

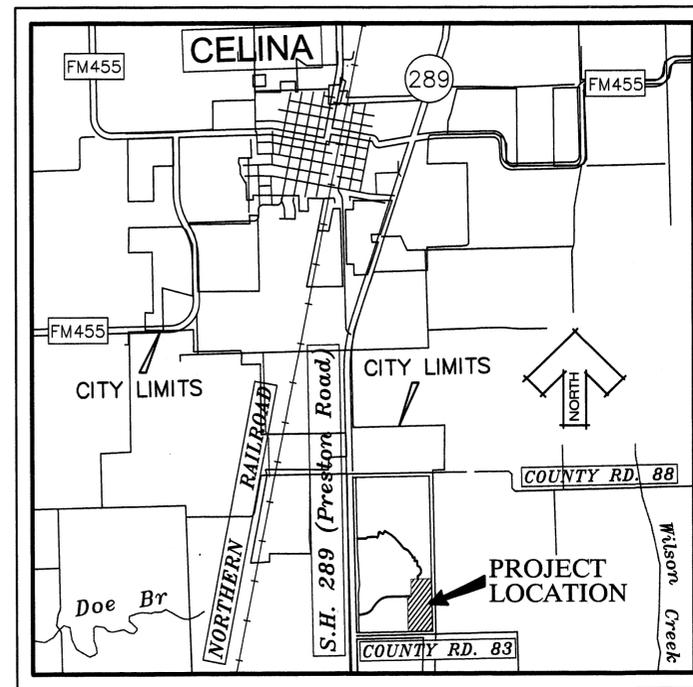
# PLANS FOR CONSTRUCTION OF

# THE CARTER RANCH - PHASE III

## AN ADDITION TO THE CITY OF CELINA, TEXAS

**GENERAL NOTES**

1. Prior to any construction the Contractor shall familiarize himself with the Contract Documents and Specifications, the Plans including all notes, and other applicable standards or specifications relevant to the proper completion of the work specified. Failure on the part of the Contractor to familiarize himself with all Standards or Specifications pertaining to this work shall in no way relieve the Contractor of responsibility for performing the work in accordance with all such applicable Standards and Specifications.
2. Contractor shall have in his possession, prior to construction, all necessary permits, licenses, etc. Contractor shall have at least one set of approved Engineering Plans and Specifications on-site at all times.
3. ALL work shall conform to the North Texas Central Texas Council of Governments (NCTCOG) Standard Specifications for Public Works Construction. The Engineer's decision shall apply in the event an item is not covered by NCTCOG. The Engineer shall have final decision on all construction materials, methods, and procedures.
4. Construction inspection will be performed by representatives of the Owner, Engineer, Geotechnical Engineer, and reviewing authorities and agencies. Unrestricted access shall be provided to them at all times. Contractor is responsible for understanding and scheduling required inspections.
5. All contractors must confine their activities to the work area. No encroachments onto developed or undeveloped areas will be allowed, unless specifically noted on plans. Any damage resulting there from, shall be Contractor's responsibility to repair.
6. It will be the responsibility of each contractor to protect all existing public and private utilities throughout the construction of this project. Contractor shall contact the appropriate utility companies for line locations prior to commencement of construction and shall assume full liability to those companies for any damages caused to their facilities. Call 1-800-DIG-TESS.
7. One time construction staking will be performed by Owner's Engineer.
8. If unforeseen problems or conflicts are encountered in the construction, for which an immediate solution is not apparent, the Engineer and Owner shall be notified immediately.
9. Contractors shall be responsible for precise utility field locations and working around existing utilities and improvements.
10. Traffic control measures shall be installed for any work activity that takes place on or adjacent to any public street or roadway. Traffic control measures shall conform to Part IV of the TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
11. For subgrade preparation refer to geo-technical report provided by owner.



VICINITY MAP  
(NOT TO SCALE)

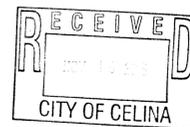
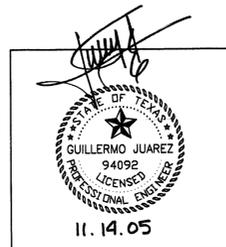
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LIPIZZAN LANE  
WINCHESTER DRIVE  
PADDOCK LANE  
ANDALUSIAN TRAIL  
MUSTANG TRAIL  
DARTMOOR DRIVE  
MORGAN DRIVE  
PALOMINO LANE  
PALOMINO LANE

LINE "A" & LINE "C"  
LINE "B"  
LINE "C"  
LATERALS "B-1", "B-2", "B-3", "C-1" & "C-6"  
LATERALS "C-2", "C-3", "C-4" & "C-5"

LINES "J" & "C"  
LINES "C" & "D"  
LINE "U"  
LINES "E", "F" & "D-1"  
LINES "B", "L", "G" & "H"  
LINES "T", "C-1", & "K"

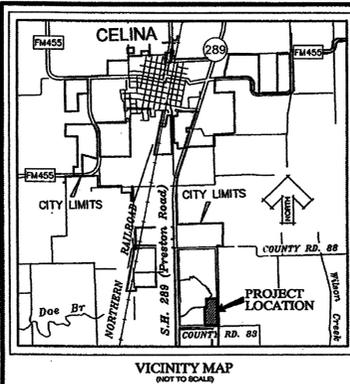


PREPARED FOR :  
**ONE CARTER RANCH, L.P.  
DEVELOPMENT GROUP**  
3901 AIRPORT FREEWAY, SUITE 200  
Bedford, Texas 76201  
Phone (817) 391-2500 Fax (817) 391-2501

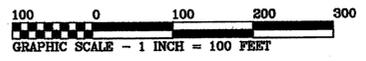
PREPARED BY:  
**HUITT-ZOLIARS**  
Huitt-Zoliars, Inc. Dallas  
3131 McKinney Avenue, Suite 600  
Dallas, Texas 75204-2489  
Phone (214) 871-3311 Fax (214) 871-0757

CARTER RANCH III

REVISED: NOVEMBER 11, 2005



- PLAT NOTES:**
- ALL OPEN SPACE/Common Area lots are to be dedicated to the HOA and the HOA will be responsible for the maintenance and upkeep of said lots.
  - Sidewalks must be installed by the developer along all open space and common area lots.
  - The City of Celina will not exclude other utilities from dedicated water & sewer easements but reserves the right to assign the location of other utilities in available portions of said easements.
  - A fence may be constructed along lot lines within a surface drainage easement provided the fence does not obstruct surface drainage.
  - All lot corners will be set upon completion of construction using 5/8" x 18" rebar with yellow plastic cap stamped "HUITT-ZOLLARS". The centerline of the street right-of-way will be monumented with a scribed "X" in concrete at the P.C.'s, P.T.'s and intersection points.

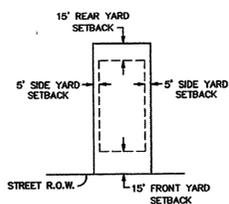


**BASIS OF BEARINGS:**  
THE DEED TO ONE CARTER RANCH, L.P. AS RECORDED IN VOLUME 5240, PAGE 2035 OF THE DEED RECORDS OF COLLIN COUNTY, TEXAS.

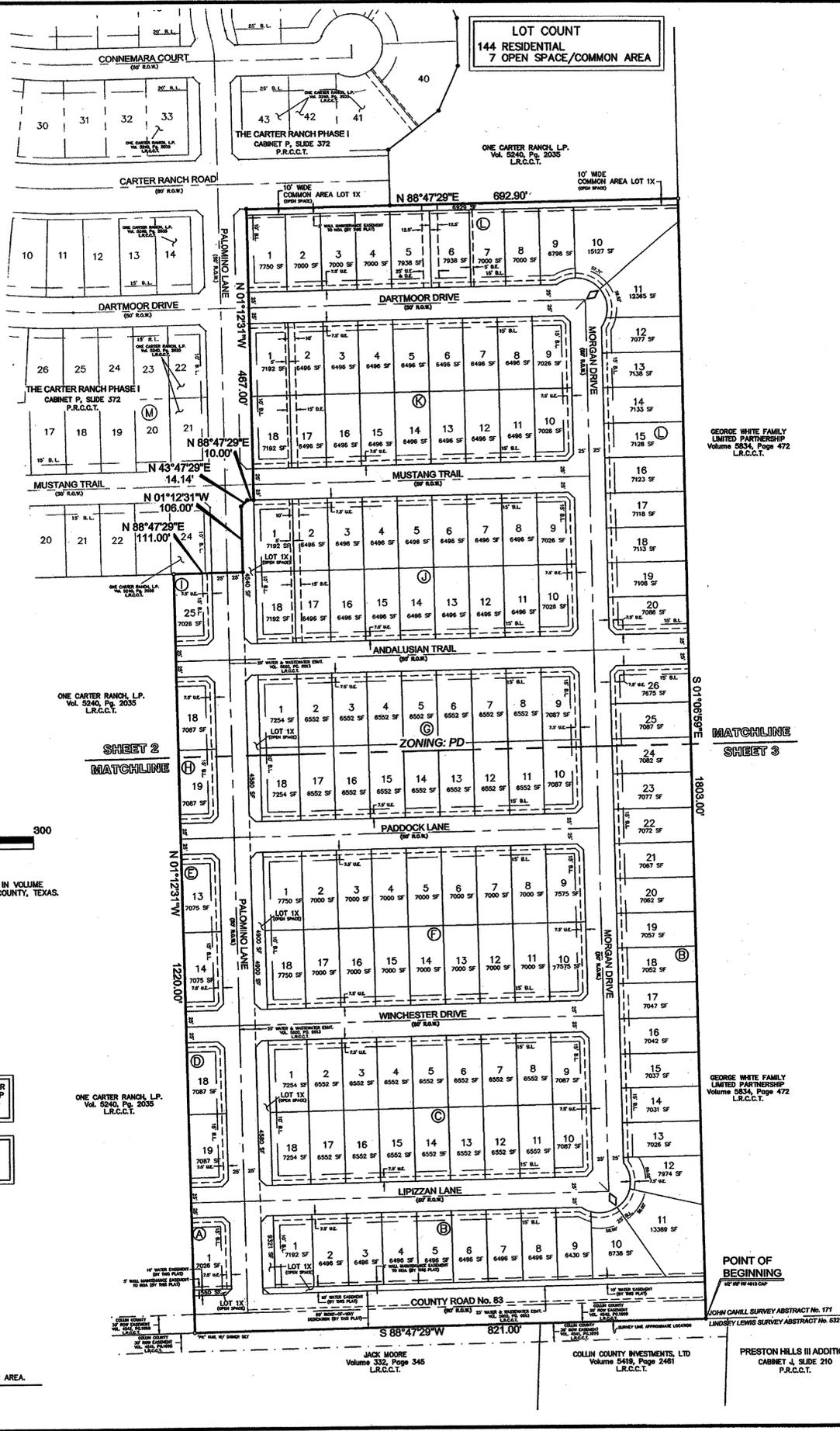
- LEGEND**
- 5/8" IRON ROD SET w/ HUITT-ZOLLARS CAP UNLESS NOTED OTHERWISE
  - 5/8" IRON ROD FOUND w/ HUITT-ZOLLARS CAP UNLESS NOTED OTHERWISE
  - 13389 SF LOT AREA (SQUARE FEET)
  - D.E. DRAINAGE EASEMENT (BY THIS PLAT)
  - U.E. UTILITY EASEMENT (BY THIS PLAT)
  - B.L. MINIMUM BUILDING SETBACK LINE

NO PORTION OF THE PROPERTY IS LOCATED IN THE 100 YEAR FLOODPLAIN AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR COLLIN COUNTY, TEXAS. MAP NO. 480800128 G DATED JANUARY 19, 1998.

NOTICE: SELLING A PORTION OF THIS ADDITION BY METES & BOUNDS IS AVIOLATION OF CITY ORDINANCE AND STATE LAW, AND IS SUBJECT TO FINES AND WITHOLDING OF UTILITIES AND BUILDING PERMITS.



**NOTE:**  
15' YARD SETBACK ADJACENT TO STREETS.  
10' YARD SETBACK ADJACENT TO OPEN SPACE/Common Area.  
TYPICAL MINIMUM BUILDING SETBACK LINES SETBACKS APPLICABLE TO ALL LOTS UNLESS NOTED OTHERWISE.  
N.T.A.



**OWNER'S CERTIFICATE**

STATE OF TEXAS  
COUNTY OF COLLIN

WHEREAS, ONE CARTER RANCH, L.P. is the owner of a tract of land situated in the John Cahill Survey, Abstract No. 171 in the City of Celina, Collin County, Texas, and being a portion of a tract of land as described in deed to ONE CARTER RANCH, L.P. as recorded in Volume 5240, Page 2035 of the Deed Records of Collin County, Texas, and being more particularly described as follows:

BEGINNING at a 1/2 inch iron rod found with cap stamped "4613" at the southeast corner of said One Carter Ranch, L.P. tract, said iron rod also being in the center line of County Road No. 83;

THENCE, South 88 degrees 47 minutes 29 seconds West with the center line of County Road No. 83 and the south line of said One Carter Ranch, L.P. tract a distance of 821.00 feet to a PK nail with shiner set;

THENCE, departing the center line of County Road No. 83 and the south line of said One Carter Ranch, L.P. tract, North 01 degree 12 minutes 31 seconds West a distance of 1220.00 feet to a 5/8 inch iron rod set with "Huitt-Zollars" cap on the southerly line of Carter Ranch Phase I, an addition to the City of Celina, Collin County, Texas as recorded in Cabinet P, Slide 372 of the Plat Records of Collin County, Texas;

THENCE, along the southerly lines of said Carter Ranch Phase I, the following courses:

North 88 degrees 47 minutes 29 seconds East, a distance of 111.00 feet to a 5/8 inch iron rod found with "Huitt-Zollars" cap;

North 01 degrees 12 minutes 31 seconds West a distance of 106.00 feet to a 5/8 inch iron rod found with "Huitt-Zollars" cap;

North 43 degrees 47 minutes 29 seconds East a distance of 14.14 feet to a 5/8 inch iron rod found with "Huitt-Zollars" cap;

North 88 degrees 47 minutes 29 seconds East, a distance of 10.00 feet to a 5/8 inch iron rod found with "Huitt-Zollars" cap;

North 01 degrees 12 minutes 31 seconds West a distance of 467.00 feet to a 5/8 inch iron rod found with "Huitt-Zollars" cap;

North 88 degrees 47 minutes 29 seconds East, passing a 5/8 inch iron rod found with "Huitt-Zollars" cap at 230.51 feet for a southeasterly corner of said Carter Ranch Phase I, and continuing in all a distance of 692.90 feet to 5/8 inch iron rod set with "Huitt-Zollars" cap on the easterly line of said One Carter Ranch, L.P. tract;

THENCE, along the easterly line of said One Carter Ranch, L.P. tract, South 01 degree 06 minutes 59 seconds East a distance of 1803.00 feet to the POINT OF BEGINNING AND CONTAINING 32.34 acres of land, more or less.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That ONE CARTER RANCH, L.P., acting herein by and through his/its duly authorized officer(s), does hereby adopt this plat designating the herein above described property as THE CARTER RANCH PHASE III, an addition to the City of Celina, Texas, and does hereby dedicate, in fee simple, to the public use forever, the streets, rights-of-way, and other public improvements shown thereon. The streets and alleys, if any, are dedicated for street purposes. The easements and public use areas, as shown, are dedicated, for the public use forever, for the purposes indicated on this plat. No buildings, fences, trees, shrubs or other improvements or growths shall be constructed or placed upon, over or across the easements as shown, except that landscape improvements may be placed in landscape easements, if approved by the City Council of the City of Celina. In addition, utility easements may also be used for the mutual use and accommodation of all public utilities desiring to use or using the same unless the easements limits the use to particular utilities, said use by public utilities being subordinate to the public's and City of Celina's use thereof. The City of Celina and public utility entities shall have the right to remove and keep removed all or parts of any buildings, fences, trees, shrubs or other improvements or growths which may in any way endanger or interfere with the construction, maintenance, or efficiency of their respective systems in said easements. The City of Celina and public utility entities shall at all times have the full right of ingress and egress to or from their respective easements for the purpose of constructing, reconstructing, inspecting, patrolling, maintaining, reading meters, and adding to or removing all or parts of their respective systems without the necessity at any time procuring permission from anyone.

This plat approved subject to all platting ordinances, rules, regulations and resolutions of the City of Celina, Texas.

WITNESS, my hand, this the \_\_\_\_\_ day of \_\_\_\_\_, 2005.

By: \_\_\_\_\_

Authorized Signature of Owner

Printed Name and Title

STATE OF TEXAS  
COUNTY OF \_\_\_\_\_

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

Given under my hand and seal of office, this \_\_\_\_\_ day of \_\_\_\_\_, 2005.

Notary Public in and for the State of Texas

My Commission Expires On: \_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

THAT, I, Eric J. Yahoudy do hereby certify that I prepared this plat from an actual and accurate survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with the subdivision regulations of the City of Celina, Texas.

**PRELIMINARY**  
RELEASED 11/09/2005 FOR REVIEW PURPOSES ONLY. THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE.  
Eric J. Yahoudy, Registered Professional Land Surveyor  
Texas Registration No. 4862

Date \_\_\_\_\_

STATE OF TEXAS  
COUNTY OF \_\_\_\_\_

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

Given under my hand and seal of office, this \_\_\_\_\_ day of \_\_\_\_\_, 2005.

Notary Public in and for the State of Texas

My Commission Expires On: \_\_\_\_\_

**FINAL PLAT**  
This property is located in the corporate limits of the City of Celina, Collin County, Texas. Approved by the City of Celina for filing at the office of the County Clerk of Collin County, Texas.

**RECOMMENDED BY:**

Signature of Chairperson \_\_\_\_\_ Date of Recommendation \_\_\_\_\_

Signature of Mayor \_\_\_\_\_ Date of Approval \_\_\_\_\_

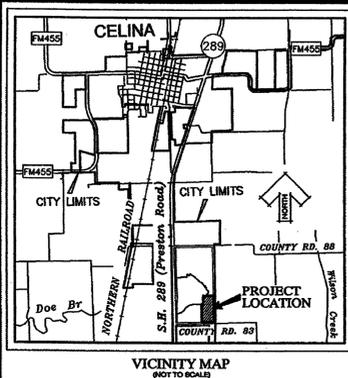
Signature of City Secretary \_\_\_\_\_ Date \_\_\_\_\_

City Council  
City of Celina, Texas

**FINAL PLAT**  
**THE CARTER RANCH-PHASE III**  
**32.34 ACRES OF LAND**  
144 RESIDENTIAL LOTS  
7 OPEN SPACE/Common Area Lots  
SITUATED IN THE  
THE JOHN CAHILL SURVEY ABSTRACT No. 171  
CITY OF CELINA, COLLIN COUNTY, TEXAS  
NOVEMBER 9, 2005

Developer/Owner: **ONE CARTER RANCH, L.P.**  
3801 AIRPORT FREEWAY, SUITE 200  
BEDFORD, TEXAS 76201  
PH. (817) 391-2500 FAX (817) 391-2501

Prepared By: **HUITT-ZOLLARS**  
Huitt-Zollars, Inc.  
3831 McKinney Avenue, Suite 600  
Dallas, Texas 75204-2489  
Phone (214) 871-8911 Fax (214) 871-0757



SHEET 2  
MATCHLINE

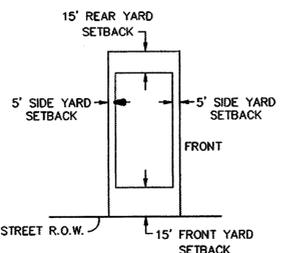
MATCHLINE  
SHEET 3

CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	163°44'23"	50.00'	142.89'	N46°12'31"W-88.99'
C2	163°44'23"	50.00'	142.89'	N43°47'29"E-88.99'

LINE	BEARING	DIST.
L1	S43°47'29"W	21.21'
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L3	S46°12'31"E	14.14'
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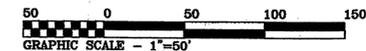
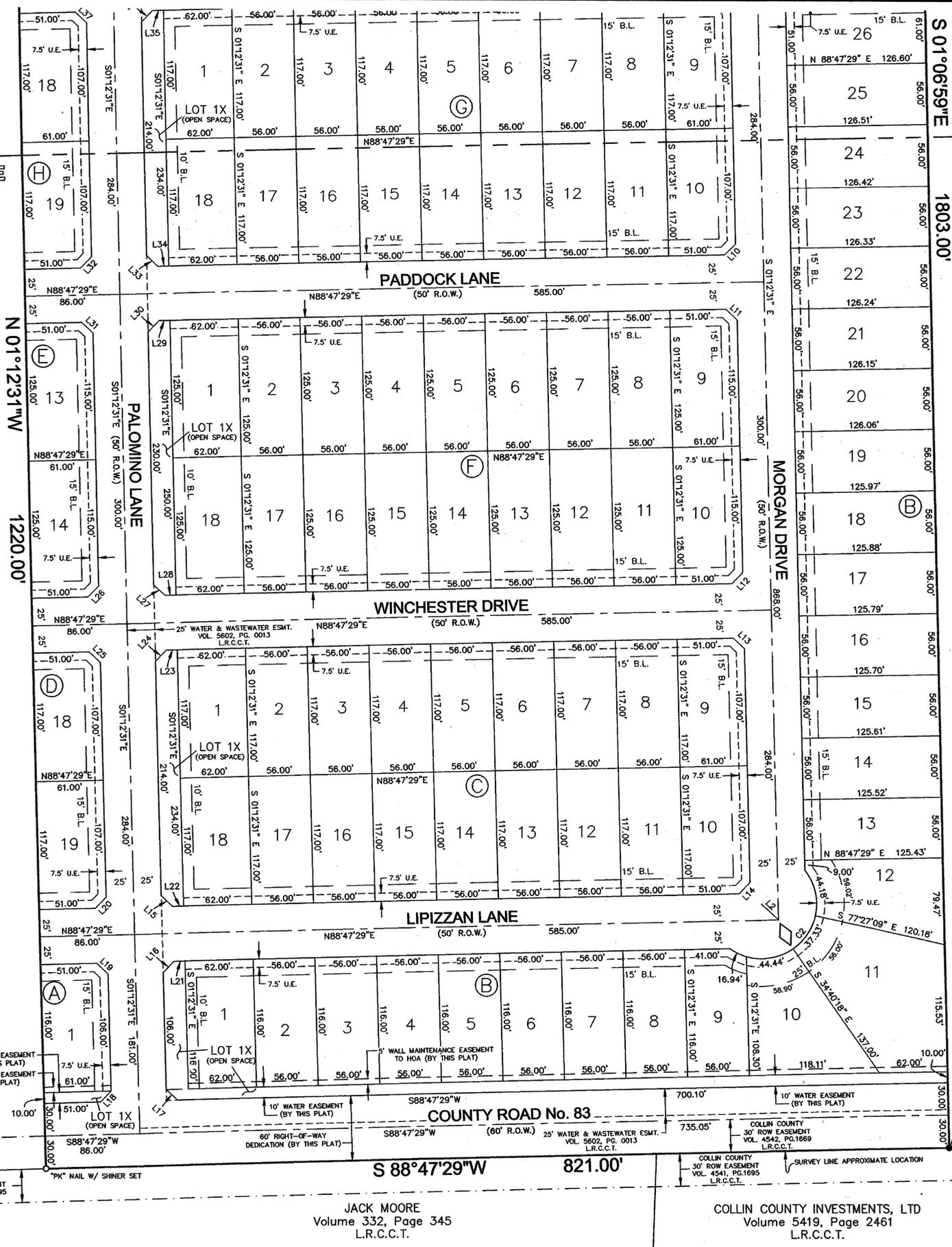
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L21	N88°47'29"E	10.00'
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L35	S88°47'29"W	10.00'
L36	S43°47'29"W	14.14'
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ONE CARTER RANCH, L.P.  
Vol. 5240, Pg. 2035  
L.R.C.C.T.



NOTE:  
15' YARD SETBACK ADJACENT TO STREETS.  
10' YARD SETBACK ADJACENT TO OPEN SPACE/Common Area.

TYPICAL MINIMUM BUILDING SETBACK LINES  
SETBACKS APPLICABLE TO ALL LOTS  
UNLESS NOTED OTHERWISE.  
N.T.S.



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GEORGE WHITE FAMILY  
LIMITED PARTNERSHIP  
Volume 5834, Page 472  
L.R.C.C.T.

FINAL PLAT  
**THE CARTER RANCH-PHASE III**  
32.34 ACRES OF LAND  
144 RESIDENTIAL LOTS  
7 OPEN SPACE/Common Area LOTS  
SITUATED IN THE  
THE JOHN CAHILL SURVEY ABSTRACT No. 171  
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NOVEMBER 9, 2005

POINT OF BEGINNING

JOHN CAHILL SURVEY A

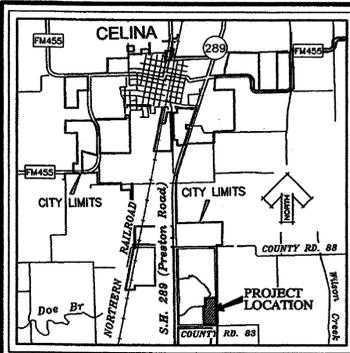
JOHN CAHILL SURVEY ABSTRACT No. 171  
LINDSEY LEWIS SURVEY ABSTRACT No. 532

JACK MOORE  
Volume 332, Page 345  
L.R.C.C.T.

COLLIN COUNTY INVESTMENTS, LTD  
Volume 5419, Page 2461  
L.R.C.C.T.

Prepared By:  
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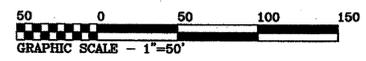
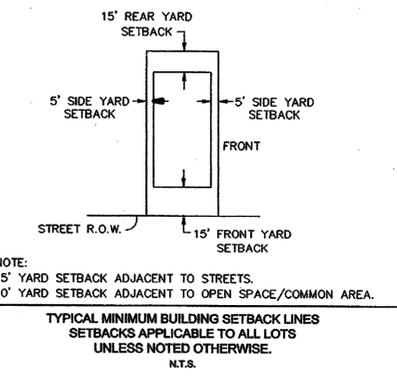
Developed/Owned by:  
**ONE CARTER RANCH, L.P.**  
381 McKinney Avenue, Suite 600  
Dallas, Texas 75204-2489  
Phone (214) 871-3511 Fax (214) 871-0757



ONE CARTER RANCH, L.P.  
Vol. 5240, Pg. 2035  
L.R.C.C.T.

THE CARTER RANCH PHASE I  
CABINET P, SLIDE 372  
P.R.C.C.T.

ONE CARTER RANCH, L.P.  
Vol. 5240, Pg. 2035  
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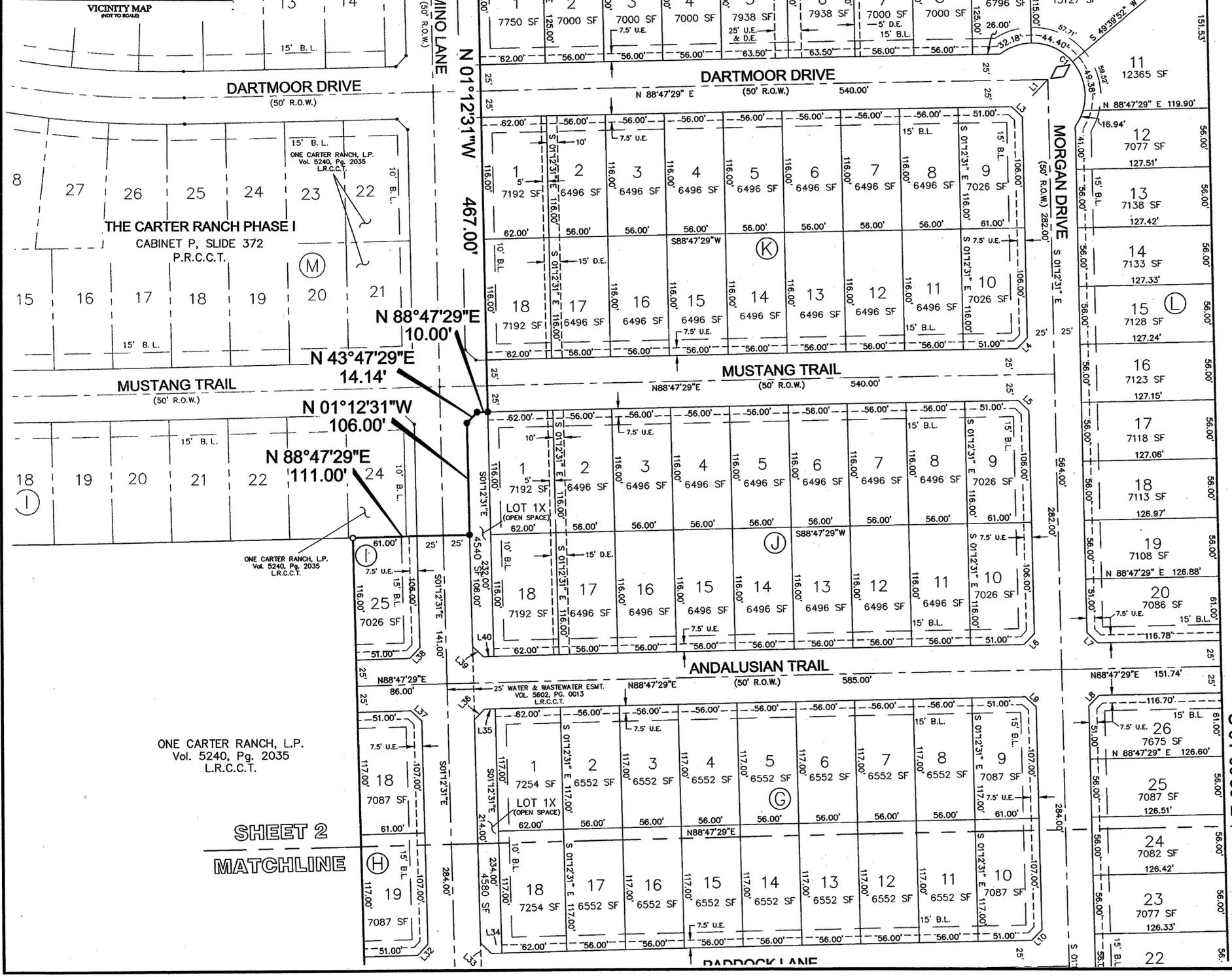
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LIMITED PARTNERSHIP  
Volume 5834, Page 472  
L.R.C.C.T.

MATCHLINE  
SHEET 3

FINAL PLAT  
**THE CARTER RANCH-PHASE III**  
32.34 ACRES OF LAND  
144 RESIDENTIAL LOTS  
7 OPEN SPACE/Common Area LOTS  
SITUATED IN THE  
THE JOHN CAHILL SURVEY ABSTRACT No. 171  
CITY OF CELINA, COLLIN COUNTY, TEXAS  
NOVEMBER 9, 2005

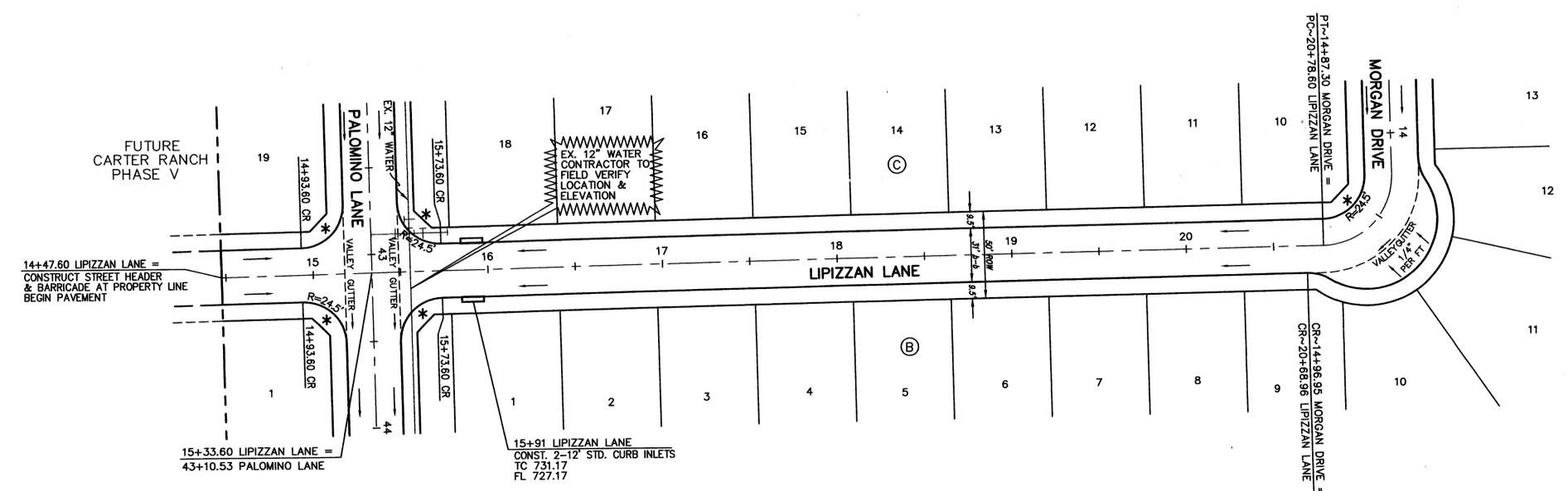
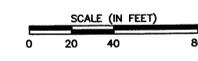
Developer/Owner:  
**ONE CARTER RANCH, L.P.**  
3901 AIRPORT FREEWAY, SUITE 200  
BEDFORD, TEXAS 76201  
PH. (817) 391-2500 FAX (817) 391-2501

Prepared By:  
**HUITT-ZOLIARS**  
Huitt-Zoliars, Inc.  
3851 McKinney Avenue, Suite 600  
Dallas, Texas 75204-2489  
Phone (214) 971-3311 Fax (214) 971-0757

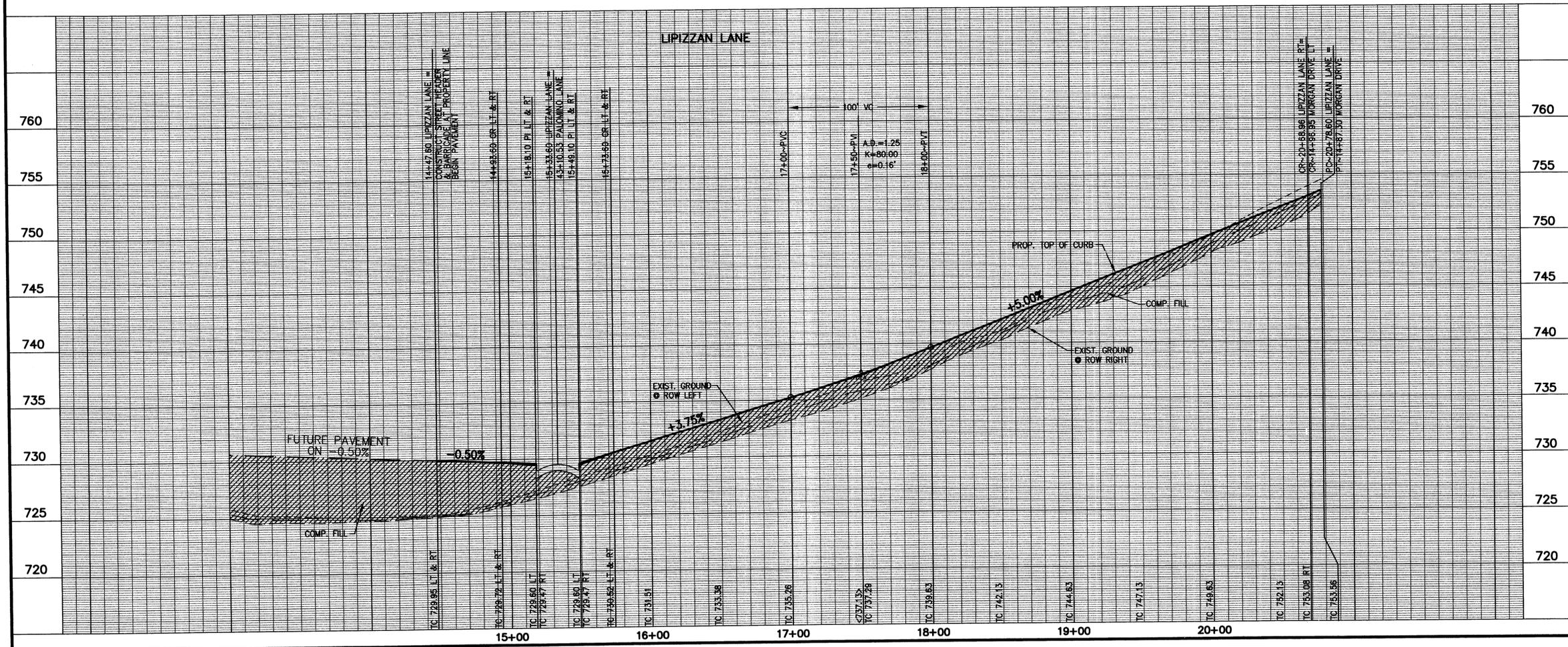


ONE CARTER RANCH, L.P.  
Vol. 5240, Pg. 2035  
L.R.C.C.T.

