for a three-hour continuous period. Leakage rate shall not exceed 25 gallons per inch of nominal diameter per mile of pipe over a 24-hour period. Contractor shall flush and sterilize lines and prove lines to be free of fecal coliform organisms by obtaining samples for laboratory tests for contamination. The Contractor shall refush and resterilize until all samples prove free from contamination.
- All residential water services shall be as follows:  
A. Water services shall be normally located in the center of the lot. A water meter box, as approved by the City, with lock lid shall be installed two (2) feet back of curb line.  
B. The water service shall be a minimum of 1" diameter continuous type "K" soft copper pipe. Sand embedment shall be used around the pipe and corporation stop. Service saddles shall be brass body with double bronze flattened straps (no banded) - Ford, Mueller, or City approved equal.  
C. Contractor shall tie a 1" wide piece of blue plastic flagging to the water service meter setter and shall leave a minimum of 36" of flagging exposed after backfill after curb and paving is completed.  
D. The utility contractor shall install the water services to a point two (2) feet back of the curb line at a depth of 12 inches. The meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the final grading in back of the curb. Each service location will be marked on the curb with a single vertical saw mark by the utility Contractor and tied to property corners on the "As-Recorded" plans.
- For non-residential water services, the meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the final grading in back of the curb. Meter boxes/vaults shall be located outside of paving. Each service location will be marked on the curb or pavement with a single vertical saw mark by the utility Contractor and tied to property corners on the "as Recorded" plans.
- Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of main pipe per 2.0' of lift until final grade, starting at 2.0' above top of pipe. Water services are to be tested at a rate of 1 for every 6 services that cross the proposed right-of-way or every 300 lf of water service installed. Every other main, stubout, and fire hydrant lead that cross the existing or proposed street, alley, or fire lane subgrade shall also receive at least one set of density tests. All trenches shall be mechanically tamped and compacted to 95% standard proctor density at 0-4Z above optimum moisture. Water jetting is not permitted.
- The Contractor shall be responsible for providing "As-Recorded" plans to the engineer of record showing the location of water services and valves by distance to lot lines. This information shall be placed and marked "As-Recorded" by the engineer of record. Copies of these "As-Recorded" plans shall be furnished to the City as required.
- The Contractor shall furnish maintenance bond of 10% (ten percent) of the total contract price to the City to run two years from the date of acceptance of the system by the City

