ENGINEERING PLANS FOR THE DEVELOPMENT OF

THREE NEIGHBORHOODS

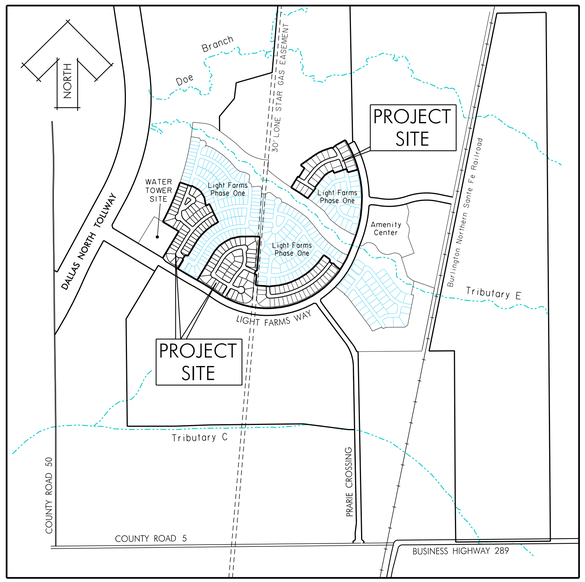
IN

LIGHT FARMS

THE INDIGO NEIGHBORHOOD
THE BLUESTEM NEIGHBORHOOD
THE GRANGE NEIGHBORHOOD

PHASE TWO

COLLIN COUNTY, TEXAS



LOCATION MAP

NTS

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STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

GUARANTOR:

LFC BIG II, LLC

Tony Ruggeri
8401 North Central Expressway
Suite 350 Dallas, TX 75225
Phone 214–292–3410 Fax 214–292–3411

Prepared For:

COLLIN COUNTY MUNICIPAL UTILITY DISTRICT NO. 1

C/O Republic Property Group
8401 North Central Expressway
Suite 350 Dallas, TX 75225
Phone 214–292–3410 Fax 214–292–3411

Prepared By:

HUITT-ZOLLARS

1717 McKinney Ave., Suite 1400 Dallas, Texas 75202
Phone (214) 871–3311 Fax (214) 871–0757
Contact: Robert M. Stengele, P.E.
email: rstengele@huitt-zollars.com

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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. Contractor shall have at least one set of approved Engineering Plans and Specifications on-site at all times.

2. Before beginning construction, the contractor shall prepare a construction sequence schedule. The construction schedule shall be such that there is minimum interference with traffic along or adjacent to the project.

3. Construction may not begin earlier than 7:00 A.M. on weekdays nor continue 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 accessed payable to the city before work is performed. Work may not begin before 8:00 A.M. on holidays and Saturday 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.

   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 location prior to commencement of construction and shall assume full liability to those companies for any damages caused to their facilities.

DIG TESS	800-DIG-TESS
GCEC-TELECOM	903-482-7274
GCEC-ELECTRIC	903-821-3007
AT&T	972-569-3013
ATMOS ENERGY	972-881-4161
ATMOS ENERGY	214-341-9900
CROSSTEX ENERGY	817-570-6753
ONEOK	903-257-6594
COSERV-ELEC	940-321-7800
COSERV-GAS	940-321-7800
CITY OF CELINA	972-382-2682
TOWN OF PROSPER	972-347-9969
MARILEE SUD	972-382-3222
GRANDE	972-410-0583
SUDDEN LINK	469-853-0486

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.
   b. Pavement Sub grade - One gradation test (where lime stabilized) and one soil density test shall be performed for each 300 linear feet of pavement unless otherwise noted. Gradations must pass 100% through a 1 ¾" sieve and 60% through a #4 sieve.
   c. Utility Trench Backfill - One soil density test shall be performed at 300 feet intervals or as directed by the Inspector.
   d. Concrete Tests:
      (1). Compressive Strength - Four test cylinders shall be taken from a representative portion of the concrete being placed for every 150-cubic yards of concrete pavement placed, but in no case shall less than 2 sets of cylinders be taken from any one day's placement.)
      (2). Air, slump, and temperature tests shall be taken for every set of cylinders made. Concrete with a temperature above 95° F will be rejected.
      (3). Additional cylinders and/or tests may be required at the Inspector's discretion.

   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 Manager or his representative and shall conform to the Storm Water Quality Best Management Practices for Construction Activities as published by the North Central Texas Council of Governments and the City of Celina Erosion and Sediment Control Manual.

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. Trench safety design will be the responsibility of the Contractor. Contractor shall submit a trench safety design approved by a professional engineer to the City for review prior to the start of any underground utility construction.

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 as 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. All utility trench backfill shall be performed in 12" loose lifts and mechanically compacted with approved vibratory methods.

3. Marking tape shall be installed one foot above and over PVC water lines.

4. Fittings for PVC water lines shall be ductile iron and be encased in a polyethylene sheath.

5. All Mechanical Joints will be restrained. (Mega-Lug etc.)

6. Valves, including tapping valves shall be resilient seat gate valves, unless noted otherwise.

7. 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.

8. Fire hydrants shall be Waterous 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.

9. 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.

10. Depending on meter size; meter boxes shall be DFW37C-12-1SAF, DFW38C-14-1SAF, DFW65C-14-1SAF, or approved equal, and shall incorporate the Celina logo in the lid.
11. One sample station shall be provided to the city for every 250 connections.

Sanitary sewer mains shall be DR 35 PVC. Embedment shall be Class H 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 <u>and</u> manholes shall be leak tested before the project is accepted. Deflection testing of PVC sewer lines is required. Deflection shall be tested with a mandrel for 5% deflection.
   c. All sewer lines shall be video inspected with a copy of the video and station report submitted to the Inspector.
   d. Mandrel, Air Test, and Video inspection shall not be performed until all utilities are complete, in place, and backfilled.

Specifications are not meant to exclude any other manufacturer. Any specification may be replaced with an approved equal upon approval by the City of Celina.

STATE OF TEXAS
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8-26-14

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GENERAL NOTES

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

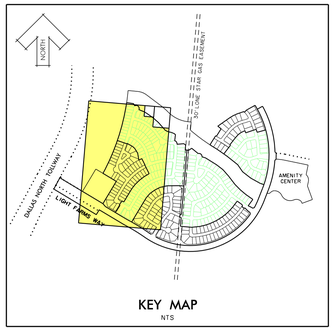
DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	2

NOTE:
WORK SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY ALPHA TESTING, INC., DATED DECEMBER 31, 2007, AND REED ENGINEERING GROUP LIGHT FARMS PHASE II EARTHWORK RECOMMENDATION LETTER DATED OCTOBER 9, 2013.

NOTE:
DRAINAGE REPORT PROVIDED
BY HUITT-ZOLLARS, INC., DATED DECEMBER 5, 2012.

TEMPORARY UNIMPROVED ACCESS ROAD TO BE ABANDONED AND SURFACE MATERIAL TO BE REMOVED PRIOR TO GRADING IN THIS AREA. FIRE DEPARTMENT TO NOTIFIED IN ADVANCE FOR TIMING OF REMOVAL.

NOTE:
ALL DISTURBED AREAS MUST BE PERMANENTLY STABILIZED BY HYDROMULCH OR BROADCAST SEEDING PER NCTGOG STANDARDS TO REESTABLISH VEGETATION UNDER THE DIRECTION OF THE ENGINEER / DEVELOPER.



KEY MAP
NTS

N

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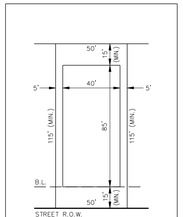
SCALE IN FEET



TYPICAL LOT & SETBACK LINE DETAIL (50' WIDE LOT)
NTS

NOTE:
Top of Curb grades are shown to the nearest tenth of a foot (0.1) for rough grading purposes. Paving plans shall be used for the final pavement grade construction.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

LEGEND	
630	EXISTING CONTOUR
633	PROPOSED CONTOUR
x 57.7 TC	EXISTING TOP CURB ELEVATION
x 57.7 EP	EXISTING EDGE OF PVMT. (CONC.)
• 34.1	PROPOSED SPOT ELEVATION
• 57.7 TC	PROPOSED TOP CURB ELEVATION
→	SURFACE FLOW DIRECTION
FP	FINISH PAD ELEVATION
— — — —	EXPOSED BEAM
═══	EXISTING RETAINING WALL
———	PROPOSED RETAINING WALL
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION

STATE OF TEXAS
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GRADING PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=60'		01-3905-35	7

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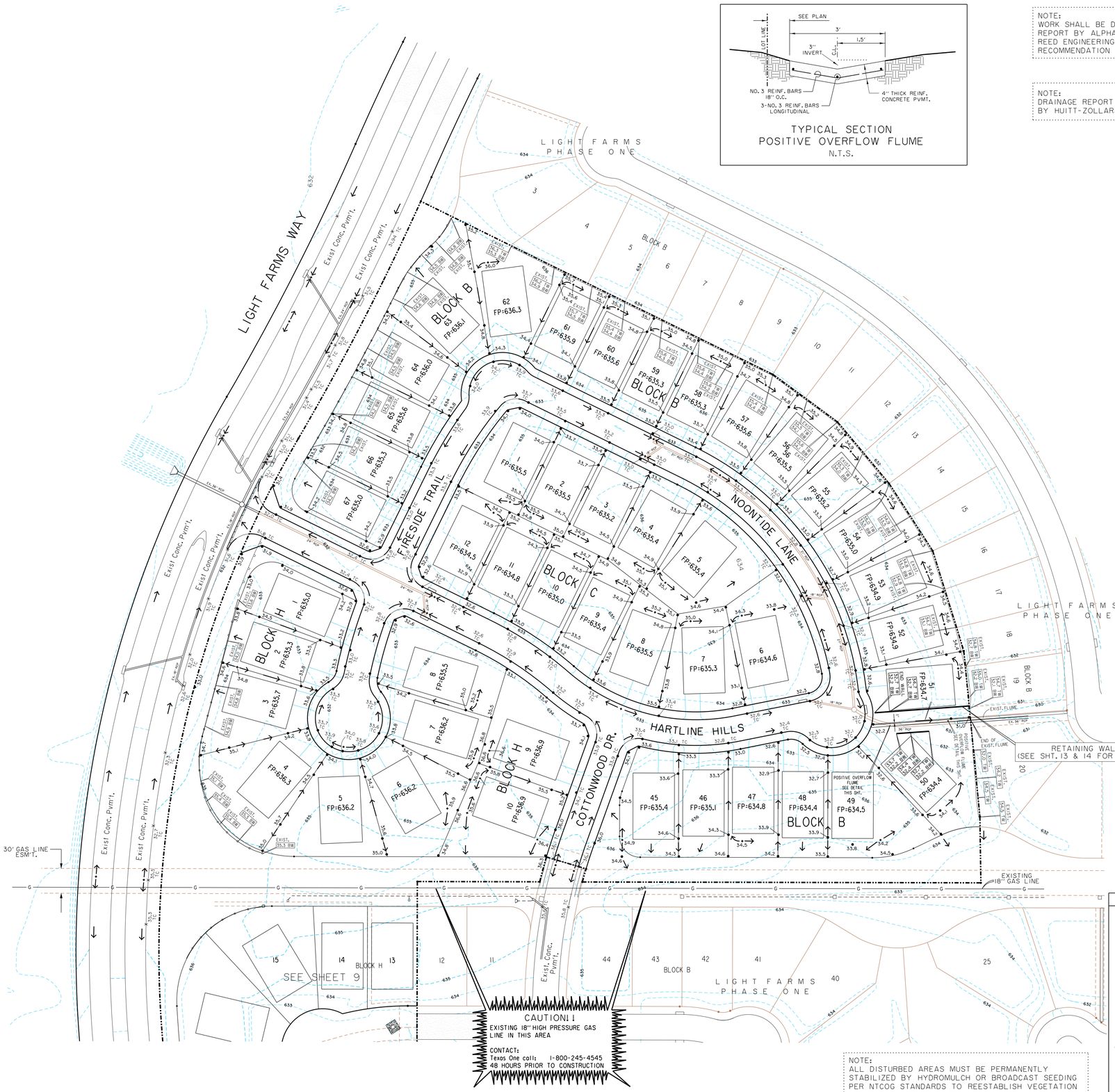

TYPICAL SECTION
POSITIVE OVERFLOW FLUME
N.T.S.

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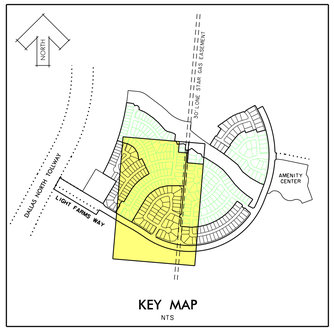

KEY MAP
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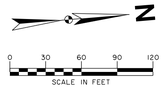

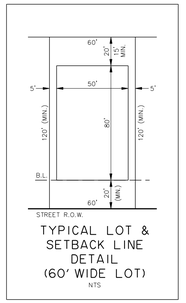

TYPICAL LOT & SETBACK LINE DETAIL
(60' WIDE LOT)
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

STATE OF TEXAS
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LEGEND

630	EXISTING CONTOUR
633	PROPOSED CONTOUR
x57.7 TC	EXISTING TOP CURB ELEVATION
x57.7 EP	EXISTING EDGE OF PVMT. (CONC.)
•34.1	PROPOSED SPOT ELEVATION
•57.7 TC	PROPOSED TOP CURB ELEVATION
→	SURFACE FLOW DIRECTION
FP	FINISH PAD ELEVATION
	EXPOSED BEAM
	EXISTING RETAINING WALL
	PROPOSED RETAINING WALL
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION

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GRADING PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=60'		01-3905-35	8

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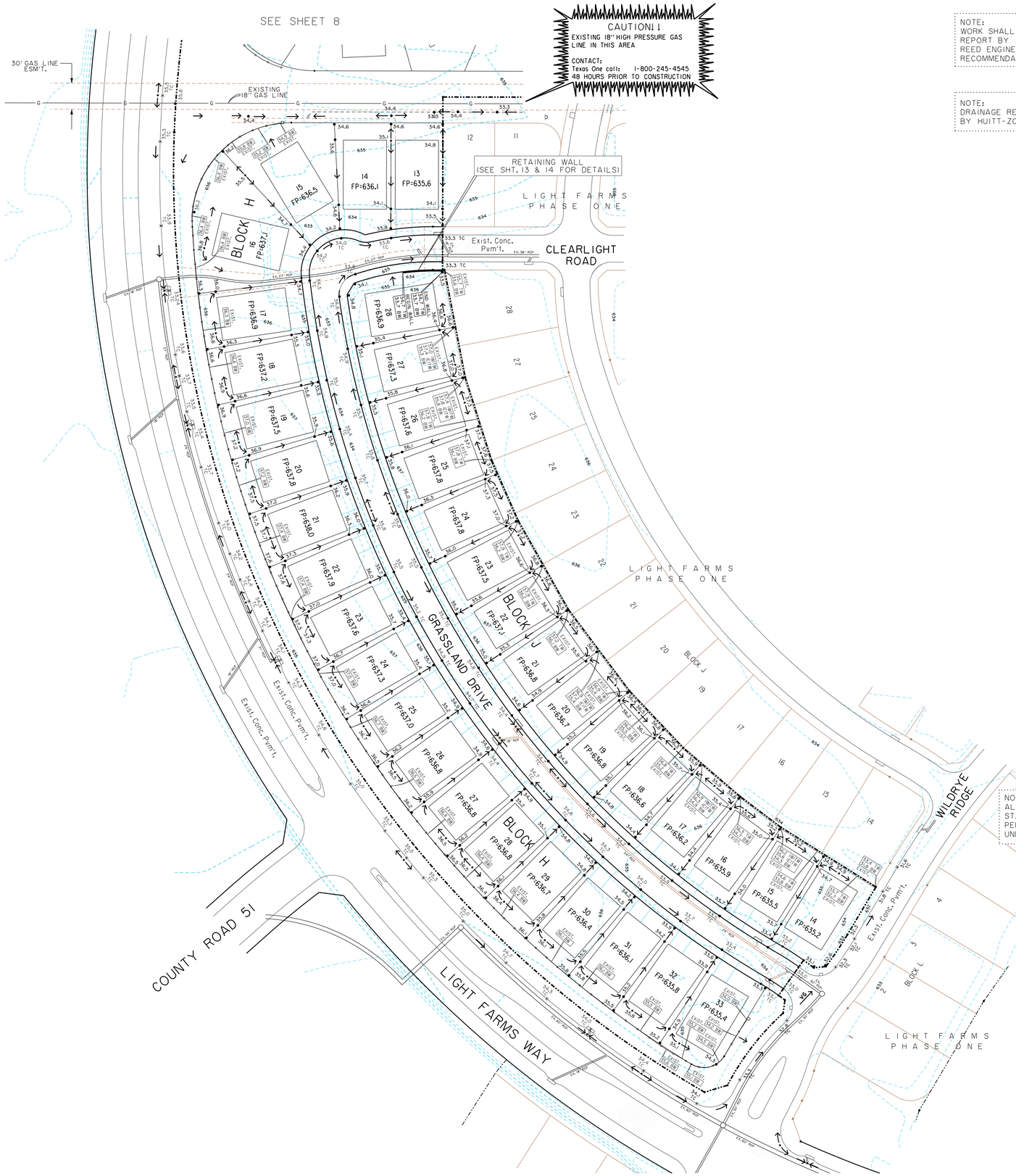

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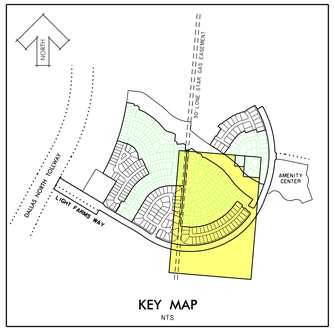
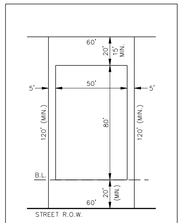


KEY MAP
NTS

N

0 30 60 90 120
SCALE IN FEET



TYPICAL LOT & SETBACK LINE DETAIL (60' WIDE LOT)
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 78 Brass monument set on curb inlet, south side of Light Farms Way, 1170+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 633.64

BM # 79 Brass monument set on top of curb, southeast side of Light Farms Way, 520+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 635.51

NOTE:
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GRADING PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=60'		01-3905-35	9

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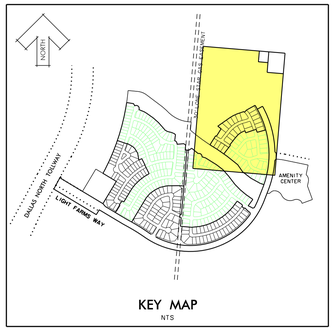
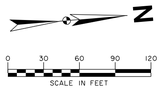
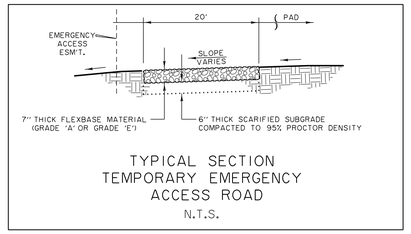


KEY MAP
NTS

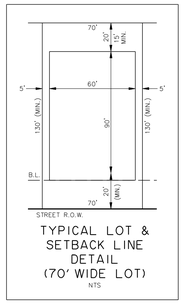
GATE NOTES:

1. THE MINIMUM GATE WIDTH SHALL BE 20 FEET.
2. GATES SHALL BE OF THE SWINGING OR SLIDING TYPE.
3. CONSTRUCTION OF GATES SHALL BE OF MATERIALS THAT ALLOW MANUAL OPERATION BY ONE PERSON.
4. GATE COMPONENTS SHALL BE MAINTAINED IN AN OPERATIVE CONDITION AT ALL TIMES AND REPLACED OR REPAIRED WHEN DEFECTIVE.
5. ELECTRIC GATES SHALL BE EQUIPPED WITH A MEANS OF OPENING THE GATE BY FIRE DEPARTMENT PERSONNEL FOR EMERGENCY ACCESS. EMERGENCY OPENING DEVICES SHALL BE APPROVED BY THE FIRE CODE OFFICIAL.
6. MANUAL OPENING GATES SHALL NOT BE LOCKED WITH A PADLOCK OR CHAIN AND PADLOCK UNLESS THEY ARE CAPABLE OF BEING OPENED BY MEANS OF FORCIBLE ENTRY TOOLS OR WHEN A KEY BOX CONTAINING THE KEY(S) TO THE LOCK IS INSTALLED AT THE GATE LOCATION.
7. LOCKING DEVICE SPECIFICATIONS SHALL BE SUBMITTED FOR APPROVAL BY THE FIRE CODE OFFICIAL.