SHEET 2  
MATCHLINE



\* THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYDOWN CURB AT STREET INTERSECTIONS. SUBDIVISION INTERIOR BARRIER FREE RAMPS AND SIDEWALKS ARE TO BE CONSTRUCTED BY HOME BUILDER.



**BENCHMARKS:**  
 CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET  
 CONTROL MONUMENT No. 5 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET



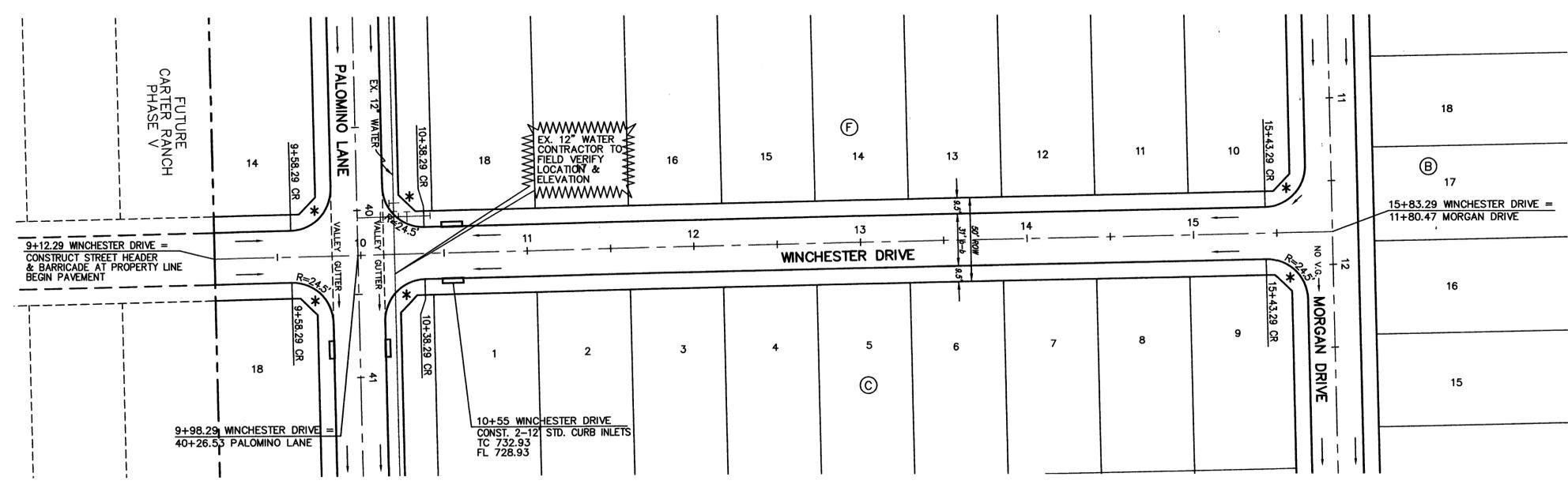
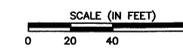
NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**  
**LIPIZZAN LANE**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

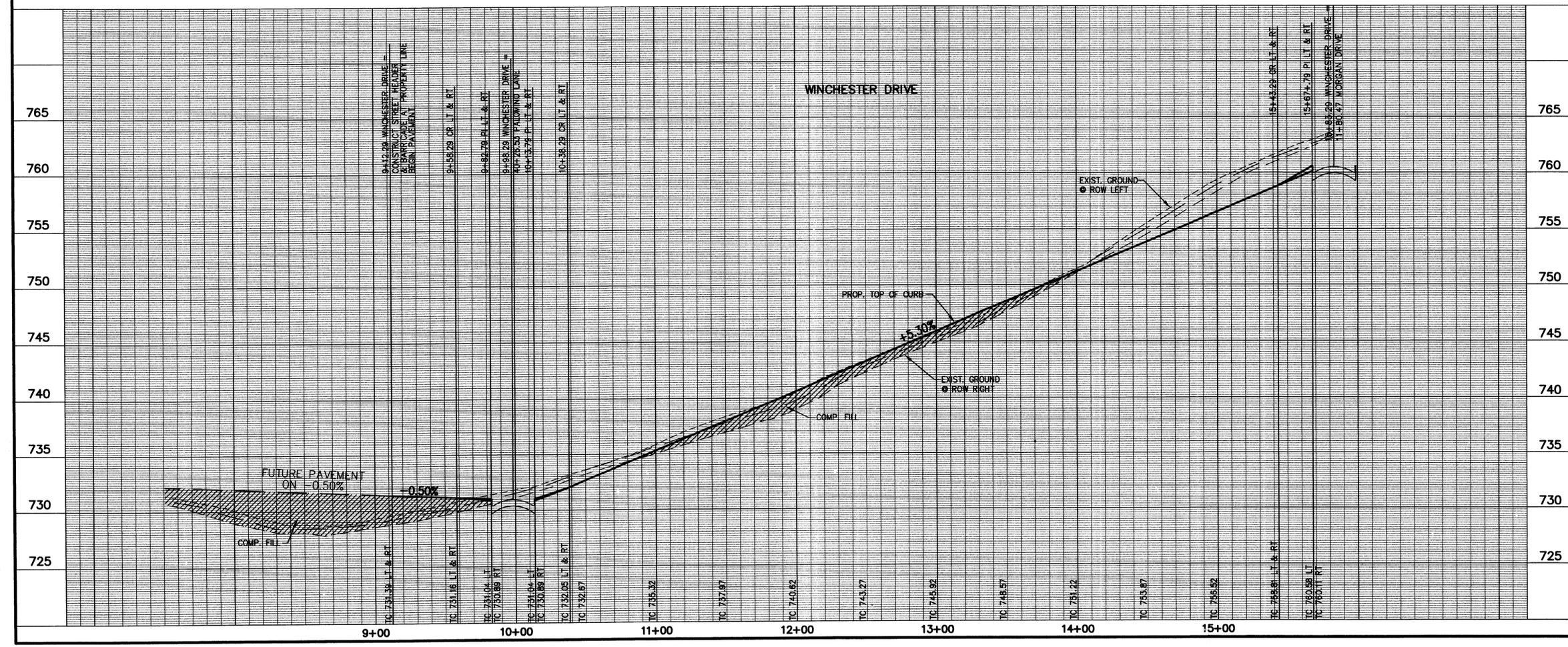
Huitt-Zollars, Inc. Dallas  
 9351 McKinney Avenue, Suite 600  
 Dallas, Texas 75244-2489  
 Phone (214) 671-9511 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H, 1"=40' V, 1"=5'		01-3122-67	4 OF 42

C:\p01312205\dwg\01312205CSTR.dwg, LIPIZZAN (4), 10/17/2005 10:20:55 AM, Huitt-Zollars, Inc. - Denton - JDS



\* THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYDOWN CURB AT STREET INTERSECTIONS. SUBDIVISION INTERIOR BARRIER FREE RAMPS AND SIDEWALKS ARE TO BE CONSTRUCTED BY HOME BUILDER.



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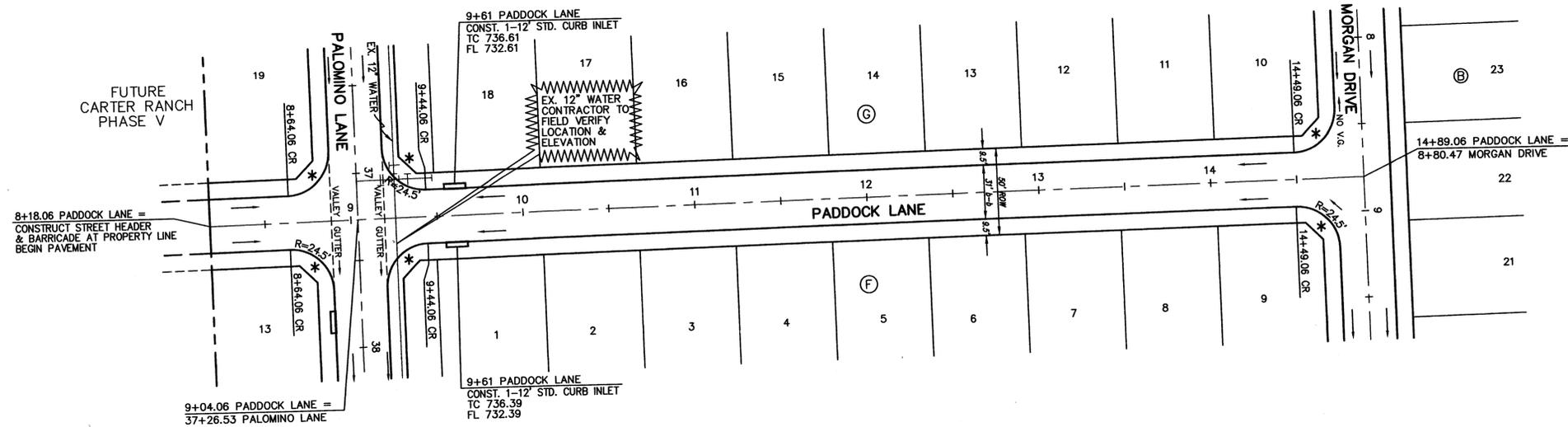
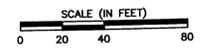
NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**  
**WINCHESTER DRIVE**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

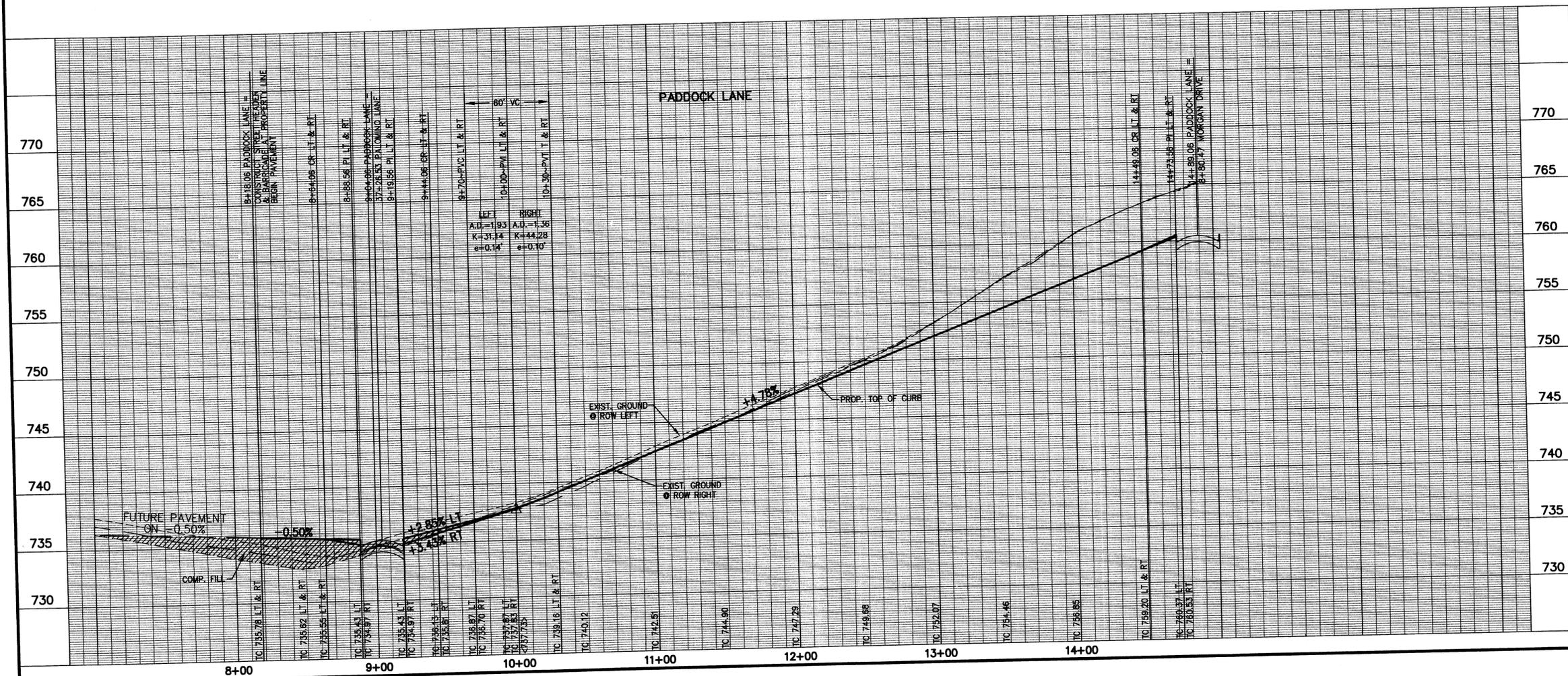
**HUITT-ZOLLARS**

Huitt-Zollars, Inc.  
 981 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-2489  
 Phone (940) 671-3331 Fax (940) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI	HZI	SEPT. 2005	H.1"=40' V.1"=5'		01-3122-67	5 OF 42



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NO.	DATE	REVISIONS	APPROVED

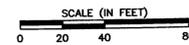
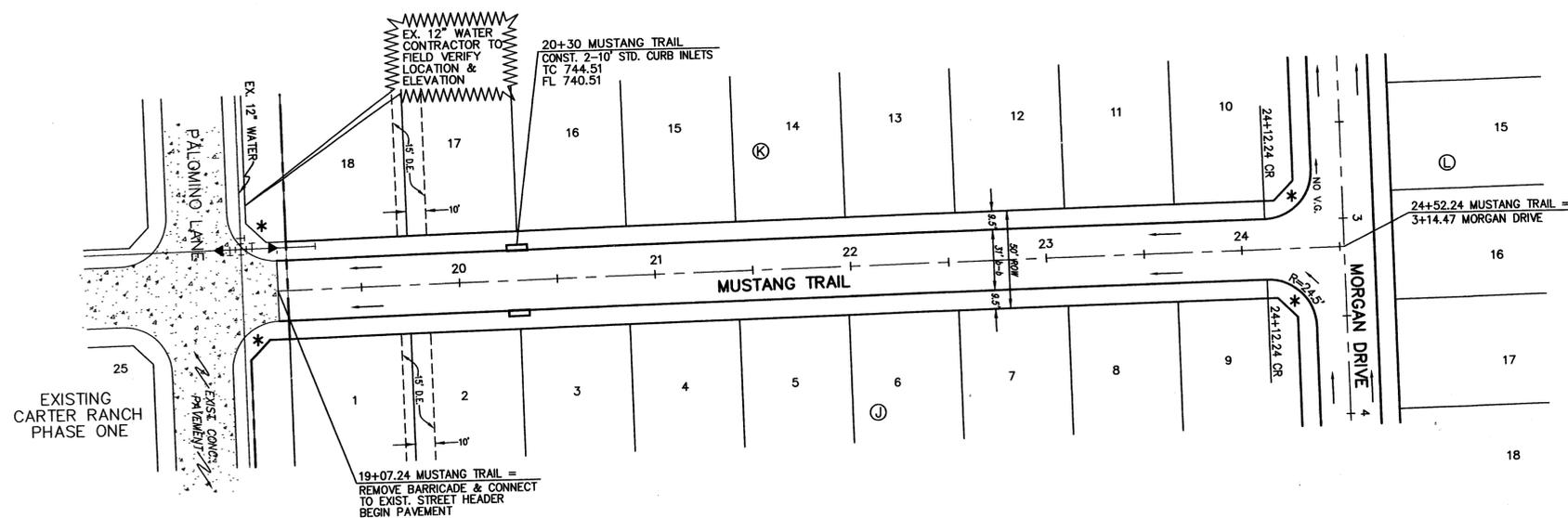
**THE CARTER RANCH - PHASE III**  
**PADDOCK LANE**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**

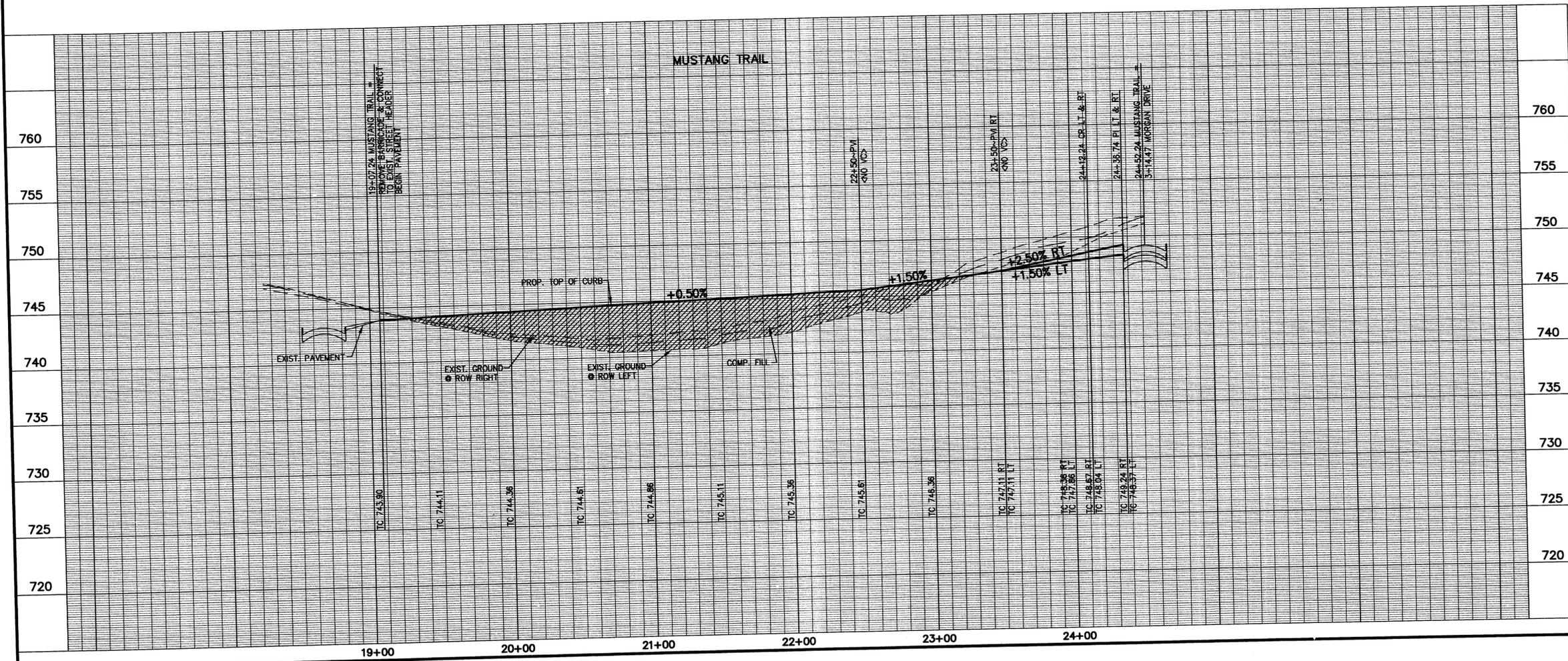
Huitt-Zollars, Inc.  
 381 McGraw Avenue, Suite 600  
 Dallas, Texas 75204-2488  
 Phone (214) 671-0251 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H, 1"=40' V, 1"=5'		01-3122-67	6 OF 42





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**BENCHMARKS:**

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NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**

**MUSTANG TRAIL**

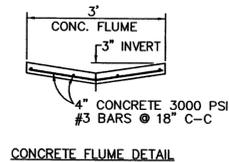
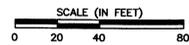
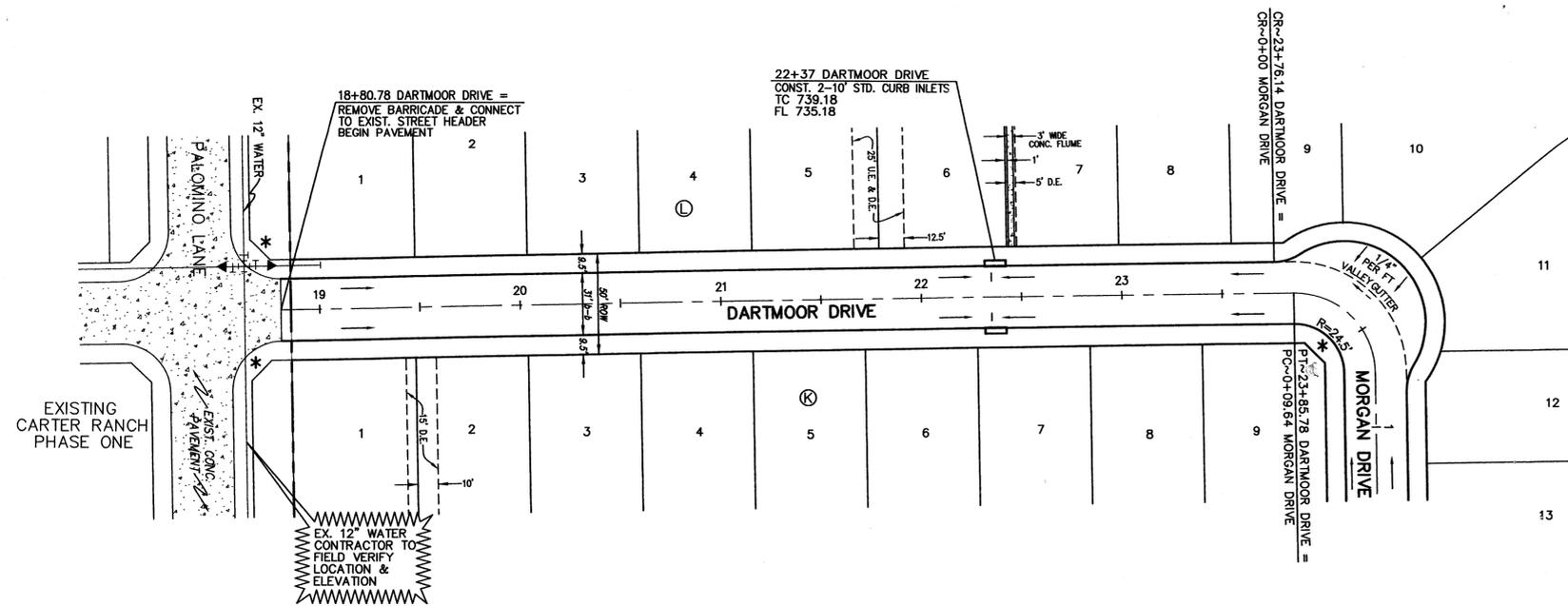
**CENTURION AMERICAN DEVELOPMENT GROUP**

**CELINA, TEXAS**

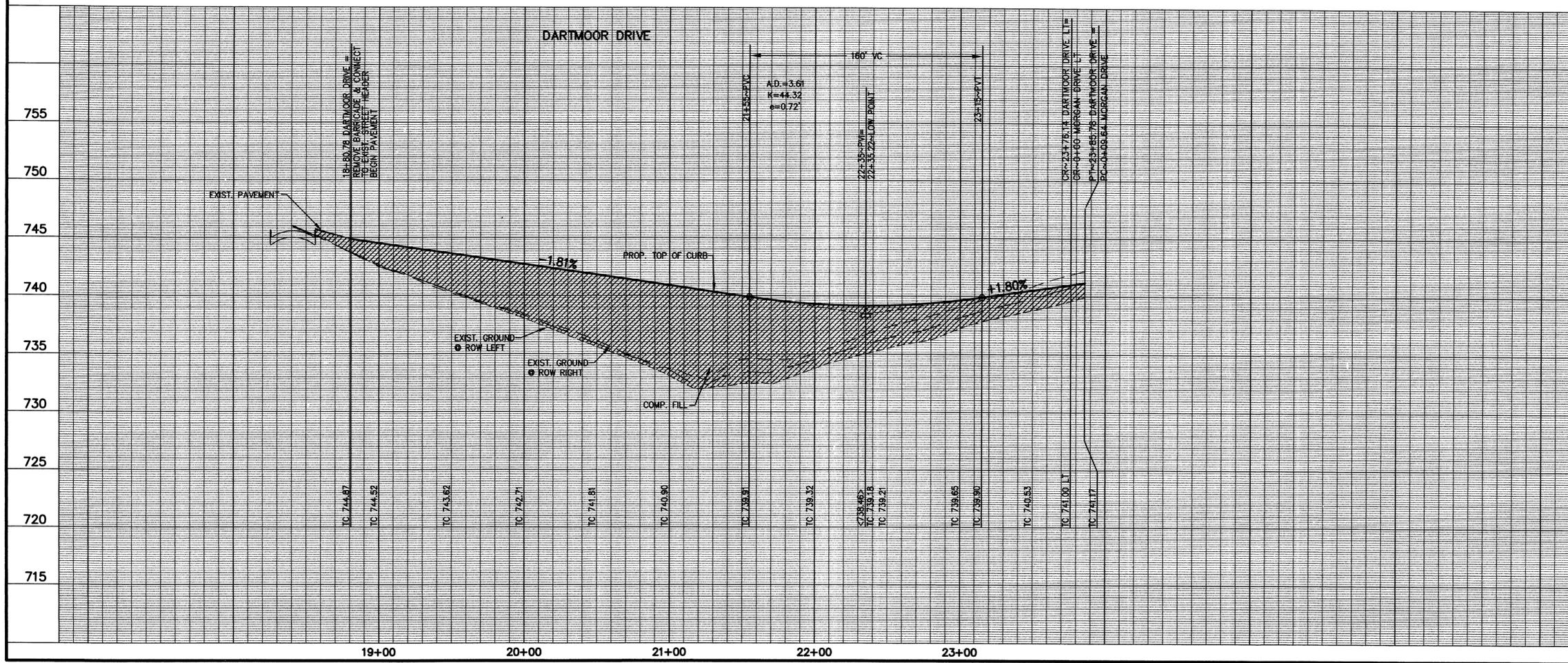
**HUITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
381 McKinney Avenue, Suite 900  
Dallas, Texas 75204-2488  
Phone (214) 671-3331 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H.1"=40' V.1"=5'		01-3122-67	8 OF 42



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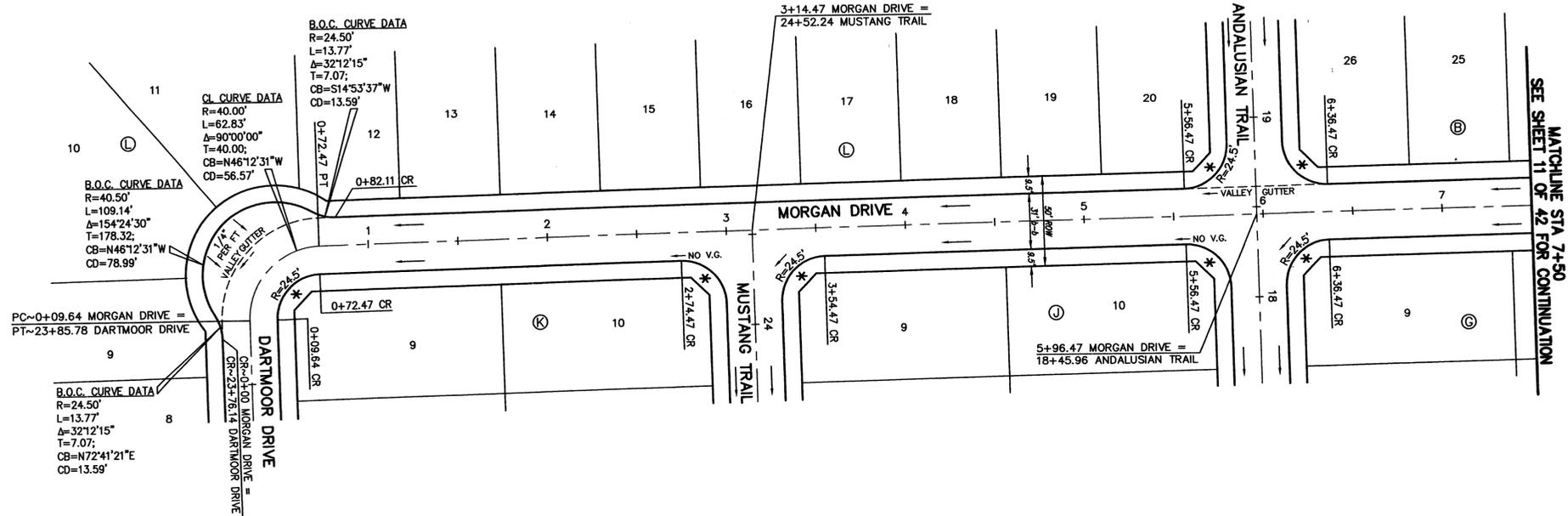
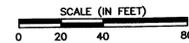


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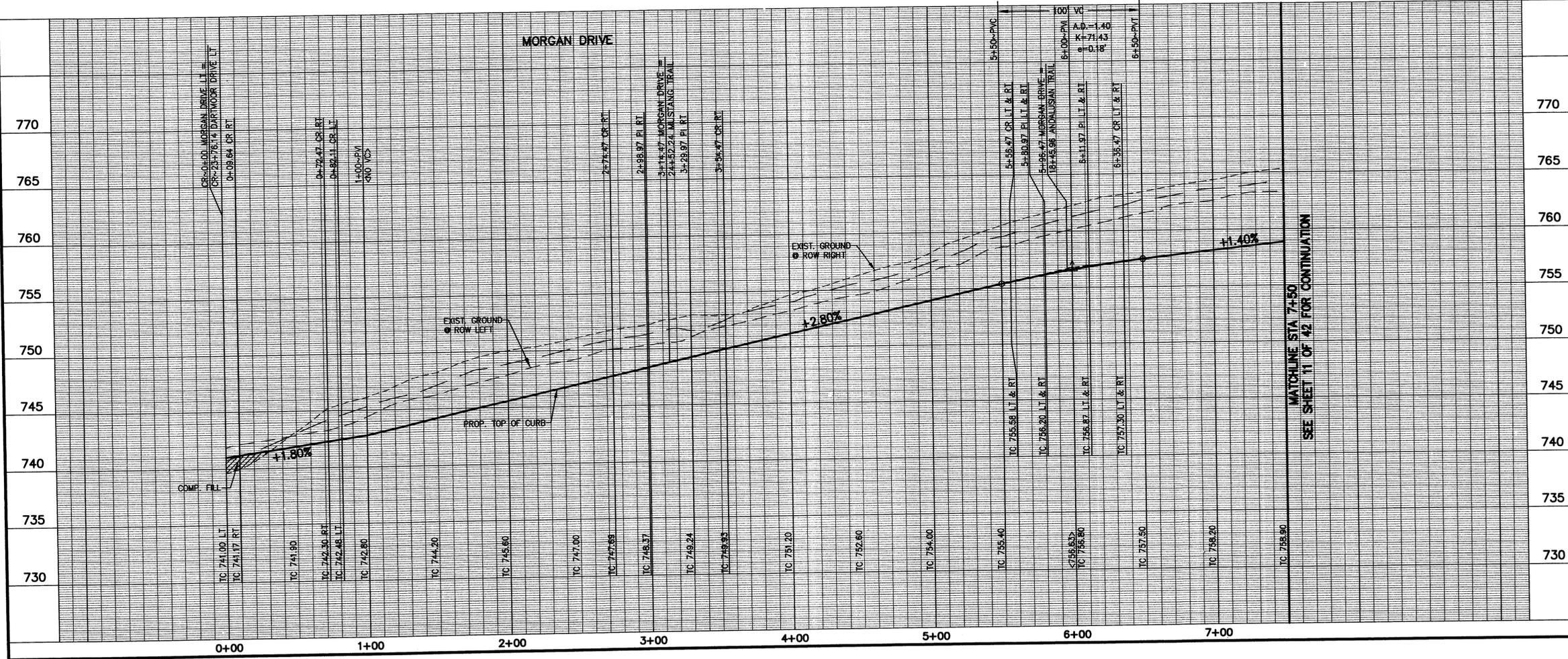
**THE CARTER RANCH - PHASE III**  
**DARTMOOR DRIVE**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**  
 HZT-ZOLLARS, INC. 6911 McCroskey Avenue, Suite 600 Dallas, Texas 75204-5489  
 Phone (214) 671-0281 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H,1"=40' V,1"=5'		01-3122-67	9 OF 42



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**BENCHMARKS:**

**770**  
 CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUIIT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**765**  
 CONTROL MONUMENT No. 5 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUIIT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET

**760**

**755**

**750**

**745**

**740**

**735**  
**THE CARTER RANCH - PHASE III**  
**MORGAN DRIVE (STA 0+00 TO 7+50)**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

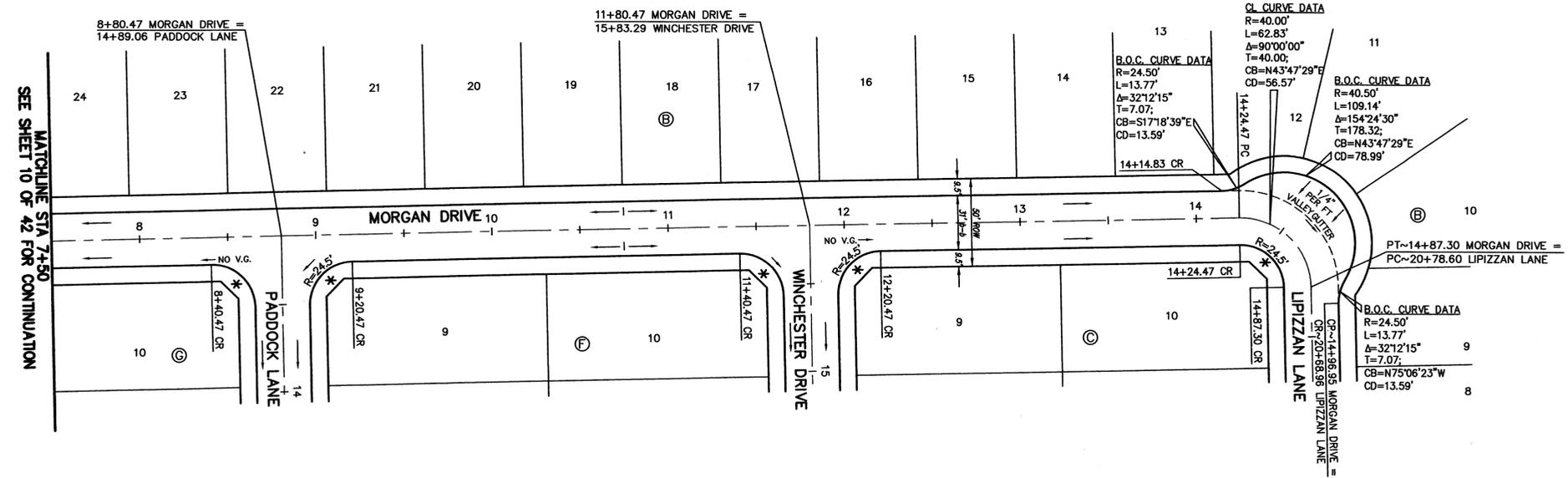
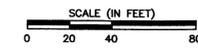
**730**  
**HUIIT-ZOLLARS**  
 HZJ-Zollars, Inc.  
 5911 MacGregory Avenue, Suite 600 Dallas, Texas 75204-2489  
 Phone (214) 671-0321 Fax (214) 671-0757

NO.	DATE	REVISIONS	APPROVED

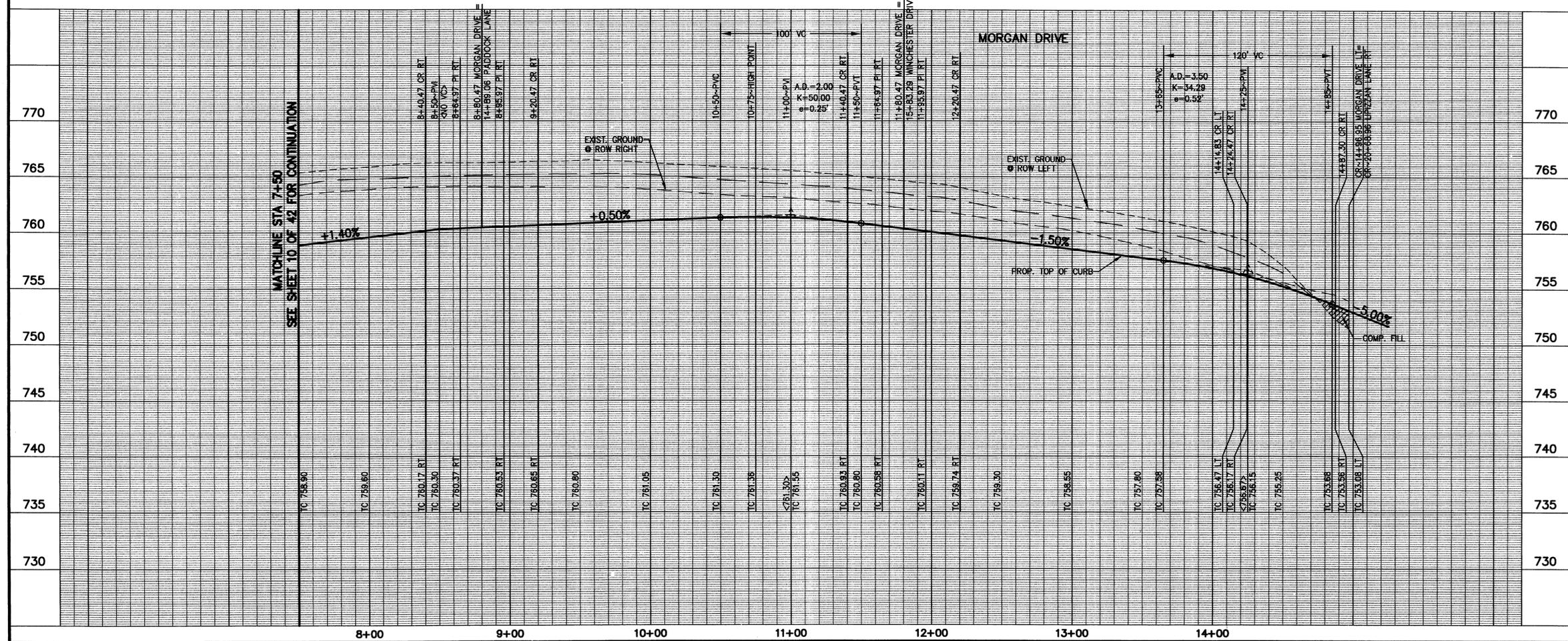
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HZJ DENTON	HZJ DENTON	SEPT. 2005	H, 1" = 40' V, 1" = 5'		01-3122-67	10 OF 42



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\* THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYDOWN CURB AT STREET INTERSECTIONS. SUBDIVISION INTERIOR BARRIER FREE RAMPS AND SIDEWALKS ARE TO BE CONSTRUCTED BY HOME BUILDER.