**PAVING SYSTEM**  
General Notes

- Absolutely not earthwork, lime application, or other preparation of the subgrade for paving of streets, alleys, or fire lanes shall be initiated without authorization from the City Construction Engineer. Once all testing of underground facilities has been completed and verified to meet the City's specifications, the City Construction Engineer will issue a letter to the project owner or superintendent that will authorize the initiation of all subgrade work in preparation for paving.
- All street, alley, and fire lane right-of-way or easement width shall be excavated full width in accordance with the street and sidewalk section to be constructed.
- The subgrade for all streets, alleys, and fire lanes shall be stabilized with hydrated lime material to a distance 12 inches beyond the back of curb or edge of paving as applicable. The amount of lime material shall be that amount which will reduce the plasticity index (PI) below fifteen (15) as verified by testing by an approved laboratory; the City will add one (1) percent to the laboratory results for field variation. Laboratory testing (lime series) shall generally be conducted when all utilities are complete and the roadway subgrade is complete. Lime shall be applied by percentage dry unit weight of soil treated to a minimum in place compacted thickness of six (6) inches. At the discretion of the City, additional testing for the presence of sulfates in the pavement subgrade may be required at the Contractor's expense. If the sulfates are present at an unacceptable concentration, the City may require a recommendation for further treatment of the soil from the approved laboratory.
- Subgrade testing requirements: All fill and shall be compacted to no less than 95% of standard proctor density at 0 - 4Z above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of fill. Frequency of testing shall not exceed every 300 linear feet per 2.0' of lift until final grade starting at 2.0' above natural/sound grade to top of subgrade. All street alley, and fire lane subgrade shall be compacted to no less than 95% of standard proctor density at 0 - 4Z above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of subgrade, alternating from left quarter point to center line to right quarter point. Verification of lime depth, testing for subgrade gradations/pulverizations, and plasticity indices of the soil shall also be conducted; the frequency of this testing shall be as previously mentioned. All testing of materials required for the construction of any street, alley or fire lane shall be performed by an approved agency for testing materials. The nomination of the testing laboratory and the payment of such testing services shall be made by the Contractor. The engineer shall approve the laboratory nominated to do the testing of materials. It shall be the Contractor's responsibility to show by standard testing procedures that the work constructed does meet the requirements of the City's specifications.
- Minimum design requirements: All street, alley and fire lane paving shall be designed to have a minimum compressive strength of 3500 psi at twenty-eight (28) days with a minimum of five (5) sacks of cement as verified by testing in an approved laboratory. Two batch designs shall be submitted to the City Construction Engineer for approval: one for machine work and one for hand work. All batch designs must be signed by the testing laboratory and include all documentation, such as results of field trial testing. A fly ash batch design may be submitted for approval on a specific job basis: fly ash up to twenty (20%) by weight of cement replacement may be used in machine pours. If applicable, all batch designs shall specify an appropriate sulfate resistant cement or equivalent. Slump shall be 1 - 3 inches for all machine work and 1 - 4 inches for all hand work. Streets (depending on classification) and fire lanes shall have a minimum thickness of six (6) inches; alleys shall have a minimum thickness of 8" - 5'-8". Upon completion of construction, all streets and fire lanes shall be cored for depth (2" cores) at a spacing of 300 ft maximum alternating from left quarter point to center line to right quarter point. Alleys shall be cored for depth (2" cores) at a spacing of 300 ft maximum, along the center line. Pavement of a thickness less than the thickness shown on the plans by more than one-quarter (1/4) inch but less than three-quarter (3/4) inch will be considered deficient. The Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to be deficient in thickness as defined above. Pavement deficient in strength by more than three-quarter (3/4) inch shall be removed and replaced completely. The deficient area shall be cored immediately on ten (10) foot centers or one (1) per panel to be proved out. All streets, alleys, and fire lanes will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of each class of concrete placed each day shall be taken by an approved laboratory not less than one day, nor less than once for each 100-150 cu. yd of concrete. Four (4) cylinders shall be made: one shall be broken at 7 day, two (2) shall be broken at twenty-eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength of two (2) cylinders from the same sample, tested at twenty-eight (28) days is required for each strength test; beyond twenty-eight (28) days is unacceptable. If the twenty-eight (28) day design strength is not reached upon strength testing the cylinders, the deficient area shall be cored immediately on ten foot centers or one per panel to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to be deficient in strength. For any areas deficient in strength by more than 500 psi but more than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to be deficient in strength. Pavement deficient in strength by more than 1000 psi shall be removed and replaced completely. No more than three (3) - four (4) inch cores shall be extracted per panel without prior City approval. A rebar detector shall be used to ensure that the cored areas are clean of any rebar. All coring and additional laboratory testing shall be at the expense of the Contractor. The width to be considered for any deficiencies shall be the full width of the pavement.
- Any section of all existing public or private streets, alleys or firelanes shall be replaced within 72 hours of removal.
- The Contractor shall furnish a maintenance bond of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

**UTILITY CROSSINGS**  
General Notes

- Tunneling and boring under City streets shall be accomplished by means of jacking, boring, or tunneling equipment which is subject to the City approval prior to start of construction.
- The voids outside of the carrier pipe or casing pipe shall be backfilled by hydraulically placed materials so that there are no open voids over the roof of the tunnel bore. This shall be done without damage to the roadway structure.
- All bore pits, trenches, and inspection holes shall be backfilled within 48 hours of the installation of utility lines. The method of compaction shall be such that a soil density equal to that existing prior to the start of construction will be required as verified by any approved testing laboratory. Any excess or surplus material resulting due to displacement of utility lines and conduits shall be disposed of in an acceptable manner to the City.
- The street sections that are shown as typical sections shall apply to any alleys, driveways, roadways, etc. that will be within a City right-of-way of easement.
- The Contractor shall be required to install an necessary warning and safety devices that would protect the safety and health of the public until the work has been finished and accepted by the City.
- The use of a casing pipe will be based upon specific project location and soil conditions. In general, the minimum casing thickness is 0.25 inch and the material shall be steel. Where more than one section is required, the casing ends shall be welded together. Raci-spacers, or City approved equal shall be used to support the carrier pipe. The use of wood skids is no long permitted.