TYPICAL SECTION
TEMPORARY EMERGENCY
ACCESS ROAD
N.T.S.



TYPICAL LOT &
SETBACK LINE
DETAIL
(70' WIDE LOT)
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

NOTE:
ALL DISTURBED AREAS MUST BE PERMANENTLY STABILIZED BY HYDROMULCH OR BROADCAST SEEDING PER NCTGOG STANDARDS TO REESTABLISH VEGETATION UNDER THE DIRECTION OF THE ENGINEER / DEVELOPER.

NOTE:
Top of Curb grades are shown to the nearest tenth of a foot (0.1) for rough grading purposes. Paving plans shall be used for the final pavement grade construction.

LEGEND	
630	EXISTING CONTOUR
633	PROPOSED CONTOUR
x57.7 TC	EXISTING TOP CURB ELEVATION
x57.7 EP	EXISTING EDGE OF PVMT. (CONC.)
•34.1	PROPOSED SPOT ELEVATION
•57.7 TC	PROPOSED TOP CURB ELEVATION
→	SURFACE FLOW DIRECTION
FP	FINISH PAD ELEVATION
— — — —	EXPOSED BEAM
═══	EXISTING RETAINING WALL
━━━	PROPOSED RETAINING WALL
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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GRADING PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=60'		01-3905-35	10

I:/proj/01390526/Phase-Two/dgn/lfp2gr04.dgn

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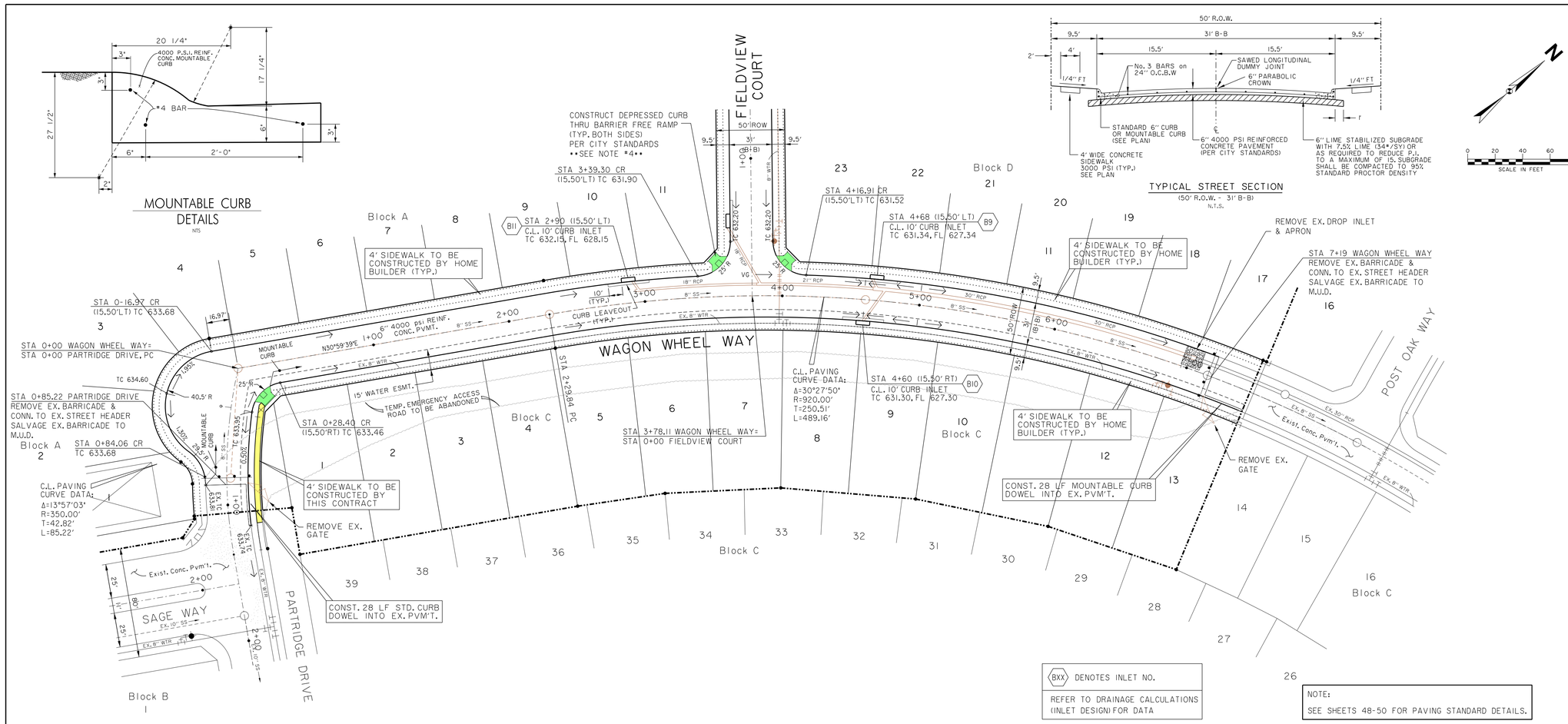
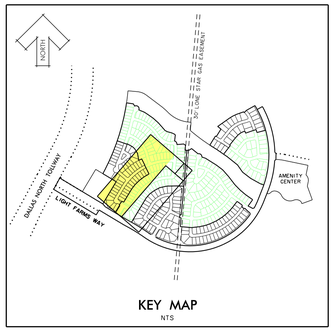




NOTE:

1. ALL PAVEMENT DIMENSIONS ARE FROM BACK OF CURB.
2. ALL CURBS WILL BE 4000 PSI REINFORCED CONCRETE MOUNTABLE CURB, EXCEPT AS NOTED. (SEE MOUNTABLE CURB DETAIL THIS SHEET)
3. TYPICAL STREET WITH 31' B-B TO BE 6" PARABOLIC CROWN.
4. PAVERS WITHIN BARRIER FREE RAMPS SHALL BE PAVESTONE ADA PAVERS. (TERA COTTA BLEND)
5. COMPACTED FILL TO 95% STD. PROCTOR DENSITY.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

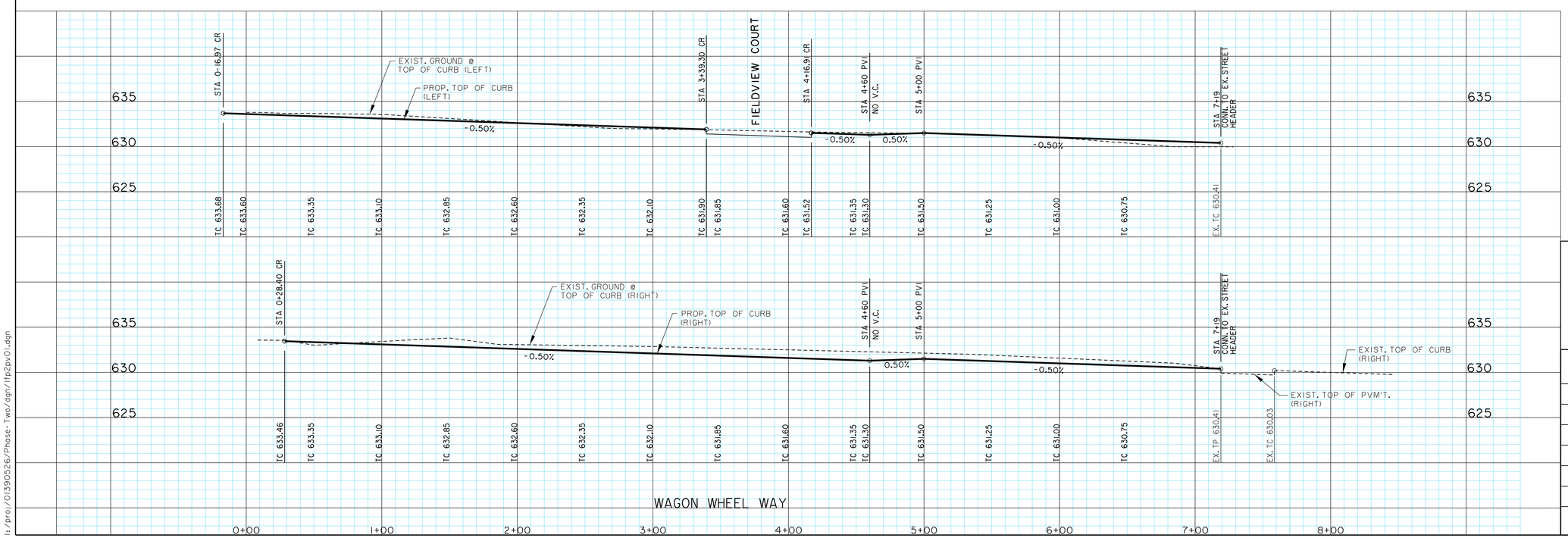
BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:
SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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PAVING PLAN & PROFILE
PARTRIDGE DRIVE & WAGON WHEEL WAY

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	11

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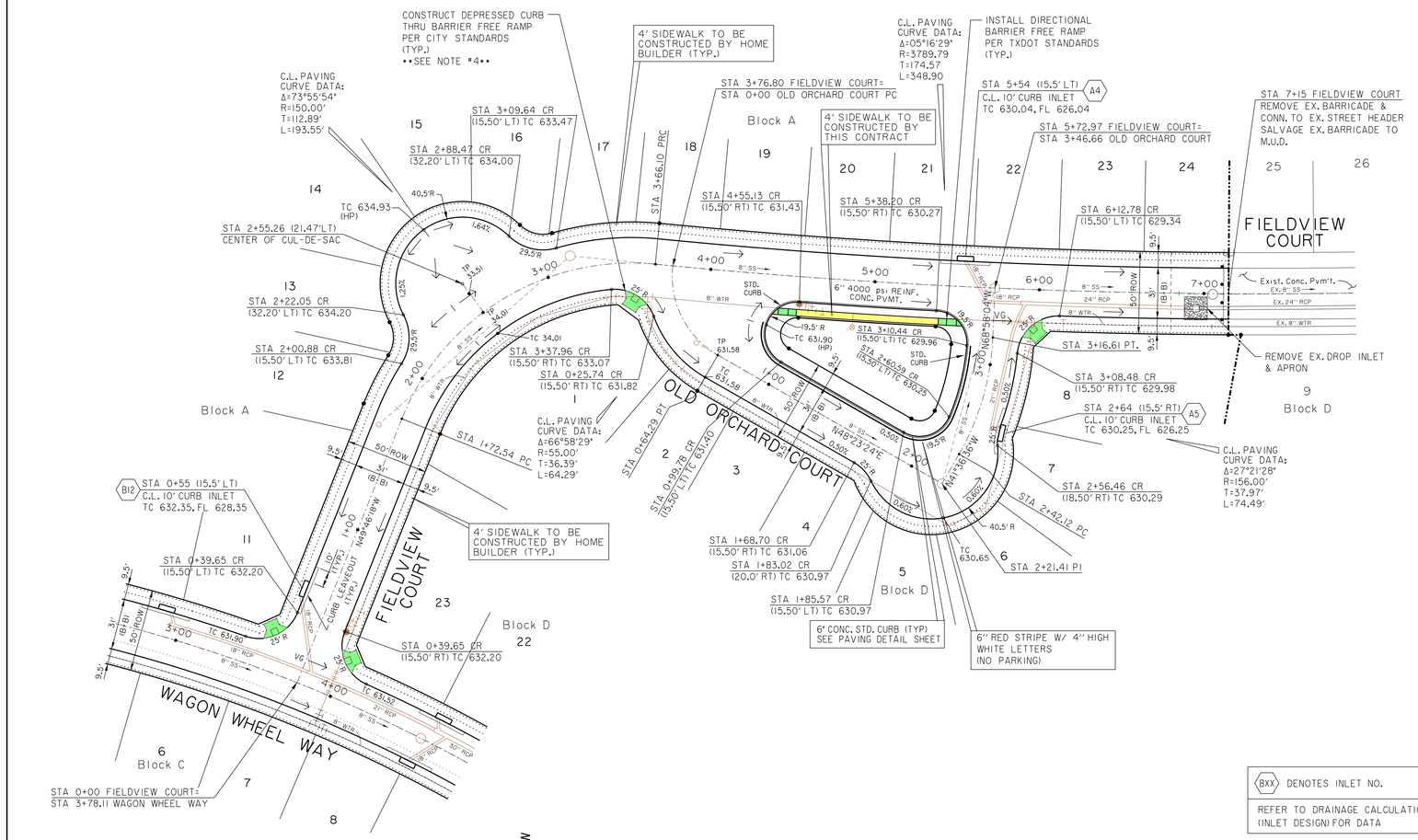
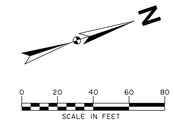
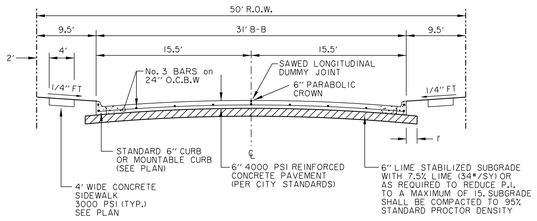
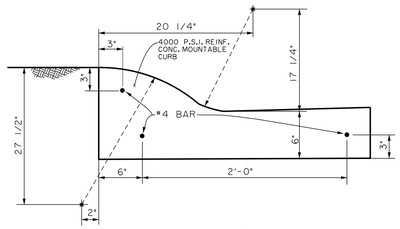


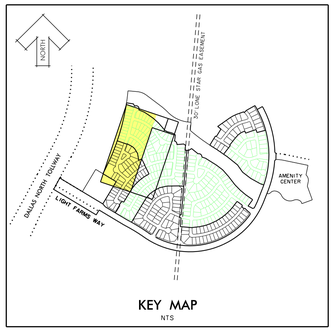




TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.



MOUNTABLE CURB DETAILS
NTS



KEY MAP
NTS

NOTE:

1. ALL PAVEMENT DIMENSIONS ARE FROM BACK OF CURB.
2. ALL CURBS WILL BE 4000 PSI REINFORCED CONCRETE MOUNTABLE CURB, EXCEPT AS NOTED. (SEE MOUNTABLE CURB DETAIL THIS SHEET)
3. TYPICAL STREET WITH 31' B-B TO BE 6" PARABOLIC CROWN.
4. PAVERS WITHIN BARRIER FREE RAMPS SHALL BE PAVESTONE ADA PAVERS. (TERA COTTA BLEND)
5. COMPACTED FILL TO 95% STD. PROCTOR DENSITY.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

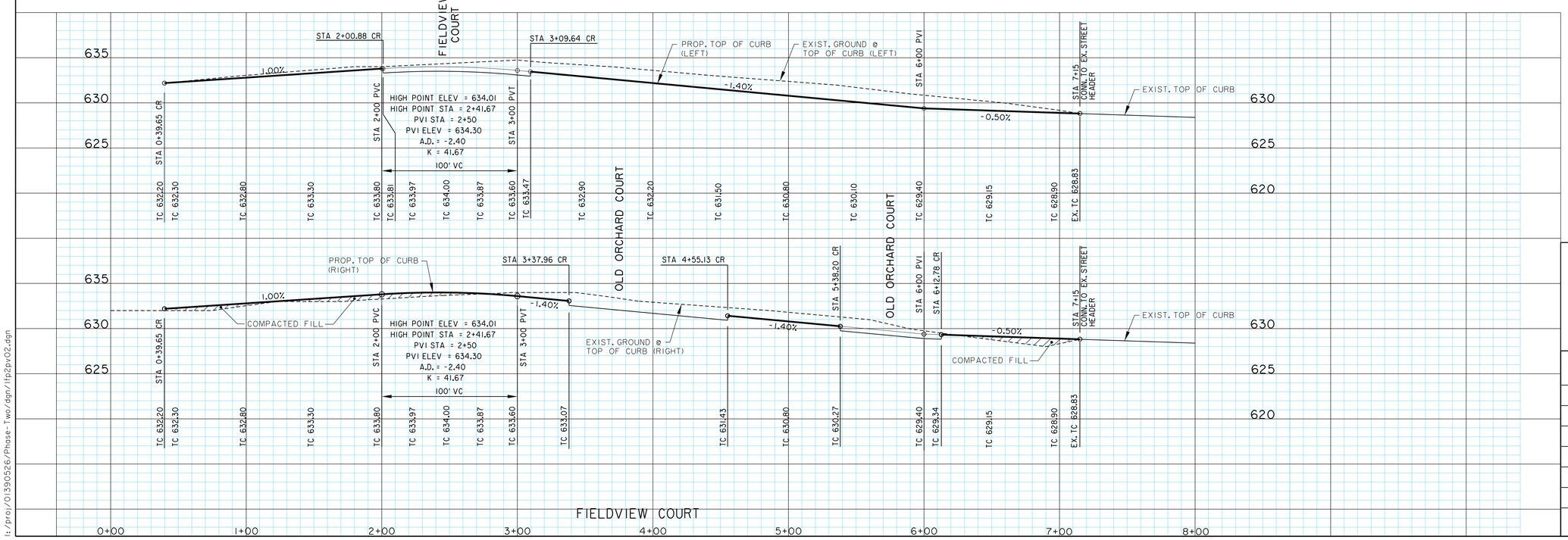
BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



RECORD DRAWING

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STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

PAVING PLAN & PROFILE
FIELDVIEW COURT & OLD ORCHARD COURT

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	12

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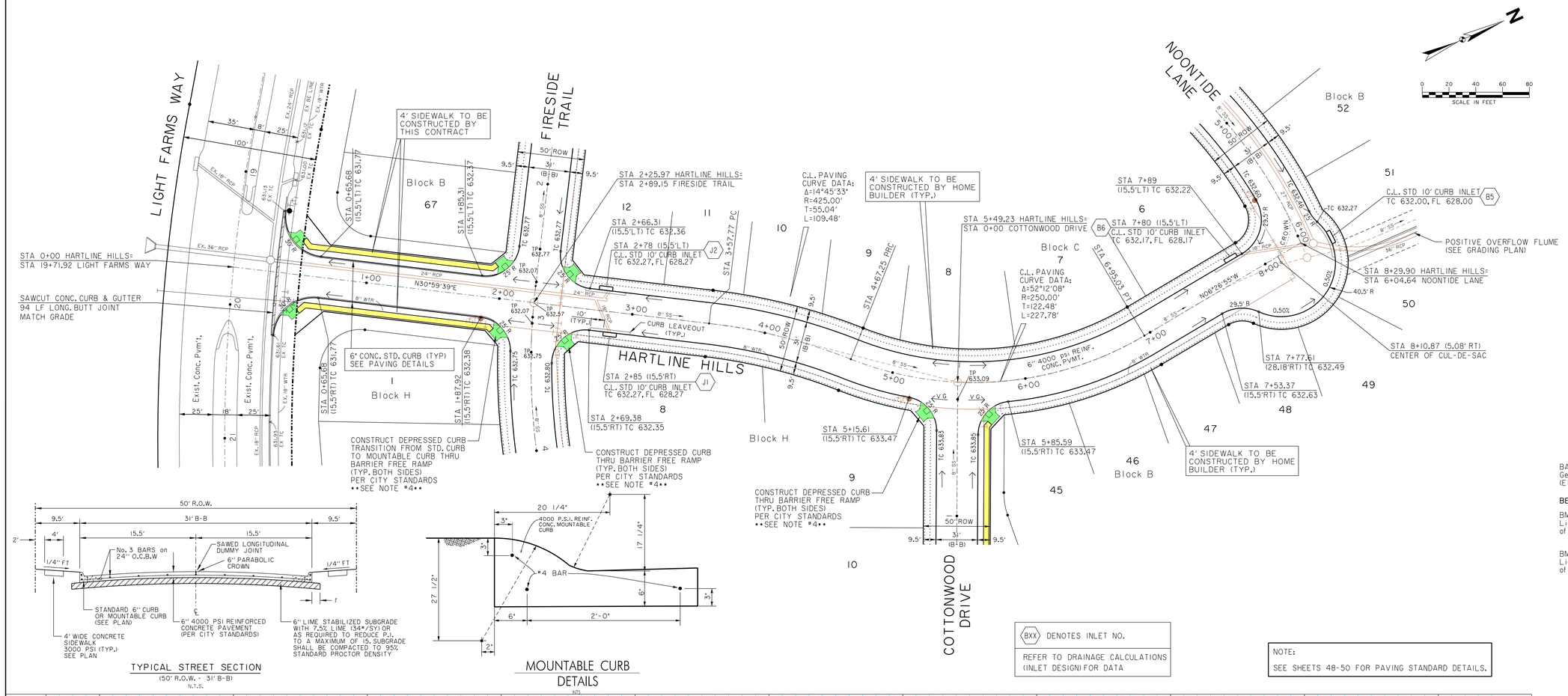

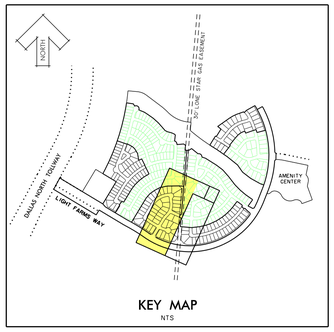

NOTE:

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BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.