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NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**

**MORGAN DRIVE (STA 7+50 TO END)**

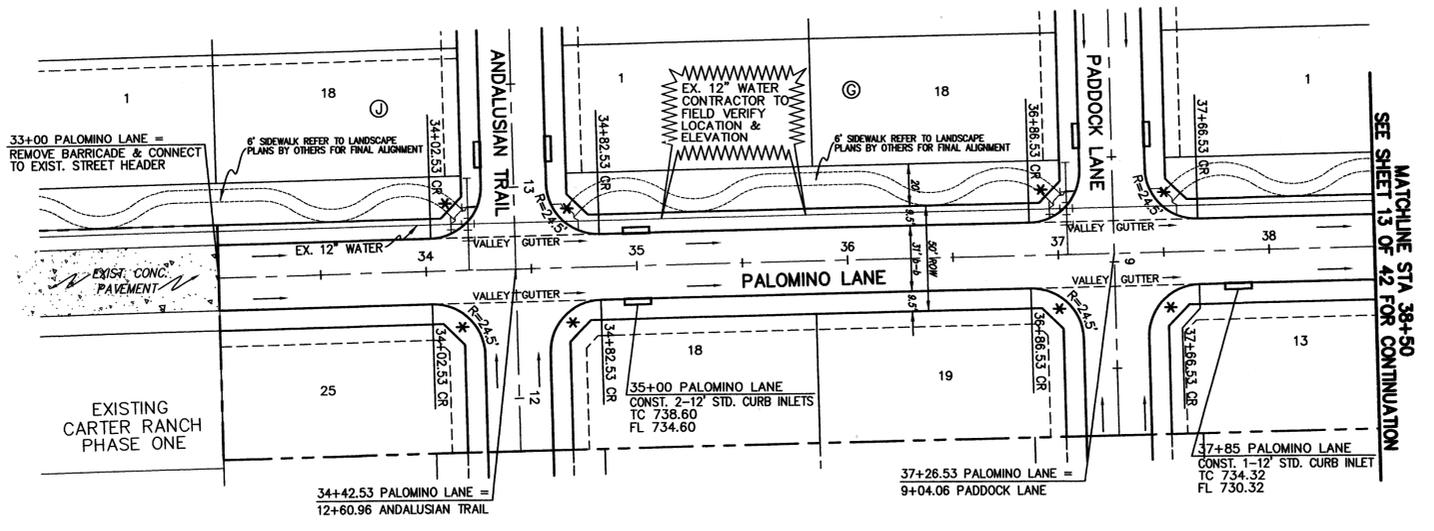
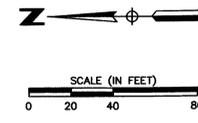
**CENTURION AMERICAN DEVELOPMENT GROUP**

**CELINA, TEXAS**

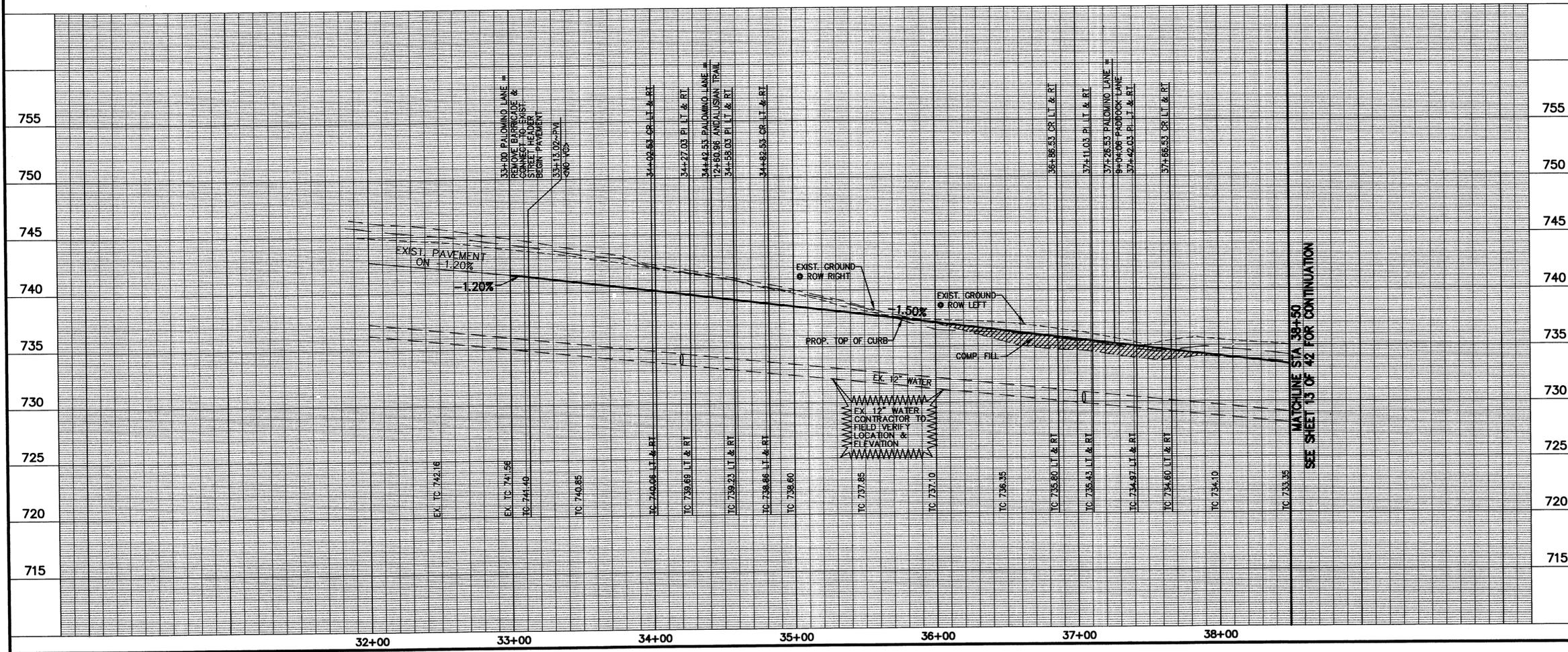
**HUITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
 8811 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-2480  
 Phone (214) 671-0311 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H, 1"=40' V, 1"=5'		01-3122-67	11 OF 42



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NO.	DATE	REVISIONS	APPROVED
1	11-11-05	ADDED 6' SIDEWALK	GJ

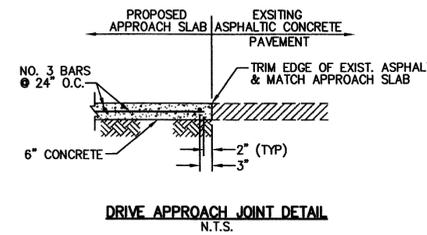
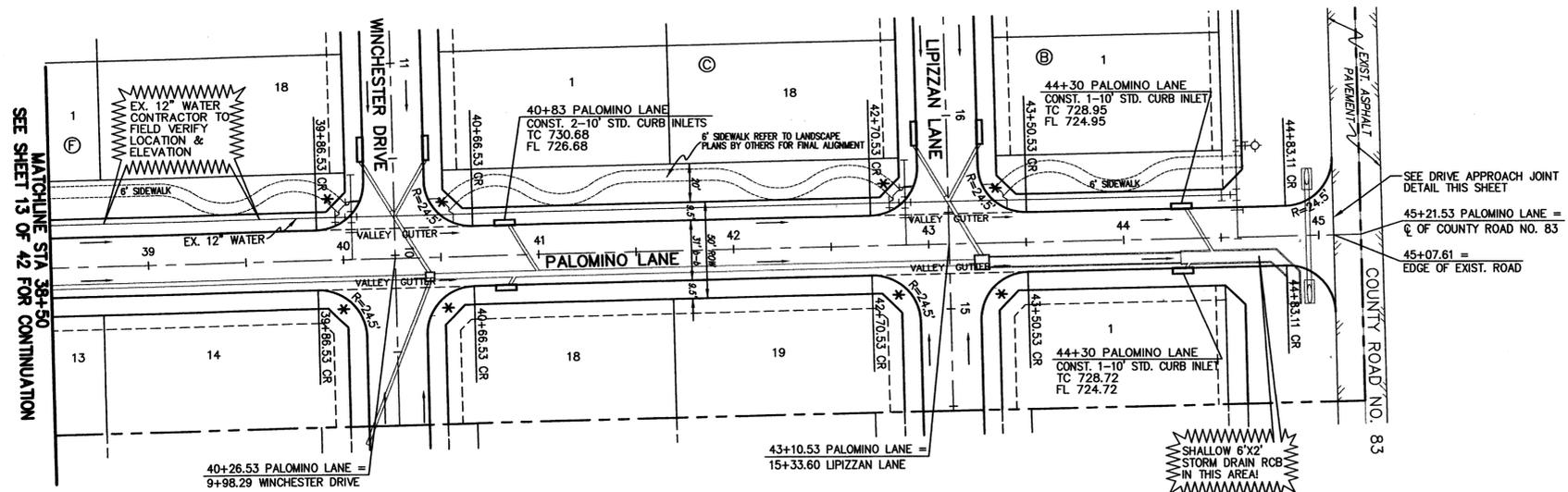
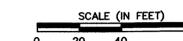
**THE CARTER RANCH - PHASE III**  
**PALOMINO LANE (STA 33+00 TO 38+50)**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**

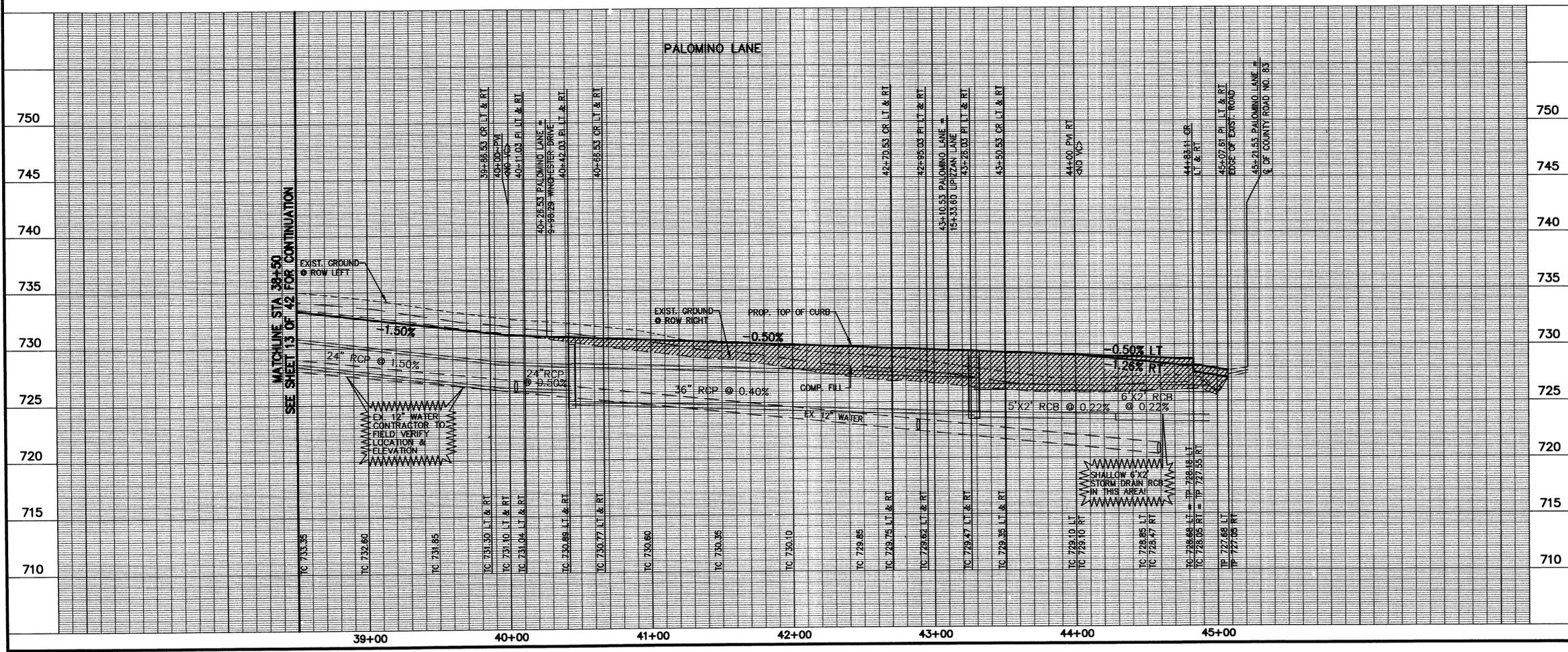
Huitt-Zollars, Inc. Dallas  
 385 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-0489  
 Phone (214) 671-9331 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	H.1"=40' V.1"=5'		01-3122-67	12 OF 42

G:\proj\01312205\dwg\01312205GSTR.dwg, PALOMINO (12), 11/11/2005 4:42:38 PM, Huitt-Zollars, Inc. - Denton, JDS



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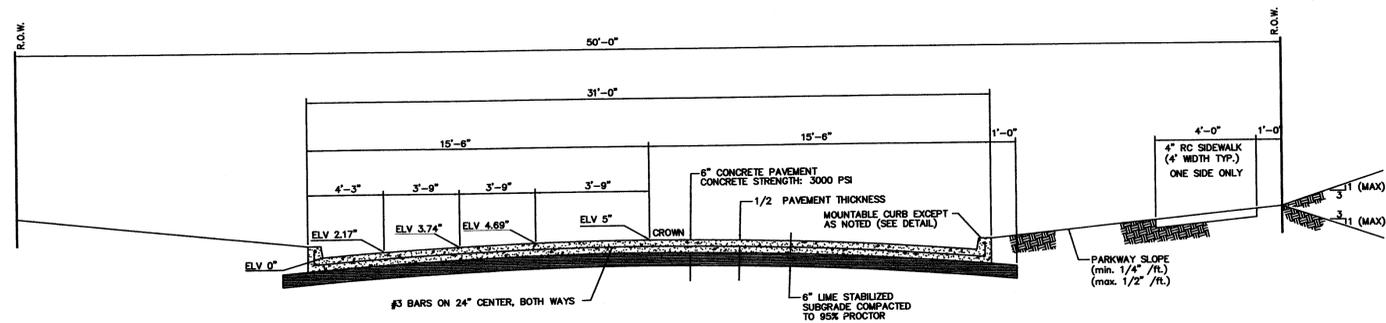
NO.	DATE	REVISIONS	APPROVED
1	11-11-05	ADDED 6" SIDEWALK	GJ

**THE CARTER RANCH - PHASE III**  
**PALOMINO LANE (STA 38+50 TO END)**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

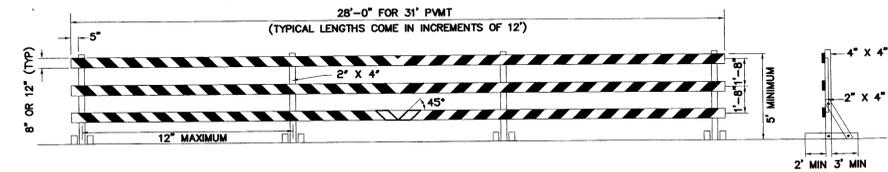
**HUITT-ZOLLARS**

Huitt-Zollars, Inc.  
 281 McGraw Avenue, Suite 800  
 Dallas, Texas 75204-2486  
 Phone (214) 671-3391 Fax (214) 671-0757

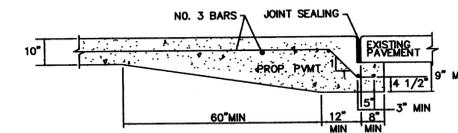
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HZI DENTON	HZI DENTON	SEPT. 2005	H.1"=40' V.1"=5'	01-3122-67	13 OF 42



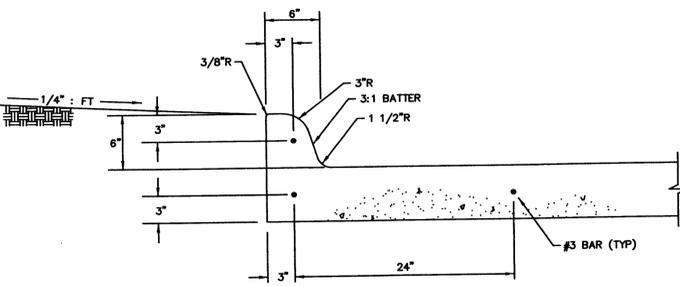
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NTS



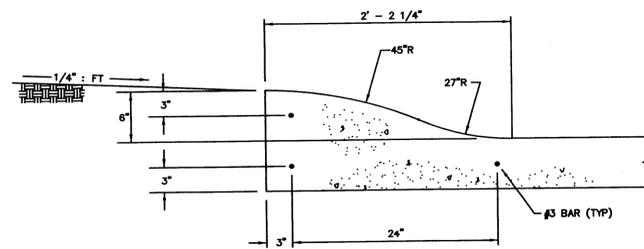
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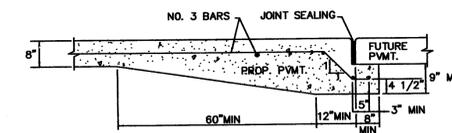
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NTS



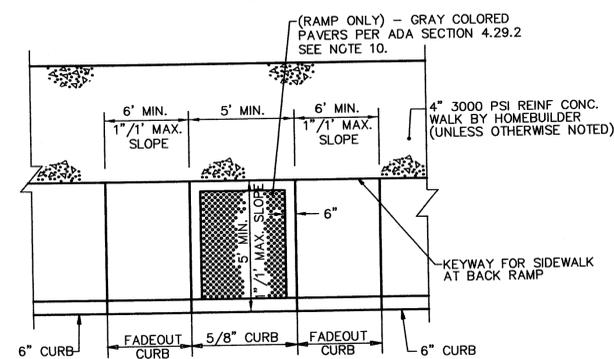
**STANDARD INTEGRAL CURB**  
NTS



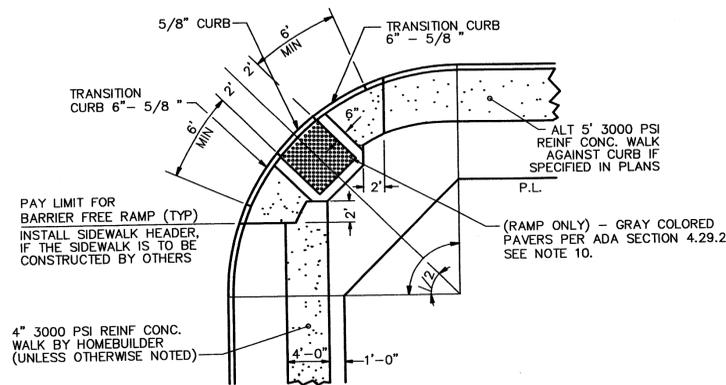
**'MODIFIED' MOUNTABLE CURB**  
NTS



**MODIFIED STREET HEADER DETAIL**  
NTS



**BARRIER FREE RAMP IN STRAIGHT CURB**  
SIDEWALK ADJACENT TO CURB



**DEPRESSED CURB AT STREET INTERSECTION**  
NTS

**GENERAL NOTES - PAVING**

- See GENERAL NOTES on cover sheet of Engineering Plans.
- All pavement shall be six-inch (6") 3000 psi reinforced concrete with #3 bars at 24" on center each way. The subgrade shall be lime (or cement, if approved by the Geotechnical Engineer and City Engineer) treated to a depth of six-inches (6"). The percentage of lime shall be determined by the Geotechnical Engineer and approved by the City Engineer after the subgrade has been cut to final grade and prior to mobilization of the lime crews. VERIFY THE PERCENTAGE OF LIME WITH THE PROJECT ENGINEER OR CITY ENGINEER PRIOR TO PLACEMENT, SINCE THE AMOUNT MAY DIFFER FROM THE BID/CONTRACT DOCUMENTS.
- Final paving, curb, and sidewalk elevations will be placed at +/-0.01 feet.
- All storm sewer inlet, manholes, cleanouts, valve boxes, meter boxes, fire hydrants, etc... must be adjusted to proper line and grade by the Paving Contractor prior to and after placing of permanent pavement. The Paving Contractor shall be responsible for adjustments of 0" to +6". Adjustments of raising facilities more than six-inches (>6") and/or lowering of facilities shall be the responsibility of the Utility Contractor.
- All fill shall be compacted to 95% Standard Proctor Density in a maximum of six (6") lifts or per Geotechnical Engineers report. Unless the Geotechnical Engineer has noted differently, during fill operations, no lift shall exceed eight-inches (8") in depth prior to compaction.
- Paving Contractor shall construct lay down curbs at intersections where barrier free ramps are to be constructed (as shown on the plans).
- The Paving Contractor shall provide, construct, and maintain barricades and signs in accordance with the Texas Manual of Uniform Traffic Control Devices.
- Construction joints, cold joints, and curb returns need to have fabric installed to allow for expansion. Sowed joints shall be every 15 feet for six (6") inch thick concrete and every 20 feet for eight (8") inch thick concrete.
- Backfill of curb and grading of the parkways shall be the responsibility of the Paving Contractor.



NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>PAVING DETAILS</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLLARS</b>			
DESIGN	DRAWN	DATE	SCALE
DATE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	NTS
			01-3122-67 14 OF 42

Street Name Blade Specification

Location:

- 6" flat blades shall be used at all intersections within the interior of the subdivision.
- 9" extruded blades shall be used at intersections where a subdivision roadway intersects a roadway designated as a major or minor thoroughfare and at all other intersections along major and minor thoroughfares.

Blade Requirements:

- 6" Flat Blade shall be aluminum and have a thickness of 0.08 inches.
- 9" Extruded Blade shall be aluminum.

Lettering Alignment:

- Street name is left justified
- Block numbers are located upper right corner.
- Abbreviated street designations are located in lower right corner.

Lettering for 6" Flat Blades:

- Letters are all Uppercase.
- Font is Federal Highway Series B or Series C (manufacturer will determine best to use based on length of blade and length of name).
- Letters and Numbers in street name are 4" tall.
- Letters in abbreviated street designation are 2" tall (i.e., LN, PKWY, DR, CT, etc).
- Block Numbers are 2" tall.

Lettering for 9" Extruded Blades:

- Letters are all Uppercase.
- Font is Federal Highway SERIES B or Series C (manufacturer will determine best to use based on length of blade and length of name).
- Letters and Numbers in street name are 6" tall.
- Letters in abbreviated street designation are 3" tall (i.e., LN, PKWY, DR, CT, etc).
- Block Numbers are 3" tall.

Sign Sheeting and Colors:

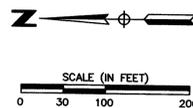
- High Intensity Sheeting.
- Background shall be green.
- Legend shall be white.

No Outlet Streets:

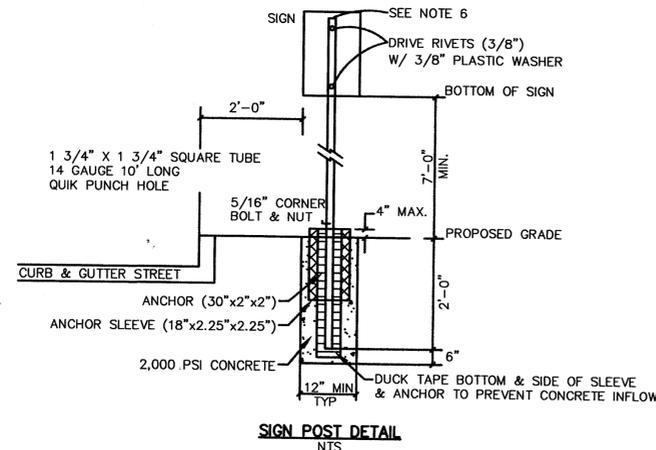
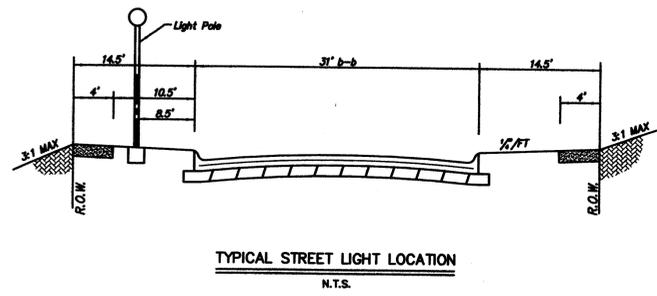
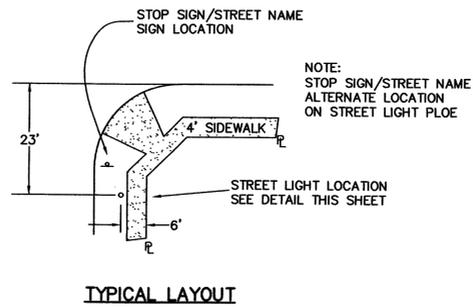
- The letters "NO OUTLET" shall be black uppercase letters on a yellow background.
- The word "NO" shall be centered over the word "OUTLET".
- On 6" flat blades, the font is Federal Highway SERIES B with 1.5" letters.
- On 9" extruded blades, the font is Federal Highway SERIES B with 2.5" letters.
- An arrow pointing in the direction of the no outlet locations shall be below the words "NO OUTLET".
- For a street with only one cul-de-sac end (typical), one side of the blade shall have "NO OUTLET" on the right with the arrow pointing to the right while the opposing side of the blade shall have the "NO OUTLET" on the left with the arrow pointing to the left.
- In the case of a street with two cul-de-sac ends, each side of the blade shall have the words "NO OUTLET" on the right with an arrow pointing to the right and the words "NO OUTLET" on the left with an arrow pointing to the left.

Block Numbers:

- Developers/contractors ordering signs should contact Charles Kirk in Development Services at 972-335-5580 Ext. 185. Block numbers are required on all street name blades, even if no houses/buildings front onto the street

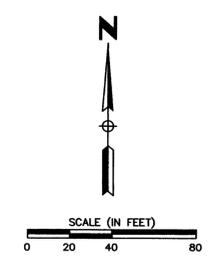
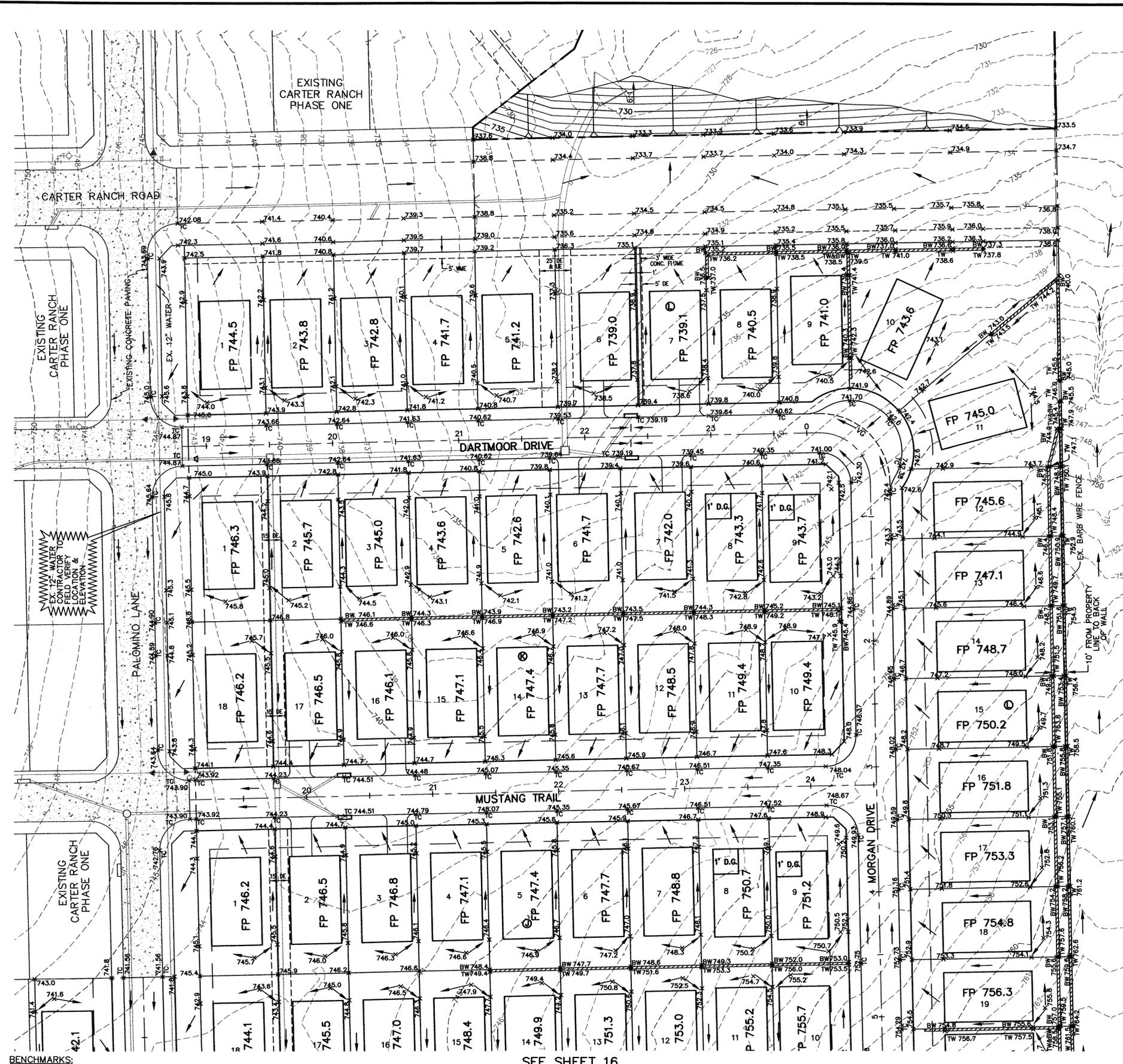


- LEGEND**
- ★ — STREET LIGHT (12' POLE)
  - — STREET NAME SIGN
  - — STOP SIGN
  - ☆ — STREET LIGHT (14' POLE)
  - ☆ — EXIST. STREET LIGHT (12' POLE)
  - — EXIST. STREET NAME SIGN
  - — EXIST. STOP SIGN

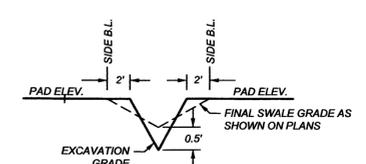
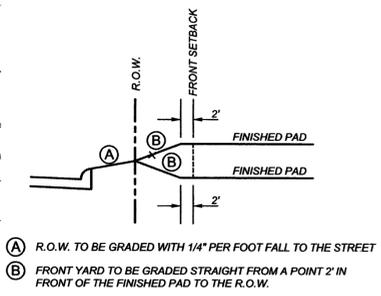
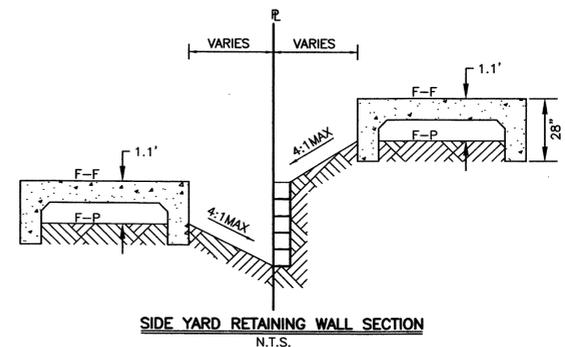
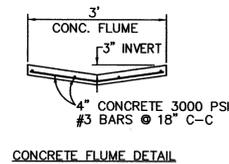
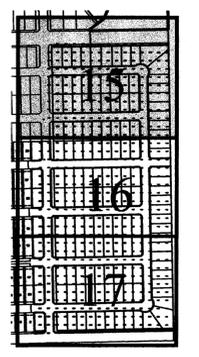


NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>STREET LIGHT AND SIGNAGE PLAN</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLIARS</b>			
<small>HZL-Zollars, Inc. Dallas 3981 McKinney Avenue, Suite 800 Dallas, Texas 75204-9489 Phone (214) 671-3331 Fax (214) 671-0757</small>			
DESIGN	DRAWN	DATE	SCALE
HZI DENTON	HZI DENTON	SEPT. 2005	1"=100'
NOTES	FILE	NO.	

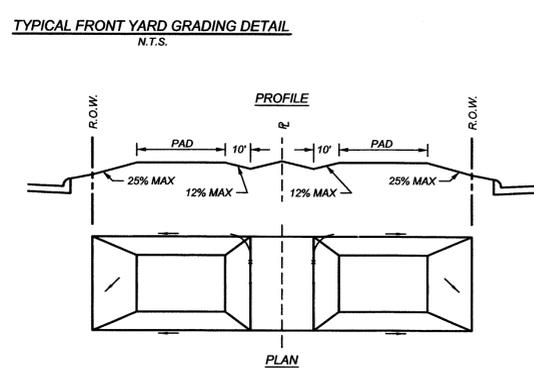
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- GRADING PARAMETERS:**
- GRADE AT FRONT PROPERTY LINE TO BE 0.2' ABOVE TOP OF CURB.
  - FINISHED FLOOR TO BE 1.1' ABOVE FINISHED PAD.
  - DRIVEWAY SLOPES SHALL NOT EXCEED 10% UNLESS OTHERWISE APPROVED. MAXIMUM DRIVEWAY SLOPE SHALL BE 12%.
  - ALL DRAINAGE, INCLUDING SWALES, SHALL MAINTAIN A MINIMUM 1% SLOPE. SIDE YARD SWALES ADJACENT TO PADS SHALL HAVE A MINIMUM 1.25% SLOPE.
  - SLOPES IN FRONT YARDS SHALL BE A MAXIMUM 25%. SIDE YARDS MAXIMUM 25% AND REAR YARDS MAXIMUM 12%.
  - ALL TREES THAT ARE LOCATED WITHIN 15' OF A BUILDING PAD, ROAD, OR ALLEY SHALL BE PROPERLY REMOVED AND DISPOSED OF SUBJECT TO LOCAL TREE ORDINANCE. TREES THAT HAVE A GRADE ELEVATION THAT DIFFERS FROM PROPOSED GRADE BY MORE THAN 1' WILL ALSO BE REMOVED.
  - REAR YARD OR FRONT YARD SWALE (TYPE A OR C DRAINAGE) TO BE MINIMUM OF 10' AWAY FROM PAD AND 0.5' LOWER THAN PAD AT HIGHEST POINT.
  - ALL FILL TO BE PLACED AS SPECIFIED IN HUD DATA SHEET 79G.
  - DIRT CONTRACTOR TO BUILD ALL PADS 2' BEYOND DESIGN PAD PERIMETER AND CUT ALL SWALES 0.5' BELOW DESIGNED GRADE.