**STORM SEWER SYSTEM**  
General Notes

- All storm sewer pipe or box culvert in right-of-way or fire lanes shall be reinforced concrete pipe as per City Specifications and shall be laid on a minimum of a compacted crushed stone or pea gravel cushion, four inches thick below the bottom of the pipe shall unless otherwise approved by the City. The initial backfill of select material or fine granular shall be required to a minimum of the spring line of the pipe unless otherwise approved by the City.
- Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of pipe per 2.0' of lift until final grade, starting at 2.0' above top of pipe. Every other lateral stubout that crosses the existing or proposed street, alley, or fire lane subgrade inlet and junction box will receive a density test every lift. All ditches shall be mechanically tamped and compacted to 95% of standard proctor density at 0 - 4Z above optimum moisture. Water jetting is not permitted.
- The joints shall be constructed and jointed together in such a manner that no spill through of backfill will occur. This includes the lift holes used in certain pipe or box sizes. Approved joint materials are concrete mortar; cold applied, plastic asphalt joint compound; rubber gaskets and cold applied, preformed plastic gaskets.
- Storm drainage inlets shall be as indicated on the approved construction plans. For secondary and major street intersections, a recessed type inlet will be required. For industrial and residential streets, a curb line inlet will be required unless otherwise approved. A round manhole cover with locking device shall be placed on all inlet tops. The top shall be placed near the outlet pipe. All inlets shall have a shall have a compressive strength of 4000 psi at 28 days.
- All precast box culverts or other special structures in any right-of-way or fire lane easement will require a certification from the manufacturer that the product meets the design dimensions and twenty-eight (28) day compressive strength. All cast-in-place box culverts or other special structures in and right-of-way and fire lane or utility easements will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 100-150 cu yd of concrete, nor less than once for each 5000 sq ft of surface area for slabs or walls. Four (4) cylinders shall be made: one shall be broken at 7 day, two (2) shall be broken at twenty-eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength of two (2) cylinders from the same sample, tested at twenty-eight (28) days, is required for each strength test; any strength test beyond twenty-eight (28) days is unacceptable. If the twenty-eight (28) day design strength is not reached upon strength testing the cylinders, the deficient area shall be cored immediately to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to be deficient in strength. For any areas deficient by more than 500 psi but not more than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to be deficient in strength. For any areas deficient in strength by more than 1000 psi, the structure shall be removed and reconstructed at the full expense of the Contractor. Prior to City acceptance of any penalty payments for any traffic bearing structure that does not meet 28 day design strength, the Design Engineer shall provide a sealed structural evaluation that assesses the performance adequacy of the deficient structure as constructed under the design service loads. All coring and additional laboratory testing shall be at the expense of the Contractor.
- The Contractor shall furnish a maintenance bond of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

**NOTES FOR CONSTRUCTION WITH THE NORTH TEXAS MUNICIPAL WATER DISTRICT EASEMENT**

- North Texas Municipal Water District's (NTMWD's) 42-inch water pipeline is located within the limits of construction.
- Operation of heavy earthmoving equipment, compaction equipment or heavy construction equipment, such as concrete trucks, shall be restricted to specific crossing points across NTMWD easements, as approved by the NTMWD. The crossing shall be designated and verified to provide a minimum of five-feet of cover.
- To assure that placing of significant loads over the NTMWD pipeline does not damage the existing pipeline, no materials shall be stockpiled on the NTMWD easement, without authorization from the NTMWD. If the contractor desires to use NTMWD's easement for stockpile of materials, contact NTMWD's Engineering Department at (972) 442-5405 so your plans for use of NTMWD's easement can be reviewed.
- A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required. In addition, if separation between the bottom of the pavement and the top of the pipeline is less than 3.5 feet, a thickened pavement section is required.
- Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
- Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
- Unless otherwise shown or required a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
- The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.

**AS-BUILT OCTOBER 2006**  
INFORMATION PROVIDED BY CONTRACTORS  
(NOT FIELD VERIFIED)



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on October 25, 2006

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**CONSTRUCTION PLANS FOR**  
**CIMARRON**  
LUCAS, TEXAS

**GENERAL NOTES**

DRAWN BY BDD	DESIGNED BY BDD	CHECKED BY BDD	SHEET NO.
JOB NUMBER 0581	DATE MARCH 16, 2006	SCALE NTS	18 OF 18