MOUNTABLE CURB DETAILS
N.T.S.

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

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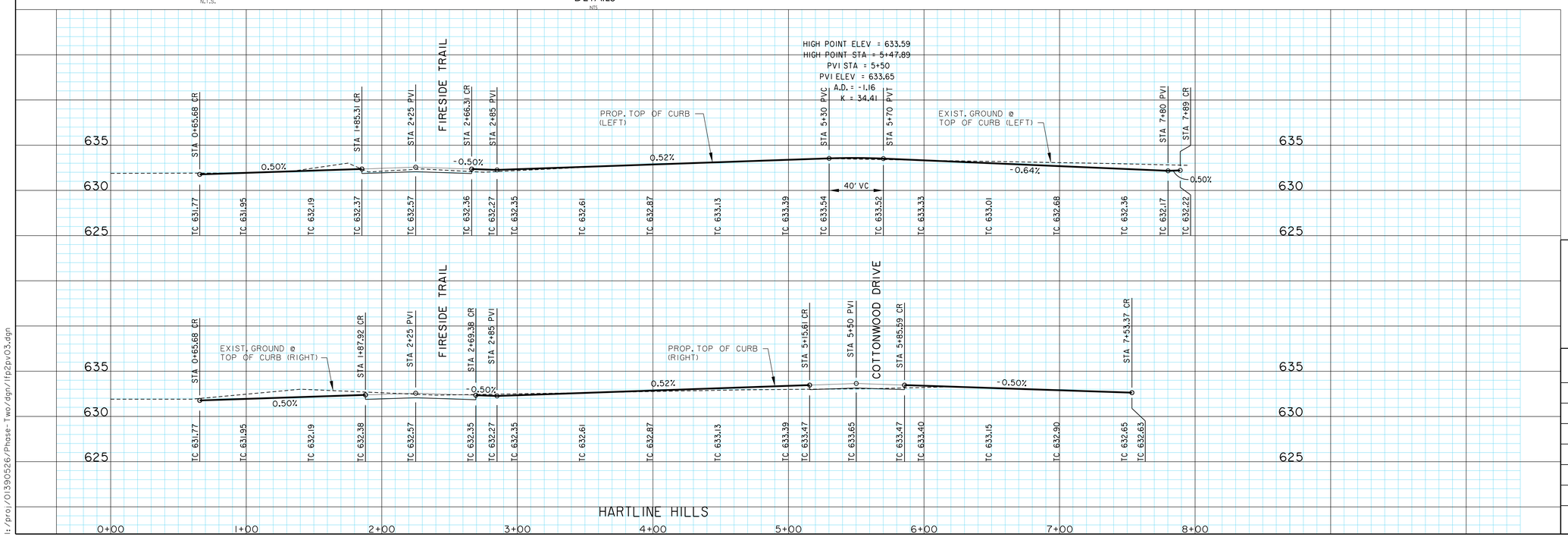

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PAVING PLAN & PROFILE
HARTLINE HILLS

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	13

HARTLINE HILLS

P-201309-01

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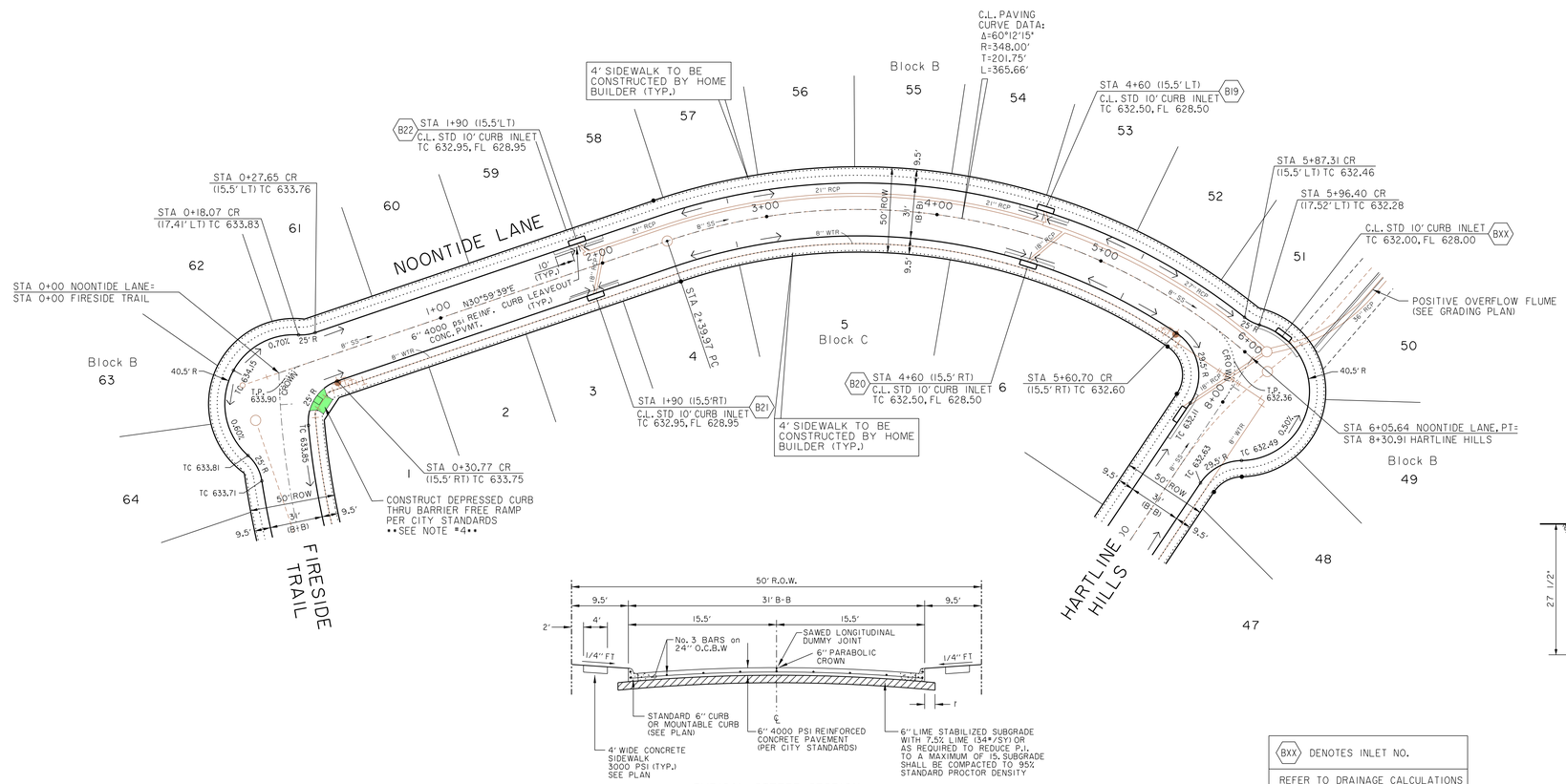

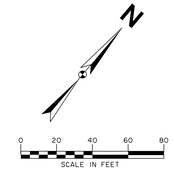

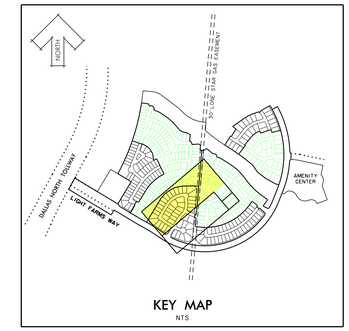

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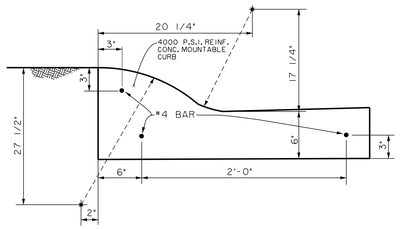


MOUNTABLE CURB DETAILS
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

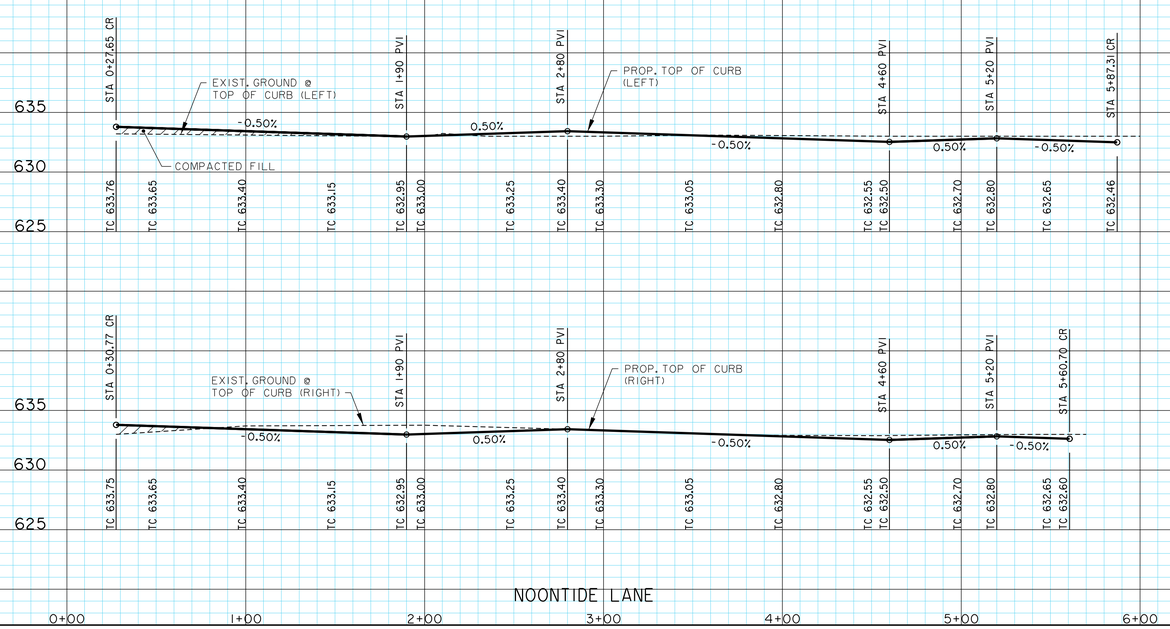
TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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PAVING PLAN & PROFILE
NOONTIDE LANE

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	14

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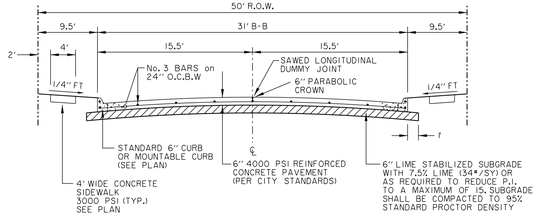
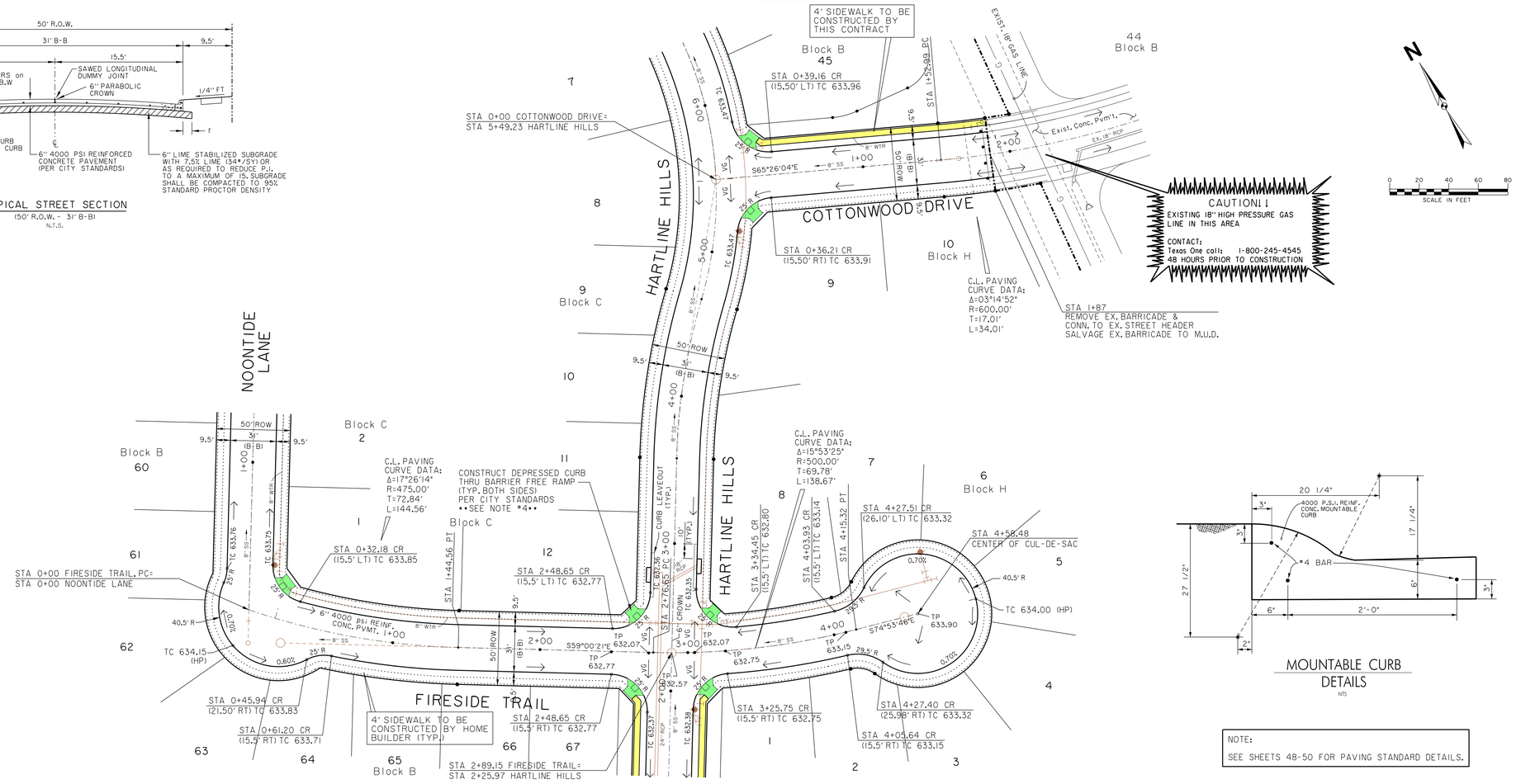
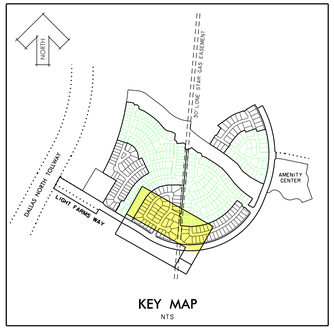


TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.





KEY MAP
NTS

NOTE:

1. ALL PAVEMENT DIMENSIONS ARE FROM BACK OF CURB.
2. ALL CURBS WILL BE 4000 PSI REINFORCED CONCRETE MOUNTABLE CURB, EXCEPT AS NOTED. (SEE MOUNTABLE CURB DETAIL THIS SHEET)
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MOUNTABLE CURB DETAILS
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

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NOTE:
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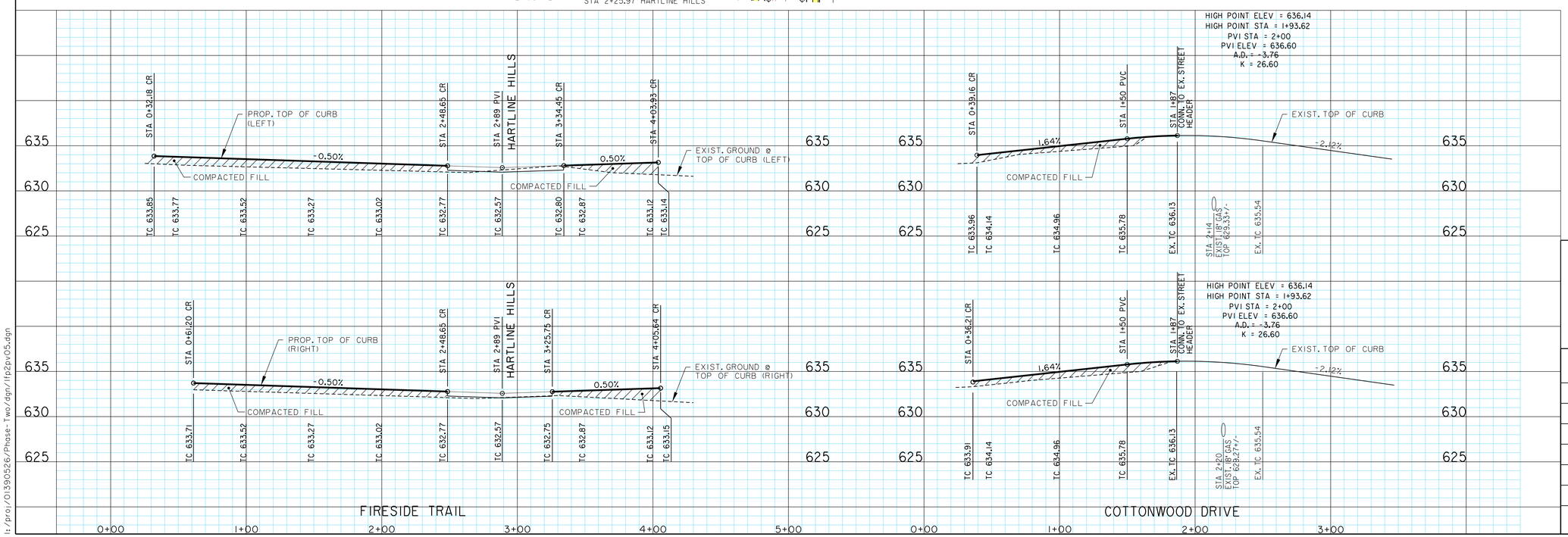

STATE OF TEXAS
ROBERT M. STENGELE
50145
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8-26-14
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PAVING PLAN & PROFILE
FIRESIDE TRAIL & COTTONWOOD DRIVE