- EXCAVATION NOTES:**
- CONTRACTOR TO BUILD PAD 2' BEYOND DESIGN PAD.
  - CONTRACTOR TO CUT SWALES 0.5' BELOW DESIGN SWALE.
  - CONTRACTOR TO "DAYLIGHT" OVERCUT SWALES TO PROPOSED TOP OF CURB.



- LEGEND**
- x 536.4 SPOT ELEVATION
  - x TW 537.9 TOP OF WALL ELEVATION
  - x BW 536.2 BOTTOM OF WALL ELEVATION
  - FLOW ARROW
  - RETAINING WALL (MILSAP STONE)
  - 500 EXISTING CONTOUR
  - 540 PROPOSED CONTOUR
  - FP 552.1 FINISH PAD ELEVATION



**BENCHMARKS:**

CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

CONTROL MONUMENT No. 5 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET

SEE SHEET 16

NO.	DATE	REVISIONS	APPROVED
1	11/02/05	ADDED 5' WME ALONG FUTURE CARTER RANCH ROAD & MOVED RET. WALL OUT OF ESMT ON LOTS 8-10, BLK L	GJ

**THE CARTER RANCH - PHASE III**

**GRADING PLAN**

**CENTURION AMERICAN DEVELOPMENT GROUP**

**CELINA, TEXAS**

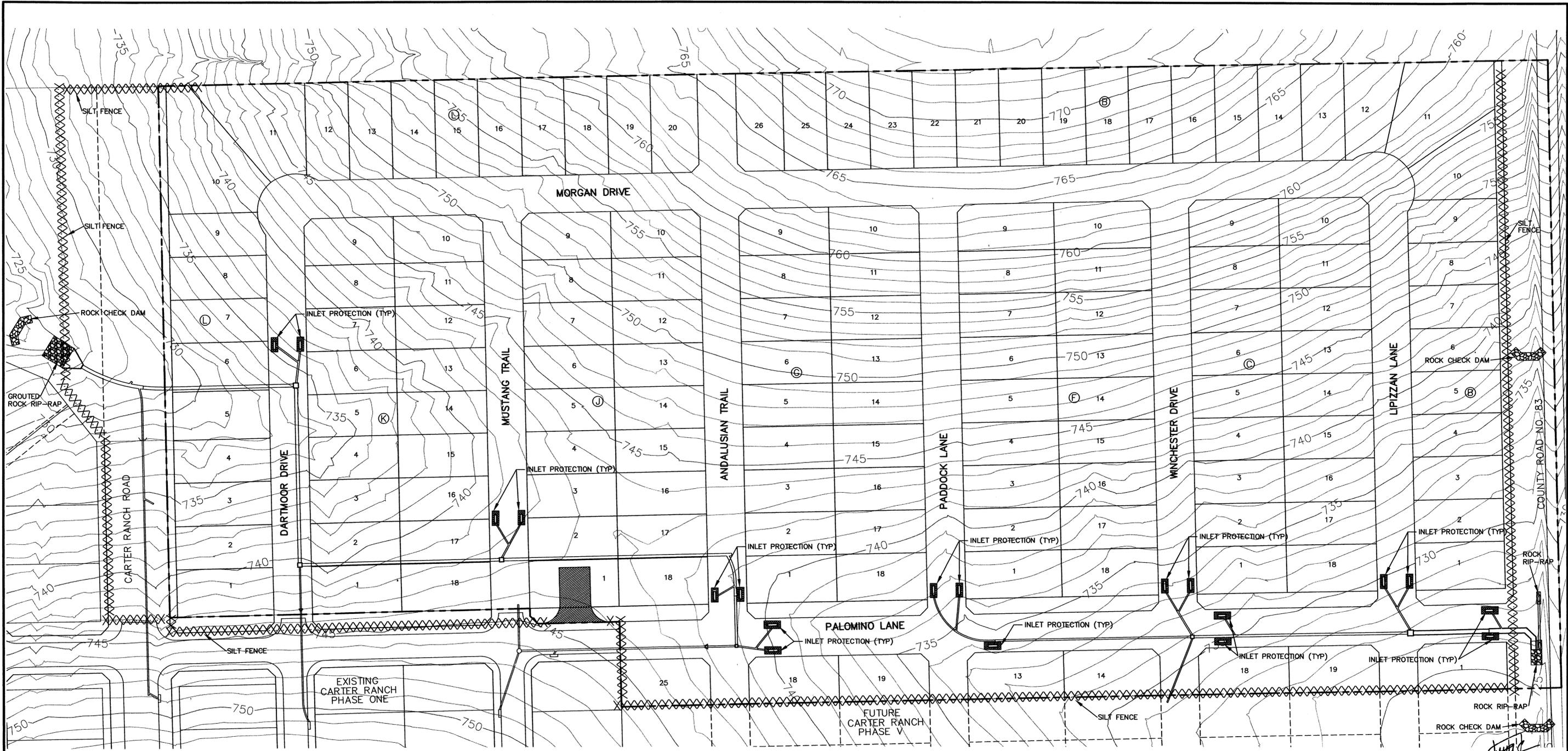
**HUITT-ZOLLARS**

Huitt-Zollars, Inc. 3811 McKinney Avenue, Suite 600 Dallas, Texas 75204-2458 Phone (214) 671-0381 Fax (214) 671-0767

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	AUG 2005	1"=40'		01-3122-67	15 OF 42





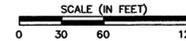


**EROSION CONTROL NOTES:**

1. THE N.C.T.C.O.G. EROSION CONTROL DETAILS SHALL BE UTILIZED. SEE EROSION CONTROL DETAIL SHEET.
2. INLET PROTECTION SHALL BE INSTALLED, MAINTAINED AND REMOVED BY THE UTILITY CONTRACTOR. SEE DETAILS "C" AND "E", DETAIL SHEET.
3. THE CONTRACTOR SHALL INCORPORATE THE REQUIREMENTS OF THE MOST CURRENT STORM WATER POLLUTION PREVENTION PLAN (SWPP) FOR CARTER RANCH INTO THIS EROSION CONTROL PLAN.
4. STRAW BALE DIKES MAY BE REQUIRED IN THE DRAINAGE CHANNELS AS NECESSARY TO PREVENT EROSION FROM HIGH VELOCITIES IN CONCENTRATED SITE RUNOFF AND THE TRANSPORT OF SEDIMENT ALONG THE STREET EXCAVATION.
5. DRAINAGE CHANNEL SHALL HAVE ROCK CHECK DAMS EVERY 5' OF VERTICAL FALL OR 150 LF LENGTH OF CHANNEL, WHICHEVER IS LESS. INSTALLATION BY THE GRADING CONTRACTOR, UNLESS SHOWN OTHERWISE. REMOVAL AND DISPOSAL BY GRADING CONTRACTOR. SEE DETAIL "K" DETAIL SHEET.
6. THE GRADING CONTRACTOR SHALL INSTALL SILT FENCE AS SHOWN. SILT FENCE SHALL FOLLOW CONTOUR LINES AS MUCH AS POSSIBLE. SEE DETAIL "B" OF THE DETAIL SHEET. REMOVAL BY GRADING CONTRACTOR. WOODEN STAKES AND WIRE MESH BACKING SUPPORT ARE OPTIONAL IN ALL AREAS.

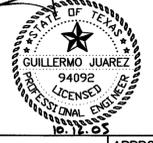
**NOTE TO CONTRACTORS:**

- IN ACCORDANCE WITH THE REQUIREMENTS OF THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION SITES, ALL CONTRACTORS AND SUBCONTRACTORS SHALL AT ALL TIMES TAKE NECESSARY MEASURES TO PREVENT THE FLOW OF SEDIMENT AND OTHER MATERIALS FROM THE WORK SITE INTO THE STORM SEWER SYSTEM OR TO ANY RECEIVING WATER. SUCH MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, THE PLACEMENT OF HAY BALE EROSION DIKES AND INLET PROTECTION, SILT FENCE, RIPRAP STABILIZATION, SEEDING, SODDING, ETC. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, PAYMENT FOR THIS WORK WILL BE INCLUSIVE UNDER THE LINE ITEM IN THE BID DOCUMENTS FOR EROSION CONTROL.
- THE GRADING CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL MEASURES AT THE SITE AS OF THE DATE OF HIS "NOTICE TO PROCEED". THE "NOTICE TO PROCEED" FOR THE UTILITY CONTRACTOR TRANSFERS THE RESPONSIBILITY FROM THE GRADING CONTRACTOR TO THE UTILITY CONTRACTOR.
- A SECOND "NOTICE TO PROCEED" WILL BE ISSUED TO THE GRADING CONTRACTOR TO COMPLETE FINAL GRADING AND GRASSING OF THE LOTS. THIS SECOND "NOTICE TO PROCEED" TRANSFERS THE RESPONSIBILITY FOR THE INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL MEASURES FROM THE UTILITY CONTRACTOR TO THE GRADING CONTRACTOR.
- A NOTICE OF TERMINATION SHOULD BE FILED UPON OWNER'S/ENGINEER'S ACCEPTANCE OF FINAL GRADING AND ACHIEVEMENT OF A FINALLY STABILIZED CONSTRUCTION SITE.



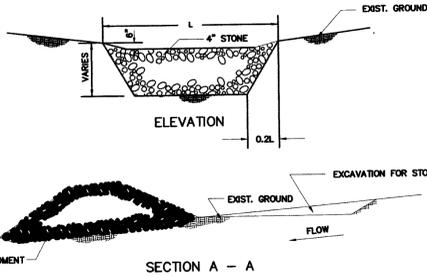
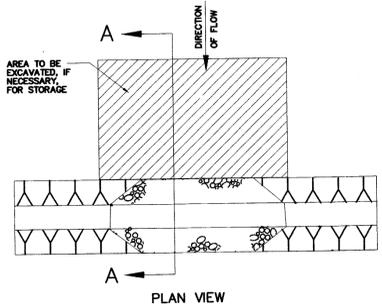
**LEGEND :**

- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- XXXX SILT FENCE
- ROCK BERM CHECK DAM (SEE DETAIL K)
- INLET PROTECTION



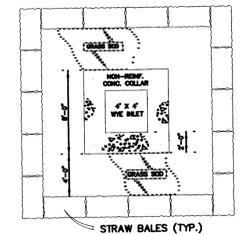
NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>EROSION CONTROL PLAN</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLIARS</b>			
DESIGN	DRAWN	DATE	SCALE
HZI DENTON	HZI DENTON	SEPT. 2005	1"=60'
NOTES	FILE	NO.	
	01-3122-67	18 OF 42	

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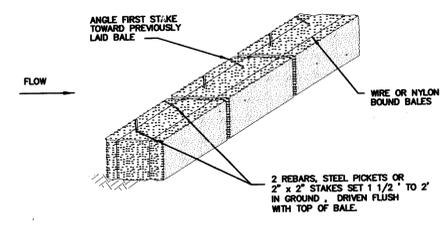


**STONE SILTATION STRUCTURE**  
DETAIL "D"  
N.T.S.

Stone Siltation Structure To Be Installed Prior To Beginning Work On Site.



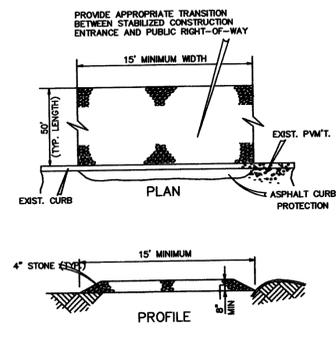
**WYE INLET PROTECTION**  
DETAIL "C"  
N.T.S.



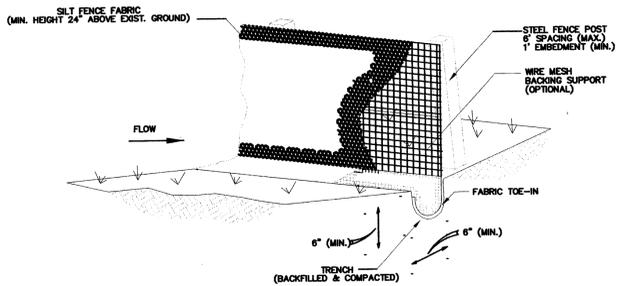
**ANCHORING DETAIL STRAW BALE DIKE**  
DETAIL "E"  
N.T.S.

Straw Bales Shall Be Placed In A Row With Tightly Abutting Ends. Embed Bales In The Soil A Minimum Of Four Inches. Straw Bales Shall Be Replaced If They Are Damaged Or Have Degraded To A Point Of Ineffectiveness. Replacement Of Straw Bales Shall Occur No Less Often Than 90 Days, Unless Notified By Engineer.

The Stabilized Construction Entrance / Exit Is To Be Used As A Vehical Wash Down Area For Debris And Soil Removal Before Exiting The Site Onto The Existing Roadway. Location For Installation Should Be Identified On The Project's Erosion Control Plan. An Alternate Location Must Be Approved By Owner Or Engineer Prior To Installation. Stabilized Construction Entrance / Exit Shall Be Top Dressed With Additional Stone As Necessary.

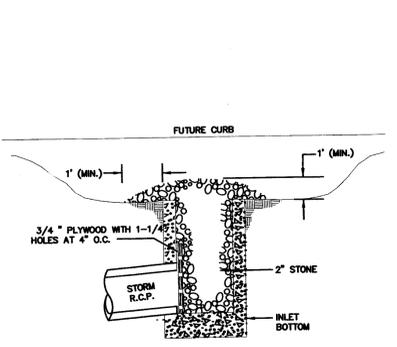


**STABILIZED CONSTRUCTION ENTRANCE / EXIT**  
DETAIL "A"  
N.T.S.



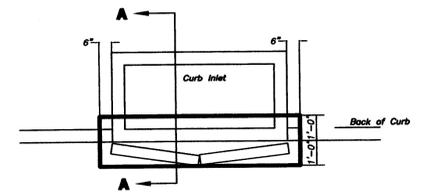
**SILT FENCE**  
DETAIL "B"  
N.T.S.

- SILT FENCE GENERAL NOTES:**
- STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
  - THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
  - THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
  - SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
  - INSPECTION SHALL BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
  - SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
  - ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



**STORM DRAINAGE INLET PROTECTION**  
DETAIL "F"  
N.T.S.

Contractor Shall Intercept Flow And Install Inlet Protection Measures As Soon As Practicable.

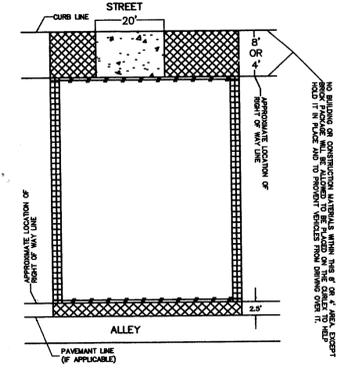


**SEDIMENT FILTER FOR PAVED INLET TOP**  
DETAIL "C"  
N.T.S.

NO CURLEX BLANKET ROLLS OR SILT FENCE PROTECTED INLETS.

**SAMPLE BUILDING LOT EROSION CONTROL PLAN**

- INSTALL CURLEX OR EQUAL 8' FROM BACK OF CURB AND AT BACK OF LOT IF GRADED TO DRAIN IN THAT DIRECTION ON NORMAL LOTS. BRICK PACKAGE WILL BE ALLOWED TO BE PLACED ON THE CURLEX TO HELP HOLD IT IN PLACE AND TO PREVENT VEHICLES FROM DRIVING OVER IT.
- INSTALL CURLEX OR EQUAL 4' FROM BACK OF CURB AND AT BACK OF LOT IF GRADED TO DRAIN IN THAT DIRECTION ON SMALLER LOTS WITH 10' OR 15' BUILDING SETBACKS. BRICK PACKAGE WILL BE ALLOWED TO BE PLACED ON THE CURLEX TO HELPHOLD IT IN PLACE AND TO PREVENT VEHICLES FROM DRIVING OVER IT.
- 20' OPENING WITH 3" ROCK OR PAVEMENT
- 4' WINDSCREEN ON BOTH SIDES IF WITHIN TWO (2) LOTS OF EXISTING STRUCTURE
- SILT FENCE



**EROSION CONTROL NOTES:**

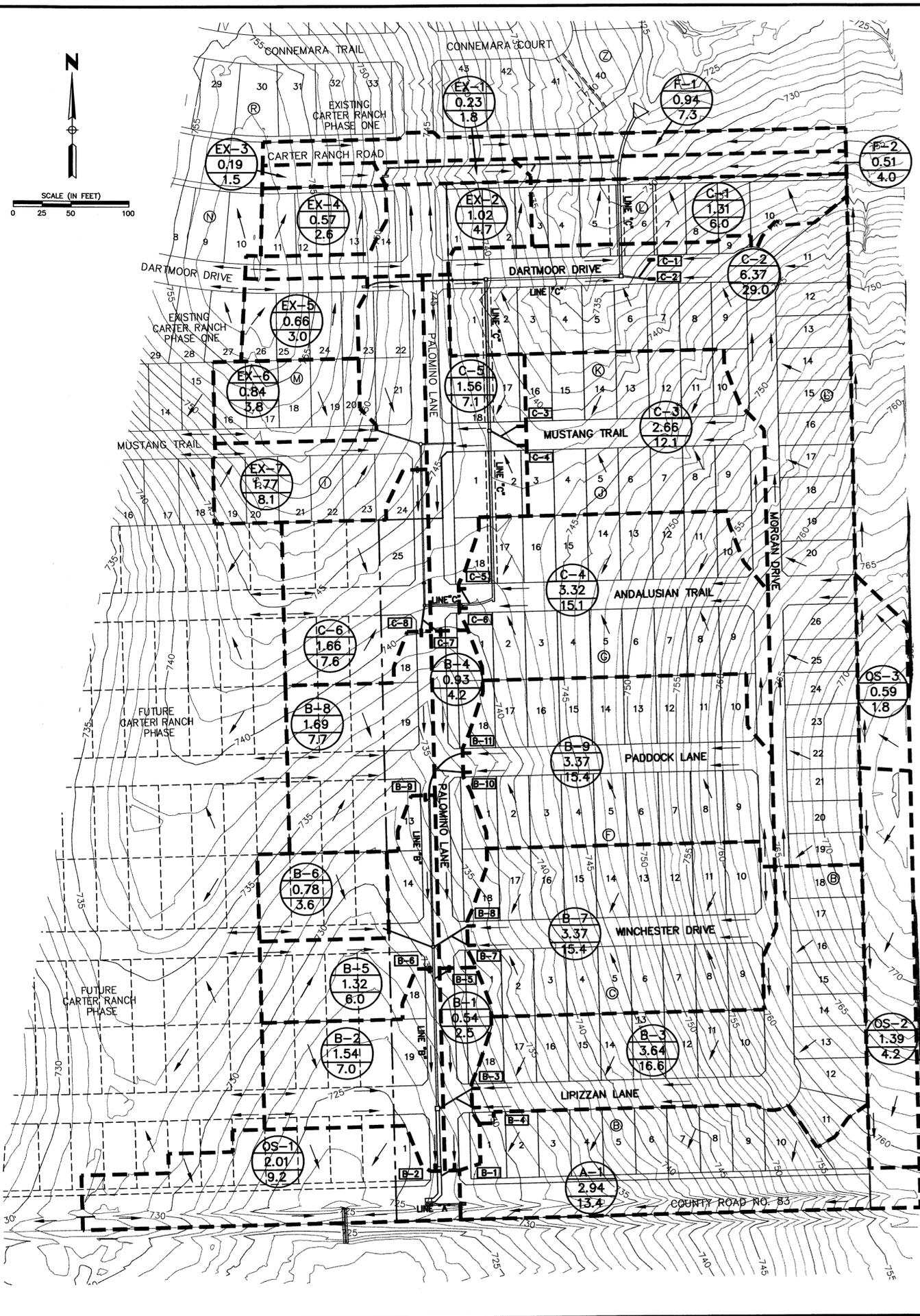
- Please refer to the Erosion Control Details included with this set of engineering plans for general guidelines to the installation of the erosion control measures.
- Perimeter silt fence shall be installed and removed by the GRADING CONTRACTOR. Silt fence installed by the GRADING CONTRACTOR along the gutter of the pavement excavation shall be removed by the PAVING CONTRACTOR.
- Inlet protection shall be installed, maintained, and removed by the UTILITY CONTRACTOR.
- All contractors shall incorporate the requirements of the Storm Water Pollution Prevention Plan for this project. Inspection reports shall be prepared by the responsible contractor on a weekly basis and/or after every rainfall event of one-inch (1") or more. Copies of the inspection reports shall be sent to the OWNER and Owner's CONSTRUCTION REPRESENTATIVE with each monthly draw request.
- Additional straw bale dikes may be required in the drainage flow patterns as necessary to prevent erosion from high velocities in concentrated site runoff and the transport of sediment along pavement excavation.
- A sedimentation barrier of filter fabric or straw bales shall be installed by the GRADING CONTRACTOR in the approximate location(s) as shown. The UTILITY CONTRACTOR and PAVING CONTRACTOR may remove and replace the installation to accommodate prosecution of their work.
- All surface areas disturbed within or adjacent to the construction limits must be permanently stabilized. Stabilization is obtained when the site is covered with impervious structures and paving and/or a uniform perennial vegetative cover. The perennial vegetation must have a coverage density of at least 70 percent.
- Everywhere possible, CONTRACTOR shall leave existing perimeter vegetation (i.e. grass) to aid in the filtering of sediment.
- All staging areas, stockpiles, spoils, etc. should be located such that they will not adversely affect storm water quality. Otherwise, covering or encircling with some protective measure will be necessary.
- CONTRACTOR shall submit to OWNER and/or Owner's CONSTRUCTION REPRESENTATIVE the location for any on-site fuel storage tanks. A berm or other spill protection measure shall be identified for the on-site fuel storage tank(s). Similarly, the CONTRACTOR shall submit a plan showing the location of a centralized pit/wash basin for on-site washing of concrete trucks and equipment.

**STORM WATER POLLUTION PREVENTION PLAN NOTES:**

- A NOTICE OF INTENT must be filed by each contractor at least 48 hours prior to commencement of work at the date specified in the "Notice to Proceed".
- In accordance with the requirements of the NPDES general permit for storm water discharges for construction sites, all contractors and subcontractors shall at all times take necessary measures to prevent the flow of sediment and other materials from the work site into the storm sewer system or to any receiving water. Such measures may include, but are not limited to, the placement of straw bale erosion checks, inlet protection, silt fence, rip-rap stabilization, seeding, sodding, etc. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, PAYMENT FOR THIS WORK WILL BE INCLUSIVE UNDER THE LINE ITEM IN THE BID DOCUMENTS FOR EROSION CONTROL.
- The GRADING CONTRACTOR shall assume responsibility for the installation and maintenance of the erosion control measures at the site as of the date of his "Notice to Proceed" or first day on the site, whichever comes first. The "Notice to Proceed" for the UTILITY CONTRACTOR transfers the responsibility from the GRADING CONTRACTOR to the UTILITY CONTRACTOR. It is the responsibility of each contractor to inspect the condition of the erosion control measures and request all necessary maintenance to be updated prior to acceptance of the site at time of "move-in".
- A second "Notice to Proceed" will be issued to the GRADING CONTRACTOR to complete final grading and grassing of the site. This second "Notice to Proceed" transfers the responsibility for the installation and maintenance of the erosion control measures at the site from the preceding contractor to the GRADING CONTRACTOR.
- A NOTICE OF TERMINATION should be filed upon the city's formal acceptance of construction and the site achieving established ground cover to realize a finally stabilized construction site.



NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>EROSION CONTROL DETAILS</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLIARS</b>		<small>Huitt-Zoliars, Inc. 3811 McCreary Avenue, Suite 600 Dallas, Texas 75234-2889 Phone (214) 871-3338 Fax (214) 871-0727</small>	
DESIGN	DRAWN	DATE	SCALE
HZI DENTON	HZI DENTON	SEPT. 2005	NTS
NOTES	FILE	NO.	
	01-3122-67	19 OF 42	

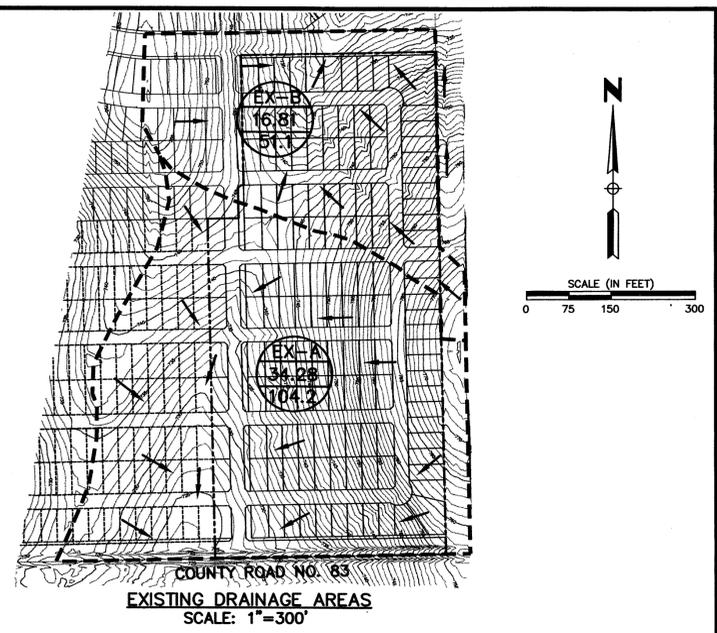


**RATIONAL METHOD**  
 Q = CIA  
 TC = 15 MINUTES  
 I = 7.60 in/hr  
 C = 0.60 (UNLESS NOTED OTHERWISE)

**STREET CAPACITY CALCULATIONS**  
 203.13 √S = TO TOP OF CURB FOR RESIDENTIAL STREETS  
 (31' B-B/6" CURBS/5" CROWN)  
 n = 0.0175 FOR STREET/GUTTERS

**LEGEND**

- A-1 DRAINAGE AREA
- 4.32 ACREAGE
- 17.8 FLOW (Q<sub>100</sub>cfs)
- INLET
- DRAINAGE DIVIDE
- A-5 INLET NUMBER
- FLOW DIRECTION



**100 YEAR INLET CAPACITY CHART**

INLET NO.	LOCATION	DESIGN STORM FREQ. (yrs.)	TIME OF CONC. (min.)	AREA RUNOFF Q = CIA		AREA (Ac.)	"Q" (c.f.s.)	CARRY-OVER FROM UPSTRM INLET (c.f.s.)	TOTAL STREET FLOW (c.f.s.)	STREET CAPACITY (c.f.s.)	STREET SLOPE (ft./100 ft.)	CROWN TYPE	SELECTED INLET LENGTH "L" (feet)	TYPE	CARRY-OVER TO DOWNSTRM INLET (c.f.s.)	INLET CAPACITY (c.f.s.)
				INTENSITY I (in./hr.)	RUNOFF COEFF. ("C")											
B-1	44+30 PALOMINO LANE	100	15	7.6	0.6	0.54	2.5	2.0	4.5	7.2	0.50%	5" Para.	10'	Std.	0.0	7.5
B-2	44+30 PALOMINO LANE	100	15	7.6	0.6	1.54	7.0	0.0	7.0	11.4	1.26%	5" Para.	10'	Std.	0.4	6.6
B-3	15+91 LIPIZZAN LANE	100	15	7.6	0.6	1.82	8.3	0.0	8.3	19.7	3.75%	5" Para.	12'	Std.	1.0	7.3
B-4	15+91 LIPIZZAN LANE	100	15	7.6	0.6	1.82	8.3	0.0	8.3	19.7	3.75%	5" Para.	12'	Std.	1.0	7.3
B-5	40+83 PALOMINO LANE	100	15	7.6	0.6	0.93	4.2	2.0	6.2	7.2	0.50%	5" Para.	10'	Std.	0.0	7.5
B-6	40+83 PALOMINO LANE	100	15	7.6	0.6	1.32	6.0	0.0	6.0	7.2	0.50%	5" Para.	10'	Std.	0.0	7.5
B-7	10+55 WINCHESTER DRIVE	100	15	7.6	0.6	1.69	7.7	0.0	7.7	23.4	5.30%	5" Para.	12'	Std.	0.7	7.0
B-8	10+55 WINCHESTER DRIVE	100	15	7.6	0.6	1.69	7.7	0.0	7.7	23.4	5.30%	5" Para.	12'	Std.	0.7	7.0
B-9	37+85 PALOMINO LANE	100	15	7.6	0.6	1.69	7.7	0.0	7.7	12.4	1.50%	5" Para.	12'	Std.	0.0	8.3
B-10	9+61 PADDOCK LANE	100	15	7.6	0.6	1.69	7.7	0.0	7.7	24.3	3.43%	5" Para.	12'	Std.	0.4	7.3
B-11	9+61 PADDOCK LANE	100	15	7.6	0.6	1.69	7.7	0.0	7.7	22.2	2.85%	5" Para.	12'	Std.	0.2	7.5
C-1	22+37 DARTMOOR DRIVE	100	15	7.6	0.6	3.18	14.5	0.0	14.5	SAG	SAG	5" Para.	10'	Std.	-	21.0 *(yo=0.5')
C-2	22+37 DARTMOOR DRIVE	100	15	7.6	0.6	3.18	14.5	0.0	14.5	SAG	SAG	5" Para.	10'	Std.	-	21.0 *(yo=0.5')
C-3	20+30 MUSTANG TRAIL	100	15	7.6	0.6	1.32	6.0	0.0	6.0	7.2	0.50%	5" Para.	10'	Std.	0.0	7.5
C-4	20+30 MUSTANG TRAIL	100	15	7.6	0.6	1.34	6.1	0.0	6.1	7.2	0.50%	5" Para.	10'	Std.	0.0	7.5
C-5	13+18 ANDALUSIAN TRAIL	100	15	7.6	0.6	1.64	7.5	0.0	7.5	16.4	2.60%	5" Para.	12'	Std.	0.0	7.6
C-6	13+18 ANDALUSIAN TRAIL	100	15	7.6	0.6	1.67	7.6	0.0	7.6	16.4	2.60%	5" Para.	12'	Std.	0.0	7.6
C-7	35+00 PALOMINO LANE	100	15	7.6	0.6	1.56	7.1	0.0	7.1	12.4	1.50%	5" Para.	12'	Std.	0.0	8.3
C-8	35+00 PALOMINO LANE	100	15	7.6	0.6	1.66	7.6	0.0	7.6	12.4	1.50%	5" Para.	12'	Std.	0.0	8.3

\*(yo) = MAXIMUM DEPTH OF WATER AT THROAT OF INLET.

**DRAINAGE AREA DATA**

AREA NO.	AREA (ac.)	TC (min.)	C	I <sub>100</sub> (in./hr.)	Q <sub>100</sub> (cfs)	COMMENTS
A-1	2.94	15	0.6	7.6	13.4	TO LINE "A" - CULVERT
B-1	0.54	15	0.6	7.6	2.5	TO INLET B-1
B-2	1.54	15	0.6	7.6	7.0	TO INLET B-2
B-3	3.64	15	0.6	7.6	16.6	TO INLETS B-3 & B-4
B-4	0.93	15	0.6	7.6	4.2	TO INLET B-5
B-5	1.32	15	0.6	7.6	6.0	TO INLET B-6
B-6	0.78	15	0.6	7.6	3.6	TO STORM STUB-OUT
B-7	3.37	15	0.6	7.6	15.4	TO INLETS B-7 & B-8
B-8	1.69	15	0.6	7.6	7.7	TO INLET B-9
B-9	3.37	15	0.6	7.6	15.4	TO INLETS B-10 & B-11
C-1	1.31	15	0.6	7.6	6.0	TO FUTURE CARTER RANCH ROAD
C-2	6.37	15	0.6	7.6	29.0	TO INLETS C-1 & C-2
C-3	2.66	15	0.6	7.6	12.1	TO INLETS C-3 & C-4
C-4	3.32	15	0.6	7.6	15.1	TO INLETS C-5 & C-6
C-5	1.56	15	0.6	7.6	7.1	TO INLET C-7
C-6	1.66	15	0.6	7.6	7.6	TO INLET C-8
OS-1	2.01	15	0.6	7.6	9.2	TO EXIST CMP'S UNDER COUNTY ROAD NO. 83
OS-2	1.39	15	0.4	7.6	4.2	TO EXIST DITCH ALONG COUNTY ROAD NO. 83
OS-3	0.59	15	0.4	7.6	1.8	TO ANDALUSIAN TRAIL & MORGAN DRIVE
F-1	0.94	15	0.9	7.6	7.3	TO FUTURE INLETS ON CARTER ROAD RANCH
F-2	0.51	15	0.9	7.6	4.0	TO FUTURE INLETS ON CARTER ROAD RANCH
EX-1	0.23	15	0.9	7.6	1.8	TO EXIST INLET ON CARTER RANCH ROAD
EX-2	1.02	15	0.6	7.6	4.7	TO EXIST CARTER RANCH ROAD
EX-3	0.19	15	0.9	7.6	1.5	TO EXIST INLET ON CARTER RANCH ROAD
EX-4	0.57	15	0.6	7.6	2.6	TO EXIST CARTER RANCH ROAD
EX-5	0.66	15	0.6	7.6	3.0	TO EXIST INLET ON DARTMOOR DRIVE
EX-6	0.84	15	0.6	7.6	3.8	TO EXIST INLET ON MUSTANG TRAIL
EX-7	1.77	15	0.6	7.6	8.1	TO EXIST INLET ON PALOMINO LANE
EX-A	16.81	15	0.4	7.6	51.1	TO EXIST CMP'S UNDER COUNTY ROAD NO. 83
EX-B	34.28	15	0.4	7.6	104.2	TO NORTH OF SITE

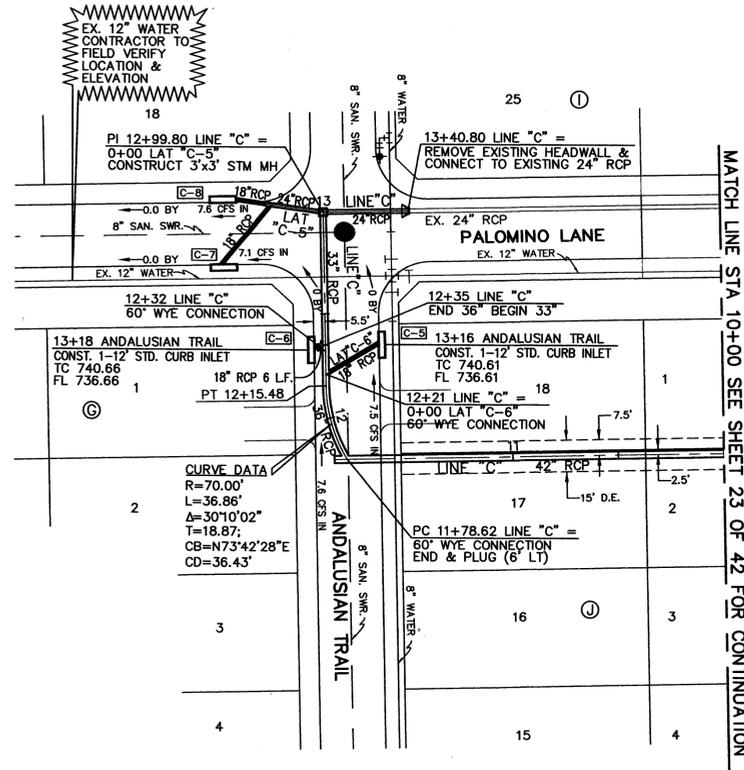
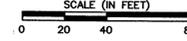
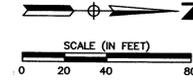
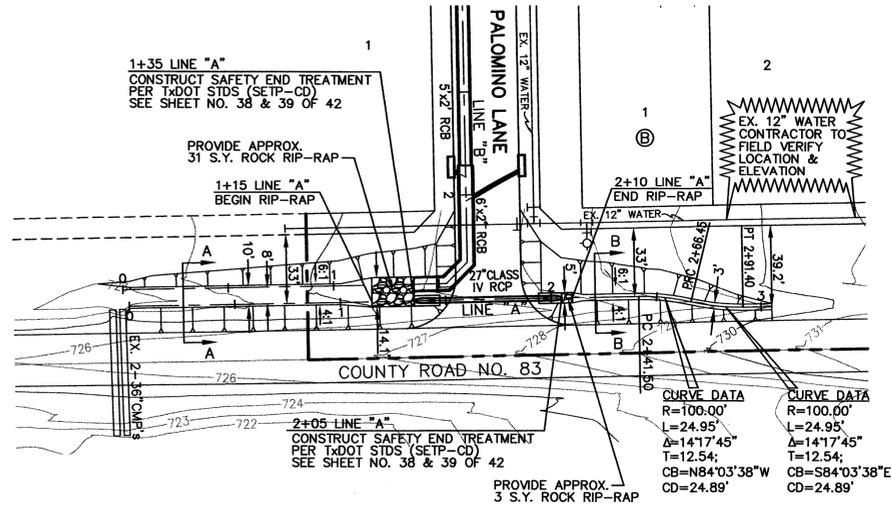
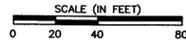
**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

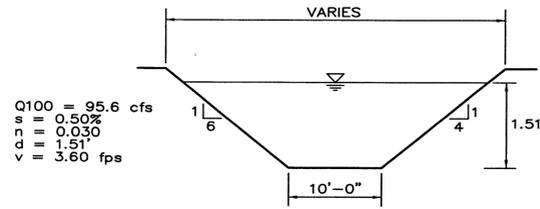
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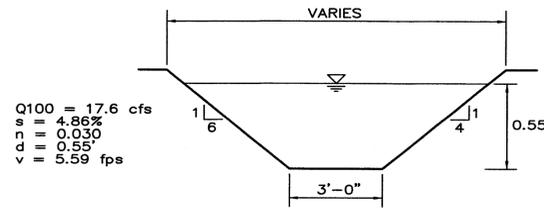
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<b>THE CARTER RANCH - PHASE III</b>			
<b>DRAINAGE AREA MAP</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLLARS</b>			
DESIGN	DRAWN	DATE	SCALE
HZI DENTON	HZI DENTON	SEPT. 2005	1"=100'
NOTES	FILE	NO.	
	01-3122-67	20 OF 42	



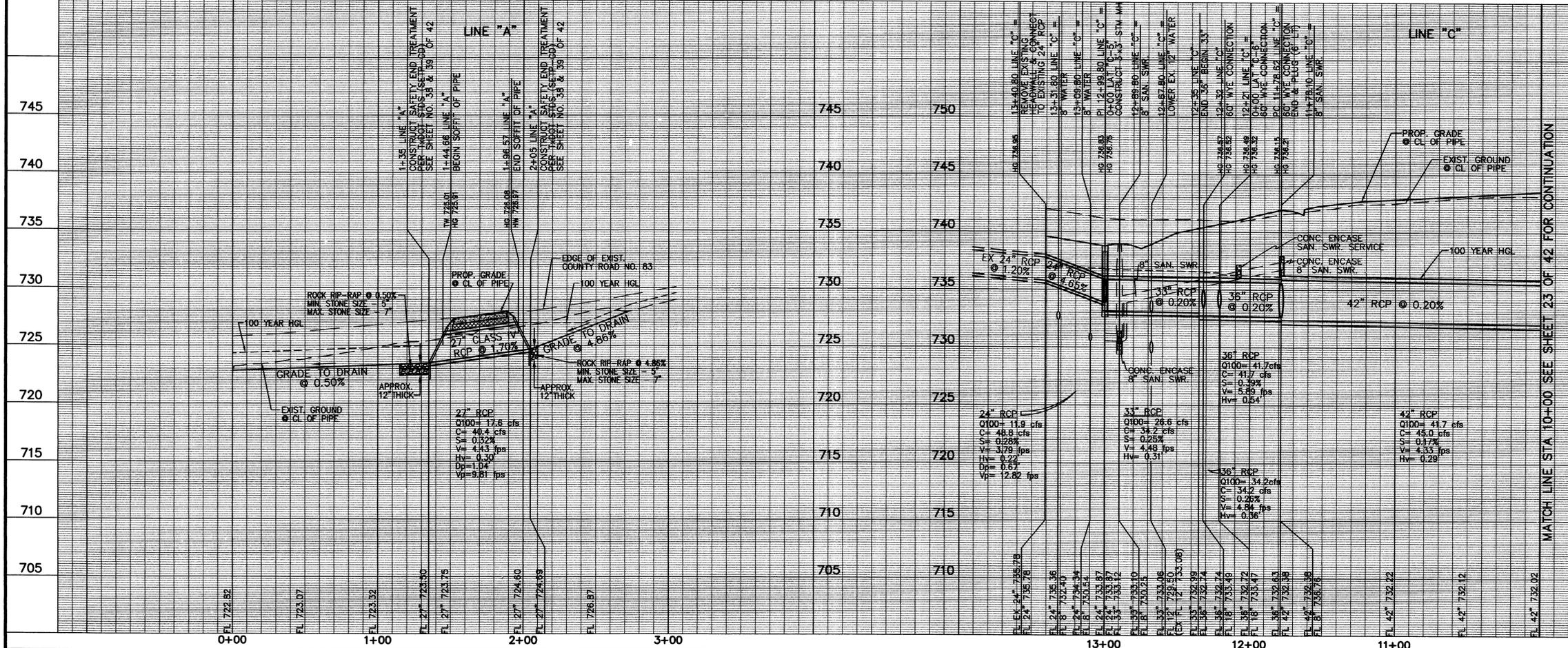
MATCH LINE STA. 10+00 SEE SHEET 23 OF 42 FOR CONTINUATION



DITCH SECTION A-A NTS



DITCH SECTION B-B NTS



MATCH LINE STA. 10+00 SEE SHEET 23 OF 42 FOR CONTINUATION

BENCHMARKS:

CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET.

CONTROL MONUMENT No. 5 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET.

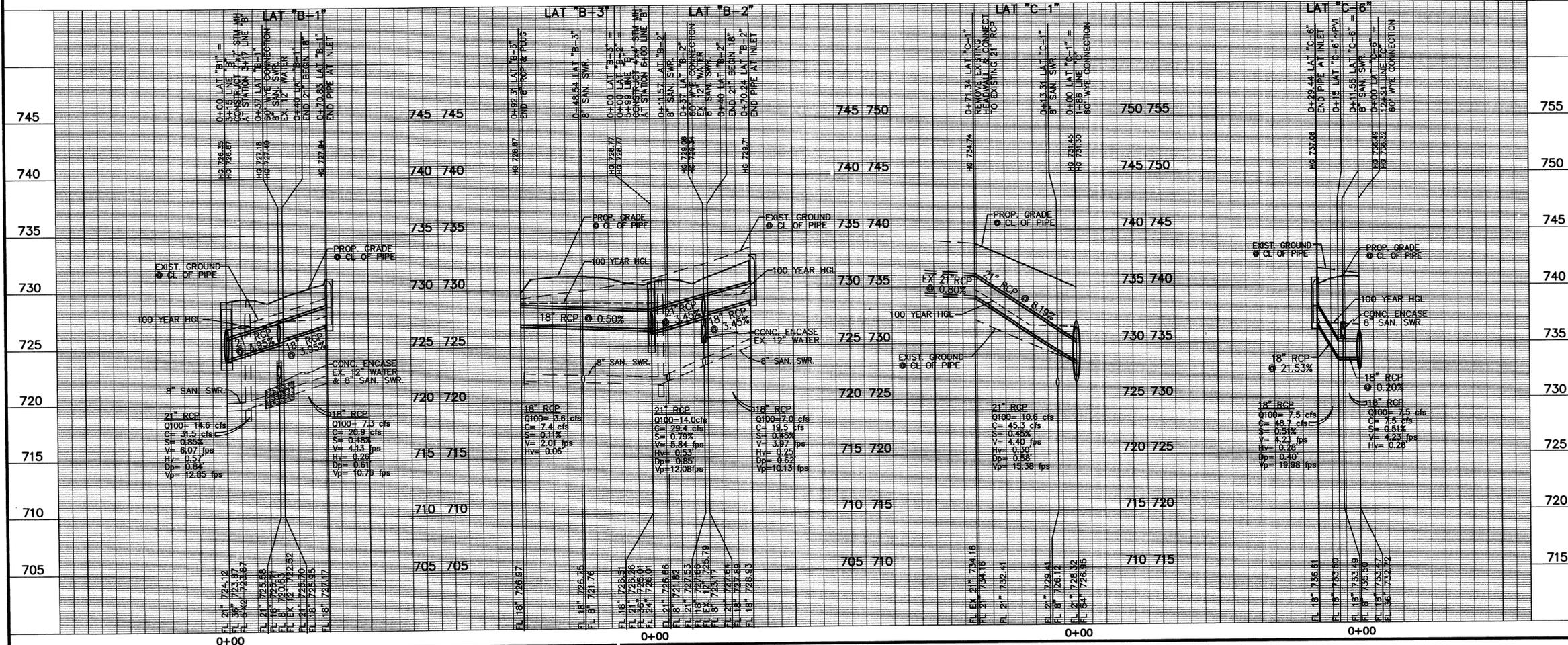
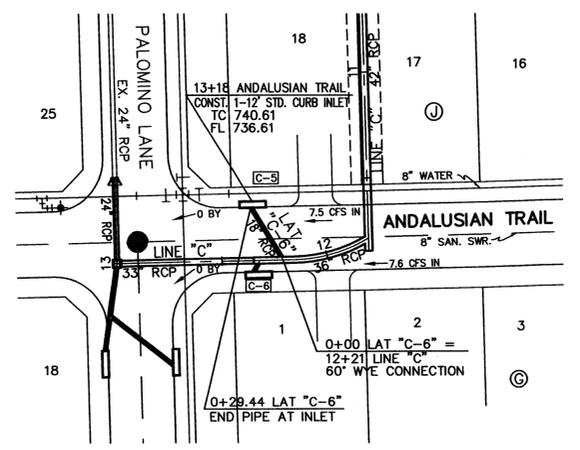
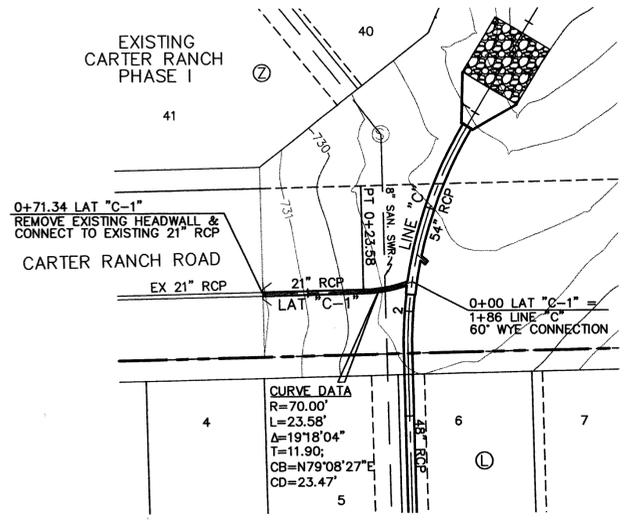
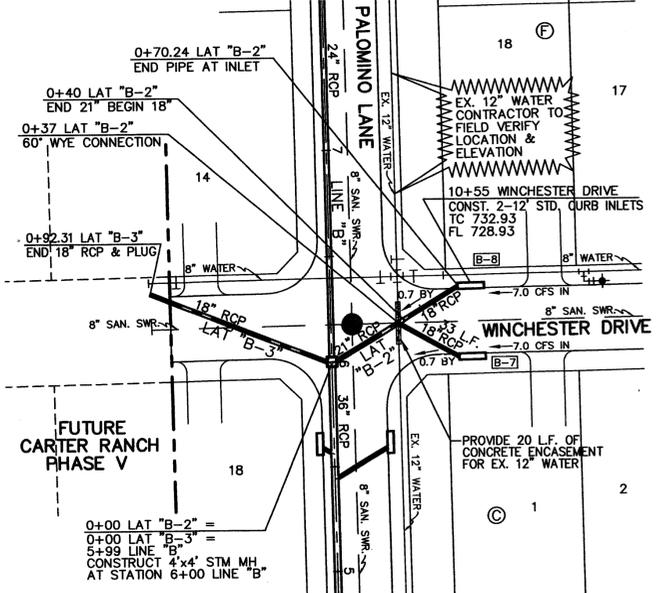
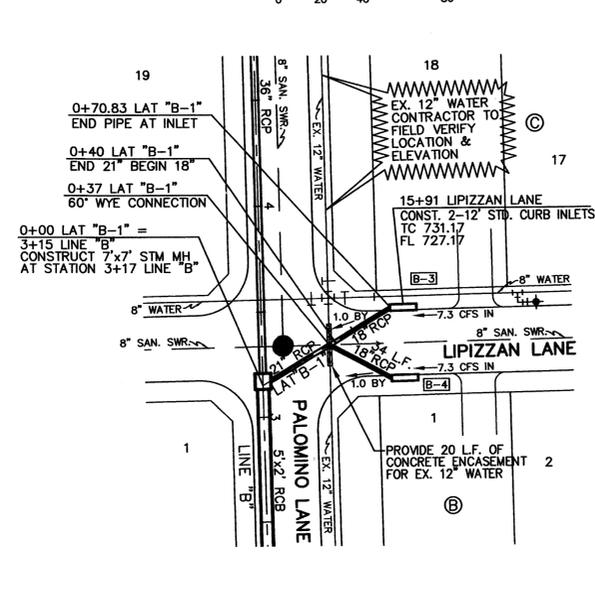
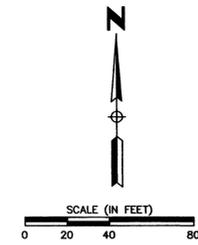
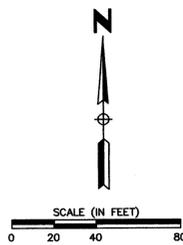
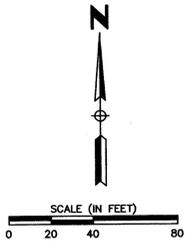
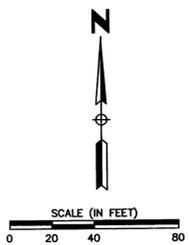


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THE CARTER RANCH - PHASE III
STORM PLAN & PROFILE - LINES A & C
CENTURION AMERICAN DEVELOPMENT GROUP
CELINA, TEXAS
HUITT-ZOLLARS
DESIGN: HZI DENTON, DRAWN: HZI DENTON, DATE: SEPT 2005, SCALE: H.1"=40', V.1"=5', NOTES: 01-3122-67, FILE: 21 OF 42







**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET



NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**

**STORM PLAN & PROFILE-LATS B1, B2, B3, C1 & C6**

**CENTURION AMERICAN DEVELOPMENT GROUP**

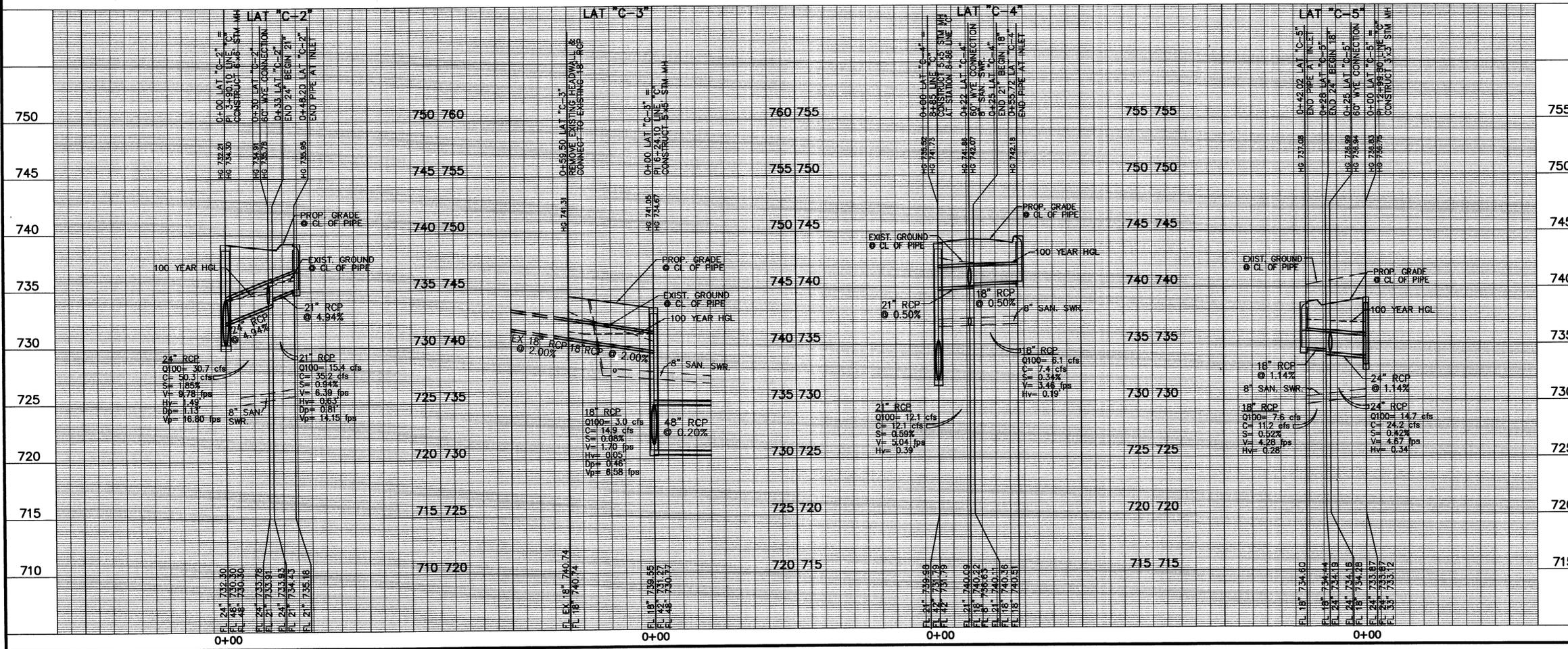
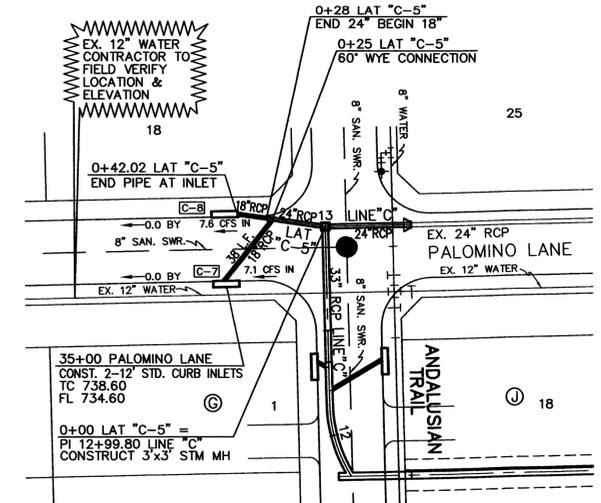
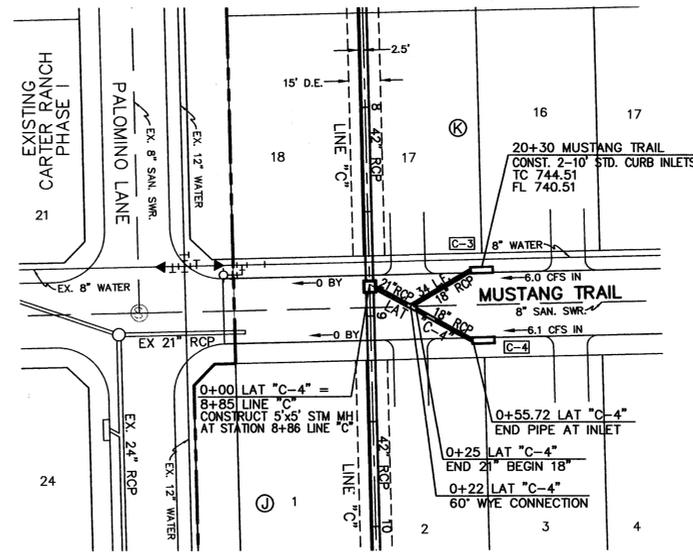
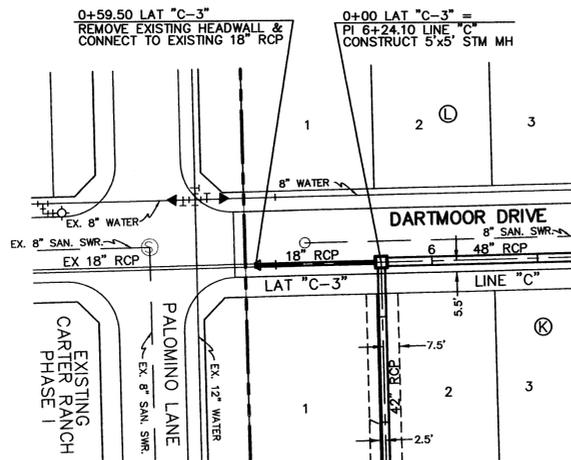
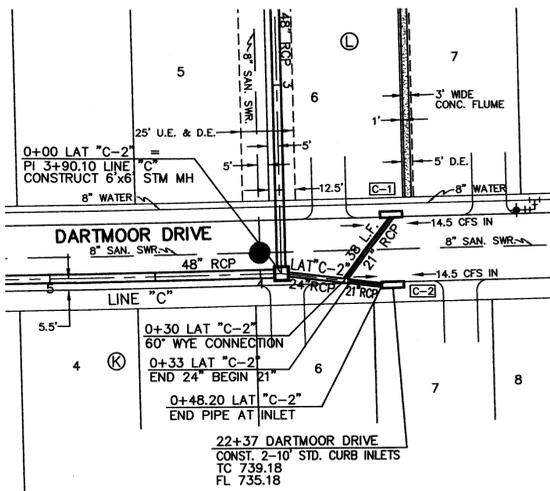
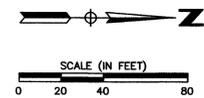
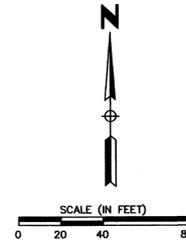
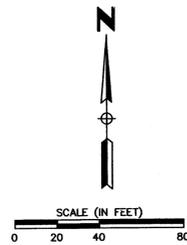
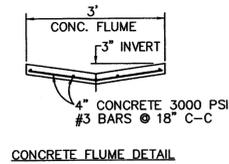
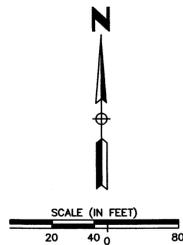
**CELINA, TEXAS**

**HUITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
 3281 McDermott Avenue, Suite 600 Dallas, Texas 75204-2880  
 Phone (214) 671-0201 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT 2005	H:1"=40' V:1"=5'		01-3122-67	24 OF 42

G:\proj\01312206\dwg\01312206\SSDR.dwg, LATS B1 B2 B3 C1 & C6, 10/17/2005 1:57:15 PM, Huitt-Zollars, Inc. - Denton - JDS



**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET



NO.	DATE	REVISIONS	APPROVED

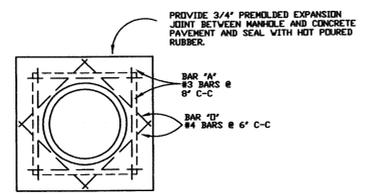
**THE CARTER RANCH - PHASE III**  
**STORM PLAN & PROFILE-LATS C2, C3, C4 & C5**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**

Huitt-Zollars, Inc.  
 301 MacCraw Avenue, Suite 600  
 Dallas, Texas 75204-2400  
 Phone (214) 671-5511 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	NO.
HZI	DENTON	SEPT 2005	H.1"=40' V.1"=5'	01-3122-67	25 OF 42

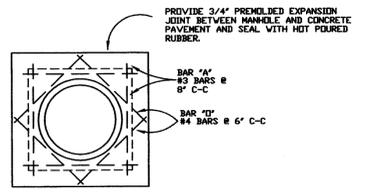
NOTE: FRAME AND COVER SHALL BE BARS & HAYES PATTERN NO. 300-24 OR EQUAL AND SHALL BE GRAY CAST IRON CONFORMING TO ASTM SPEC. A-48 FOR CLASS 30 CAST IRON.



TOP PLAN TYPE A & TYPE B STORM SEWER MANHOLE

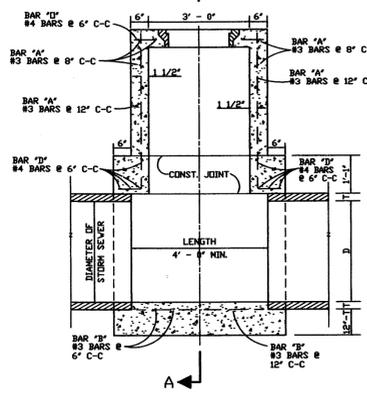
NOTE: MAXIMUM PIPE SIZE TO BE USED 78" N.T.S.

NOTE: FRAME AND COVER SHALL BE BARS & HAYES PATTERN NO. 300-24 OR EQUAL AND SHALL BE GRAY CAST IRON CONFORMING TO ASTM SPEC. A-48 FOR CLASS 30 CAST IRON.

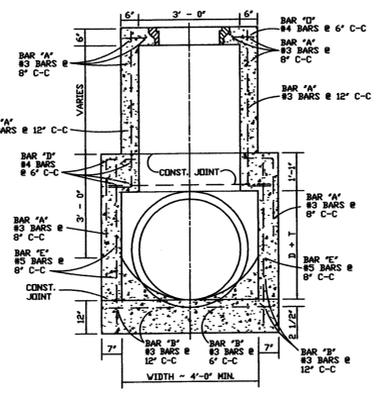


TOP PLAN TYPE A & TYPE B STORM SEWER MANHOLE

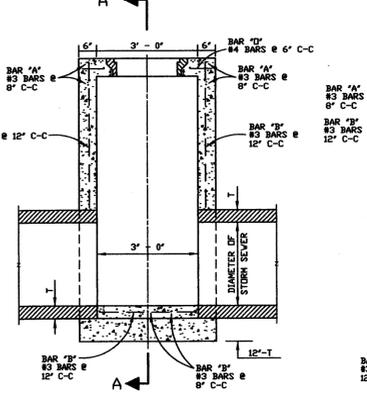
NOTE: MAXIMUM PIPE SIZE TO BE USED 78" N.T.S.



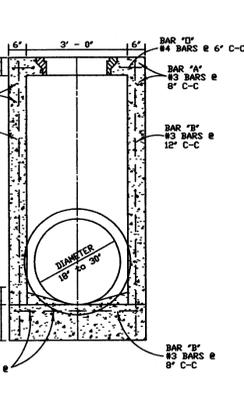
ELEVATION N.T.S.



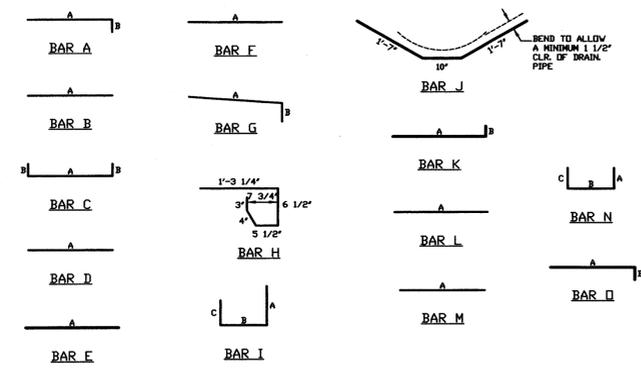
SECTION A-A N.T.S.



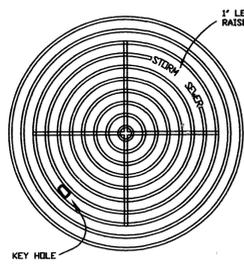
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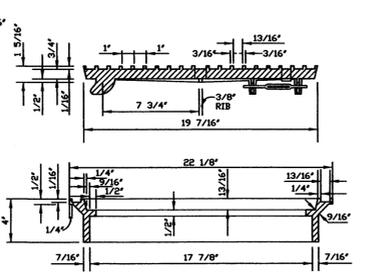
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BAR DIAGRAMS N.T.S.



PLAN OF FRAME N.T.S.

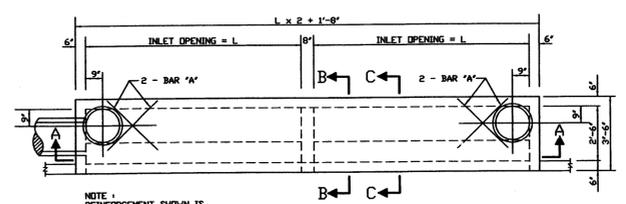


SECTION OF FRAME AND COVER N.T.S.

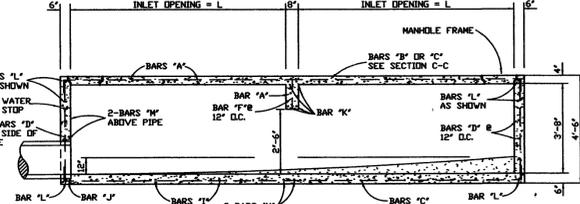
INLET FRAME AND COVER N.T.S.

REINFORCING STEEL SCHEDULE						
DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS						
INLET LENGTH	BAR TYPE	BAR DIA. (1/8")	NO. REQ'D.	BAR DIMENSIONS		
				A	B	C
10'	A	3	10	3'-2"	0'-3"	-
	B	3	2	8'-10"	-	-
	C	4	16	10'-0"	0'-6"	-
	D	4	4	4'-8"	-	-
	E	5	6	10'-0"	-	-
	F	4	5	1'-2"	-	-
	G	3	5	2'-0"	1'-3"	-
	H	3	15	"	"	"
	I	4	8	4'-8"	3'-2"	3'-2"
	J	5	1	"	"	"
	K	5	4	3'-2"	0'-6"	-
	L	4	5	3'-2"	-	-
	M	4	2	3'-0"	-	-
	N	4	2	4'-8"	3'-2"	4'-8"
12'	A	3	15	3'-2"	0'-6"	-
	B	3	2	11'-6"	-	-
	C	4	16	13'-4"	0'-6"	-
	D	4	9	4'-8"	-	-
	E	5	6	13'-4"	-	-
	F	4	5	1'-2"	-	-
	G	3	12	2'-0"	1'-3"	-
	H	3	26	"	"	"
	I	4	12	4'-8"	3'-2"	3'-2"
	J	5	1	"	"	"
	K	5	6	3'-2"	0'-6"	-
	L	4	11	3'-2"	-	-
	M	4	2	3'-0"	-	-
	N	4	2	4'-8"	3'-2"	4'-8"

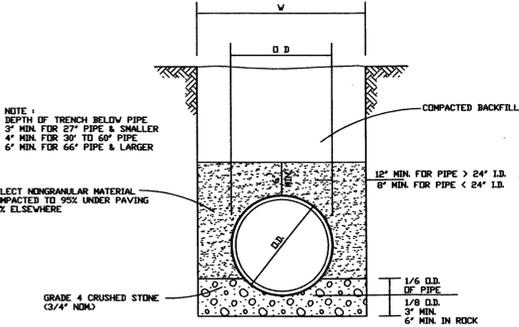
SEE DIAGRAM FOR DIMENSIONS



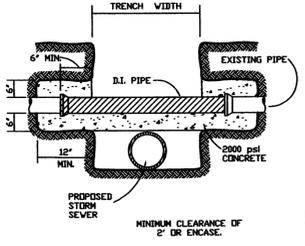
PLAN N.T.S.



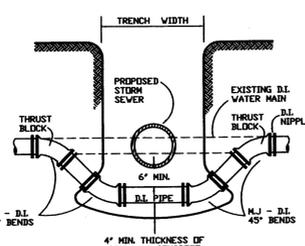
SECTION A-A N.T.S.



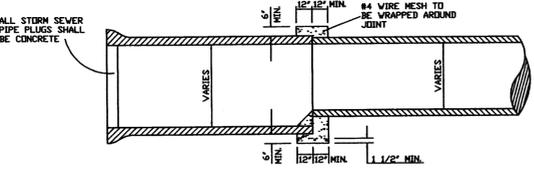
STORM SEWER PIPE BEDDING N.T.S.



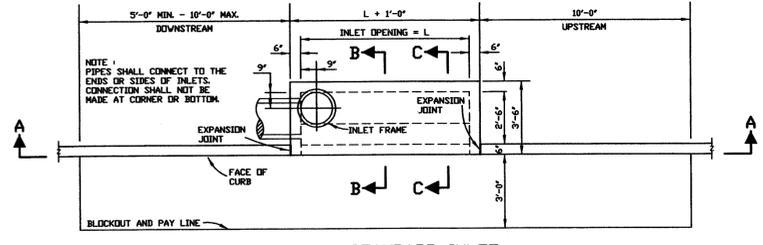
DETAIL OF UTILITY SUPPORT N.T.S.



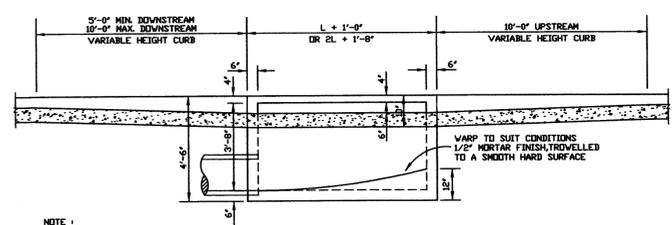
DETAIL FOR WATER MAIN LOWERING N.T.S.



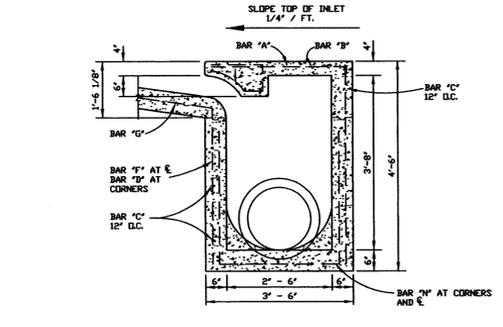
DETAIL OF CONCRETE COLLAR FOR PIPE CONNECTIONS N.T.S.



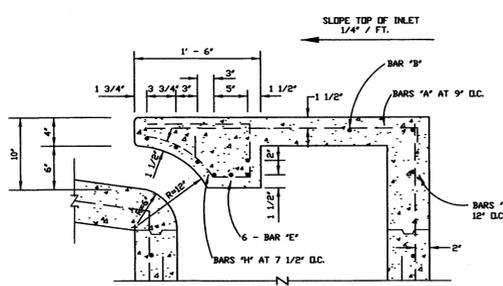
PLAN - STANDARD INLET N.T.S.



SECTION A-A N.T.S.



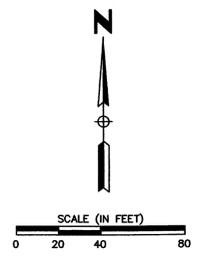
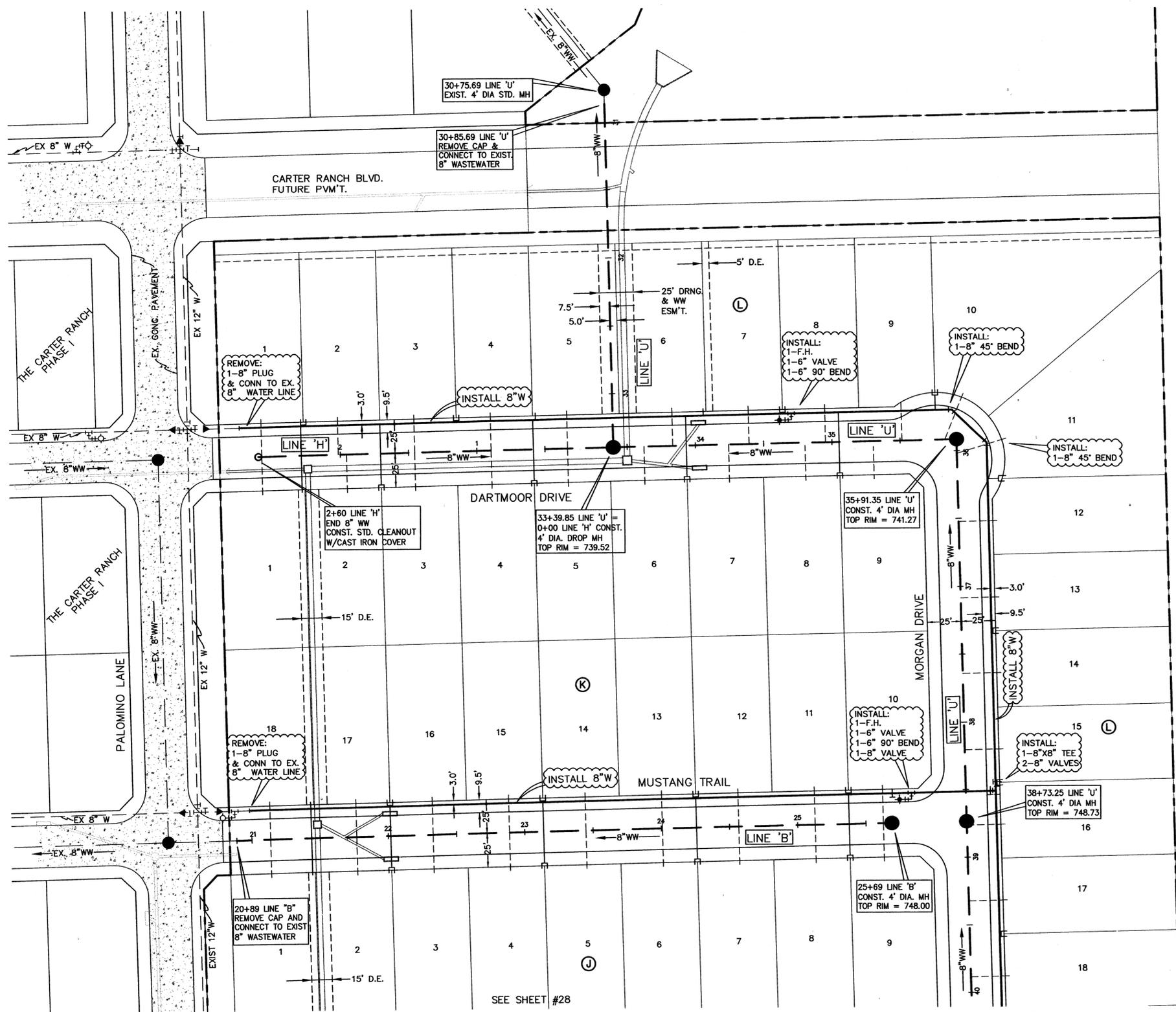
SECTION B-B N.T.S.