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	15

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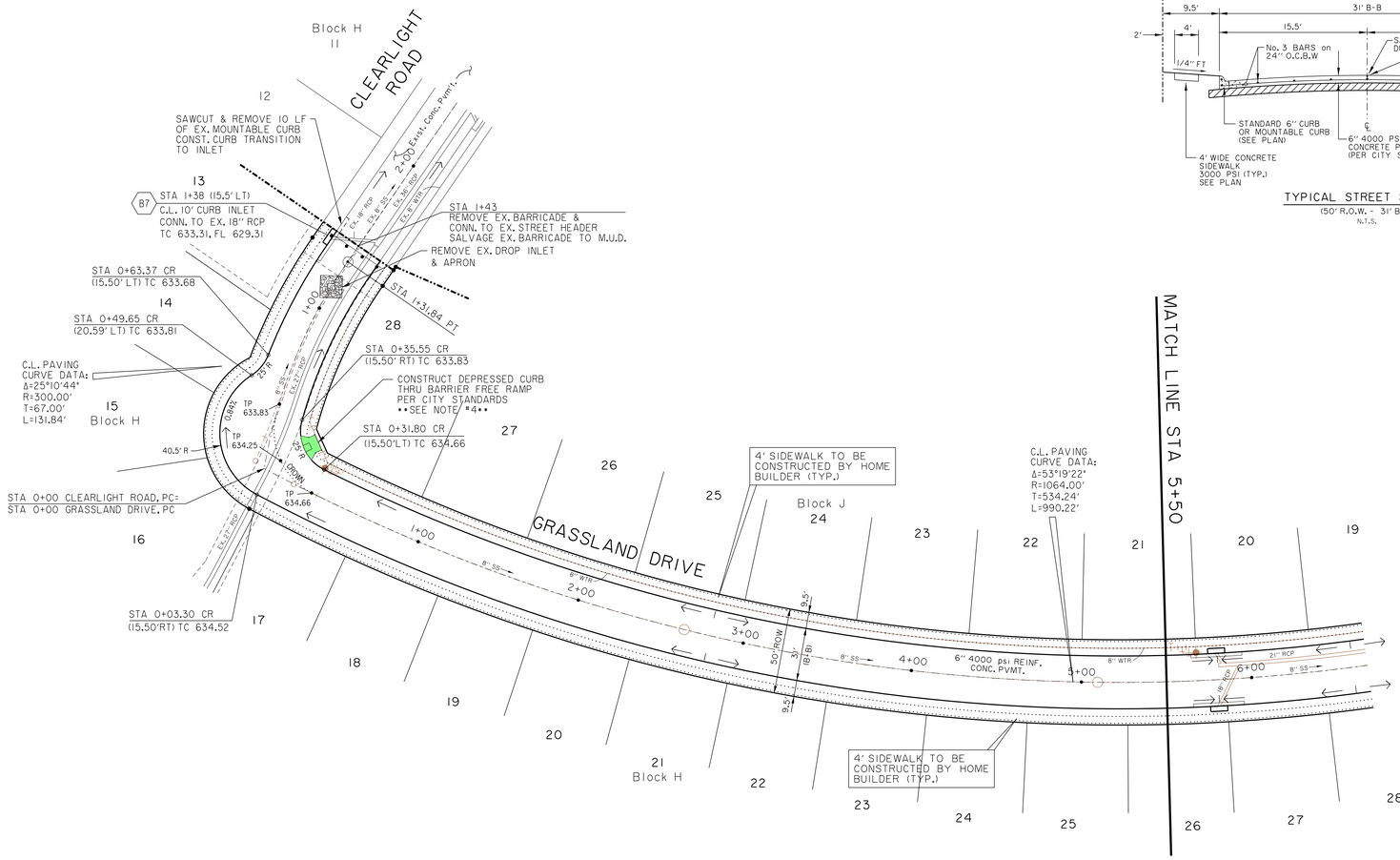
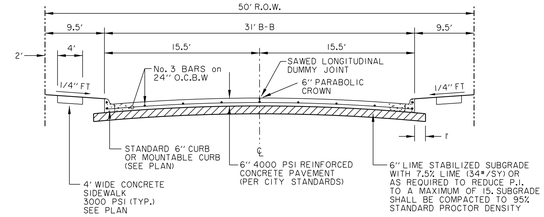
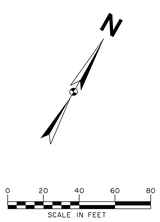
FIRESIDE TRAIL & COTTONWOOD DRIVE

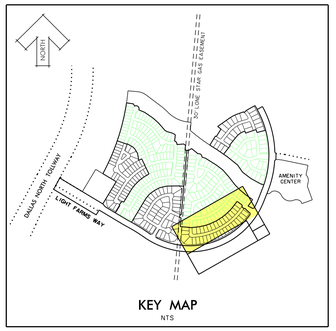
P-201309-01





TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.

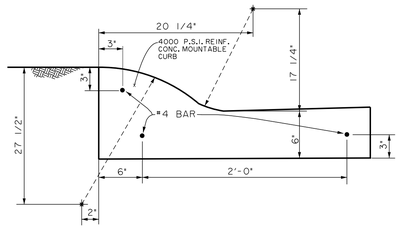




KEY MAP
NTS

NOTE:

1. ALL PAVEMENT DIMENSIONS ARE FROM BACK OF CURB.
2. ALL CURBS WILL BE 4000 PSI REINFORCED CONCRETE MOUNTABLE CURB, EXCEPT AS NOTED. (SEE MOUNTABLE CURB DETAIL THIS SHEET)
3. TYPICAL STREET WITH 31' B-B TO BE 6" PARABOLIC CROWN.
4. PAVERS WITHIN BARRIER FREE RAMPS SHALL BE PAVESTONE ADA PAVERS. (TERA COTTA BLEND)
5. COMPACTED FILL TO 95% STD. PROCTOR DENSITY.



MOUNTABLE CURB DETAILS
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

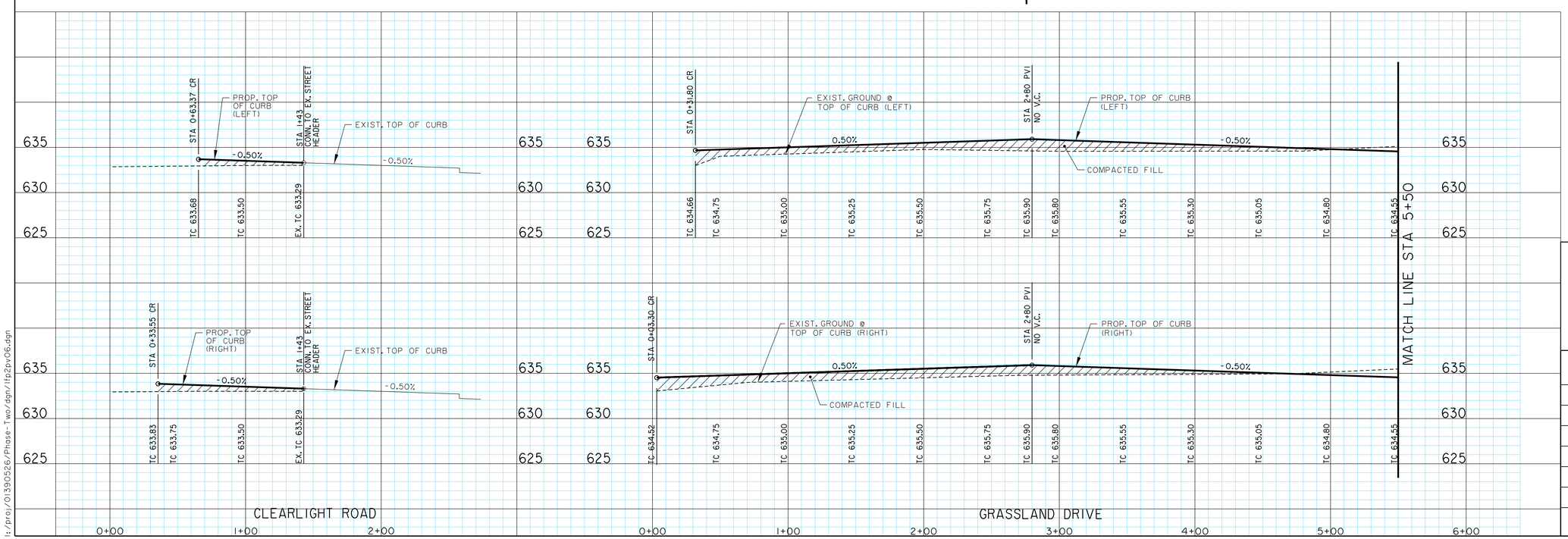
BM # 78 Brass monument set on curb inlet, south side of Light Farms Way, 1170+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 633.64

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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PAVING PLAN & PROFILE
CLEARLIGHT ROAD & GRASSLAND DRIVE

LIGHT FARMS

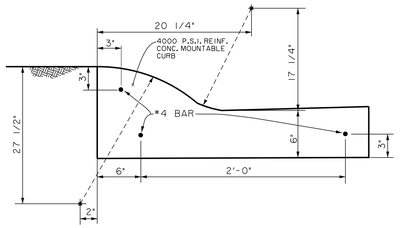
LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

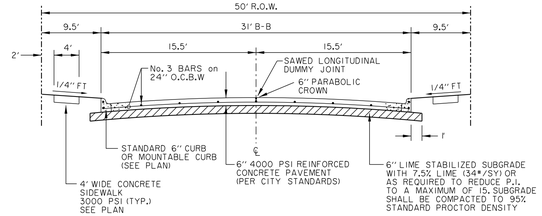
HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	16



MOUNTABLE CURB DETAILS

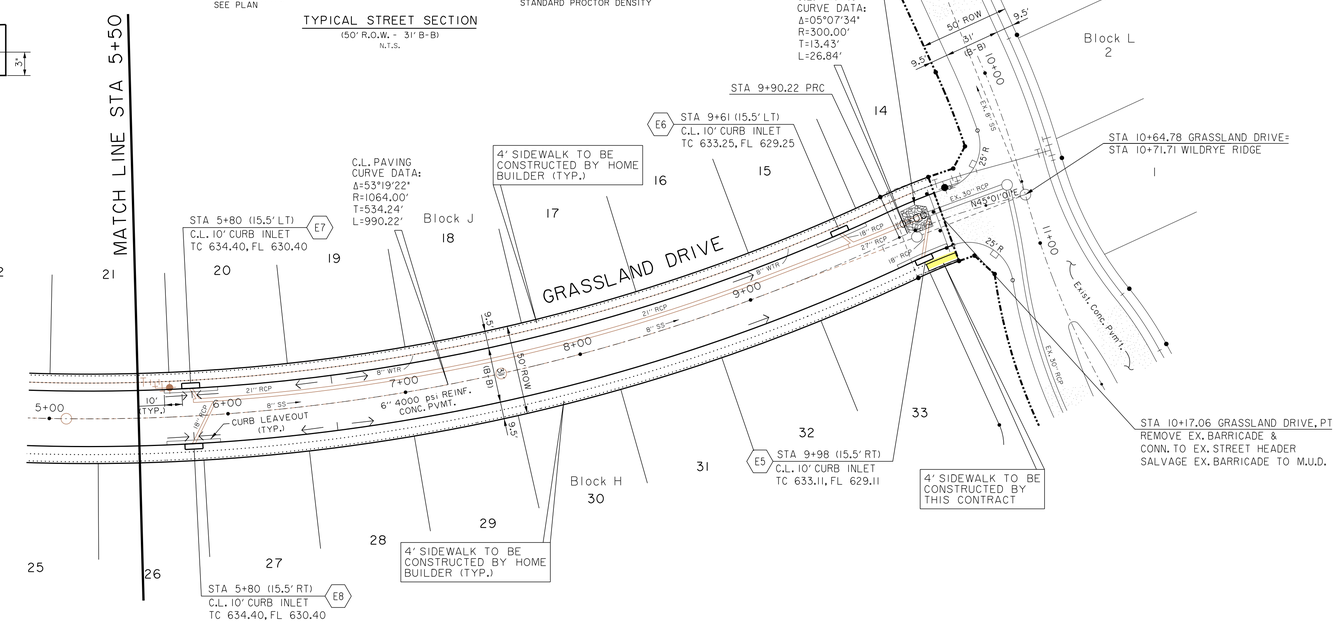
NTS

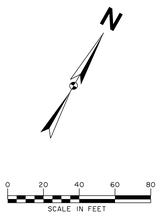


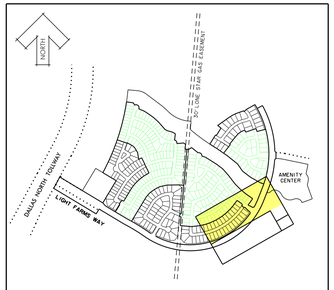
TYPICAL STREET SECTION

(50' R.O.W. - 31' B-B)

N.T.S.







KEY MAP

NTS

NOTE:

1. ALL PAVEMENT DIMENSIONS ARE FROM BACK OF CURB.

2. ALL CURBS WILL BE 4000 PSI REINFORCED CONCRETE MOUNTABLE CURB, EXCEPT AS NOTED. (SEE MOUNTABLE CURB DETAIL THIS SHEET)

3. TYPICAL STREET WITH 31' B-B TO BE 6" PARABOLIC CROWN.

4. PAVERS WITHIN BARRIER FREE RAMPS SHALL BE PAVESTONE ADA PAVERS. (TERA COTTA BLEND)

5. COMPACTED FILL TO 95% STD. PROCTOR DENSITY.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

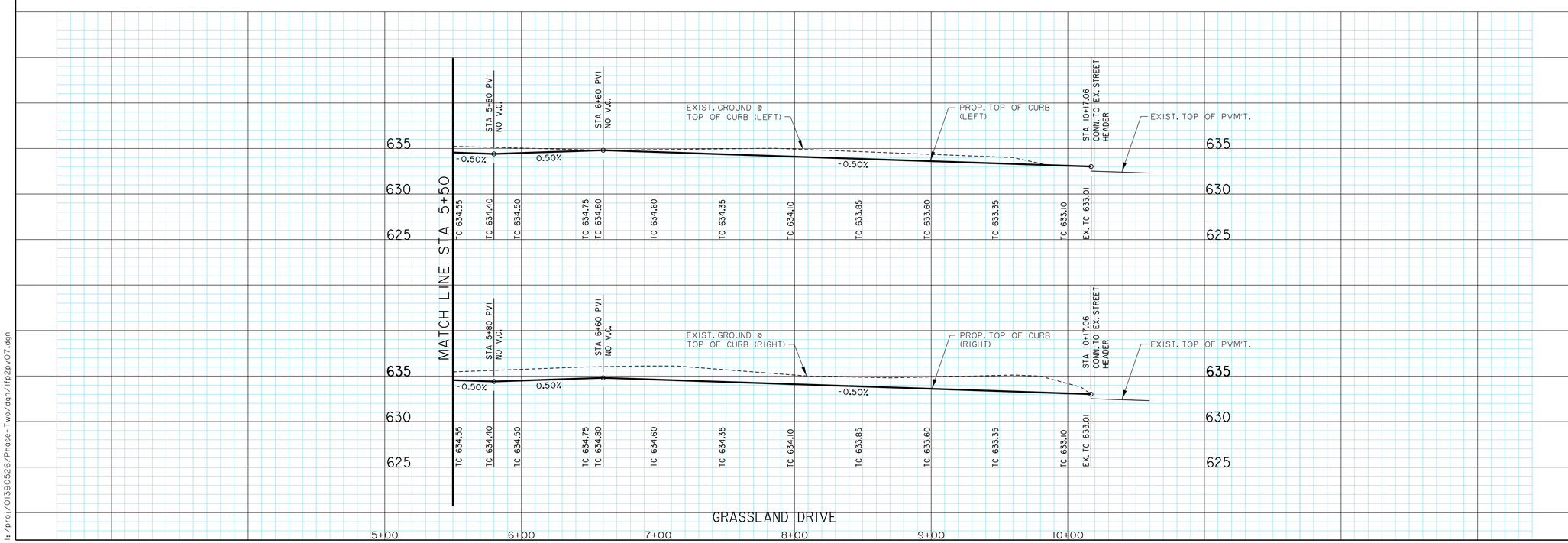
BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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PAVING PLAN & PROFILE
GRASSLAND DRIVE (CONT.)

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	17

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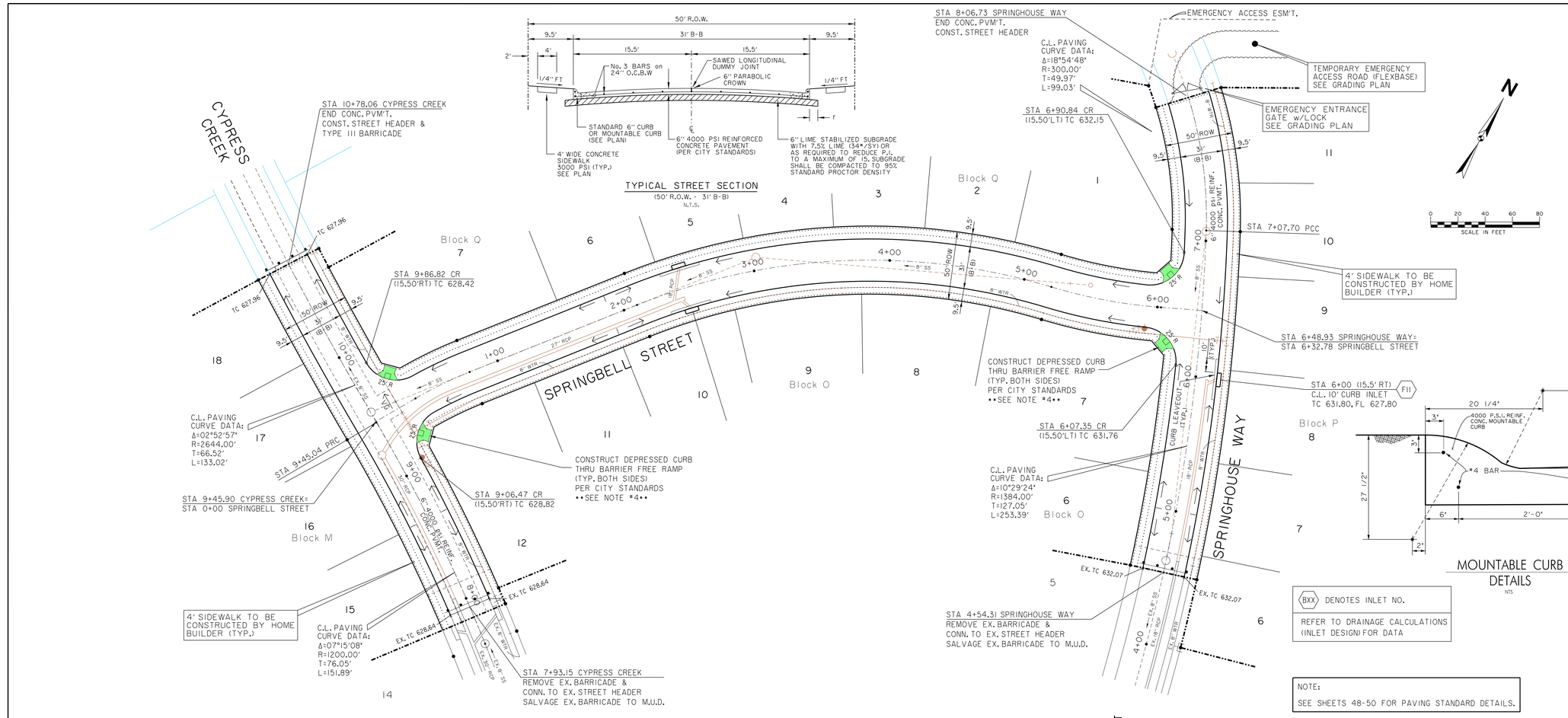

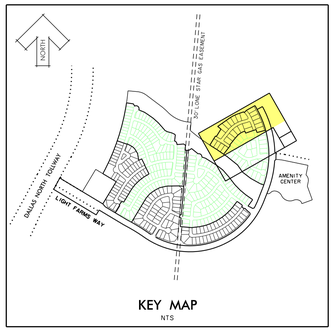

KEY MAP
NTS

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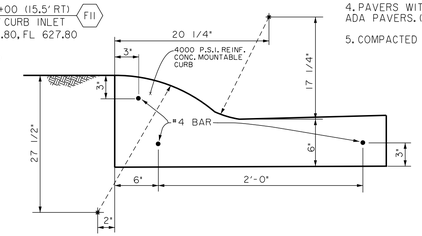


MOUNTABLE CURB DETAILS
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

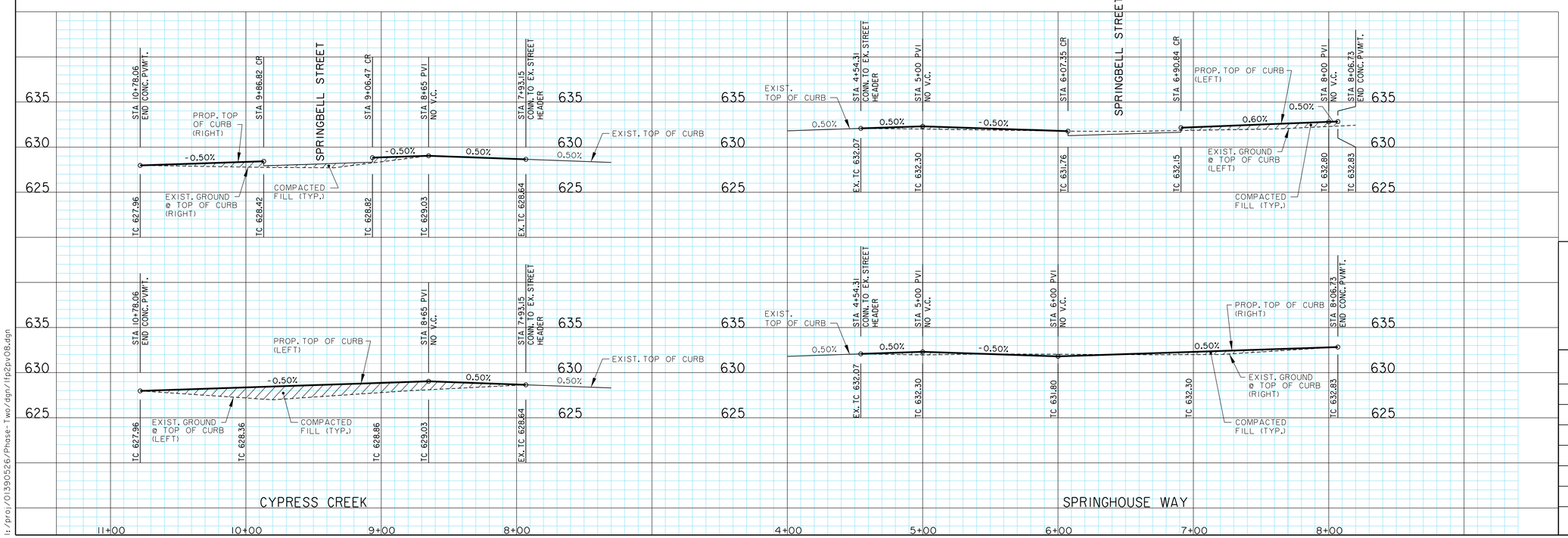
BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

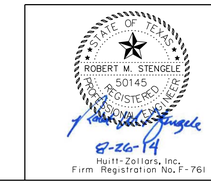
(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.





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PAVING PLAN & PROFILE
CYPRESS CREEK & SPRINGHOUSE WAY

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	18

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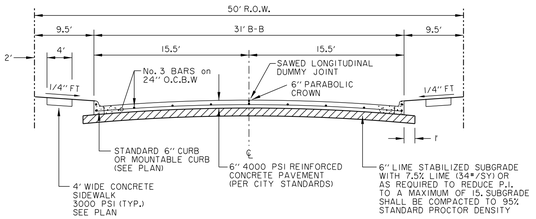
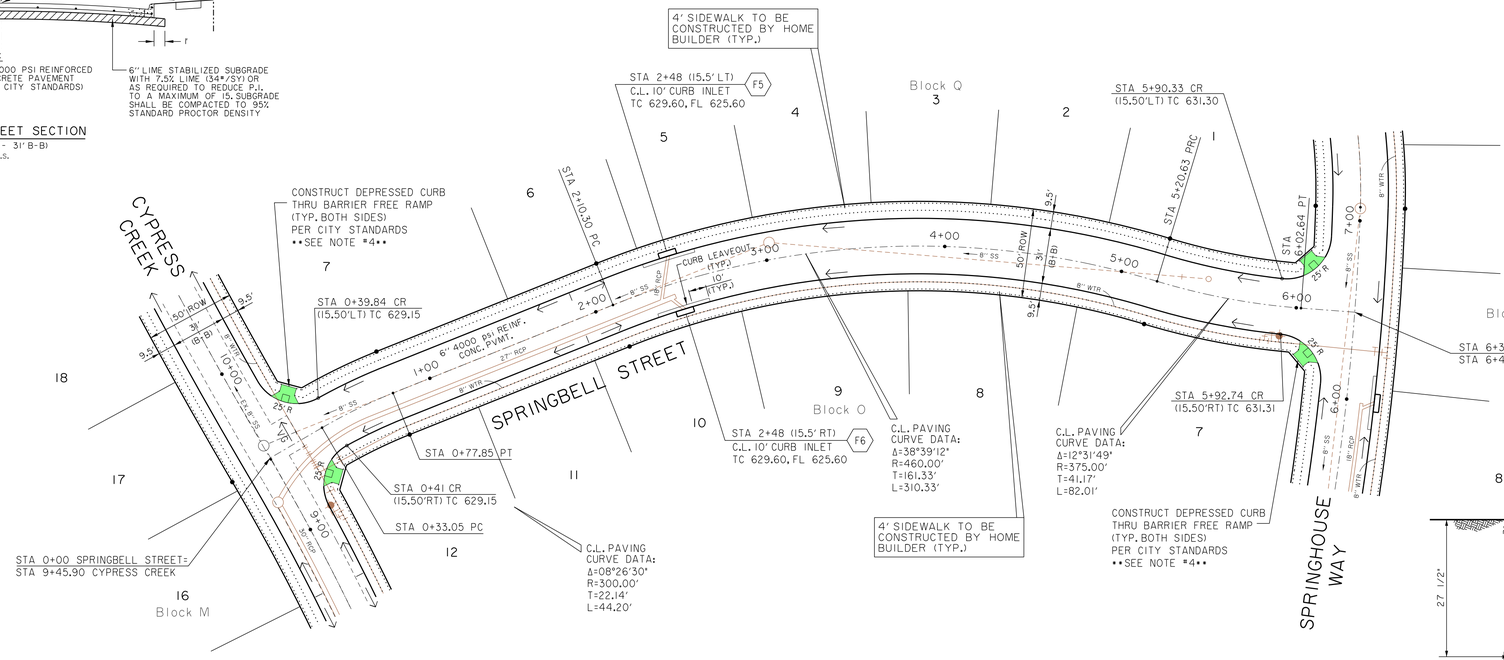
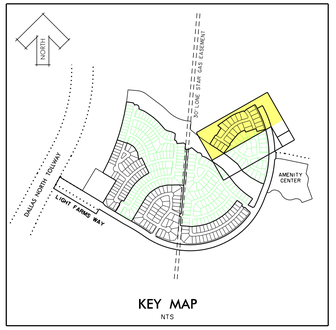


TYPICAL STREET SECTION
(50' R.O.W. - 31' B-B)
N.T.S.





KEY MAP
NTS

NOTE:

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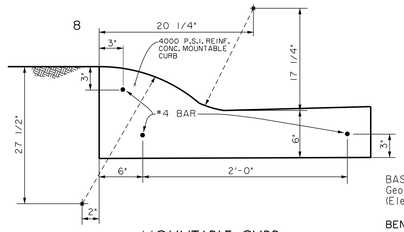


MOUNTABLE CURB DETAILS
NTS

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

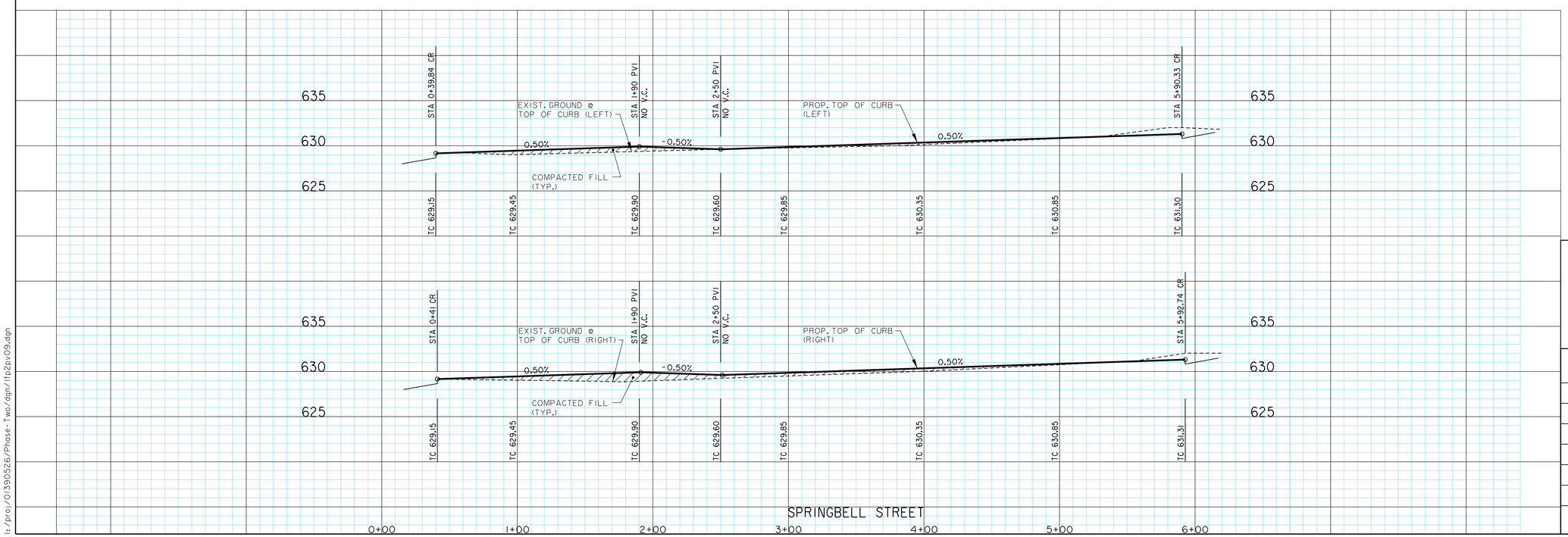
BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

(BXX) DENOTES INLET NO.

REFER TO DRAINAGE CALCULATIONS (INLET DESIGN) FOR DATA

NOTE:

SEE SHEETS 48-50 FOR PAVING STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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PAVING PLAN & PROFILE
SPRINGBELL STREET

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	19

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SPRINGBELL STREET

P-201309-01

NOTE:

STREET LIGHT LOCATIONS SHOWN ARE FOR GENERAL LOCATION ONLY AND TO BE COORDINATED WITH AND APPROVED BY THE CITY PRIOR TO INSTALLATION BY THE ELECTRIC COMPANY PROVIDER.

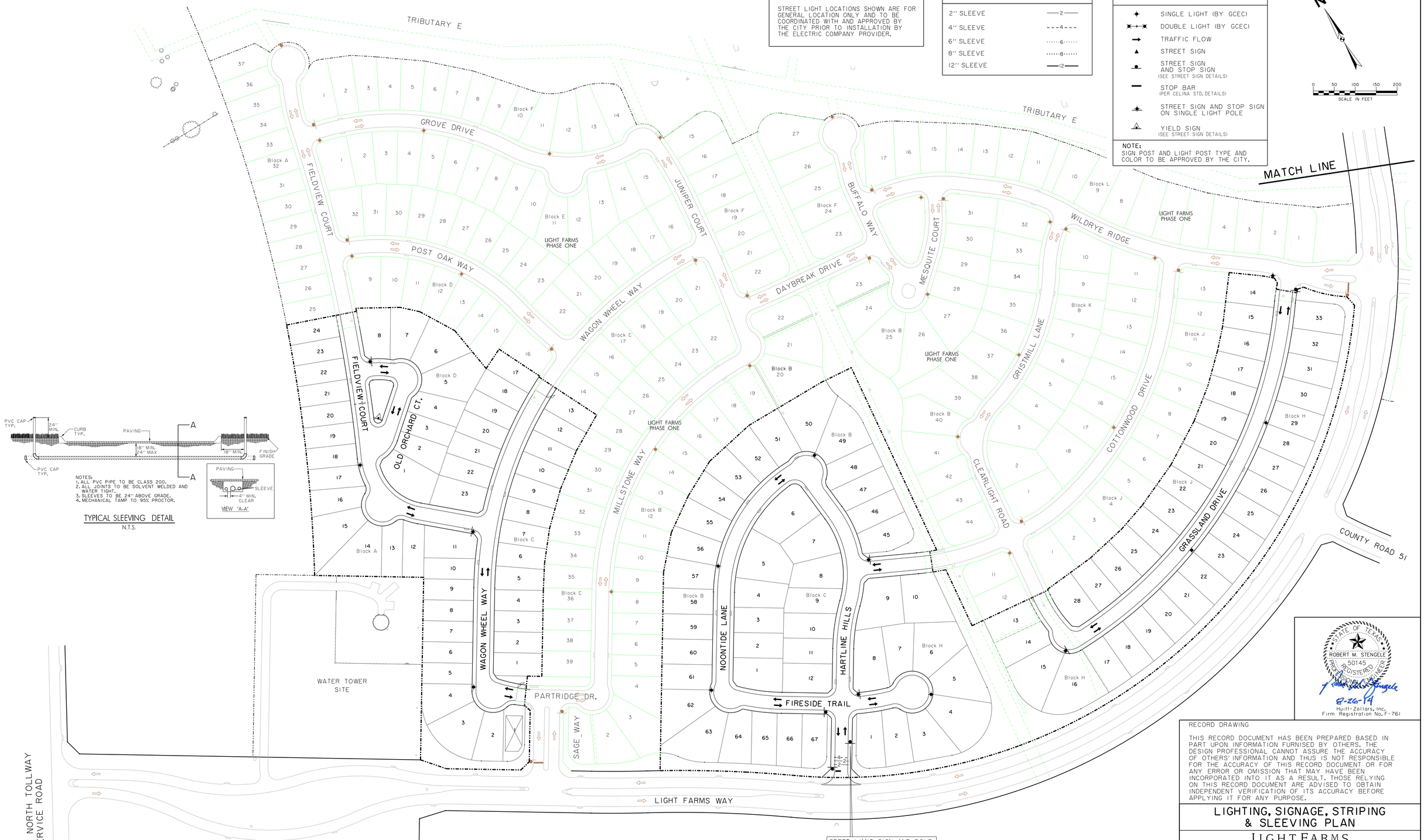
LEGEND	
2" SLEEVE	—2—
4" SLEEVE	- - -4- - -
6" SLEEVE	·····6·····
8" SLEEVE	·····8·····
12" SLEEVE	—12—

LEGEND	
	SINGLE LIGHT (BY GCEC)
	DOUBLE LIGHT (BY GCEC)
	TRAFFIC FLOW
	STREET SIGN
	STREET SIGN AND STOP SIGN (SEE STREET SIGN DETAILS)
	STOP BAR (PER CELINA STD. DETAILS)
	STREET SIGN AND STOP SIGN ON SINGLE LIGHT POLE
	YIELD SIGN (SEE STREET SIGN DETAILS)

NOTE:
SIGN POST AND LIGHT POST TYPE AND COLOR TO BE APPROVED BY THE CITY.

N

0 50 100 150 200
SCALE IN FEET



NOTES:
1. ALL PVC PIPE TO BE CLASS 200.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATER TIGHT.
3. SLEEVES TO BE 24" ABOVE GRADE.
4. MECHANICAL TAMP TO 95% PROCTOR.

TYPICAL SLEEVING DETAIL
N.T.S.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 78 Brass monument set on curb inlet, south side of Light Farms Way, 1170+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 633.64

BM # 79 Brass monument set on top of curb, southeast side of Light Farms Way, 520+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 635.51

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER

8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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LIGHTING, SIGNAGE, STRIPING & SLEEVING PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=100'		01-3905-35	20

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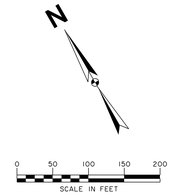
NOTES:
1. ALL PVC PIPE TO BE CLASS 200.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATER TIGHT.
3. SLEEVES TO BE 24" ABOVE GRADE.
4. MECHANICAL TAMP TO 95% PROCTOR.

TYPICAL SLEEVING DETAIL
N.T.S.



LEGEND

2" SLEEVE	—2—
4" SLEEVE	- - -4- - -
6" SLEEVE	·····6·····
8" SLEEVE	·····8·····
12" SLEEVE	—12—

LEGEND

- SINGLE LIGHT (BY GCEC)
- DOUBLE LIGHT (BY GCEC)
- TRAFFIC FLOW
- STREET SIGN
- STREET SIGN AND STOP SIGN (SEE STREET SIGN DETAILS)
- STOP BAR (PER CELINA STD. DETAILS)
- STREET SIGN AND STOP SIGN ON SINGLE LIGHT POLE

NOTE:
SIGN POST AND LIGHT POST TYPE AND COLOR TO BE APPROVED BY THE CITY.