SECTION C-C N.T.S.

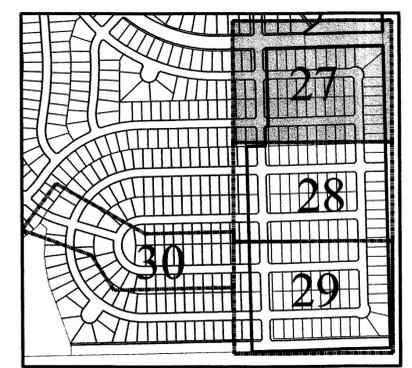


NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>STORM SEWER DETAILS</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLLARS</b>			
DESIGN	DRAWN	DATE	SCALE
NO.	NOTES	NO.	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	NTS
			01-3122-67 26 OF 42



**LEGEND**

- = PROPOSED FIRE HYDRANT
- = PROPOSED WATER SERVICE
- = PROPOSED WATER VALVE
- = PROPOSED SANITARY SEWER MANHOLE
- = PROPOSED SANITARY SEWER LATERAL
- = EXISTING FIRE HYDRANT
- = EXISTING SANITARY SEWER MANHOLE
- = EXISTING SANITARY SEWER LATERAL



KEY MAP  
N.T.S.



**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET

GENERAL NOTES: SEE SHEET 30

NO.	DATE	REVISIONS	APPROVED
1	11/11/05	REVISED SANITARY SEWER SERVICE LOCATIONS	GJ

**THE CARTER RANCH - PHASE III**

**WATER AND SANITARY SEWER PLAN**

**WATER/WASTEWATER PLAN**

**CENTURION AMERICAN DEVELOPMENT GROUP**

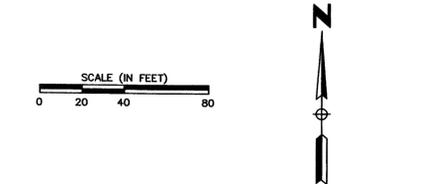
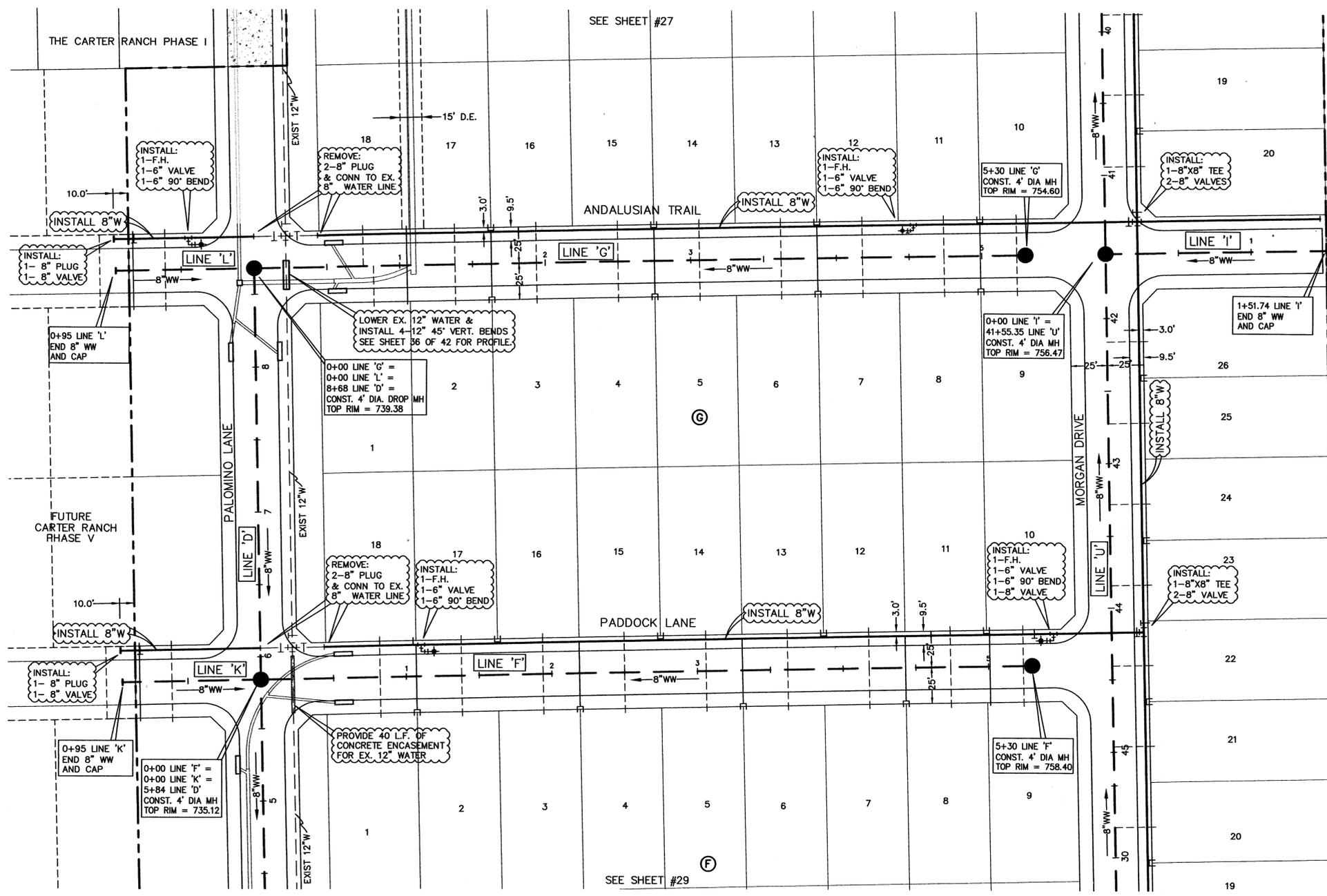
**CELINA, TEXAS**

**HUITT-ZOLLARS**

Huitt-Zollars, Inc. 985 McKinney Avenue, Suite 800 Dallas, Texas 75204-0888 Phone (214) 671-9351 Fax (214) 671-0757

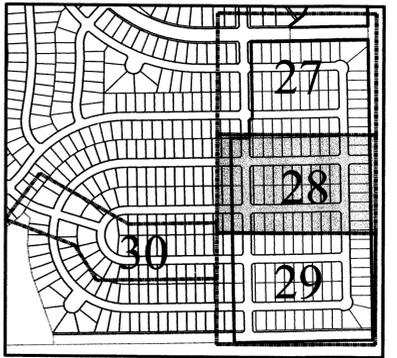
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	1" = 40'		01-3122-67	27 OF 42

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**LEGEND**

- = PROPOSED FIRE HYDRANT
- = PROPOSED WATER SERVICE
- = PROPOSED WATER VALVE
- = PROPOSED SANITARY SEWER MANHOLE
- = EXISTING SANITARY SEWER LATERAL
- = EXISTING FIRE HYDRANT
- = EXISTING SANITARY SEWER MANHOLE
- = EXISTING SANITARY SEWER LATERAL



KEY MAP  
N.T.S.

**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET

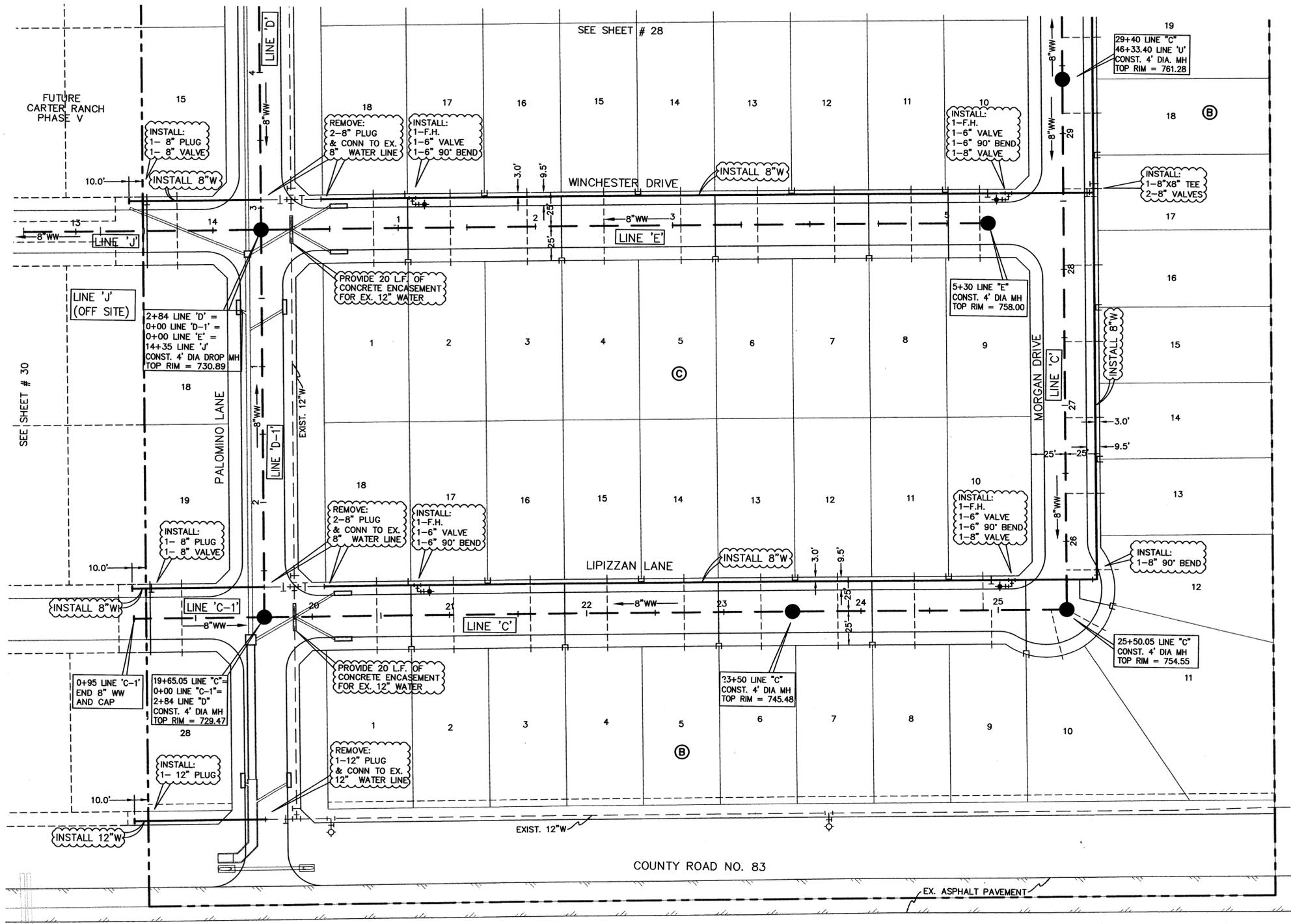
GENERAL NOTES: SEE SHEET 30



NO.	DATE	REVISIONS	APPROVED
1	11/11/05	REVISED SANITARY SEWER SERVICE LOCATIONS	GJ

**THE CARTER RANCH - PHASE III**  
**WATER AND SANITARY SEWER PLAN**  
**WATER/WASTEWATER PLAN**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

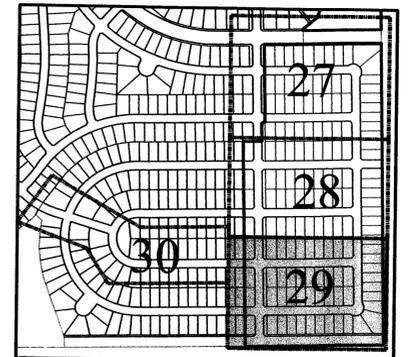
<p align="center"><b>HUITT-ZOLLARS</b></p> <p align="right">H-Z-Zollars, Inc. 2911 McGraw Avenue, Suite 600 Dallas, Texas 75204-2489 Phone (214) 671-0311 Fax (214) 671-0757</p>						
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	1" = 40'		01-3122-67	28 OF 42



SCALE (IN FEET)  
0 20 40 80

LEGEND

- = PROPOSED FIRE HYDRANT
- = PROPOSED WATER SERVICE
- |— = PROPOSED WATER VALVE
- = PROPOSED SANITARY SEWER MANHOLE
- = PROPOSED SANITARY SEWER LATERAL
- = EXISTING FIRE HYDRANT
- ⊙ = EXISTING SANITARY SEWER MANHOLE
- - - = EXISTING SANITARY SEWER LATERAL



KEY MAP  
N.T.S.

**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET

GENERAL NOTES: SEE SHEET 30



NO.	DATE	REVISIONS	APPROVED
1	11/02/05	REV. LINES "D,C&J"; ADD LINES "D-1 & C-1"	GJ

**THE CARTER RANCH - PHASE III**

**WATER AND SANITARY SEWER PLAN**

**WATER/WASTEWATER PLAN**

**CENTURION AMERICAN DEVELOPMENT GROUP**

**CELINA, TEXAS**

**HUITT-ZOLLARS**

H-Z-Cellars, Inc. Dallas  
981 McKinney Avenue, Suite 600  
Dallas, Texas 75204-0489  
Phone (214) 871-9331 Fax (214) 871-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	1" = 40'		01-3122-67	29 OF 42

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**WATER & SANITARY SEWER NOTES:**

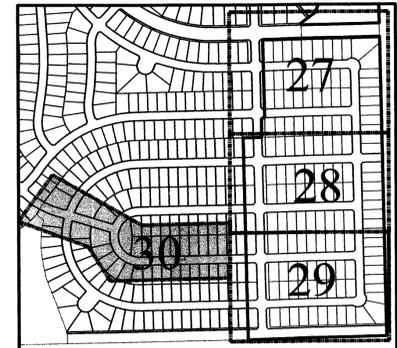
1. ALL SANITARY SEWER AND WATER LINES OUTSIDE OF ROAD R.O.W. SHALL BE CENTERED IN EASEMENT UNLESS OTHERWISE SHOWN.
2. LOCATION OF SANITARY SEWER SERVICES SHALL BE AS SHOWN ON PLANS.
3. EXISTING UTILITIES TO REMAIN IN SERVICE DURING DROP CONNECTIONS (NO SEPARATE PAY.)
4. ALL SANITARY SEWER SERVICE CONNECTIONS TO BE EQUIPPED WITH 3M SANITARY ELECTRONIC DETECTOR BALLS MAX. DEPTH 4'.
5. ALL SWALES TO BE CLEARED BY GRADING CONTRACTOR. CONSTRUCTED BY UTILITY CONTRACTOR, AND MAINTAINED BY PAVING CONTRACTOR. REFER TO GRADING PLANS FOR SWALE LOCATIONS.
6. ALL MANHOLES (PRECAST OR CAST-IN-PLACE) WITH FLOWLINE ELEVATIONS BELOW ELEVATION 523.0 SHALL BE COATED ON THE OUTSIDE WITH KOPPERS "SUPER SERVICE BLACK" COAL TAR EPOXY WATERPROOFING (SUGGESTED COAT OF 30 MILS IN TWO 15 MILS COATS), OR EQUAL, FROM THE BASE UP TO ELEVATION 523.0. WATERPROOFING SHALL ALSO BE PLACED ON THE OUTSIDE OF ALL JOINTS LOCATED ABOVE 523.0.
7. PRECAST AND CAST-IN-PLACE CONCRETE MANHOLES OVER 15' IN DEPTH SHALL HAVE SPECIAL BASE CONSTRUCTION (SEE SANITARY SEWER DETAIL SHEET).
8. ALL WATER CORPORATIONS TO BE EQUIPPED WITH 3M LOCATOR PAD MAX. DEPTH 4'.
9. ALL MAIN LINE WATER VALVES TO BE EQUIPPED WITH 3M WATER LOCATOR PAD MAX. DEPTH 4'.
10. ALL WATER MAINS SHALL HAVE MINIMUM COVER AS FOLLOWS: 6" THROUGH 8" MAINS 4' BELOW FINISHED STREET GRADE OR 5' DEPTH IN UNIMPROVED STREETS OR AS REQUIRED TO CLEAR OTHER UTILITIES.
11. ALL WATER MAINS SHALL PRESSURE TEST AT 200 PSI FOR 2 HOURS, WITH A MAXIMUM LOSS OF 11.65 GAL./INCH/DIA./MILE OF PIPE.
12. ALL SANITARY SEWER PIPE AND FITTINGS ON THIS PROJECT SHALL CONFORM TO ASTM SPECIFICATIONS D3034 WITH A STANDARD DIMENSION RATIO OF .35. COMPRESSION TYPE VULCANIZED HIGH GRADE ELASTOMERIC COMPOUND GASKET JOINTS AS PER ASTM D3212-76.
13. MANDREL TESTING: ALL FLEXIBLE PLASTIC AND SEMI-RIGID PIPING MATERIAL USED FOR GRAVITY SEWERS TO BE SUBJECTED TO A 95% (L.D.) MANDREL TEST. MANDREL TESTING TO BE COMPLETED NO LATER THAN 30 DAYS AFTER BACKFILLING HAS BEEN COMPLETED. A 60-ND-00 DEFLECTION TESTING MANDREL WITH A MINIMUM OF 9 RUNNERS TO BE USED FOR TESTING. MANDREL TO BE FURNISHED WITH PROVING RING. TESTING TO BE AS FOLLOWS:
  - (A) COMPLETELY FLUSH LINE AND CLEAN PIPE OF DEBRIS.
  - (B) INSTALL PULL ROPE IN SECTION TO BE TESTED.
  - (C) ATTACH PULL ROPE AND RETRIEVAL ROPE TO MANDREL.
  - (D) INSERT MANDREL IN PIPE. REMOVE SLACK FROM PULL ROPE AND TAPE MARKER ON ROPE AT END OF PIPE WHERE MANDREL WILL EXIT. TAPE MARKER TO BE USED TO DETERMINE MANDREL LOCATION ON LINE.
  - (E) USING GUIDE PULLEYS, PULL MANDREL MANUALLY THROUGH THE LINE BY HAND. USE TAPE MARKER TO DETERMINE LOCATION OF OVER-DEFLECTED SECTIONS.
  - (F) ALL PIPE SECTIONS FAILING TO PASS THE MANDREL ARE TO BE REPAIRED OR REPLACED.
  - (G) ALL PIPE PRESSURE TESTING SHALL BE AT 3 PSI FOR 30 MINUTES.
  - (H) REPEAT TESTING UNTIL SYSTEM PASSES.

14. SANITARY SEWERS SHALL BE INSTALLED NO CLOSER TO WATERLINES THAN 9 FEET IN ALL DIRECTIONS. SEWERS THAT PARALLEL WATERLINES MUST BE INSTALLED IN SEPARATE TRENCHES. WHERE THE 9 FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING GUIDELINES SHALL APPLY:
  - (A) WHERE A SANITARY SEWER PARALLELS A WATERLINE, THE SEWER SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC MEETING ASTM SPECIFICATION WITH A PRESSURE RATING FOR BOTH THE PIPE AND JOINTS OF 150 PSI. THE VERTICAL SEPARATION SHALL BE A MINIMUM OF 2 FEET BETWEEN OUTSIDE DIAMETERS AND THE HORIZONTAL SEPARATION SHALL BE A MINIMUM OF 4 FEET BETWEEN OUTSIDE DIAMETERS. THE SEWER SHALL BE LOCATED BELOW THE WATERLINE.
  - (B) WHERE A SANITARY SEWER CROSSES A WATERLINE AND THE SEWER IS CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI, AN ABSOLUTE MINIMUM DISTANCE OF 12 INCHES BETWEEN OUTSIDE DIAMETERS SHALL BE MAINTAINED. IN ADDITION, THE SEWER SHALL BE LOCATED BELOW THE WATERLINE WHERE POSSIBLE AND ONE LENGTH OF THE SEWER PIPE MUST BE CENTERED ON THE WATERLINE.
  - (C) WHERE A SEWER CROSSES UNDER A WATERLINE AND THE SEWER IS CONSTRUCTED OF ABS TRUSS PIPE, A SIMILAR SEMI-RIGID PLASTIC COMPOSITE PIPE, CLAY PIPE, OR CONCRETE PIPE WITH GASKETED JOINTS, A MINIMUM 2 FOOT SEPARATION DISTANCE SHALL BE MAINTAINED. THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (2 OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF SEWER WITHIN 9 FEET OF WATERLINE. THIS INITIAL BACKFILL SHALL BE FROM 1/4 DIAMETER BELOW THE CENTERLINE OF PIPE TO 1 PIPE DIAMETER (BUT NOT LESS THAN 12 INCHES) ABOVE THE TOP OF THE PIPE.
  - (D) WHERE A SEWER CROSSES OVER A WATERLINE, ALL PORTIONS OF THE SEWER WITHIN 9 FEET OF THE WATERLINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC PIPE WITH A PRESSURE RATING OF AT LEAST 150 PSI USING APPROPRIATE ADAPTERS. IN LIEU OF THIS PROCEDURE, THE NEW CONVEYANCE MAY BE ENCASED IN A JOINT OF 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND 2 NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT 5 FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRING LINE WITH WASHED SAND, AND BOTH ENDS OF THE PIPE SHOULD BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEAL.
15. UNLESS SANITARY SEWER MANHOLES AND THE CONNECTING SEWER CAN BE MADE WATERTIGHT AND TESTED FOR NO LEAKAGE, THEY MUST BE INSTALLED SO AS TO PROVIDE A MINIMUM OF 9 FEET OR HORIZONTAL CLEARANCE FROM AN EXISTING OR PROPOSED WATERLINE. WHERE THE 9 FOOT SEPARATION BETWEEN THE CONNECTING SEWER AND A WATERLINE CANNOT BE ACHIEVED, A CARRIER PIPE WITH A MINIMUM PRESSURE RATING OF 150 PSI MAY BE USED WHERE APPROPRIATE. THE CARRIER PIPE SHALL BE AT LEAST 18 FEET LONG AND 2 NOMINAL SIZES LARGER THAN THE SEWER CONVEYANCE. THE SEWER MUST BE SUPPORTED WITHIN THE CARRIER PIPE BY SPACERS AT 5 FOOT INTERVALS OR FILLED TO THE SPRING LINE WITH WASHED SAND, AND BOTH ENDS OF THE CARRIER PIPE MUST BE SEALED WITH CEMENT GROUT OR A MANUFACTURED SEAL.

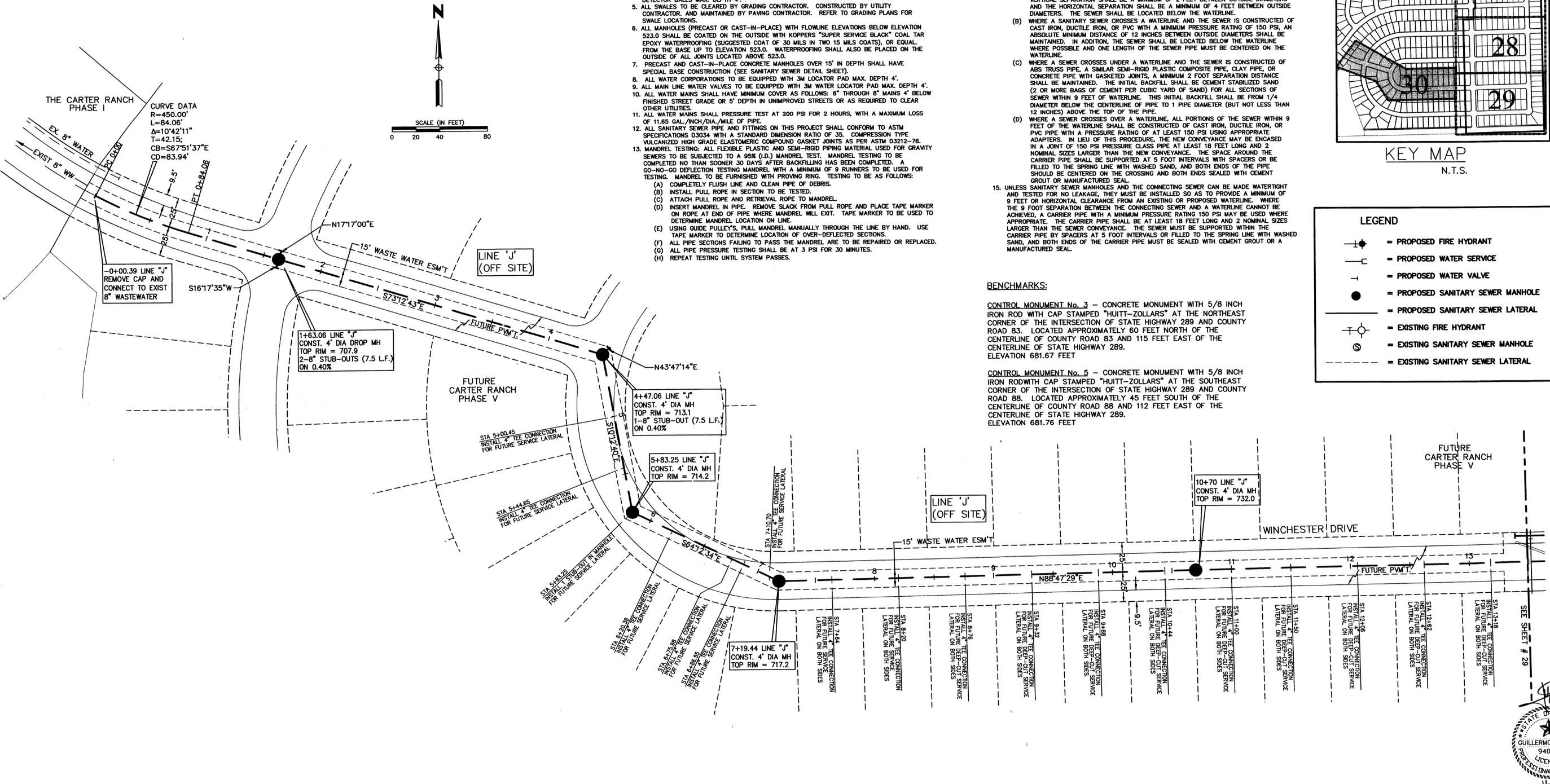
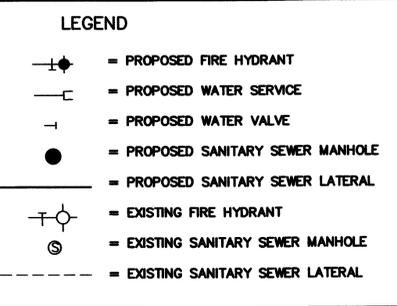
**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

**CONTROL MONUMENT No. 5** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET



**KEY MAP**  
N.T.S.



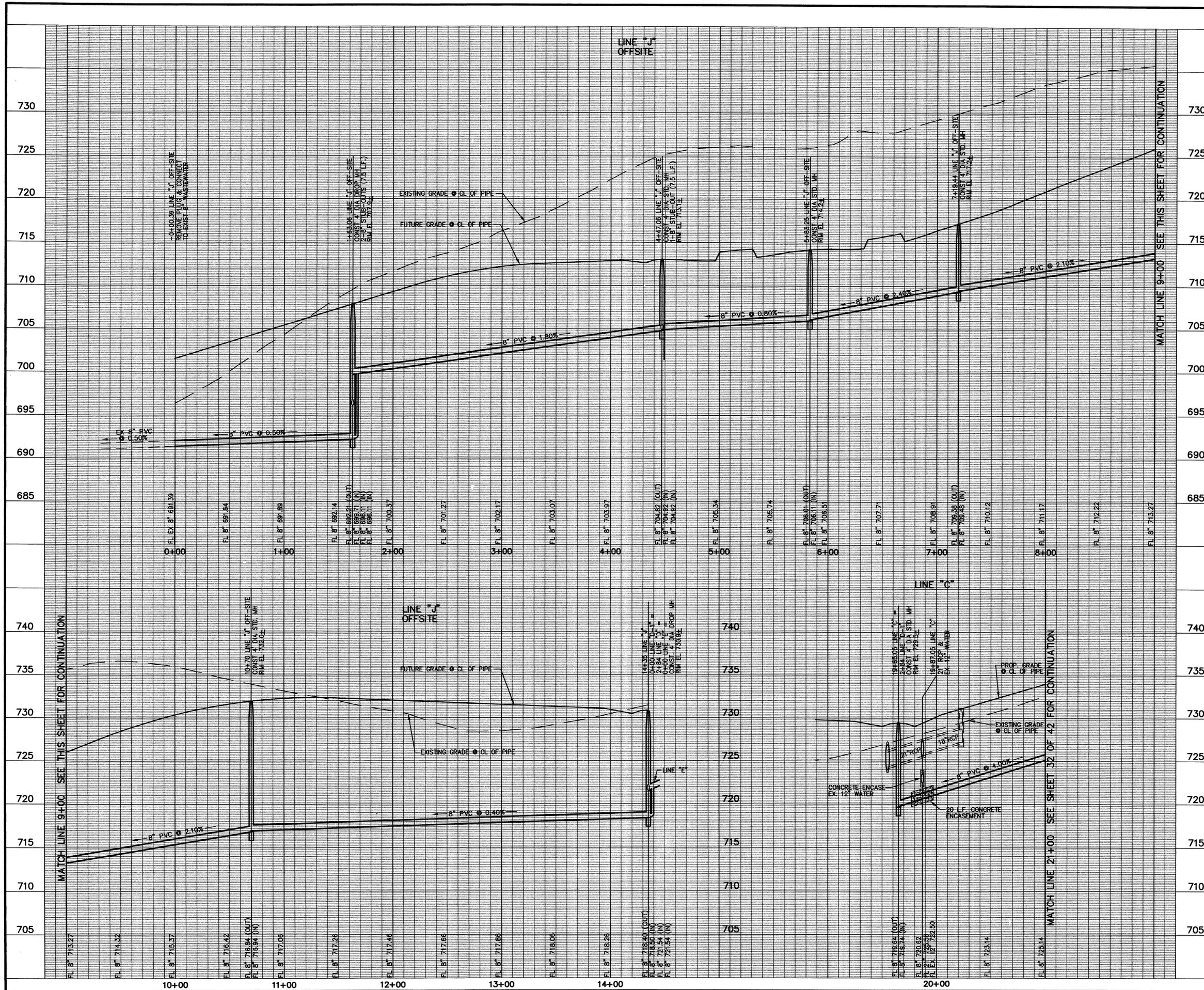
SEE SHEET # 29

NO.	DATE	REVISIONS	APPROVED
1	11/02/05	REV. LINE "J" & ADDED SAN. SWR. SERV. TEES	GJ

**THE CARTER RANCH - PHASE III**  
**WATER/WASTEWATER PLAN**  
**OFF-SITE SANITARY SEWER PLAN**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

HUITT-ZOLLARS  
 385 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-9486  
 Phone (214) 671-9311 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT. 2005	1"=40'		01-3122-67	30 OF 42



**BENCHMARKS:**

CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

CONTROL MONUMENT No. 5 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE SOUTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 88. LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 88 AND 112 FEET EAST OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.76 FEET



NO.	DATE	REVISIONS	APPROVED
1	11/02/05	REV. LINE "J"; ADDED CONT. OF LINE "C"	GJ

**THE CARTER RANCH - PHASE III**

**WASTEWATER PROFILE - LINE J & LINE C**

**CENTURION AMERICAN DEVELOPMENT GROUP**

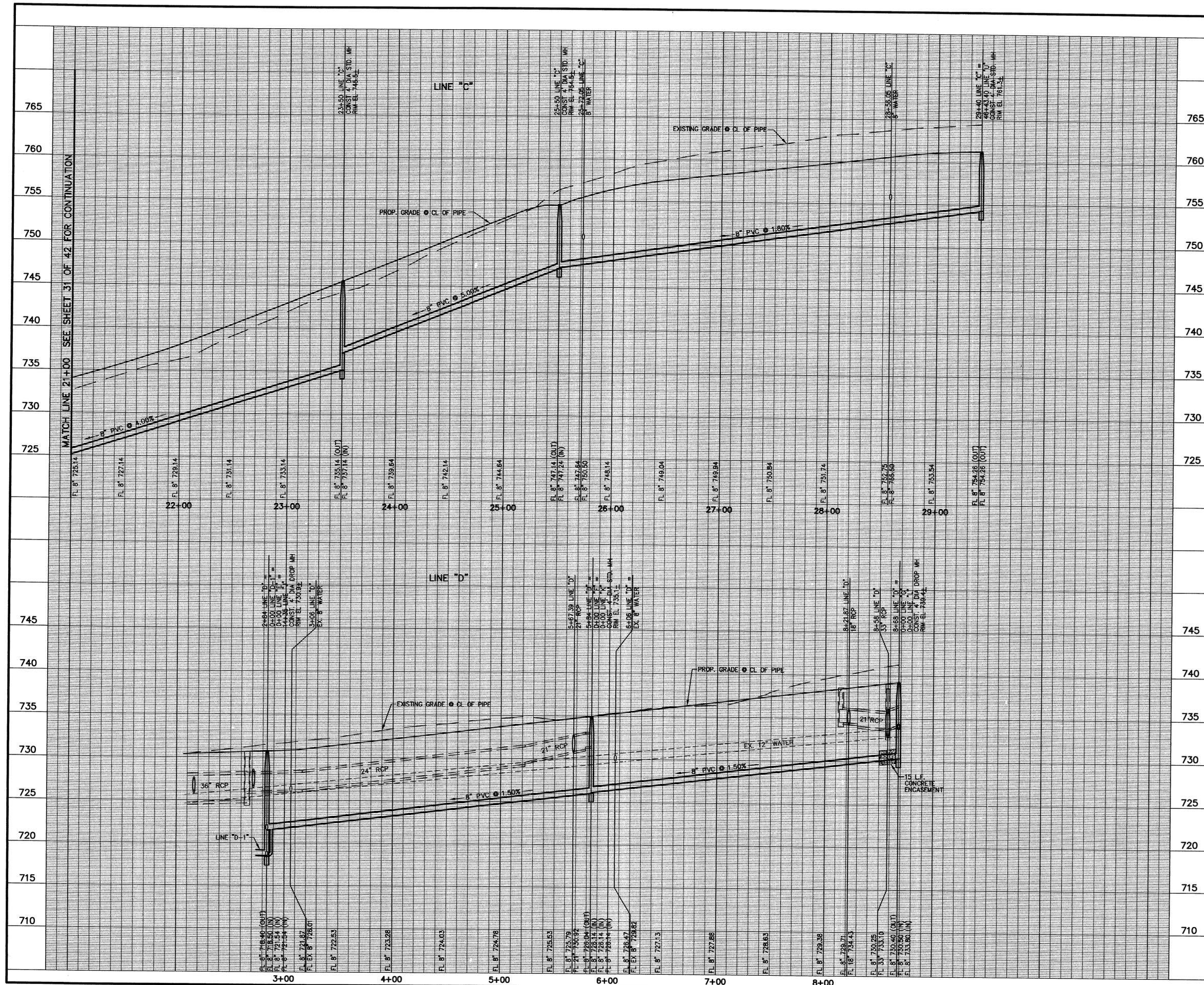
**CELINA, TEXAS**

**HUITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
 3031 McKinney Avenue, Suite 600 Dallas, Texas 75204-9888  
 Phone (214) 871-9300 Fax (214) 871-0707

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT 2005	H:1"=40' V:1"=5'		01-3122-67	31 OF 42

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 Huitt-Zollars, Inc. - Denton, JDS