NOTE:

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BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
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LIGHTING, SIGNAGE, STRIPING & SLEEVING PLAN

LIGHT FARMS

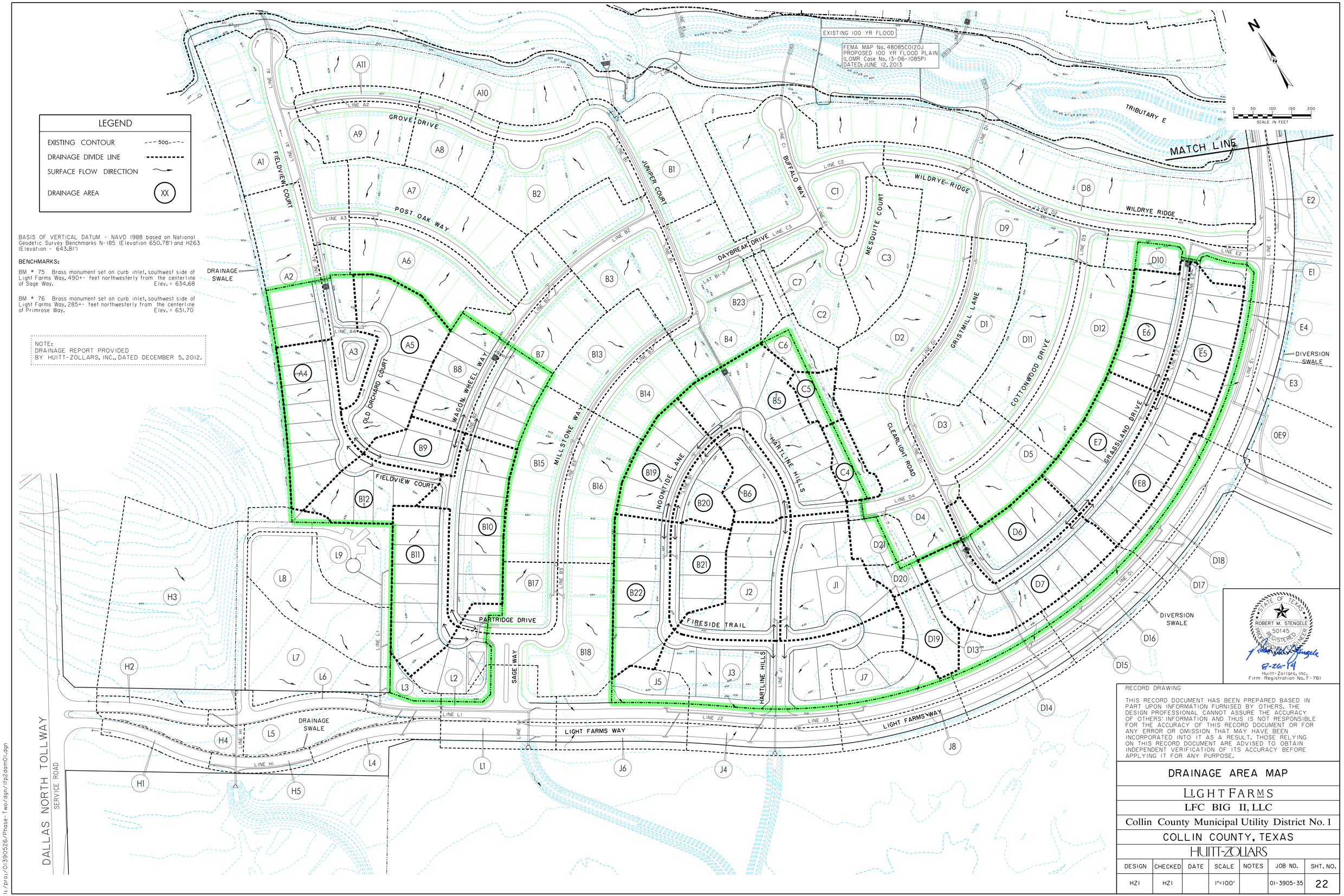
LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=100'		01-3905-35	21



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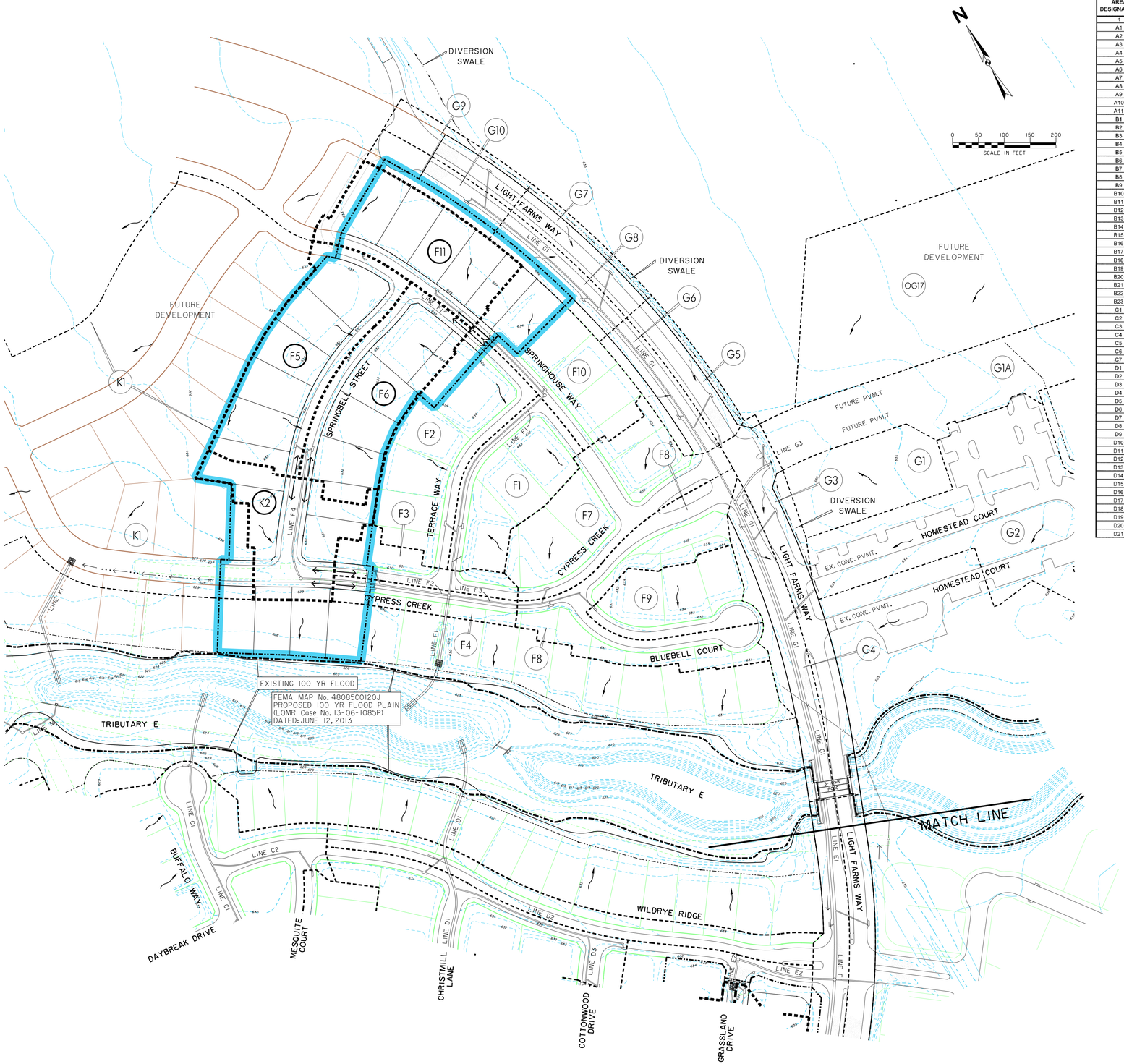

NOTE:
DRAINAGE REPORT PROVIDED
BY HUITT-ZOLLARS, INC., DATED DECEMBER 5, 2012.

DESIGN FLOW (Q_D) BY RATIONAL METHOD							
LOCATION, AREA DESIGNATION	TIME OF CONCENTRATION, T_C (MIN.)	INTENSITY "I_{100}" (in/hr)	DRAINAGE AREA "A" (AC)	RUNOFF COEFFICIENT "C"	FREQUENCY (YRS.)	DESIGN FLOW "Q_{100}"= C*I*A (CFS)	NOTE #
1	2	3	4	5		6	
A1	15	7.52	2.42	0.60	100	10.9	1
A2	15	7.52	1.36	0.60	100	6.1	1
A3	15	7.52	0.76	0.60	100	3.4	1
A4	15	7.52	1.36	0.60	100	6.1	2
A5	15	7.52	1.64	0.60	100	7.4	2
A6	15	7.52	1.33	0.60	100	6.0	1
A7	15	7.52	1.72	0.60	100	7.8	1
A8	15	7.52	0.75	0.60	100	3.4	1
A9	15	7.52	0.89	0.60	100	4.0	1
A10	15	7.52	0.20	0.60	100	0.9	1
A11	15	7.52	0.30	0.60	100	1.3	1
B1	15	7.52	1.35	0.60	100	6.1	1
B2	15	7.52	1.63	0.60	100	7.3	1
B3	15	7.52	1.89	0.60	100	8.5	1
B4	15	7.52	1.69	0.60	100	7.6	1
B5	15	7.52	2.07	0.60	100	9.3	2
B6	15	7.52	0.69	0.60	100	3.1	2
B7	15	7.52	1.52	0.60	100	6.8	1
B8	15	7.52	1.50	0.60	100	6.8	1
B9	15	7.52	0.57	0.60	100	2.5	2
B10	15	7.52	1.54	0.60	100	6.9	2
B11	15	7.52	1.36	0.60	100	6.1	2
B12	15	7.52	0.90	0.60	100	4.1	2
B13	15	7.52	1.02	0.60	100	4.6	1
B14	15	7.52	0.82	0.60	100	3.7	1
B15	15	7.52	1.41	0.60	100	6.4	1
B16	15	7.52	1.22	0.60	100	5.5	1
B17	15	7.52	0.76	0.60	100	3.5	1
B18	15	7.52	2.03	0.60	100	9.1	1
B19	15	7.52	0.98	0.60	100	4.4	2
B20	15	7.52	0.52	0.60	100	2.3	2
B21	15	7.52	0.78	0.60	100	3.5	2
B22	15	7.52	1.27	0.60	100	5.7	2
B23	15	7.52	0.17	0.60	100	0.8	1
C1	15	7.52	2.69	0.60	100	12.1	1
C2	15	7.52	0.92	0.60	100	4.2	1
C3	15	7.52	1.18	0.60	100	5.3	1
C4	15	7.52	0.38	0.60	100	1.7	2
C5	15	7.52	0.31	0.60	100	1.4	2
C6	15	7.52	0.24	0.60	100	1.1	1
C7	15	7.52	0.12	0.60	100	0.5	1
D1	15	7.52	1.50	0.60	100	6.8	1
D2	15	7.52	1.68	0.60	100	7.6	1
D3	15	7.52	0.97	0.60	100	4.4	1
D4	15	7.52	1.58	0.60	100	7.1	1
D5	15	7.52	0.77	0.60	100	3.5	1
D6	15	7.52	1.02	0.60	100	4.6	2
D7	15	7.52	1.68	0.60	100	7.6	2
D8	15	7.52	1.04	0.60	100	4.7	1
D9	15	7.52	1.54	0.60	100	7.0	1
D10	15	7.52	0.76	0.60	100	3.4	1
D11	15	7.52	1.40	0.60	100	6.3	1
D12	15	7.52	1.61	0.60	100	7.3	1
D13	15	7.52	0.66	0.60	100	3.0	3
D14	15	7.52	0.49	0.60	100	2.2	3
D15	15	7.52	0.49	0.60	100	2.2	3
D16	15	7.52	0.58	0.60	100	2.6	3
D17	15	7.52	0.60	0.60	100	2.7	3
D18	15	7.52	0.73	0.60	100	3.3	3
D19	15	7.52	0.58	0.60	100	2.6	2
D20	15	7.52	0.22	0.60	100	1.0	1
D21	15	7.52	0.39	0.60	100	1.8	1

DESIGN FLOW (Q_D) BY RATIONAL METHOD							
LOCATION, AREA DESIGNATION	TIME OF CONCENTRATION, T_C (MIN.)	INTENSITY "I_{100}" (in/hr)	DRAINAGE AREA "A" (AC)	RUNOFF COEFFICIENT "C"	FREQUENCY (YRS.)	DESIGN FLOW "Q_{100}"= C*I*A (CFS)	NOTE #
1	2	3	4	5		6	
E1	15	7.52	0.55	0.60	100	2.5	3
E2	15	7.52	0.63	0.60	100	2.8	3
E3	15	7.52	0.45	0.60	100	2.0	3
E4	15	7.52	0.61	0.60	100	2.7	3
E5	15	7.52	1.12	0.60	100	5.1	2
E6	15	7.52	0.97	0.60	100	4.4	2
E7	15	7.52	1.12	0.60	100	5.1	2
E8	15	7.52	1.18	0.60	100	5.3	2
OE9	15	7.52	5.88	0.60	100	26.5	3
OE10	15	7.52	17.79	0.60	101	80.3	3
F1	15	7.52	1.10	0.60	100	5.0	1
F2	15	7.52	1.56	0.60	100	7.0	1
F3	15	7.52	0.49	0.60	100	2.2	1
F4	15	7.52	0.41	0.60	100	1.9	1
F5	15	7.52	1.75	0.60	100	7.9	2
F6	15	7.52	1.50	0.60	100	6.7	2
F7	15	7.52	1.61	0.60	100	7.3	1
F8	15	7.52	1.48	0.60	100	6.7	1
F9	15	7.52	0.88	0.60	100	4.0	1
F10	15	7.52	1.24	0.60	100	5.6	1
F11	15	7.52	1.32	0.60	100	5.9	2
G1	10	8.74	1.00	0.80	100	6.99	3
G1a	15	7.52	2.96	0.60	100	13.36	3
G2	10	8.74	2.73	0.80	100	19.09	3
G3	15	7.52	0.67	0.60	100	3.02	3
G4	15	7.52	0.66	0.60	100	2.98	3
G5	15	7.52	0.47	0.60	100	2.1	3
G6	15	7.52	0.47	0.60	100	2.1	3
G7	15	7.52	0.47	0.60	100	2.1	3
G8	15	7.52	0.47	0.60	100	2.1	3
G9	15	7.52	0.45	0.60	100	2.1	3
G10	15	7.52	0.45	0.60	100	2.1	3
OG17	15	7.52	6.50	0.60	100	29.3	3
H1	15	7.52	0.40	0.60	100	1.8	3
H2	15	7.52	0.31	0.60	100	1.4	3
H3	10	8.74	3.92	0.60	100	20.6	3
H4	15	7.52	0.40	0.60	100	1.8	3
H5	15	7.52	0.22	0.60	100	1.0	3
L1	15	7.52	0.48	0.60	100	2.2	3
L2	15	7.52	0.75	0.60	100	3.4	3
L3	15	7.52	0.36	0.60	100	1.6	3
L4	15	7.52	0.40	0.60	100	1.8	3
L5	15	7.52	0.66	0.60	100	3.0	3
L6	15	7.52	0.36	0.60	100	1.6	3
L7	10	8.74	1.74	0.90	100	13.7	3
L8	10	8.74	1.55	0.90	100	12.2	3
L9	10	8.74	1.12	0.90	100	8.8	3
J1	15	7.52	1.77	0.60	100	8.0	2
J2	15	7.52	1.24	0.60	100	5.6	2
J3	15	7.52	0.75	0.60	100	3.4	3
J4	15	7.52	0.48	0.60	100	2.2	3
J5	15	7.52	0.84	0.60	100	3.8	3
J6	15	7.52	0.54	0.60	100	2.5	3
J7	15	7.52	0.93	0.60	100	4.2	3
J8	15	7.52	0.53	0.60	100	2.4	3
K2	15	7.52	1.13	0.60	100	5.1	2
K1	15	7.52	8.30	0.60	100	37.4	2
OS1	15	7.52	43.64	0.60	100	196.9	

(1) DENOTES NOTE NO.

1. DRAINAGE AREA CALCULATIONS FOR EXISTING PHASE I - THREE NEIGHBORHOODS IN LIGHT FARMS.
2. DRAINAGE AREA CALCULATIONS FOR PHASE TWO - THREE NEIGHBORHOODS IN LIGHT FARMS.
3. DRAINAGE AREA CALCULATIONS FOR EXISTING LIGHT FARMS WAY

LEGEND

- EXISTING CONTOUR — 500 —
- DRAINAGE DIVIDE LINE
- SURFACE FLOW DIRECTION
- DRAINAGE AREA (XX)

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

TBM #39
Square cut on curb inlet, east side of North Dallas Tollway at the northeast corner of intersection with Light Farms Boulevard.
Elev. 639.57' (Set 4/4/08)

HZI Control Monument #4
5/8 inch iron rod set in concrete with aluminum cap, north side of Light Farms Way at 1418 feet left of centerline Station 30+39.
Elev. 630.40'

RECORD DRAWING

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED IN PART UPON INFORMATION FURNISED BY OTHERS. THE DESIGN PROFESSIONAL CANNOT ASSURE THE ACCURACY OF OTHERS' INFORMATION AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DOCUMENT OR FOR ANY ERROR OR OMISSION THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

DRAINAGE AREA MAP

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=100'		01-3905-35	23

I:/proj/01390526/Phase-Two/dgn/lfp2dam02.dgn

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE A1																				
	10+11.50	10+08.50	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT A1-4	10+08.50	9+88.00	20.5	A4	1.36	0.6	0.82	0.82	15.00	100	7.52	6.1	0.0034	18	3.47	0.07	0.19	0.10	15.10	
	9+88.00	9+85.00	3	PIPE SIZE CHANGE	0.00	0.6	0.00	0.82	15.10	100	7.52	6.1	0.0007	24	1.95	0.00	0.06	0.03	15.12	
LINE A4	9+85.00	7+66.50	218.5	A5	1.64	0.6	0.98	1.80	15.12	100	7.51	13.5	0.0036	24	4.31	0.78	0.29	0.85	15.97	
	7+66.50	7+63.50	3	PIPE SIZE CHANGE	0.00	0.6	0.00	1.80	15.97	100	7.51	13.5	0.0019	27	3.40	0.01	0.18	0.01	15.98	
LAT A1-3	7+63.50	7+02.00	61.5	A3	0.76	0.6	0.46	2.26	15.98	100	7.39	16.7	0.0029	27	4.19	0.18	0.27	0.24	16.23	
LINE A3	7+02.00	5+92.50	109.5	A6, A7	3.05	0.6	1.83	4.09	16.23	100	7.36	30.1	0.0054	30	6.12	0.59	0.58	0.30	16.53	
LAT A1-2	5+92.50	4+09.00	183.5	A2	1.36	0.6	0.82	4.90	16.53	100	7.31	35.9	0.0076	30	7.30	1.40	0.83	0.42	16.95	
	4+09.00	4+06.00	3	PIPE SIZE CHANGE	0.00	0.6	0.00	4.90	16.95	100	7.31	35.9	0.0029	36	5.07	0.01	0.40	0.01	16.96	
LINE A2	4+06.00	2+00.00206		A8, A9, A10, A11	2.14	0.6	1.28	6.19	16.96	100	7.26	44.9	0.0045	36	6.35	0.93	0.63	0.54	17.50	
LINE A2	2+00.00	1+35.00	65		0.00	0.6	0.00	6.19	17.50	100	7.26	44.9	0.0020	42	4.67	0.13	0.34	0.23	17.73	
LAT A1-4	0+28.00	0+00.00	28	A4	1.36	0.6	0.82	0.82	15.00	100	7.52	6.1	0.0034	18	3.47	0.10	0.19	0.13	15.13	
LAT A1-3	0+08.00	0+00.00	8	A3	0.76	0.6	0.46	0.46	15.00	100	7.52	3.4	0.0011	18	1.94	0.01	0.06	0.07	15.07	
LAT A1-2	0+28.00	0+00.00	28	A2	1.36	0.6	0.82	0.82	15.00	100	7.52	6.1	0.0034	18	3.47	0.10	0.19	0.13	15.13	
LAT A1-1	0+06.50	0+00.00	6.5	A1	2.42	0.6	1.45	1.45	15.00	100	7.52	10.9	0.0047	21	4.54	0.03	0.32	0.02	15.02	
LINE A2																				
	4+18.00	4+15.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT A2-4	4+15.00	4+04.50	10.5	A10	0.20	0.6	0.12	0.12	15.00	100	7.52	0.9	0.00007	18	0.51	0.00	0.00	0.34	15.34	
LAT A2-3	4+04.50	0+93.50311		A8	0.75	0.6	0.45	0.57	15.34	100	7.48	4.3	0.00165	18	2.41	0.51	0.09	2.15	17.49	
	0+93.50	0+90.50	3	PIPE SIZE CHANGE	0.00	0.6	0.00	0.57	17.49	100	7.48	4.3	0.00072	21	1.77	0.00	0.05	0.03	17.52	
LAT A2-2	0+90.50	0+80.00	10.5	A11	0.30	0.6	0.18	0.75	17.52	100	7.18	5.4	0.0012	21	2.24	0.01	0.08	0.08	17.60	
LAT A2-1	0+80.00	0+00.00	80	A9	0.89	0.6	0.53	1.28	17.60	100	7.17	9.2	0.0034	21	3.83	0.27	0.23	0.35	17.94	
LAT A2-4	0+08.00	0+00.00	8	A10	0.20	0.6	0.12	0.12	15.00	100	7.52	0.9	0.0001	18	0.51	0.00	0.00	0.26	15.26	
LAT A2-3	0+28.00	0+00.00	28	A8	0.75	0.6	0.45	0.45	15.00	100	7.52	3.4	0.0010	18	1.91	0.03	0.06	0.24	15.24	
LAT A2-2	0+08.00	0+00.00	8	A11	0.30	0.6	0.18	0.18	15.00	100	7.52	1.4	0.0002	18	0.77	0.00	0.01	0.17	15.17	
LAT A2-1	0+28.00	0+00.00	28	A9	0.89	0.6	0.53	0.53	15.00	100	7.52	4.0	0.0015	18	2.27	0.04	0.08	0.21	15.21	
LINE A3																				
	1+74.00	1+71.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	24	0.00	0.00	0.00	0.00	15.00	
LAT A3-2	1+71.00	1+60.00	11	A7	1.72	0.6	1.03	1.03	15.00	100	7.52	7.8	0.0012	24	2.47	0.01	0.09	0.07	15.07	
LAT A3-1	1+60.00	0+00.00160		A6	1.33	0.6	0.80	1.83	15.07	100	7.52	13.8	0.0037	24	4.38	0.59	0.30	0.61	15.68	
LAT A3-2	0+08.00	0+00.00	8	A7	1.72	0.6	1.03	1.03	15.00	100	7.52	7.8	0.0024	21	3.23	0.02	0.16	0.04	15.04	
LAT A3-1	0+28.00	0+00.00	28	A6	1.33	0.6	0.80	0.80	15.00	100	7.52	6.0	0.0033	18	3.40	0.09	0.18	0.14	15.14	
LINE A4																				
	0+71.00	0+68.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT A4-1	0+68.00	0+00.00	68	A5	1.64	0.6	0.98	0.98	15.00	100	7.52	7.4	0.0050	18	4.19	0.34	0.27	0.27	15.27	
LAT A4-1	0+08.00	0+00.00	8	A5	1.64	0.6	0.98	0.98	15.00	100	7.52	7.4	0.0050	18	4.19	0.04	0.27	0.03	15.03	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE B1																				
	15+66.50	15+63.50	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	21	0.00	0.00	0.00	0.00	15.00	
LAT B1-11	15+63.50	15+54.00	9.5	B22	1.27	0.6	0.76	0.76	15.00	100	7.52	5.7	0.0013	21	2.38	0.01	0.09	0.07	15.07	
LAT B1-10	15+54.00	12+91.00	263	B21	0.78	0.6	0.47	1.23	15.07	100	7.52	9.3	0.0034	21	3.85	0.90	0.23	1.14	16.21	
	12+91.00	12+88.00	3	PIPE SIZE CHANGE	0	0.6	0.00	1.23	16.21	100	7.52	9.3	0.0009	27	2.33	0.00	0.08	0.00	16.21	PARTIAL FLOW
LAT B1-9	12+88.00	12+77.50	10.5	B19	0.98	0.6	0.59	1.82	16.21	100	7.36	13.4	0.0019	27	3.36	0.02	0.18	0.05	16.26	PARTIAL FLOW
LAT B1-8	12+77.50	11+39.00	138.5	B20	0.52	0.6	0.31	2.13	16.26	100	7.35	15.7	0.0026	27	3.94	0.35	0.24	0.59	16.84	PARTIAL FLOW
LAT B1-7	11+39.00	11+22.00	17	B6	0.69	0.6	0.41	2.54	16.84	100	7.27	18.5	0.0008	36	2.62	0.01	0.11	0.11	16.95	PARTIAL FLOW
LAT B1-6	11+22.00	8+40.00282		B5	2.07	0.6	1.24	3.79	16.95	100	7.26	27.5	0.0017	36	3.89	0.48	0.23	1.21	18.16	PARTIAL FLOW
LINE B3	8+40.00	7+30.00110		B13, B14, B15, B16, B17, B18	7.26	0.6	4.36	8.14	18.16	100	7.10	57.8	0.0016	48	4.60	0.18	0.33	0.40	18.56	PARTIAL FLOW
LAT B1-5	7+30.00	6+06.50	123.5	B23	0.17	0.6	0.10	8.24	18.56	100	7.05	58.1	0.0016	48	4.63	0.20	0.33	0.44	19.00	
LAT B1-4	6+06.50	5+60.50	46	B4	1.69	0.6	1.01	9.26	19.00	100	7.00	64.8	0.0020	48	5.16	0.09	0.41	0.15	19.15	
LINE B2	5+60.50	5+00.00	60.5	B7, B8, B9, B10, B11, B12	7.39	0.6	4.43	13.69	19.15	100	6.98	95.6	0.0024	54	6.01	0.14	0.56	0.17	19.32	
LAT B1-3	5+00.00	3+23.00	177	B3	1.89	0.6	1.13	14.83	19.32	100	6.96	103.2	0.0028	54	6.49	0.49	0.65	0.45	19.78	
LAT B1-2	3+23.00	2+76.00	47	B2	1.63	0.6	0.98	15.80	19.78	100	6.91	109.2	0.0031	54	6.87	0.14	0.73	0.11	19.89	
	2+76.00	2+73.00	3	PIPE SIZE CHANGE	0.00	0.6	0.00	15.80	19.89	100	6.91	109.2	0.0018	60	5.56	0.01	0.48	0.00	19.89	
LAT B1-1	2+73.00	2+50.00	23	B1	1.35	0.6	0.81	16.61	19.89	100	6.90	114.6	0.0019	60	5.84	0.04	0.53	0.07	19.96	
	2+50.00	1+65.00	85	PIPE SIZE CHANGE	0	0.6	0.00	16.61	19.96	100	6.90	114.6	0.0022	5X4	5.73	0.19	0.51	0.00	19.96	
LAT B1-11	0+08.00	0+00.00	8	B22	1.27	0.6	0.76	0.76	15.00	100	7.52	5.7	0.0030	18	3.24	0.02	0.16	0.04	15.04	
LAT B1-10	0+28.00	0+00.00	28	B21	0.78	0.6	0.47	0.47	15.00	100	7.52	3.5	0.0011	18	1.99	0.03	0.06	0.23	15.23	
LAT B1-9	0+08.00	0+00.00	8	B19	0.98	0.6	0.59	0.59	15.00	100	7.52	4.4	0.0018	18	2.50	0.01	0.10	0.05	15.05	PARTIAL FLOW
LAT B1-8	0+28.00	0+00.00	28	B20	0.52	0.6	0.31	0.31	15.00	100	7.52	2.3	0.0005	18	1.33	0.01	0.03	0.35	15.35	PARTIAL FLOW
LAT B1-7	0+58.00	0+00.00	58	B6	0.69	0.6	0.41	0.41	15.00	100	7.52	3.1	0.0009	18	1.76	0.05	0.05	0.55	15.55	PARTIAL FLOW
LAT B1-6	0+08.00	0+00.00	8	B5	2.07	0.6	1.24	1.24	15.00	100	7.52	9.3	0.0079	18	5.29	0.06	0.43	0.03	15.03	PARTIAL FLOW
LAT B1-5	1+55.00	1+52.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT B1-5.1	1+52.00	0+00.00152		B23	0.17	0.6	0.10	0.10	15.00	100	7.52	0.8	0.0001	18	0.43	0.01	0.003	5.84	20.84	
LAT B1-5.1	0+21.00	0+00.00	21	B23	0.17	0.6	0.10	0.10	15.00	100	7.52	0.8	0.0001	18	0.43	0.00	0.00	0.81	15.81	
LAT B1-4	0+08.00	0+00.00	8	B4	1.69	0.6	1.01	1.01	15.00	100	7.52	7.6	0.0023	21	3.17	0.02	0.16	0.04	15.04	
LAT B1-3	0+28.00	0+00.00	28	B3	1.89	0.6	1.13	1.13	15.00	100	7.52	8.5	0.0029	21	3.55	0.08	0.20	0.13	15.13	
LAT B1-2	0+28.00	0+00.00	28	B2	1.63	0.6	0.98	0.98	15.00	100	7.52	7.4	0.0022	21	3.06	0.06	0.15	0.15	15.15	
LAT B1-1	0+08.00	0+00.00	8	B1	1.35	0.6	0.81	0.81	15.00	100	7.52	6.1	0.0034	18	3.45	0.03	0.18	0.04	15.04	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE B2																				
	9+84.50	9+81.50	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	PARTIAL FLOW
LAT B2-6	9+81.50	8+96.00	85.5	B11	1.36	0.6	0.82	0.82	15.00	100	7.52	6.1	0.0034	18	3.47	0.29	0.19	0.41	15.41	PARTIAL FLOW
	8+96.00	8+93.00	3	PIPE SIZE CHANGE	0	0.6	0.00	0.82	15.41	100	7.52	6.1	0.0015	21	2.55	0.00	0.10	0.00	15.41	PARTIAL FLOW
LAT B2-5	8+93.00	8+11.00	82	B12	0.9	0.6	0.54	1.36	15.41	100	7.47	10.1	0.0041	21	4.21	0.34	0.28	0.32	15.73	PARTIAL FLOW
	8+11.00	8+08.00	3	PIPE SIZE CHANGE	0	0.6	0.00	1.36	15.73	100	7.47	10.1	0.0006	30	2.06	0.00	0.07	0.00	15.73	PARTIAL FLOW
LAT B2-4	8+08.00	8+02.00	6	B9	0.57	0.6	0.34	1.70	15.73	100	7.43	12.6	0.0009	30	2.57	0.01	0.10	0.04	15.77	PARTIAL FLOW
LAT B2-3	8+02.00	5+00.00302		B10	1.54	0.6	0.92	2.62	15.77	100	7.42	19.5	0.0022	30	3.96	0.68	0.24	1.27	17.04	
	5+00.00	3+38.00	162		0	0.6	0.00	2.62	17.04	100	7.42	19.5	0.0022	30	3.96	0.36	0.24	0.00	17.04	
LAT B2-2	3+38.00	3+31.00	7	B8	1.5	0.6	0.90	3.52	17.04	100	7.25	25.5	0.0039	30	5.20	0.03	0.42	0.02	17.07	
	3+31.00	3+28.00	3	PIPE SIZE CHANGE	0	0.6	0.00	3.52	17.07	100	7.25	25.5	0.0015	36	3.61	0.00	0.20	0.00	17.07	
LAT B2-1	3+28.00	0+00.00328		B7	1.52	0.6	0.91	4.43	17.07	100	7.24	32.1	0.0023	36	4.54	0.76	0.32	1.20	18.27	
LAT B2-6	0+08.00	0+00.00	8	B11	1.36	0.6	0.82	0.82	15.00	100	7.52	6.1	0.0034	18	3.47	0.03	0.19	0.04	15.04	
LAT B2-5	0+47.00	0+00.00	47	B12	0.90	0.6	0.54	0.54	15.00	100	7.52	4.1	0.0015	18	2.30	0.07	0.08	0.34	15.34	
LAT B2-4	0+08.00	0+00.00	8	B9	0.57	0.6	0.34	0.34	15.00	100	7.52	2.6	0.0006	18	1.46	0.00	0.03	0.09	15.09	
LAT B2-3	0+28.00	0+00.00	28	B10	1.54	0.6	0.92	0.92	15.00	100	7.52	6.9	0.0044	18	3.93	0.12	0.24	0.12	15.12	
LAT B2-2	0+08.00	0+00.00	8	B8	1.50	0.6	0.90	0.90	15.00	100	7.52	6.8	0.0042	18	3.83	0.03	0.23	0.03	15.03	
LAT B2-1	0+28.00	0+00.00	28	B7	1.52	0.6	0.91	0.91	15.00	100	7.52	6.9	0.0043	18	3.88	0.12	0.23	0.12	15.12	
LINE B3																				
	8+72.00	8+69.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	24	0.00	0.00	0.00	0.00	15.00	
LAT B3-6	8+69.00	8+59.00	10	B17	0.76	0.6	0.46	0.46	15.00	100	7.52	3.4	0.00023	24	1.09	0.00	0.02	0.15	15.15	
LAT B3-5	8+59.00	5+00.00355		B18	2.03	0.6	1.22	1.67	15.15	100	7.51	12.6	0.00309	24	4.00	1.11	0.25	1.50	16.65	
	5+00.00	4+65.50	34.5		0	0.6	0.00	1.67	16.65	100	7.51	12.6	0.0009	30	2.56	0.03	0.10	0.00	16.65	
LAT B3-4	4+65.50	4+55.00	10.5	B15	1.41	0.6	0.85	2.52	16.65	100	7.30	18.4	0.0020	30	3.75	0.02	0.22	0.05	16.69	
LAT B3-3	4+55.00	2+00.00255		B16	1.22	0.6	0.73	3.25	16.69	100	7.29	23.7	0.0033	30	4.83	0.85	0.36	0.88	17.57	
	2+00.00	0+91.00	109		0	0.6	0.00	3.25	17.57	100	7.29	23.7	0.0013	36	3.35	0.14	0.17	0.00	17.57	
LAT B3-2	0+91.00	0+81.00	10	B13	1.02	0.6	0.61	3.86	17.57	100	7.18	27.7	0.0017	36	3.92	0.02	0.24	0.04	17.62	
LAT B3-1	0+81.00	0+00.00	81	B14	0.82	0.6	0.49	4.36	17.62	100	7.52	32.8	0.0024	36	4.63	0.20	0.33	0.29	17.91	
LAT B3-6	0+08.00	0+00.00	8	B17	0.76	0.6	0.46	0.46	15.00	100	7.52	3.4	0.0002	24	1.09	0.00	0.02	0.12	15.12	
LAT B3-5	0+28.00	0+00.00	28	B18	2.03	0.6	1.22	1.22	15.00	100	7.52	9.2	0.0016	24	2.92	0.05	0.13	0.16	15.16	
LAT B3-4	0+08.00	0+00.00	8	B15	1.41	0.6	0.85	0.85	15.00	100	7.52	6.4	0.0037	18	3.60	0.03	0.20	0.04	15.04	
LAT B3-3	0+28.00	0+00.00	28	B16	1.22	0.6	0.73	0.73	15.00	100	7.52	5.5	0.0027	18	3.11	0.08	0.15	0.15	15.15	
LAT B3-2	0+08.00	0+00.00	8	B13	1.02	0.6	0.61	0.61	15.00	100	7.52	4.6	0.0019	18	2.60	0.02	0.11	0.05	15.05	
LAT B3-1	0+28.00	0+00.00	28	B14	0.82	0.6	0.49	0.49	15.00	100	7.52	3.7	0.0012	18	2.09	0.03	0.07	0.22	15.22	

NOTE:

FOR DRAINAGE CALCULATIONS NOTED AS EXISTING REFERENCE ENGINEERING PLANS FOR LIGHT FARMS WAY IN LIGHT FARMS STORM SEWER PLAN AND PROFILE INFORMATION.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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DRAINAGE CALCULATIONS
STORM SEWER