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**BENCHMARKS:**  
**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET  
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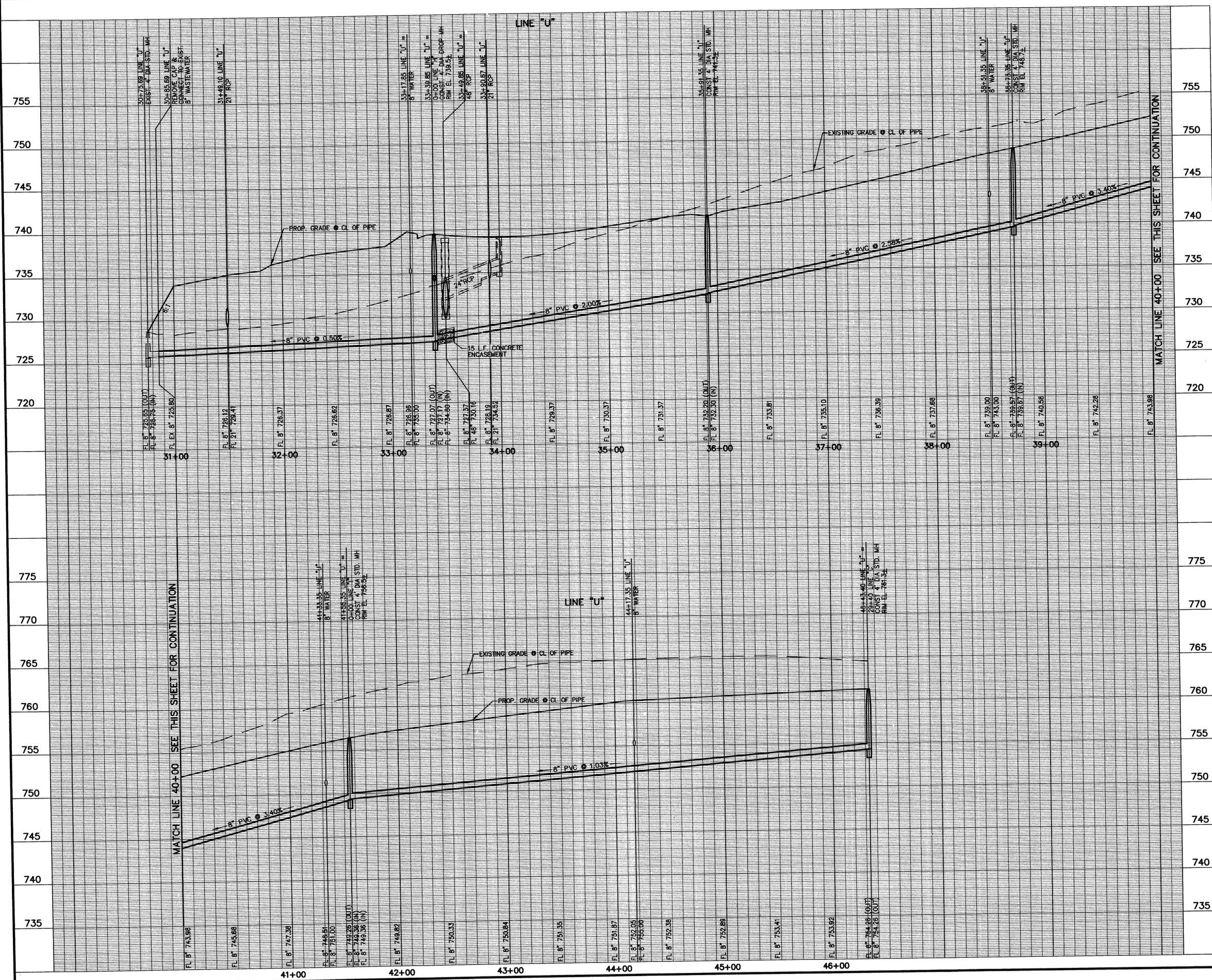
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1	11/02/05	REV. LINE "D"	GJ

**THE CARTER RANCH - PHASE III**  
**WASTEWATER PROFILE - LINE C & D**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
 301 McGraw-Hill Avenue, Suite 600  
 Dallas, Texas 75204-2489  
 Phone (214) 671-0311 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT 2005	H: 1"=40' V: 1"=5'		01-3122-67	32 OF 42



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MATCH LINE 40+00 SEE THIS SHEET FOR CONTINUATION

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**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUIITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

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NO.	DATE	REVISIONS	APPROVED

**THE CARTER RANCH - PHASE III**

**WASTEWATER PROFILE - LINE U**

**CENTURION AMERICAN DEVELOPMENT GROUP**

**CELINA, TEXAS**

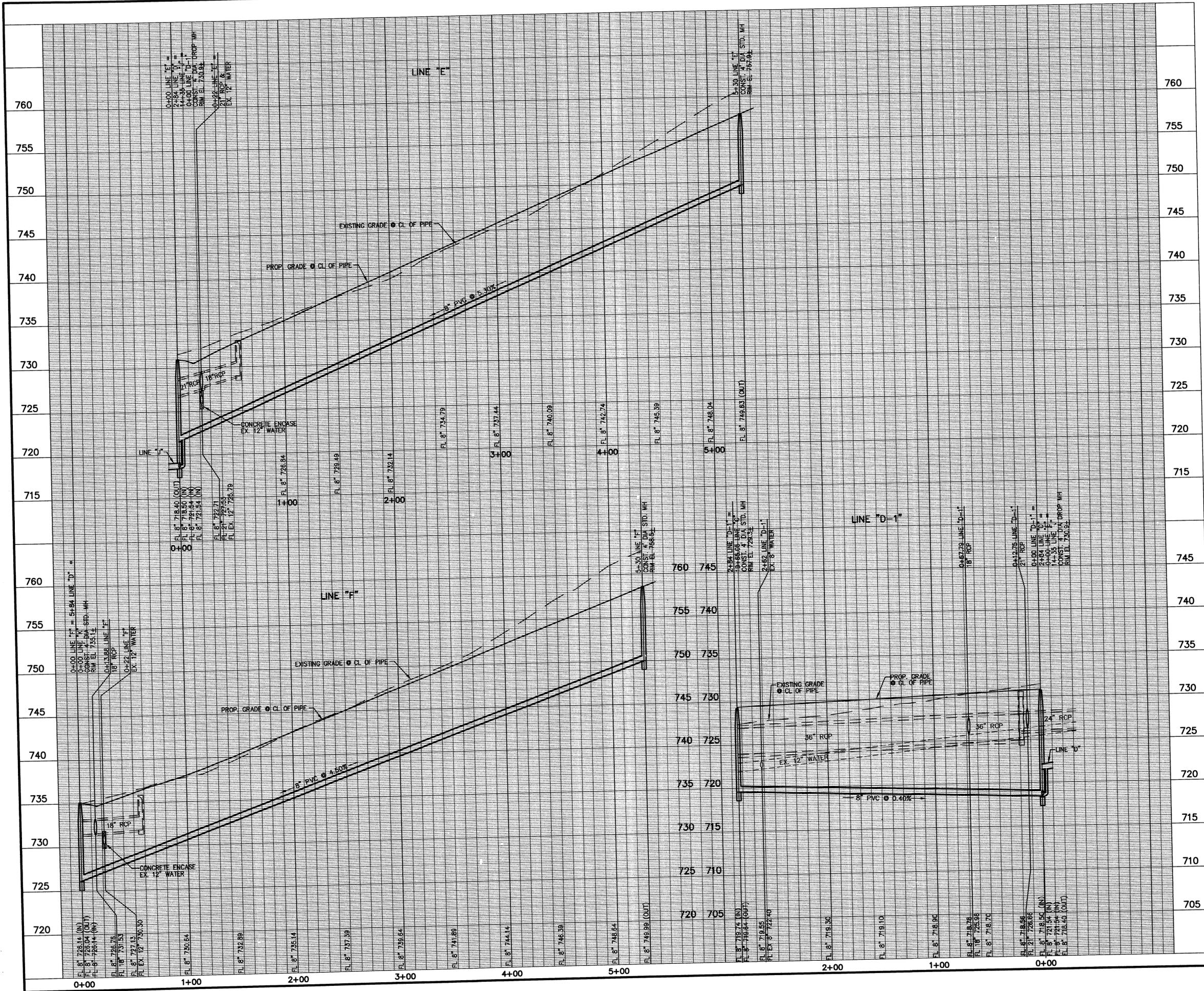
**HUIITT-ZOLLARS**

Huitt-Zollars, Inc. Dallas  
 981 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-9488  
 Phone (214) 671-0391 Fax (214) 671-0257

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI	DENTON	SEPT 2005	H:1"=40' V:1"=5'		01-3122-67	33 OF 42



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 Huitt-Zollars, Inc. - Denton, TX



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**BENCHMARKS:**

**CONTROL MONUMENT No. 3** - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

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NO.	DATE	REVISIONS	APPROVED
1	11/02/05	REV. LINE "E"; ADDED LINE "D-1"	GJ

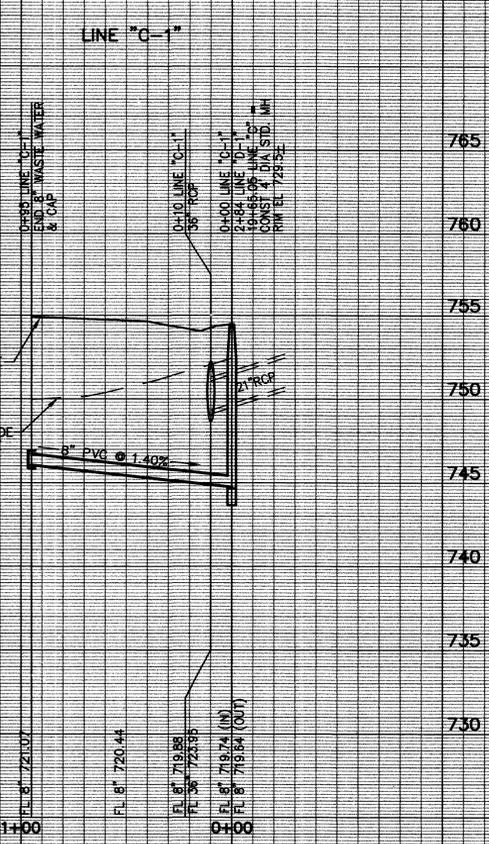
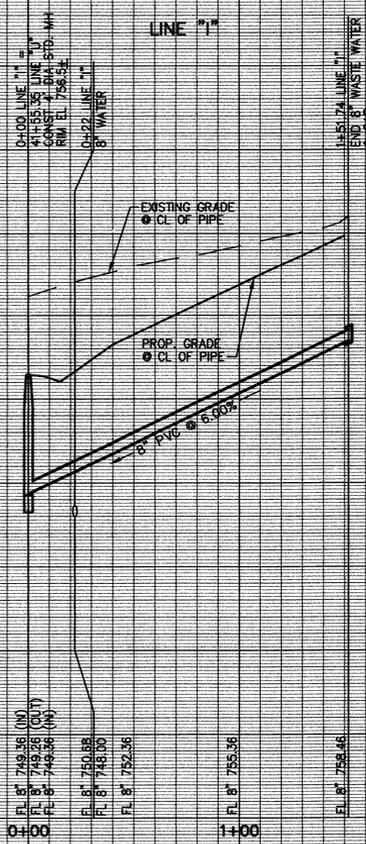
**THE CARTER RANCH - PHASE III**  
**WASTEWATER PROFILE - LINES E, F & D1**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

**HUITT-ZOLLARS**

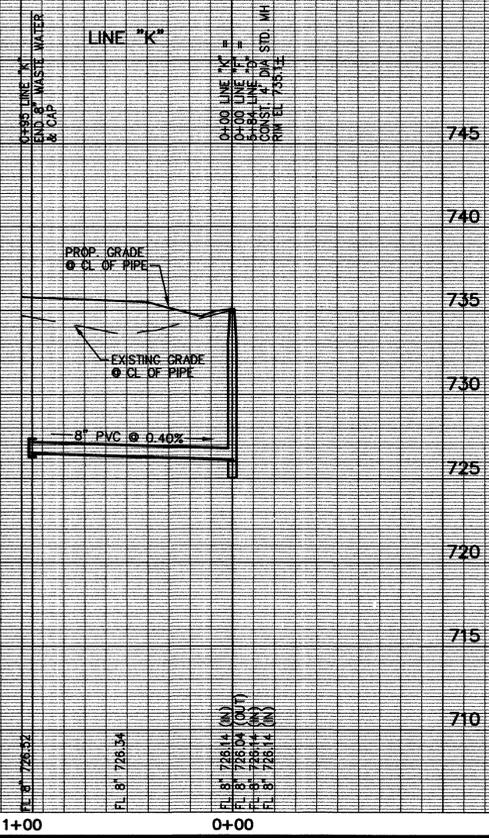
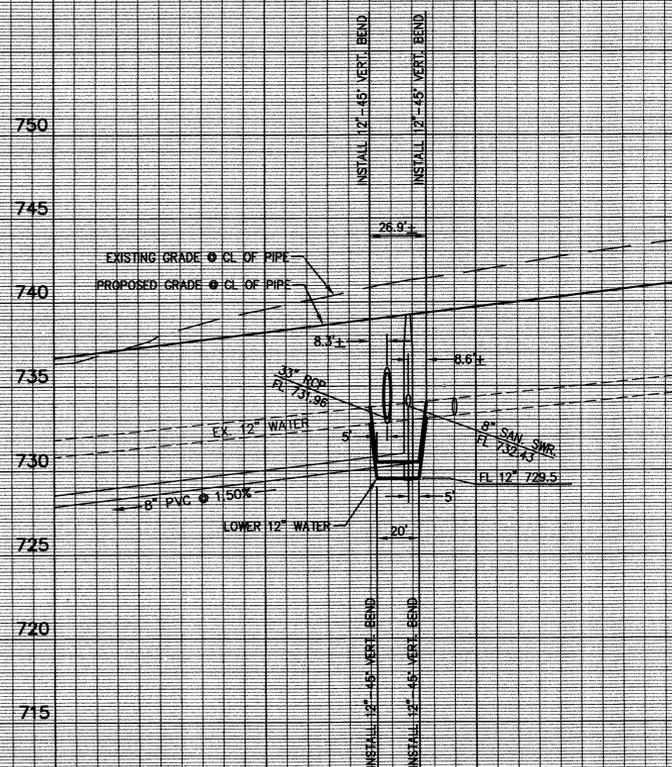
Huitt-Zollars, Inc. Dallas  
 300 McDermott Avenue, Suite 800  
 Dallas, Texas 75204-2489  
 Phone (214) 671-5318 Fax (214) 671-0757

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI	DENTON	SEPT 2005	H: 1"=40' V: 1"=5'		01-3122-67	34 OF 42





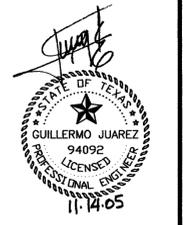
EX. 12" WATER MODIFICATION



**BENCHMARKS:**

CONTROL MONUMENT No. 3 - CONCRETE MONUMENT WITH 5/8 INCH IRON ROD WITH CAP STAMPED "HUITT-ZOLLARS" AT THE NORTHEAST CORNER OF THE INTERSECTION OF STATE HIGHWAY 289 AND COUNTY ROAD 83. LOCATED APPROXIMATELY 60 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 83 AND 115 FEET OF THE CENTERLINE OF STATE HIGHWAY 289. ELEVATION 681.67 FEET

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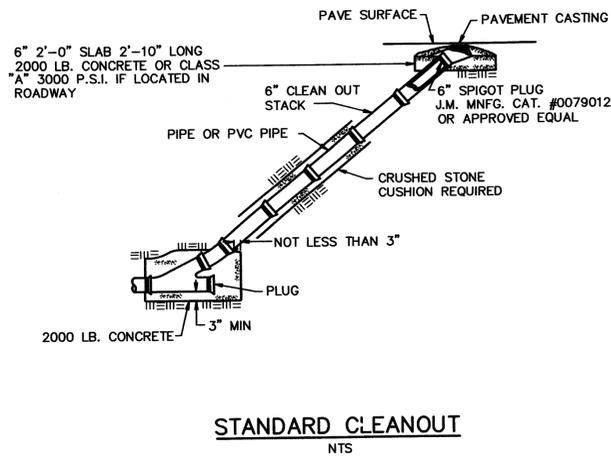
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1	11/02/05	ADDED LINE "C-1"	GJ

**THE CARTER RANCH - PHASE III**  
**WASTEWATER PROFILE - LINES I, C-1 & K**  
**CENTURION AMERICAN DEVELOPMENT GROUP**  
**CELINA, TEXAS**

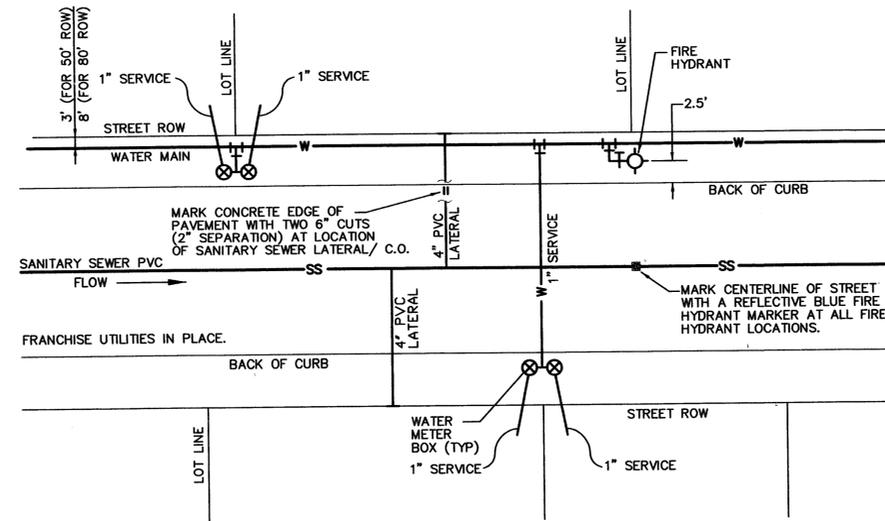
**HUITT-ZOLLARS**

Huitt-Zollars, Inc.  
 3551 McKinney Avenue, Suite 600  
 Dallas, Texas 75204-2489  
 Phone (214) 671-2511 Fax (214) 671-0757

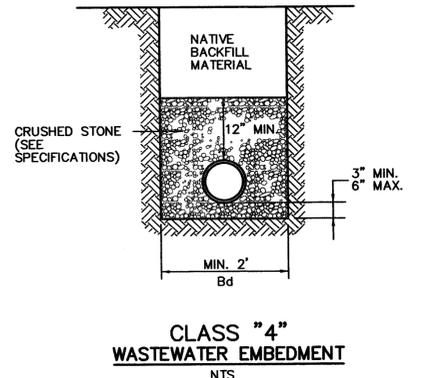
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HZI DENTON	HZI DENTON	SEPT 2005	H: 1"=40' V: 1"=5'		01-3122-67	36 OF 42



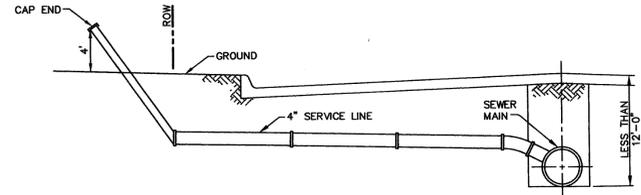
**STANDARD CLEANOUT**  
NTS



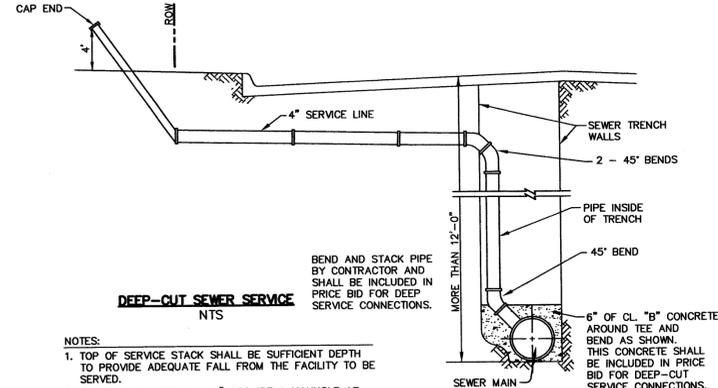
**TYPICAL WATER/SANITARY SEWER SERVICE AND FIRE HYDRANT DETAIL**  
(UNLESS OTHERWISE SHOWN)  
NTS



**CLASS #4 WASTEWATER EMBEDMENT**  
NTS



**STANDARD SEWER SERVICE**  
NTS



**DEEP-CUT SEWER SERVICE**  
NTS

- NOTES:**
1. TOP OF SERVICE STACK SHALL BE SUFFICIENT DEPTH TO PROVIDE ADEQUATE FALL FROM THE FACILITY TO BE SERVED.
  2. SERVICES LARGER THAN 4" REQUIRE A MANHOLE AT CONNECTION.
  3. ALL SERVICE CONNECTIONS ARE "TEES". NO "WYES" ALLOWED.
  4. CONNECTION TO SEWER MAIN IS AT A 45° ANGLE.
  5. TAPS ON EXISTING MAINS SHALL BE WITH NEOPRENE TAPPING SADDLE (OR EQUIV.) AND SECURED WITH POLYWRAPPED STAINLESS STEEL STRAPS AND ENCASED IN CONCRETE.

**SEWER SERVICE CONNECTIONS**  
NTS

**City of Celina CONSTRUCTION GENERAL NOTES**

**GENERAL**

1. All construction shall be in accordance with the latest revision of the North Central Texas Council of Governments "Standard Specifications for Public Works Construction" including the Standard Drawings therein and the City of Celina's addendum thereto.
  2. Before beginning construction, the contractor shall prepare a construction sequence schedule. The construction schedule shall be such that there is the minimum interference with traffic along or adjacent to the project.
  3. Construction may not be begun earlier than 7:00 A.M. on weekdays nor continued after dark without permission from the City of Celina. Construction on holidays and Saturday must be approved two days in advance, a fee of \$300.00 a day for working on holidays and Saturday will be assessed payable to the city before work is performed. Work may not begin before 8:00 A.M. and work on Sunday is prohibited without special permission and payment of fees.
  4. Utilities shown on the plans were taken from field surveys and information provided by the utility companies. The completeness and the accuracy of this data is not guaranteed.
- The contractor is responsible for verifying the location of all underground utilities and structures and protecting them from damage during construction.
5. Work may not be backfilled or covered until the City has inspected it.
  6. Material testing shall be performed by an independent testing laboratory and paid for by the Contractor. The following material tests shall be provided by the Contractor:
    - a. Embankment - One soil density test shall be performed at each location for each 500 C.Y. of backfill placed.
    - Pavement Sub grade - One gradation test (where lime stabilized) and one soil density test shall be performed for each 100 linear feet of pavement unless otherwise noted.
    - b. Utility Trench Backfill - One soil density test shall be performed as directed by City of Celina.
    - c. Concrete Tests:
      - (1). Compressive Strength - as specified in the N.C.T.C.O.G. specifications or city specifications.
      - Air Content - One test for each 25 C.Y. of concrete or fraction thereof unless otherwise noted.
      - (2). Slump - One test for each 9 C.Y. unless otherwise noted.
- The City shall select the location and depth of each soil density test, unless otherwise directed.
7. All excavation on the project is unclassified.
  8. Temporary erosion control shall be used to minimize the spread of silt and mud from the project on to existing streets, alleys, drainage ways and public and private property. Temporary erosion controls may include silt fences, rock check dams, stabilized construction entrances, straw bales, berms, dikes, swales, strips of undisturbed vegetation, check dams and other methods as required by the City Administrator or his representative and shall conform to the AStorm Water Quality Best Management Practices for Construction Activities as published by the North Central Texas Council of Governments.
  9. Finished slopes on public rights-of-way and easements shall not be steeper than 4:1. All slopes steeper than 6:1 shall be covered with erosion control matting and are hydro mulched and maintained by the contractor until grass covers all parts of the slope.
  10. The contractor shall maintain two-way traffic at all times along the project.
  11. Remove, salvage and replace all street and traffic control signs, which may be damaged by the construction of the project.
  12. All trenching and excavation shall be performed in accordance with OSHA standards, accepted. Deflection testing of PVC sewer lines is required.

**City of Celina CONSTRUCTION GENERAL NOTES**

**PAVING**

1. All embankments shall be compacted to 95% Standard Proctor density.
2. All streets and alleys shall be placed on lime stabilized sub grade with a lime content of not less than 7%. Or approved by city engineer.
3. The minimum 28 day compressive strength of concrete street paving shall not be less than 3600 psi and shall be air entrained. Water may not be applied to the surface of concrete paving to improve workability.
4. All curb and gutter shall be integral with the pavement.
5. Parabolic crowns are required on all street pavements except on major thoroughfares where straight sections are required.
6. Streets and alleys shall be constructed with provisions for sidewalk ramps at all intersections.

**DRAINAGE**

1. Storm sewer pipe shall be reinforced concrete, Class III unless otherwise noted.
2. All structural concrete shall be Class "C" (3600 psi compressive strength at 28 days), air entrained.
3. The contractor shall install plugs in storm sewer lines or otherwise prevent mud from entering the storm sewer system during construction.

**WATER AND SANITARY SEWER**

1. Water mains shall be AWWA C-900 or 905 PVC Class 200 unless otherwise noted. Minimum cover for waterlines is 48" below top of curb, 60" where no curbed street is present or as required to clear existing utilities, whichever is greater. Class B+ embedment unless otherwise noted.
2. Marking tape shall be installed one foot above and over PVC water lines.
3. Fittings for PVC water lines shall be ductile iron and be encased in a polyethylene sheath.
4. All Mechanical Joints will be restrained. (Mega-Lug etc.)
5. Valves, including tapping valves shall be resilient seat gate valves.
6. All direct burial valves shall be provided with cast iron valve boxes with PVC stacks. Valve stacks shall be vertical and concentric with the valve stem. Stainless steel valve extensions are required on all valves where the operating nut is greater than 4 feet below finished grade.
7. Fire hydrants shall be Clow or Equal as directed or approved by the City of Celina on a case by case basis and field painted silver with bonnet and caps color-coded to pipe size.
  - a. Six inch line- silver body with RED bonnet and caps.
  - b. Eight inch line- silver body with BLUE bonnet and caps.
  - c. Ten inch line- silver body with GREEN bonnet and caps.
  - d. Twelve inch and larger- silver body with YELLOW bonnet and caps.
8. All exposed bolting on any buried equipment or material shall be stainless steel. Included are:
  - a. Bonnet and stuffing box bolts on valves.
  - b. Shoe bolts on fire hydrants.
  - c. Flange bolts.
  - d. "Cor-ten" mechanical joint "T" bolts are acceptable for direct burial service.
8. Meter boxes shall approved by the City of Celina. Please see attached.
9. Sanitary sewer mains shall be DR 35 PVC. Class H embedment unless otherwise noted.
  - a. The contractor shall install and maintain watertight plugs in all connections to the City's sanitary sewer system until the City accepts the project.
  - b. All sanitary sewer lines and manholes shall be leak tested before the project is

**Specifications**

**Plastic Meter Box Specifications**

- Material Density - ASTM D-1505
- Low Temperature Brittleness - ASTM D-746
- Vertical loading shall be minimum 15,000 lbs.
- Sidewall loading shall be 150 lbs. per inch.
- Wall thickness shall be a nominal 1/4 inch.

- Meter Boxes shall have multi-layer wall construction for maximum performance.
- Exterior surface shall be black to provide UV protection for outdoor storage.
- Interior surface shall be bright white to ease meter reading.
- Made in the U.S.A.

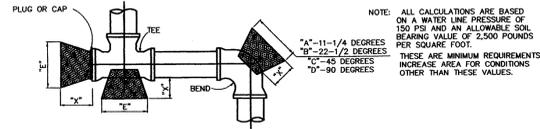
**Cast Iron Meter Ring and Lid Specifications**

- All Meter Box Rings and Lids shall be made of gray cast iron conforming to ASTM A48, Class 30B.
- Castings shall be of uniform quality, free from sand holes, gas holes, shrinkage, cracks and other surface defects. Castings shall be ground smooth and well cleaned by shot blasting. As-cast dimensions may vary within accepted foundry tolerances as outlined in the Iron Castings Handbook published by the American Foundry Society, Inc. Nominally, casting dimensional tolerances shall be +/- .1/16" per foot. All published casting weights are average and approximate values and shall vary +/- .5%.
- Castings shall be coated with a factory applied, water based, asphalt paint unless otherwise specified.
- Casting shall be clearly marked with the manufacturer name, company logo and "MADE IN USA" in cast letters. These identifications shall be accessible even after installation.



NO.	DATE	REVISIONS	APPROVED
<b>THE CARTER RANCH - PHASE III</b>			
<b>WASTE WATER DETAILS &amp; CONSTRUCTION NOTES</b>			
<b>CENTURION AMERICAN DEVELOPMENT GROUP</b>			
<b>CELINA, TEXAS</b>			
<b>HUITT-ZOLLARS</b>			
Huitt-Zollars, Inc. Dallas 801 McKinney Avenue, Suite 600 Dallas, Texas 75204-2489 Phone (214) 671-0211 Fax (214) 671-0757			
DESIGN	DRAWN	DATE	SCALE
HZI DENTON	HZI DENTON	SEPT. 2005	NTS
NOTES	FILE	NO.	
	01-3122-67	37	OF 42





NOTE: ALL CALCULATIONS ARE BASED ON A WATER LINE PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING VALUE OF 2,500 POUNDS PER SQUARE FOOT. THESE ARE MINIMUM REQUIREMENTS. INCREASE AREA FOR CONDITIONS OTHER THAN THESE VALUES.

"A" - 11-1/4 DEGREES  
 "B" - 22-1/2 DEGREES  
 "C" - 45 DEGREES  
 "D" - 90 DEGREES

HORIZONTAL BLOCKING TABLE

PIPE SIZE	"A" DIM. IN. FT.	11-1/4 DEGREES		22-1/2 DEGREES		45 DEGREES		90 DEGREES		TEE & PLUG	
		"A"	MIN. AREA	"B"	MIN. AREA	"C"	MIN. AREA	"D"	MIN. AREA	"E"	MIN. AREA
4"	1.5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6"	1.5	1.00	1.00	1.00	1.00	1.14	1.30	1.35	2.40	1.30	1.70
8"	1.5	1.00	1.00	1.06	1.18	1.52	2.31	2.07	4.27	1.74	3.02
10"	1.5	1.00	1.00	1.35	1.84	1.90	3.61	2.58	6.86	2.17	4.71
12"	1.5	1.00	1.33	1.83	2.65	1.96	5.19	3.10	9.69	2.61	6.79
14"	1.5	1.03	1.81	1.90	3.60	2.66	7.07	3.61	13.06	3.04	9.24
16"	2.0	1.18	2.36	2.17	4.71	3.04	9.23	4.13	17.06	3.47	12.06
18"	2.0	1.35	2.99	2.44	5.96	3.42	11.69	4.65	21.59	3.91	15.27
20"	2.0	1.48	3.70	2.71	7.35	3.80	14.43	5.16	26.66	4.34	18.85
21"	2.0	1.55	4.07	2.85	8.11	3.99	15.81	5.42	29.39	4.56	20.78
24"	2.0	1.77	5.32	3.25	10.59	4.56	20.77	6.29	38.39	5.21	27.14
27"	2.5	1.99	6.73	3.65	13.40	5.13	28.29	6.97	48.50	5.86	34.95
30"	2.5	2.22	8.31	4.07	16.55	5.70	32.46	7.74	59.98	6.51	42.41
33"	2.5	2.44	10.06	4.47	20.02	6.27	39.28	8.52	72.57	7.16	51.31
36"	2.5	2.66	11.97	4.88	23.83	6.84	46.74	9.29	86.37	7.81	61.07
39"	3.0	2.88	14.05	5.29	27.97	7.41	54.86	10.07	101.36	8.47	71.68
42"	3.0	3.10	16.30	5.69	32.43	7.98	63.62	10.85	117.56	9.12	83.13

NOTE: CLASS "B" CONCRETE 2,000 PSI SHALL BE USED FOR ALL BLOCKING UNLESS OTHERWISE NOTED ON STANDARD DETAILS AND / OR PLANS.

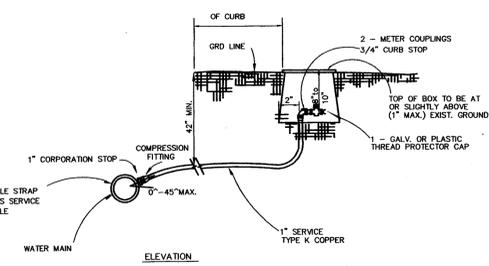
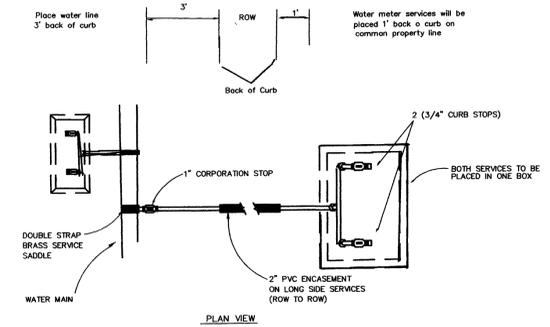
THE MINIMUM VERTICAL DIMENSION OF ALL BLOCKING SHALL BE 1.5 TIMES THE PIPE DIAMETER WITH AT LEAST 0.75 TIMES THE PIPE DIAMETER EXTENDING BOTH ABOVE AND BELOW THE PIPE CENTERLINE. THIS DIMENSION DETERMINES THE "A" DIMENSION FOR 11-1/4° BENDS.

FOR 22-1/2°, 45°, 90° AND TEES AND PLUGS, THE VERTICAL DIMENSION SHALL BE EQUAL TO THE HORIZONTAL DIMENSION SHOWN TO PRODUCE THE REQUIRED MINIMUM AREA.

ALL MINIMUM AREAS ARE IN SQUARE FEET.

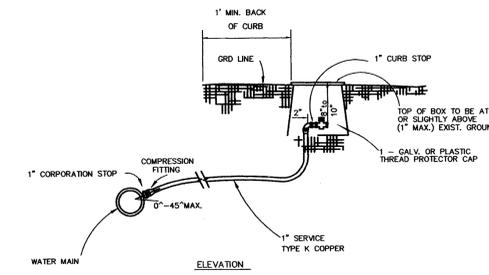
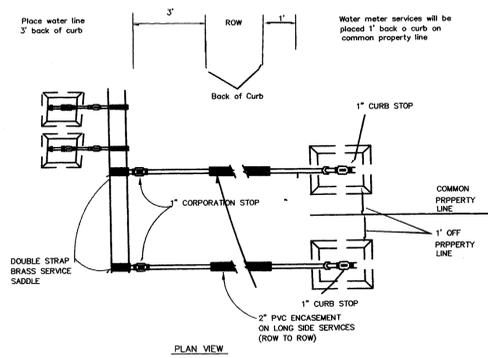
BLOCKING TO BE AGAINST UNDISTURBED TRENCH WALLS AND BOTTOM.

**HORIZONTAL THRUST BLOCKING DETAIL**  
NO SCALE



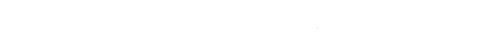
- NOTES
- WHERE TAPPING EXISTING MAINS OR PVC WATER MAINS, DOUBLE STRAPPED BRONZE, STAINLESS STEEL, OR EPOXY COATED DUCTILE IRON SADDLES SHALL BE USED.
  - COPPER SERVICES SHALL BE TYPE K CONTINUOUS WITH NO JOINTS FROM CORP. STOP TO QUARTER BEND.
  - ALL COPPER FITTINGS SHALL BE COMPRESSION FITTINGS.
  - METERS SHALL NOT BE INSTALLED IN EXISTING OR PROPOSED SIDEWALK OR DRIVEWAYS.

**SERVICE CONNECTION DETAIL (LOTS SMALLER THAN 10,000 S.F.)**  
NO SCALE



- NOTES
- WHERE TAPPING EXISTING MAINS OR PVC WATER MAINS, DOUBLE STRAPPED BRONZE, STAINLESS STEEL, OR EPOXY COATED DUCTILE IRON SADDLES SHALL BE USED.
  - COPPER SERVICES SHALL BE CONTINUOUS WITH NO JOINTS FROM CORP. STOP TO QUARTER BEND.
  - ALL COPPER FITTINGS SHALL BE COMPRESSION FITTINGS.
  - METERS SHALL NOT BE INSTALLED IN EXISTING OR PROPOSED SIDEWALK OR DRIVEWAYS.

**SERVICE CONNECTION DETAIL (LOTS 10,000 S.F. OR LARGER)**  
NO SCALE

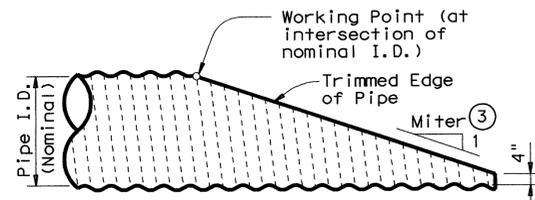


CITY OF CELINA, TEXAS

WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

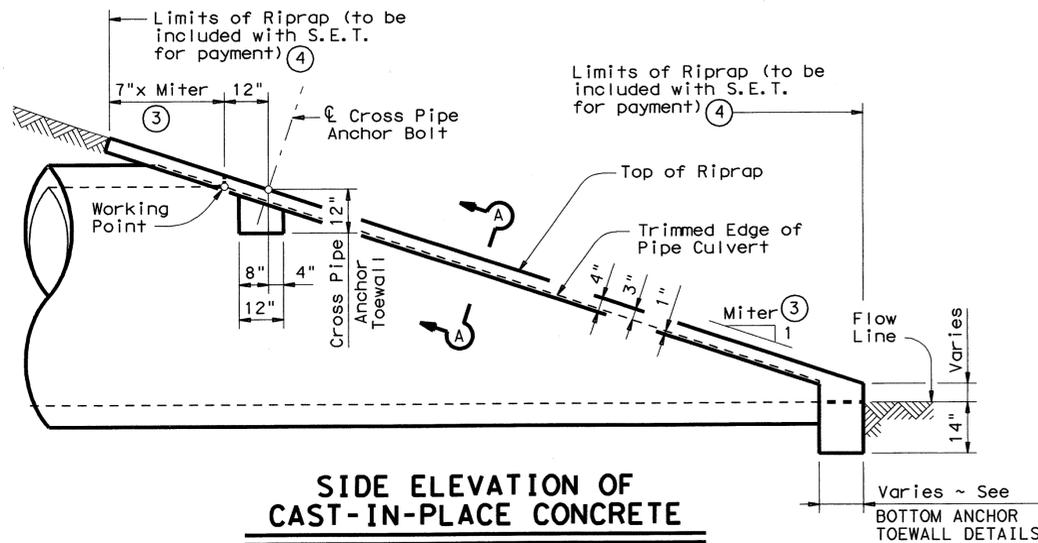
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NOTE: All Pipe Runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

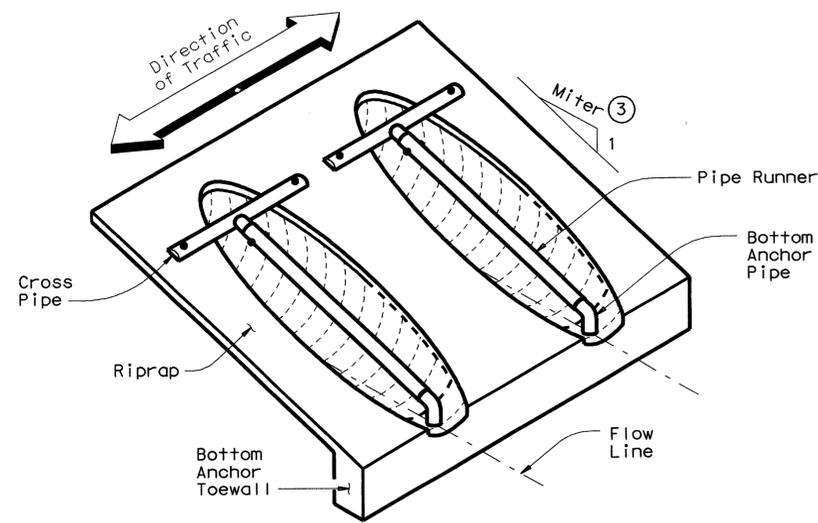
### SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing Corrugated Metal Pipe Culvert. Details of Concrete Pipe Culvert are similar.)



### SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert. Details of Corrugated Metal Pipe Culvert are similar. Pipe Runners not shown for clarity)



### ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

### CROSS PIPE LENGTHS & PIPE RUNNER LENGTHS ①②

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1'-7"	3'-5"	N/A	N/A	N/A	5'-10"	N/A	N/A	N/A	8'-1"	N/A	N/A	N/A	12'-9"
27"	1'-8"	3'-8"	N/A	N/A	5'-5"	6'-11"	N/A	N/A	7'-7"	9'-7"	N/A	N/A	11'-11"	14'-11"
30"	1'-10"	3'-11"	N/A	N/A	6'-4"	8'-0"	N/A	N/A	8'-9"	11'-0"	N/A	N/A	13'-8"	17'-0"
33"	1'-11"	4'-2"	6'-2"	6'-5"	7'-3"	9'-1"	8'-6"	8'-10"	10'-0"	12'-5"	13'-3"	13'-9"	15'-5"	19'-2"
36"	2'-1"	4'-5"	6'-11"	7'-3"	8'-2"	10'-2"	9'-6"	9'-11"	11'-2"	13'-10"	14'-9"	15'-3"	17'-2"	21'-3"
42"	2'-4"	4'-11"	8'-6"	8'-10"	9'-11"	12'-4"	11'-7"	12'-0"	13'-6"	16'-8"	17'-9"	18'-5"	20'-8"	25'-7"
48"	2'-7"	5'-5"	10'-1"	10'-5"	11'-9"	N/A	13'-7"	14'-2"	15'-10"	N/A	20'-9"	21'-6"	24'-2"	N/A
54"	3'-0"	5'-11"	11'-8"	12'-1"	N/A	N/A	15'-8"	16'-3"	N/A	N/A	23'-10"	24'-8"	N/A	N/A
60"	3'-3"	6'-5"	13'-3"	N/A	N/A	N/A	17'-9"	N/A	N/A	N/A	26'-10"	N/A	N/A	N/A

### TYPICAL PIPE CULVERT MITERS ③

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

### CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED ②

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (No Skew)	Always required
42" to 60"	Always required	Always required

### STANDARD PIPE SIZES & MAX PIPE RUNNER LENGTHS ①

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10'-0"
4" STD	4.500"	4.026"	19'-8"
5" STD	5.563"	5.047"	34'-2"

### ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) ⑤

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

① Size of Pipe Runner shall be as shown in the tables. Cross Pipe shall be the same size as the Pipe Runner. Cross Pipe Stub Out and Bottom Anchor Pipe shall be the next smaller size pipe as shown in the STANDARD PIPE SIZES table.

② This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.  
 For 54" culvert pipes, the skew must not exceed 15°.  
 For 48" culvert pipes, the skew must not exceed 30°.  
 For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT "Roadway Design Manual".

③ Miter = Slope of Mitered Pipe Culvert End

④ Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

⑤ Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple Pipe Culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

LEVELS DISPLAYED	ACC:
1	



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**TABLE OF DIMENSIONS & REINFORCING STEEL**  
(Wings for One Structure End)

Maximum Wingwall Height Hw (9)	Dimensions				Variable Reinforcing				Estimated Quantities (3) 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

**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		

**TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES**

Bar	Size	No.	Spa
K	#4	~	1'-0"
N	#5	6	~
OL	#4	6	~
Reinf (Lb/Ft)	9.82		
Conc (CY/Ft)	0.074		

- 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: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.
- 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, construction joints or grooved joints, oriented in the direction of flow, and 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 Item 432, "Riprap".
- At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
- 3" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard.
- For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- See "Table Of Maximum Wing Heights" for various slopes. Height is limited based on a 33'-6" maximum safety pipe runner length.

**TABLE OF MAXIMUM WING HEIGHTS (Hw max)**

Side Slope	Hw max
3:1	11'-5"
4:1	8'-10"
6:1	6'-1"

**WING DIMENSION CALCULATIONS:**

Formulas: (All values are in Feet)  
 $Hw = H + T + C - 0.250'$  (9)  
 $Lw = (Hw - 0.333') (SL)$

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

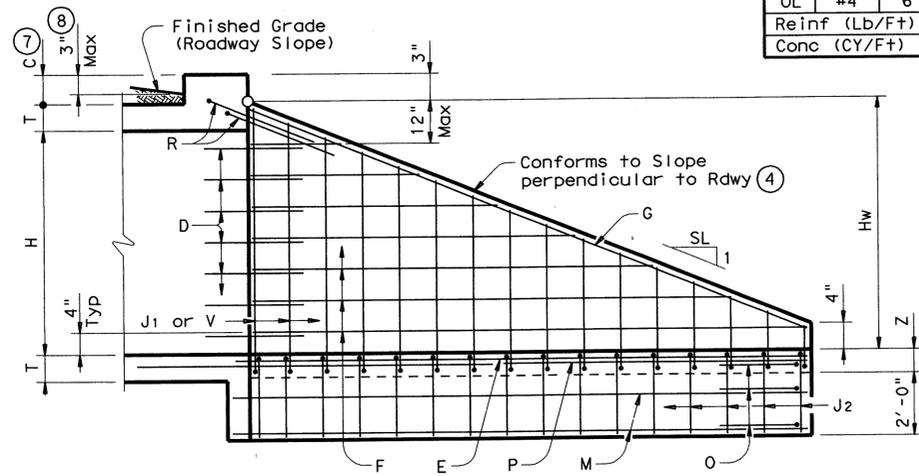
$Lc = (Ltw) - (2U)$   
 $Atw = Lc$   
 Total Wingwall Area (Two Wings ~ S.F.)  
 $= (Hw + 0.333') (Lw)$

Hw = Height of Wingwall  
 SL:1 = Side Slope Ratio (Horizontal : 1 Vertical)  
 Lw = Length of Wingwall  
 Ltw = Culvert Toewall Length  
 Lc = Culvert Curb between Wings  
 Atw = Anchor Toewall Length  
 N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values. See Table of Maximum Wall Heights for limits on Hw.

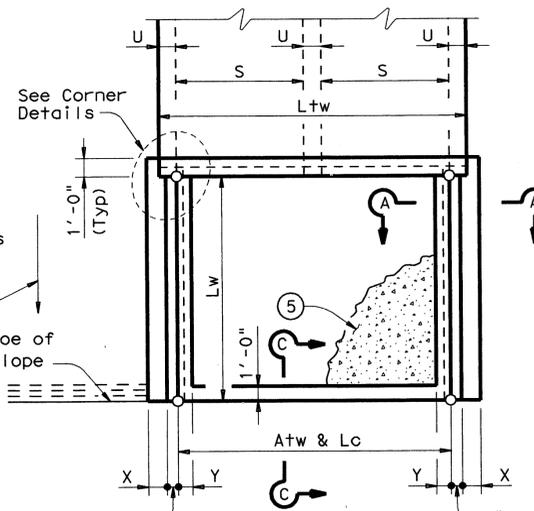
**GENERAL NOTES:**

Designed according to current AASHTO Standard and Interim Specifications.  
 The Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.  
 Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.  
 All reinforcing steel shall be Grade 60.  
 All concrete shall be Class "C" and shall have a minimum 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.  
 All bolts, nuts, washers, brackets, angles, and pipe runners are considered parts of the Safety End Treatment for payment.  
 Pipe Runners shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.  
 Bolts and nuts shall conform to ASTM A307. Steel plates shall conform to ASTM A36. All steel components, except reinforcing, shall be galvanized. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.  
 The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.



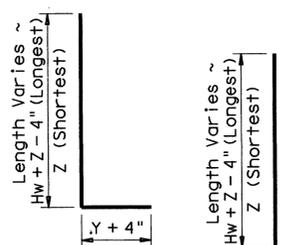
**INSIDE ELEVATION OF WINGWALL**

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

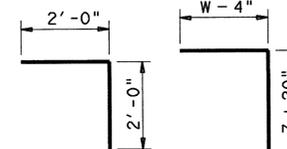


**PLAN**

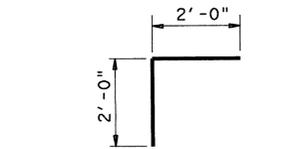
(Showing Dimensions)



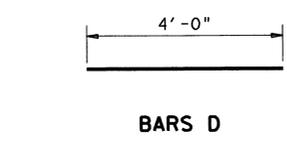
**BARS J1 and BARS V**



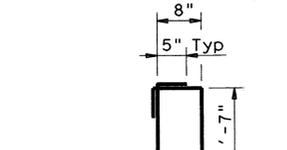
**BARS L & OL and BARS J2**



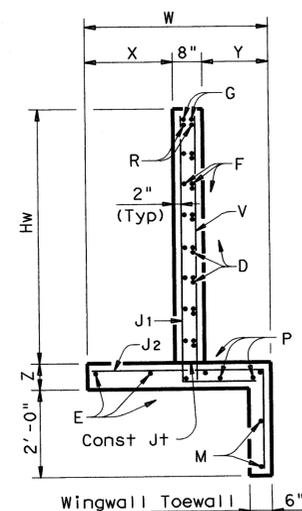
**BARS R**



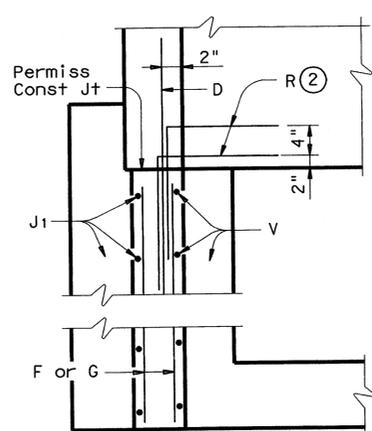
**BARS D**



**BARS K**  
(Length = 5'-4")



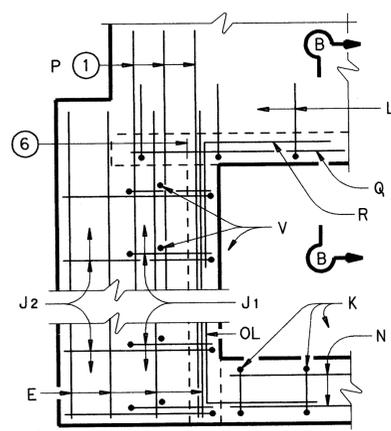
**SECTION A-A**



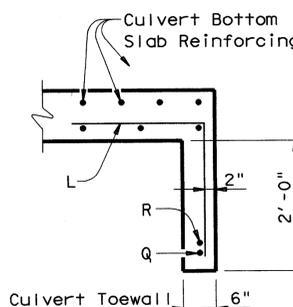
**WINGWALL**

**CORNER DETAILS**

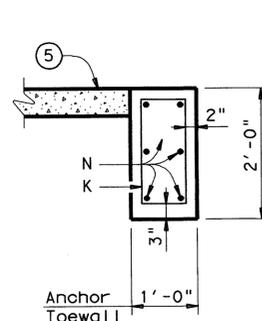
(Culvert and Culvert Toewall reinforcing not shown for clarity.)



**FOOTING AND TOEWALL**

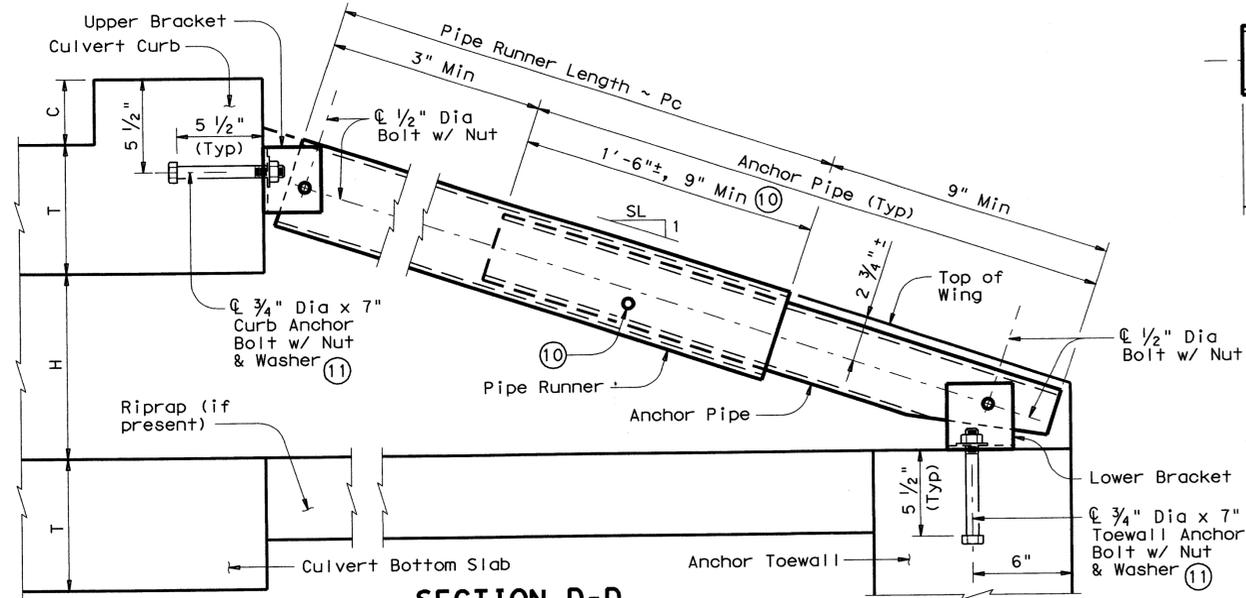


**SECTION B-B (5)**

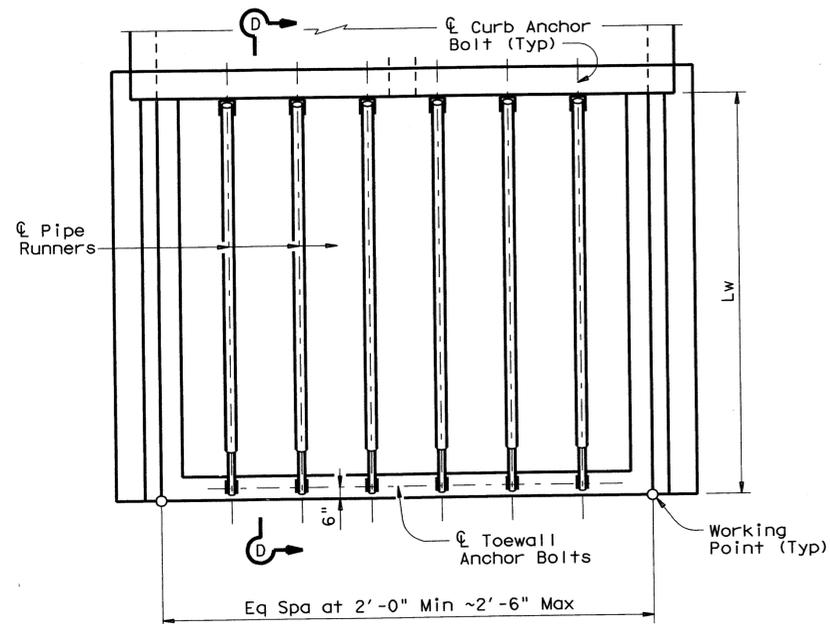


**SECTION C-C**

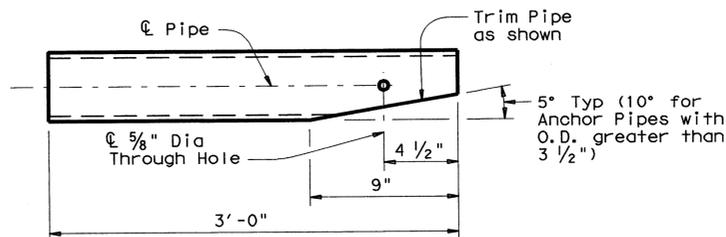
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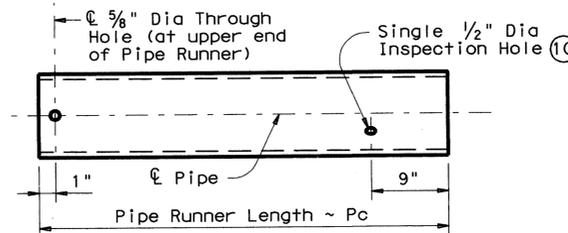
**SECTION D-D**  
(Showing Curb Pipe Runner.)



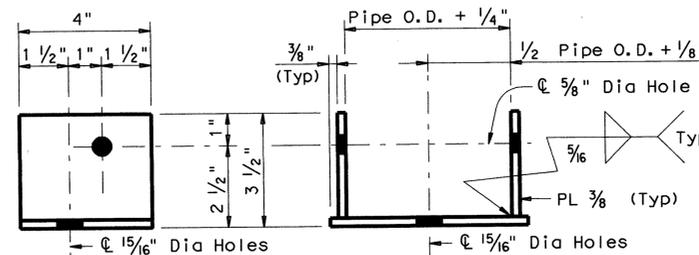
**PIPE RUNNER PLAN**



**ANCHOR PIPE DETAILS**



**PIPE RUNNER DETAILS**



**UPPER & LOWER BRACKET DETAILS**

Note: Upper and Lower Brackets shall match the required pipe diameters as shown in the table.

**UPPER & LOWER BRACKET DETAILS**

**MAXIMUM PIPE RUNNER LENGTHS & REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES**

Maximum Pipe Runner Length (Pc)	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

(10) After installation of Pipe Runner, the 1/2" inspection hole shall be utilized to ensure that the lap of the Anchor Pipe with the Pipe Runner is adequate.

(11) At Contractor's option, an epoxy anchorage system may be used. Anchorage system chosen must be able to achieve an ultimate tensile resistance of 20 kips. Anchor diameter shall be 3/4". The Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's recommendations.

**PIPE RUNNER DIMENSION CALCULATIONS:**

Formulas:  
 $Pc = (Lw) (K) - (1.688)$

Pc = Pipe Runner Length  
 K = Constant Values for use in formulas  
 Slope SL: 1 K

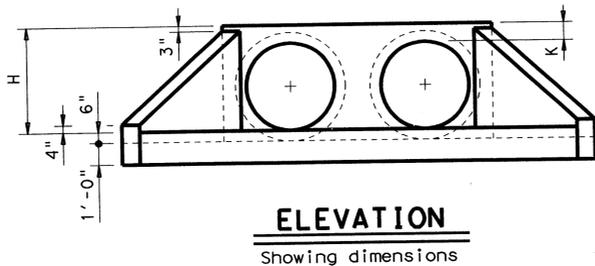
3:1	~ 1.054
4:1	~ 1.031
6:1	~ 1.014

**TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL** (4)

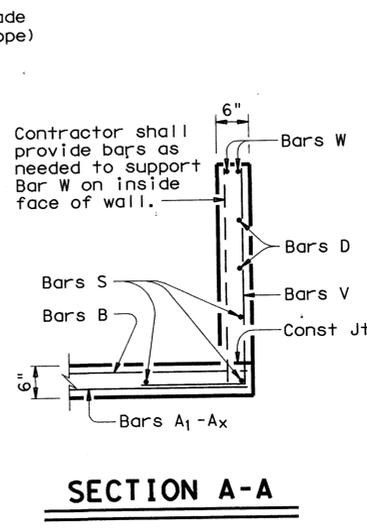
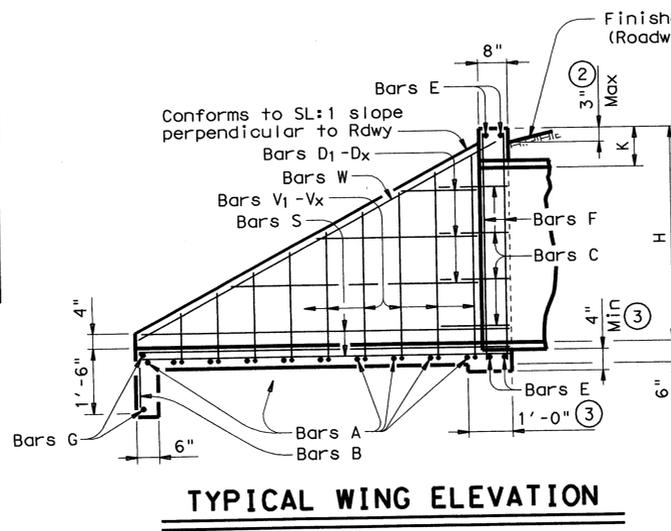
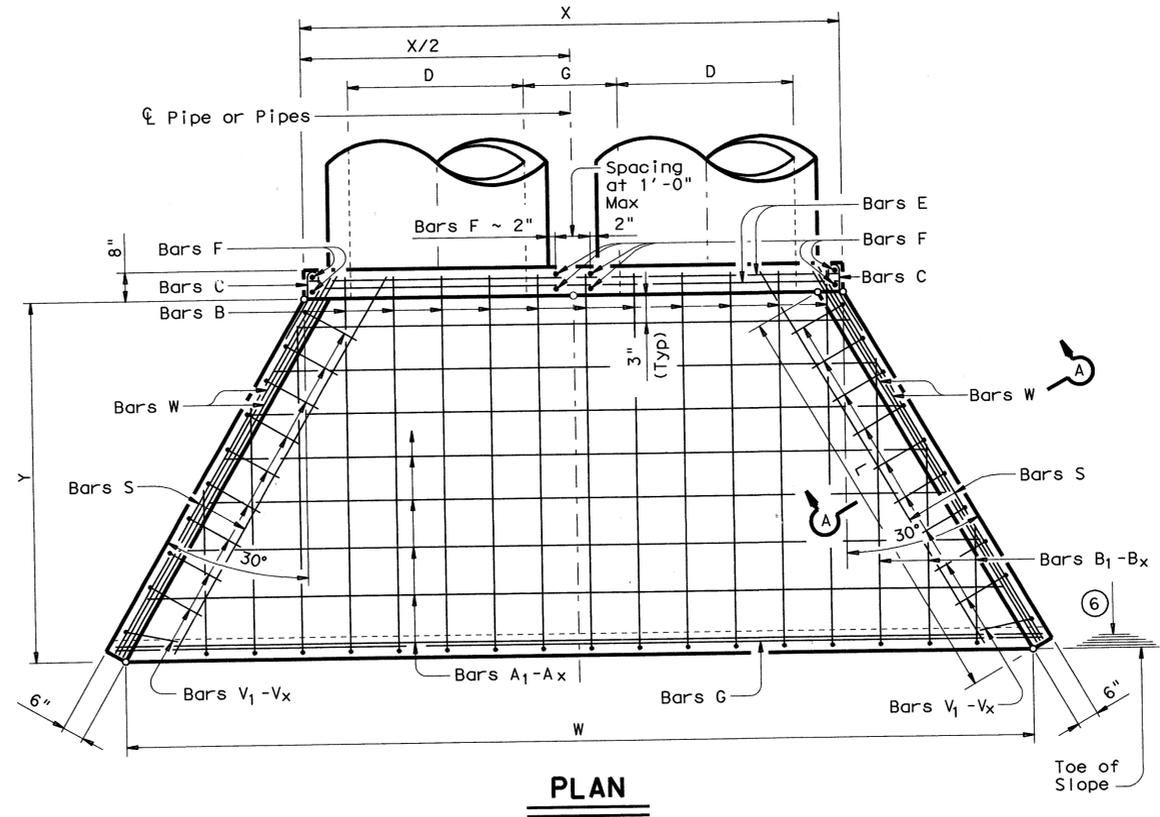
SLOPE	DIA OF PIPE, D	Values for one Pipe				Values to be added for each add'l Pipe				
		W	X	Y	L	Reinf (Lbs)	Conc (CY)	X and W	Reinf (Lbs)	Conc (CY)
2:1	12"	4'-7 1/2"	2'-6"	2'-10"	3'-3 1/4"	84	0.6	1'-9"	20	0.2
	15"	5'-5 3/4"	2'-9 1/2"	3'-4"	3'-10 1/4"	99	0.7	2'-2"	24	0.3
	18"	6'-4 1/4"	3'-1"	3'-10"	4'-5"	120	0.9	2'-8"	32	0.3
	21"	7'-2 3/4"	3'-4 1/2"	4'-4"	5'-0"	137	1.1	3'-1"	43	0.4
	24"	8'-2 1/2"	3'-9 1/2"	4'-10"	5'-7"	158	1.3	3'-7"	50	0.5
	27"	9'-1"	4'-1"	5'-4"	6'-2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'-4 1/2"	5'-10"	6'-8 3/4"	197	1.7	4'-4"	65	0.8
	33"	10'-10"	4'-8"	6'-4"	7'-3 3/4"	216	2.0	4'-8"	71	0.9
	36"	11'-8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'-1"	81	1.0
	42"	13'-5 1/4"	5'-6 1/2"	7'-10"	9'-0 1/2"	290	2.8	5'-10"	97	1.3
	48"	15'-9"	6'-1 1/2"	9'-4"	10'-9 1/4"	350	3.8	6'-7"	117	1.7
	54"	17'-5 3/4"	6'-8 1/2"	10'-4"	11'-11 1/4"	415	4.5	7'-6"	151	2.1
60"	19'-2 3/4"	7'-3 1/2"	11'-4"	13'-1"	469	5.3	8'-3"	174	2.5	
66"	20'-11 1/2"	7'-10 1/2"	12'-4"	14'-3"	530	6.2	8'-9"	194	2.9	
72"	22'-8 1/2"	8'-5 1/2"	13'-4"	15'-4 3/4"	587	7.1	9'-4"	213	3.3	
3:1	12"	6'-3"	2'-6"	4'-3"	4'-11"	114	0.8	1'-9"	22	0.2
	15"	7'-5"	2'-9 1/2"	5'-0"	5'-9 1/4"	133	1.1	2'-2"	28	0.3
	18"	8'-6 3/4"	3'-1"	5'-9"	6'-7 3/4"	166	1.3	2'-8"	37	0.5
	21"	9'-8 3/4"	3'-4 1/2"	6'-6"	7'-6"	189	1.6	3'-1"	48	0.6
	24"	11'-0"	3'-9 1/2"	7'-3"	8'-4 1/2"	221	2.0	3'-7"	58	0.7
	27"	12'-2"	4'-1"	8'-0"	9'-2 3/4"	245	2.3	3'-11"	67	0.8
	30"	13'-4"	4'-4 1/2"	8'-9"	10'-1 1/4"	287	2.7	4'-4"	77	1.0
	33"	14'-5 3/4"	4'-8"	9'-6"	10'-11 3/4"	310	3.1	4'-8"	84	1.2
	36"	15'-7 3/4"	4'-11 1/2"	10'-3"	11'-10"	343	3.5	5'-1"	96	1.4
	42"	17'-11 1/2"	5'-6 1/2"	11'-9"	13'-6 3/4"	424	4.5	5'-10"	119	1.7
	48"	21'-1 3/4"	6'-1 1/2"	14'-0"	16'-2"	527	6.1	6'-7"	146	2.3
	54"	23'-5 1/2"	6'-8 1/2"	15'-6"	17'-10 3/4"	618	7.3	7'-6"	186	2.9
60"	25'-9 1/4"	7'-3 1/2"	17'-0"	19'-7 1/2"	707	8.7	8'-3"	219	3.4	
66"	28'-1"	7'-10 1/2"	18'-6"	21'-4 1/4"	797	10.1	8'-9"	242	3.9	
72"	30'-4 3/4"	8'-5 1/2"	20'-0"	23'-1 1/4"	910	11.7	9'-4"	272	4.4	
4:1	12"	7'-10 3/4"	2'-6"	5'-8"	6'-6 1/2"	144	1.1	1'-9"	24	0.3
	15"	9'-4"	2'-9 1/2"	6'-8"	7'-8 1/2"	177	1.5	2'-2"	32	0.4
	18"	10'-9 1/2"	3'-1"	7'-8"	8'-10 1/4"	217	1.9	2'-8"	42	0.5
	21"	12'-2 3/4"	3'-4 1/2"	8'-8"	10'-0"	254	2.3	3'-1"	57	0.7
	24"	13'-9 1/2"	3'-9 1/2"	9'-8"	11'-2"	295	2.8	3'-7"	67	0.9
	27"	15'-3"	4'-1"	10'-8"	12'-3 3/4"	328	3.3	3'-11"	77	1.0
	30"	16'-8 1/4"	4'-4 1/2"	11'-8"	13'-5 3/4"	379	3.8	4'-4"	89	1.3
	33"	18'-1 3/4"	4'-8"	12'-8"	14'-7 1/2"	417	4.5	4'-8"	101	1.4
	36"	19'-7"	4'-11 1/2"	13'-8"	15'-9 1/4"	464	5.1	5'-1"	115	1.7
	42"	22'-5 3/4"	5'-6 1/2"	15'-8"	18'-1"	575	6.5	5'-10"	141	2.1
	48"	26'-6 1/4"	6'-1 1/2"	18'-8"	21'-6 3/4"	720	8.9	6'-7"	175	2.8
	54"	29'-5"	6'-8 1/2"	20'-8"	23'-10 1/4"	863	10.7	7'-6"	226	3.6
60"	32'-3 3/4"	7'-3 1/2"	22'-8"	28'-5 3/4"	1126	14.9	8'-9"	300	4.9	
66"	35'-2 1/2"	7'-10 1/2"	24'-8"	28'-5 3/4"	1126	14.9	8'-9"	300	4.9	
72"	38'-1 1/4"	8'-5 1/2"	26'-8"	30'-9 1/2"	1283	17.3	9'-4"	334	5.6	
6:1	12"	11'-2"	2'-6"	8'-6"	9'-9 3/4"	220	1.9	1'-9"	28	0.4
	15"	13'-2 1/4"	2'-9 1/2"	10'-0"	11'-6 1/2"	264	2.5	2'-2"	37	0.5
	18"	15'-2 1/2"	3'-1"	11'-6"	13'-3 1/4"	326	3.2	2'-8"	50	0.7
	21"	17'-2 3/4"	3'-4 1/2"	13'-0"	15'-0 1/4"	381	3.9	3'-1"	69	0.9
	24"	19'-4 1/2"	3'-9 1/2"	14'-6"	16'-9"	447	4.8	3'-7"	80	1.2
	27"	21'-4 3/4"	4'-1"	16'-0"	18'-5 3/4"	506	5.7	3'-11"	96	1.4
	30"	23'-5 1/4"	4'-4 1/2"	17'-6"	20'-2 1/2"	587	6.7	4'-4"	110	1.7
	33"	25'-5 1/2"	4'-8"	19'-0"	21'-11 1/4"	667	7.8	4'-8"	127	2.0
	36"	27'-5 3/4"	4'-11 1/2"	20'-6"	23'-8"	727	9.0	5'-1"	144	2.3
	42"	31'-6 1/4"	5'-6 1/2"	23'-6"	27'-1 1/2"	914	11.5	5'-10"	179	3.0
	48"	37'-3 1/2"	6'-1 1/2"	28'-0"	32'-4"	1181	15.9	6'-7"	231	4.0
	54"	41'-4 1/4"	6'-8 1/2"	31'-0"	35'-9 1/2"	1412	19.2	7'-6"	300	5.0
60"	45'-4 3/4"	7'-3 1/2"	34'-0"	39'-3"	1619	22.9	8'-3"	353	6.0	

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.

LEVELS DISPLAYED: ACC: [ ]



- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.
- Quantities shown are for one structure end only (one headwall).
- Min Length = 6" + 3" x  $\left(\frac{12 \times H - 7}{12 \times L}\right)$   
Max Length = 12 x H - 3" x  $\left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$
- Lengths of wings based on SL:1 Slope along this line.

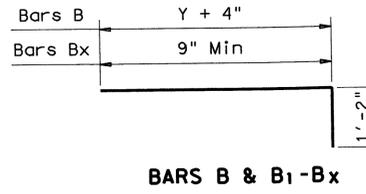
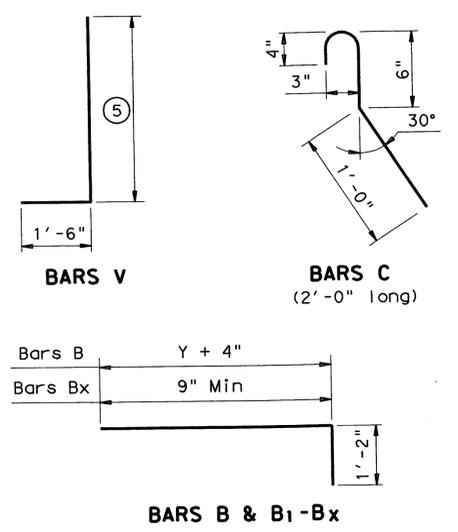


**TABLE OF REINFORCING STEEL** (4)

Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

**TABLE OF CONSTANT DIMENSIONS**

DIA OF PIPE, D	G	K	H
12"	9"	1'-0"	2'-0"
15"	11"	1'-0"	2'-3"
18"	1'-2"	1'-0"	2'-6"
21"	1'-4"	1'-0"	2'-9"
24"	1'-7"	1'-0"	3'-0"
27"	1'-8"	1'-0"	3'-3"
30"	1'-10"	1'-0"	3'-6"
33"	1'-11"	1'-0"	3'-9"
36"	2'-1"	1'-0"	4'-0"
42"	2'-4"	1'-0"	4'-6"
48"	2'-7"	1'-3"	5'-3"
54"	3'-0"	1'-3"	5'-9"
60"	3'-3"	1'-3"	6'-3"
66"	3'-3"	1'-3"	6'-9"
72"	3'-4"	1'-3"	7'-3"



**GENERAL NOTES:**  
Designed according to current AASHTO Standard and Interim Specifications.  
Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.  
All reinforcing steel shall be Grade 60.  
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.  
No bridge rails of any type may be mounted directly to these culvert headwalls.

**Texas Department of Transportation**  
Bridge Division

**CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS**

**CH-FW-0**

FILE: chfw00se.dgn    DN: TxDOT    CK: TxDOT    DW: TxDOT    CK: GAF  
 SHEET: 42 of 42  
 DISTRICT: FEDERAL AID PROJECT  
 COUNTY: CONTROL SECT JOB HIGHWAY