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	24

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE C1																				
	5+61.50	5+58.50	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT C1-2	5+58.50	5+23.00	35.5	C2	0.92	0.6	0.55	0.55	15.00	100	7.52	4.2	0.0016	18	2.35	0.06	0.09	0.25	15.25	
	5+23.00	5+20.00	3	PIPE SIZE CHANGE	0	0.6	0.00	0.55	15.25	100	7.52	4.2	0.0007	21	1.73	0.00	0.05	0.00	15.25	
LINE C3	5+20.00	4+07.50	112.5	C4, C5, C6, C7	1.05	0.6	0.63	1.18	15.25	100	7.50	8.9	0.0031	21	3.68	0.35	0.21	0.51	15.76	
	4+07.50	4+04.50	3	PIPE SIZE CHANGE	0	0.6	0.00	1.18	15.76	100	7.50	8.9	0.0008	27	2.23	0.00	0.08	0.00	15.76	
LINE C2	4+04.50	2+06.00	198.5	C3	1.18	0.6	0.71	1.89	15.76	100	7.42	14.0	0.0021	27	3.53	0.41	0.19	0.94	16.70	
	2+06.00	2+03.00	3	PIPE SIZE CHANGE	0	0.6	0.00	1.89	16.70	100	7.42	14.0	0.0002	42	1.46	0.00	0.03	0.00	16.70	
LAT C1-1	2+03.00	0+65.00	138	C1	2.69	0.6	1.61	3.50	16.70	100	7.29	25.5	0.0006	42	2.66	0.09	0.11	0.87	17.56	
LAT C1-2	0+23.00	0+00.00	23	C2	0.92	0.6	0.55	0.55	15.00	100	7.52	4.2	0.0016	18	2.35	0.04	0.09	0.16	15.16	
LAT C1-1	0+08.00	0+00.00	8	C1	2.69	0.6	1.61	1.61	15.00	100	7.52	12.1	0.0015	27	3.05	0.01	0.14	0.04	15.04	
LINE C2																				
	1+75.00	1+72.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT C2-1	1+72.00	0+00.00	172	C3	1.18	0.6	0.71	0.71	15.00	100	7.52	5.3	0.0026	18	3.01	0.44	0.14	0.95	15.95	
LAT C2-1	0+45.00	0+00.00	45	C3	1.18	0.6	0.71	0.71	15.00	100	7.52	5.3	0.0026	18	3.01	0.12	0.14	0.25	15.25	
LINE C3																				
	1+68.00	1+65.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT C3-1	1+65.00	0+00.00	165	C4, C5, C6, C7	1.05	0.6	0.63	0.63	15.00	100	7.52	4.7	0.0020	18	2.68	0.34	0.11	1.03	16.03	
LAT C3-1	0+21.50	0+00.00	21.5	C4, C5, C6, C7	1.05	0.6	0.63	0.63	15.00	100	7.52	4.7	0.0020	18	2.68	0.04	0.11	0.13	15.13	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE D1																				
	21+59.00	21+56.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	21	0.00	0.00	0.00	0.00	15.00	
LAT D1-15 (EXISTING)	21+56.00	21+29.50	26.5	D18	0.73	0.6	0.44	0.44	15.00	100	7.52	3.3	0.0004	21	1.37	0.01	0.03	0.32	15.32	
	21+29.50	21+26.50	3	PIPE SIZE CHANGE	0	0.6	0.00	0.44	15.32	100	7.52	3.3	0.0002	24	1.05	0.00	0.02	0.00	15.32	
LAT D1-14 (EXISTING)	21+26.50	18+62.00	264.5	D17	0.6	0.6	0.36	0.80	15.32	100	7.49	6.0	0.0007	24	1.90	0.18	0.06	2.32	17.64	
LAT D1-13 (EXISTING)	18+62.00	18+36.00	26	D16	0.58	0.6	0.35	1.15	17.64	100	7.17	8.2	0.0013	24	2.61	0.03	0.11	0.17	17.81	
	18+36.00	18+33.00	3	PIPE SIZE CHANGE	0	0.6	0.00	1.15	17.81	100	7.17	8.2	0.0007	27	2.07	0.00	0.07	0.00	17.81	
LAT D1-12 (EXISTING)	18+33.00	17+04.00	129	D15	0.49	0.6	0.29	1.44	17.81	100	7.15	10.3	0.0011	27	2.59	0.14	0.10	0.83	18.64	
LAT D1-11 (EXISTING)	17+04.00	16+94.50	9.5	D13	0.66	0.6	0.40	1.84	18.64	100	7.04	12.9	0.0017	27	3.25	0.02	0.16	0.05	18.69	
LAT D1-10 (EXISTING)	16+94.50	16+71.50	23	D14	0.49	0.6	0.29	2.13	18.69	100	7.04	15.0	0.0013	30	3.05	0.03	0.14	0.13	18.81	
	16+71.50	13+57.00	314.5	ROW LINE	0.00	0.6	0.00	2.13	18.81	100	7.04	15.0	0.0013	30	3.05	0.42	0.14	0.00	18.81	
	13+57.00	13+54.00	3	PIPE SIZE CHANGE	0.00	0.6	0.00	2.13	18.81	100	7.04	15.0	0.0005	36	2.12	0.00	0.07	0.00	18.81	
LAT D1-9 (FUTURE)	13+54.00	12+83.00	71	D7	1.68	0.6	1.01	3.14	18.81	100	7.02	22.0	0.0011	36	3.12	0.08	0.15	0.38	19.19	
LAT D1-7	12+83.00	12+12.00	71	D6	1.02	0.6	0.61	3.75	19.19	100	6.98	26.2	0.0015	36	3.70	0.11	0.21	0.32	19.51	
LAT D1-6	12+12.00	11+92.00	20	D5	0.77	0.6	0.46	4.21	19.51	100	6.94	29.2	0.0019	36	4.14	0.04	0.27	0.08	19.59	
LINE D4	11+92.00	10+41.50	150.5	D19, D20, D21	1.19	0.6	0.71	4.93	19.59	100	6.93	34.1	0.0012	42	3.55	0.17	0.20	0.71	20.30	
LAT D1-5	10+41.50	10+34.50	7	D3	0.97	0.6	0.58	5.51	20.30	100	6.85	37.7	0.0014	42	3.92	0.01	0.24	0.03	20.33	
LAT D1-4	10+34.50	6+50.00	384.5	D4	1.58	0.6	0.95	6.46	20.33	100	6.85	44.2	0.0019	42	4.60	0.74	0.33	1.39	21.72	
	6+50.00	5+67.00	83		0	0.6	0.00	6.46	21.72	100	6.85	44.2	0.0019	42	4.60	0.16	0.33	0.00	21.72	
LAT D1-3	5+67.00	5+56.00	11	D1	1.5	0.6	0.90	7.36	21.72	100	6.70	49.3	0.0024	42	5.12	0.03	0.41	0.04	21.76	
LAT D1-2	5+56.00	3+86.50	169.5	D2	1.68	0.6	1.01	8.36	21.76	100	6.70	56.0	0.0031	42	5.82	0.53	0.53	0.49	22.24	
LINE D2	3+86.50	3+25.00	61.5	D10, D11, D12	3.77	0.6	2.26	10.63	22.24	100	6.65	70.6	0.0049	42	7.34	0.30	0.84	0.14	22.38	
	3+25.00	3+22.00	3	PIPE SIZE CHANGE	0	0.6	0.00	10.63	22.38	100	6.65	70.6	0.0013	54	4.44	0.00	0.31	0.00	22.38	
LAT D1-1	3+22.00	0+90.00	232	D8, D9	2.58	0.6	1.55	12.17	22.38	100	6.63	80.7	0.0017	54	5.08	0.39	0.40	0.76	23.14	
LAT D1-15	0+10.50	0+00.00	10.5	D18	0.73	0.6	0.44	0.44	15.00	100	7.52	3.3	0.0010	18	1.86	0.01	0.05	0.09	15.09	
LAT D1-14	0+72.00	0+00.00	72	D17	0.60	0.6	0.36	0.36	15.00	100	7.52	2.7	0.0007	18	1.53	0.05	0.04	0.78	15.78	
LAT D1-13	0+10.50	0+00.00	10.5	D16	0.58	0.6	0.35	0.35	15.00	100	7.52	2.6	0.0006	18	1.48	0.01	0.03	0.12	15.12	
LAT D1-12	0+72.00	0+00.00	72	D15	0.49	0.6	0.29	0.29	15.00	100	7.52	2.2	0.0004	18	1.25	0.03	0.02	0.96	15.96	
LAT D1-11	0+10.50	0+00.00	10.5	D13	0.66	0.6	0.40	0.40	15.00	100	7.52	3.0	0.0008	18	1.69	0.01	0.04	0.10	15.10	
LAT D1-10	0+64.50	0+00.00	64.5	D14	0.49	0.6	0.29	0.29	15.00	100	7.52	2.2	0.0004	18	1.25	0.03	0.02	0.86	15.86	
LAT D1-9	0+28.00	0+00.00	28	D7	1.68	0.6	1.01	1.01	15.00	100	7.52	7.6	0.0052	18	4.29	0.15	0.29	0.11	15.11	
LAT D1-7	0+08.00	0+00.00	8	D6	1.02	0.6	0.61	0.61	15.00	100	7.52	4.6	0.0019	18	2.60	0.02	0.11	0.05	15.05	
LAT D1-6	0+39.00	0+00.00	39	D5	0.77	0.6	0.46	0.46	15.00	100	7.52	3.5	0.0011	18	1.97	0.04	0.06	0.33	15.33	
LAT D1-5	0+08.00	0+00.00	8	D3	0.97	0.6	0.58	0.58	15.00	100	7.52	4.4	0.0017	18	2.48	0.01	0.10	0.05	15.05	
LAT D1-4	0+28.00	0+00.00	28	D4	1.58	0.6	0.95	0.95	15.00	100	7.52	7.1	0.0046	18	4.03	0.13	0.25	0.12	15.12	
LAT D1-3	0+08.00	0+00.00	8	D1	1.50	0.6	0.90	0.90	15.00	100	7.52	6.8	0.0042	18	3.83	0.03	0.23	0.03	15.03	
LAT D1-2	0+28.00	0+00.00	28	D2	1.68	0.6	1.01	1.01	15.00	100	7.52	7.6	0.0052	18	4.29	0.15	0.29	0.11	15.11	
LAT D1-1	0+49.50	0+12.00	37.5	D9	1.54	0.6	0.92	0.92	15.00	100	7.52	6.9	0.0044	18	3.93	0.16	0.24	0.16	15.16	
LAT D1-1.1	0+12.00	0+00.00	12	D8	1.04	0.6	0.62	1.55	15.16	100	7.52	11.6	0.0123	18	6.59	0.15	0.67	0.03	15.19	
LAT D1-1.1	0+15.00	0+00.00	15	D8	1.04	0.6	0.62	0.62	15.00	100	7.52	4.7	0.0020	18	2.66	0.03	0.11	0.09	15.09	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole)		Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA				Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_f	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	Upstream Station	Downstream Station		Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE D2																				
	3+45.50	3+42.50	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT D2-1	3+42.50	2+78.50	64	D10	0.76	0.6	0.46	0.46	15.00	100	7.52	3.4	0.0011	18	1.94	0.07	0.06	0.55	15.55	
	2+78.50	2+75.50	3	PIPE SIZE CHANGE	0	0.6	0.00	0.46	15.00	100	7.52	3.4	0.0002	24	1.09	0.00	0.02	0.00	15.00	
LINE D3	2+75.50	0+00.00	275.5	D11, D12	3.01	0.6	1.81	2.26	15.00	100	7.52	17.0	0.0057	24	5.41	1.56	0.46	0.85	15.85	
LAT D2-1	0+15.00	0+00.00	15	D10	0.76	0.6	0.46	0.46	15.00	100	7.52	3.4	0.0011	18	1.94	0.02	0.06	0.13	15.13	
LINE D3																				
	0+94.00	0+91.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	21	0.00	0.00	0.00	0.00	15.00	
LAT D3-2	0+91.00	0+81.50	9.5	D11	1.4	0.6	0.84	0.84	15.00	100	7.52	6.3	0.0016	21	2.63	0.02	0.11	0.06	15.06	
LAT D3-1	0+81.50	0+00.00	81.5	D12	1.61	0.6	0.97	1.81	15.06	100	7.52	13.6	0.0074	21	5.65	0.60	0.50	0.24	15.30	
LAT D3-2	0+08.00	0+00.00	8	D11	1.40	0.6	0.84	0.84	15.00	100	7.52	6.3	0.0036	18	3.57	0.03	0.20	0.04	15.04	
LAT D3-1	0+28.00	0+00.00	28	D12	1.61	0.6	0.97	0.97	15.00	100	7.52	7.3	0.0048	18	4.11	0.13	0.26	0.11	15.11	
LINE D4																				
	1+58.00	1+55.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT D4-1	1+55.00	0+00.00	155	D19, D20, D21	1.19	0.6	0.71	0.71	15.00	100	7.52	5.4	0.0026	18	3.04	0.40	0.14	0.85	15.85	
LAT D4-1	0+23.00	0+00.00	23	D19, D20, D21	1.19	0.6	0.71	0.71	15.00	100	7.52	5.4	0.0026	18	3.04	0.06	0.14	0.13	15.13	
LINE E1																				
	8+15.50	7+33.50	82	OE9, OE10	23.67	0.6	14.20	14.20	15.00	100	7.52	106.8	0.0029	54	6.72	0.24	0.70	0.20	15.20	
	7+33.50	5+36.50	197		0	0.6	0.00	14.20	15.20	100	7.52	106.8	0.0017	60	5.44	0.33	0.46	0.00	15.20	
LAT E1-4	5+36.50	5+07.50	29	E4	0.61	0.6	0.37	14.57	15.20	100	7.50	109.3	0.0018	60	5.57	0.05	0.48	0.09	15.29	
LAT E1-3	5+07.50	3+52.00	155.5	E3	0.45	0.6	0.27	14.84	15.29	100	7.49	111.1	0.0018	60	5.66	0.28	0.50	0.46	15.75	
LINE E2, LINE E3	3+52.00	2+43.00	109	E5, E6, E7, E8	4.39	0.6	2.63	17.47	15.75	100	7.42	129.7	0.0025	60	6.61	0.27	0.68	0.28	16.02	
LAT E1-2	2+43.00	2+17.50	25.5	E2	0.63	0.6	0.38	17.85	16.02	100	7.38	131.8	0.0026	60	6.71	0.07	0.70	0.06	16.09	
LAT E1-1	2+17.50	0+00.00	217.5	E1	0.55	0.6	0.33	18.18	16.09	100	7.38	134.1	0.0027	60	6.83	0.58	0.72	0.53	16.62	
LAT E1-4	0+10.50	0+00.00	10.5	E4	0.61	0.6	0.37	0.37	15.00	100	7.52	2.8	0.0007	18	1.56	0.01	0.04	0.11	15.11	
LAT E1-3	0+73.00	0+00.00	73	E3	0.45	0.6	0.27	0.27	15.00	100	7.52	2.0	0.0004	18	1.15	0.03	0.02	1.06	16.06	
LAT E1-2	0+10.50	0+00.00	10.5	E2	0.63	0.6	0.38	0.38	15.00	100	7.52	2.8	0.0007	18	1.61	0.01	0.04	0.11	15.11	
LAT E1-1	0+70.00	0+00.00	70	E1	0.55	0.6	0.33	0.33	15.00	100	7.52	2.5	0.0006	18	1.40	0.04	0.03	0.83	15.83	
LINE E2																				
	6+65.00	6+62.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	24	0.00	0.00	0.00	0.00	15.00	
LAT E2-4	6+62.00	6+52.50	9.5	E7	1.12	0.6	0.67	0.67	15.00	100	7.52	5.1	0.0005	24	1.61	0.00	0.04	0.10	15.10	
LAT E2-3	6+52.50	2+78.50	374	E8	1.18	0.6	0.71	1.38	15.10	100	7.52	10.4	0.0021	24	3.30	0.79	0.17	1.89	16.99	
	2+78.50	2+75.50	3	PIPE SIZE CHANGE	0	0.6	0.00	1.38	16.99	100	7.52	10.4	0.0011	27	2.61	0.00	0.11	0.00	16.99	
LAT E2-2	2+75.50	2+41.50	34	E6	0.97	0.6	0.58	1.96	16.99	100	7.25	14.2	0.0021	27	3.54	0.07	0.20	0.16	17.14	
	2+41.50	2+38.50	3	PIPE SIZE CHANGE	0	0.6	0.00	1.96	17.14	100	7.25	14.2	0.0012	30	2.90	0.00	0.13	0.00	17.14	
LAT E2-1	2+38.50	1+92.00	46.5	E5	1.12	0.6	0.67	2.63	17.14	100	7.23	19.0	0.0022	30	3.88	0.10	0.23	0.20	17.34	
	1+92.00	0+00.00	192		0	0.6	0.00	2.63	17.34	100	7.23	19.0	0.0022	30	3.88	0.41	0.23	0.00	17.34	
LAT E2-4	0+08.00	0+00.00	8	E7	1.12	0.6	0.67	0.67	15.00	100	7.52	5.1	0.0023	18	2.86	0.02	0.13	0.05	15.05	
LAT E2-3	0+28.00	0+00.00	28	E8	1.18	0.6	0.71	0.71	15.00	100	7.52	5.3	0.0026	18	3.01	0.07	0.14	0.15	15.15	
LAT E2-2	0+08.00	0+00.00	8	E6	0.97	0.6	0.58	0.58	15.00	100	7.52	4.4	0.0017	18	2.48	0.01	0.10	0.05	15.05	
LAT E2-1	0+28.00	0+00.00	28	E5	1.12	0.6	0.67	0.67	15.00	100	7.52	5.1	0.0023	18	2.86	0.06	0.13	0.16	15.16	

NOTE:

1. FOR DRAINAGE CALCULATIONS NOTED AS EXISTING REFERENCE ENGINEERING PLANS FOR LIGHT FARMS WAY IN LIGHT FARMS STORM SEWER PLAN AND PROFILE INFORMATION.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

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DRAINAGE CALCULATIONS
STORM SEWER

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	25

I:/proj/01390526/Phase-Two/dgn/lfp2dcal2.dgn

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole) Upstream Station	Downstream Station	Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_j	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE F1																				
	9+97.00	9+94.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	21	0.00	0.00	0.00	0.00	15.00	
LAT F1-4	9+94.00	7+13.00	281	F11	1.32	0.6	0.79	0.79	15.00	100	7.52	6.0	0.0014	21	2.48	0.40	0.10	1.89	16.89	
LAT F1-3	7+13.00	3+91.00	322	F10	1.24	0.6	0.74	1.54	16.89	100	7.27	11.2	0.0050	21	4.64	1.60	0.33	1.16	18.05	
	3+91.00	3+88.00	3	PIPE SIZE CHANGE	0	0.6	0.00	1.54	18.05	100	7.27	11.2	0.0050	21	4.64	0.01	0.33	0.00	18.05	
LAT F1-2	3+88.00	3+77.00	11	F2	1.56	0.6	0.94	2.47	18.05	100	7.12	17.6	0.0032	27	4.42	0.04	0.30	0.04	18.09	
LAT F1-1	3+77.00	2+55.00	122	F1	1.1	0.6	0.66	3.13	18.09	100	7.11	22.3	0.0052	27	5.60	0.63	0.49	0.36	18.45	
LINE F3, LINE F2	2+55.00	0+10.00	245	F3, F4, F5, F6, F7, F8, F9	8.12	0.6	4.87	8.00	18.45	100	7.07	56.6	0.0016	48	4.50	0.38	0.31	0.91	19.36	
LAT F1-4	0+08.00	0+00.00	8	F11	1.32	0.6	0.79	0.79	15.00	100	7.52	6.0	0.0032	18	3.37	0.03	0.18	0.04	15.04	
LAT F1-3	0+19.00	0+00.00	19	F10	1.24	0.6	0.74	0.74	15.00	100	7.52	5.6	0.0028	18	3.17	0.05	0.16	0.10	15.10	
LAT F1-2	0+08.00	0+00.00	8	F2	1.56	0.6	0.94	0.94	15.00	100	7.52	7.0	0.0045	18	3.98	0.04	0.25	0.03	15.03	
LAT F1-1	0+28.00	0+00.00	28	F1	1.10	0.6	0.66	0.66	15.00	100	7.52	5.0	0.0022	18	2.81	0.06	0.12	0.17	15.17	
LINE F2																				
	2+78.00	2+75.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	30	0.00	0.00	0.00	0.00	15.00	
LINE F4	2+75.00	1+43.00	132	F5, F6	3.25	0.6	1.95	1.95	16.45	100	7.33	14.3	0.0012	30	2.91	0.16	0.13	0.76	17.21	
LAT F2-2	1+43.00	1+34.00	9	F4	0.41	0.6	0.25	2.20	17.21	100	7.22	15.9	0.0015	30	3.23	0.01	0.16	0.05	17.25	
LAT F2-1	1+34.00	0+00.00	134	F3	0.49	0.6	0.29	2.49	17.25	100	7.22	18.0	0.0019	30	3.66	0.26	0.21	0.61	17.86	
LAT F2-2	0+08.00	0+00.00	8	F4	0.41	0.6	0.25	0.25	15.00	100	7.52	1.8	0.0003	18	1.05	0.00	0.02	0.13	15.13	
							0.00													
LAT F2-1	0+28.50	0+00.00	28.5	F3	0.49	0.6	0.29	0.29	15.00	100	7.52	2.2	0.0004	18	1.25	0.01	0.02	0.38	15.38	
LINE F3																				
	2+58.00	2+55.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT F3-3	2+55.00	1+96.00	59	F9	0.88	0.6	0.53	0.53	15.00	100	7.52	4.0	0.0014	18	2.25	0.08	0.08	0.44	15.44	
	1+96.00	1+93.00	3	PIPE SIZE CHANGE	0.00	0.6	0.00	0.53	15.44	100	7.52	4.0	0.0001	30	0.81	0.00	0.01	0.00	15.44	
LAT F3-2	1+93.00	1+81.00	12	F8	1.48	0.6	0.89	1.42	15.44	100	7.47	10.6	0.0007	30	2.15	0.01	0.07	0.09	15.53	
LAT F3-1	1+81.00	0+00.00	181	F7	1.61	0.6	0.97	2.38	15.53	100	7.45	17.8	0.0019	30	3.62	0.34	0.20	0.83	16.36	
LAT F3-3	0+38.00	0+00.00	38	F9	0.88	0.6	0.53	0.53	15.00	100	7.52	4.0	0.0014	18	2.25	0.05	0.08	0.28	15.28	
LAT F3-2	0+08.00	0+00.00	8	F8	1.48	0.6	0.89	0.89	15.00	100	7.52	6.7	0.0040	18	3.78	0.03	0.22	0.04	15.04	
LAT F3-1	0+28.50	0+00.00	28.5	F7	1.61	0.6	0.97	0.97	15.00	100	7.52	7.3	0.0048	18	4.11	0.14	0.26	0.12	15.12	
LINE F4																				
	2+56.00	2+53.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	30	0.00	0.00	0.00	0.00	15.00	
LAT F4-2	2+53.00	2+47.00	6	F6	1.5	0.6	0.90	0.90	15.00	100	7.52	6.8	0.0003	30	1.38	0.00	0.03	0.07	15.07	
LAT F4-1	2+47.00	0+00.00	247	F5	1.75	0.6	1.05	1.95	15.07	100	7.52	14.7	0.0013	30	2.99	0.32	0.14	1.38	16.45	
LAT F4-2	0+08.00	0+00.00	8	F6	1.50	0.6	0.90	0.90	15.00	100	7.52	6.8	0.0042	18	3.83	0.03	0.23	0.03	15.03	
LAT F4-1	0+28.00	0+00.00	28	F5	1.75	0.6	1.05	1.05	15.00	100	7.52	7.9	0.0057	18	4.47	0.16	0.31	0.10	15.10	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole) Upstream Station	Downstream Station	Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_j	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE G1 (EXISTING)																				
	13+80.00	13+77.00	3						15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT G1-10	13+77.00	13+50.50	26.5	G10	0.45	0.60	0.27	0.27	15.00	100	7.52	2.0	0.0004	18	1.15	0.01	0.02	0.38	15.38	
	13+50.50	13+47.50	3			0.60	0.00	0.27	15.38	100	7.52	2.0	0.0002	21	0.84	0.00	0.01	0.00	15.38	
LAT G1-9	13+47.50	10+82.00	265.5	G9	0.45	0.60	0.27	0.54	15.38	100	7.48	4.0	0.0006	21	1.68	0.17	0.04	2.64	18.02	
LAT G1-8	10+82.00	10+52.50	29.5	G8	0.47	0.60	0.28	0.82	18.02	100	7.12	5.9	0.0014	21	2.43	0.04	0.09	0.20	18.22	
LAT G1-7	10+52.50	7+87.00	265.5	G7	0.47	0.60	0.28	1.10	18.22	100	7.09	7.8	0.0012	24	2.49	0.32	0.10	1.77	20.00	
LAT G1-6	7+87.00	7+60.50	26.5	G6	0.47	0.60	0.28	1.39	20.00	100	6.89	9.5	0.0018	24	3.04	0.05	0.14	0.15	20.14	
	7+60.50	7+57.50	3				0.00	1.39	20.14	100	6.89	9.5	0.0009	27	2.40	0.00	0.09	0.00	20.14	
LAT G1-5	7+57.50	5+95.00	162.5	G5	0.47	0.6	0.28	1.67	20.14	100	6.87	11.5	0.0014	27	2.88	0.22	0.13	0.94	21.08	
LINE G3	5+95.00	5+41.00	54	G1,G1a, OG17	10.46	0.62	6.49	8.15	21.08	100	6.77	55.17	0.0015	48	4.39	0.08	0.30	0.20	21.29	
LAT G1-4	5+41.00	5+14.50	26.5	G4	0.66	0.6	0.40	8.55	21.29	100	6.74	57.66	0.0016	48	4.59	0.04	0.33	0.10	21.38	
LAT G1-4	5+14.50	5+11.50	3				0.00	8.55	21.38	100	6.74	57.66	0.0009	54	3.63	0.00	0.20	0.00	21.38	
LAT G1-3	5+11.50	3+44.50	167	G3	0.67	0.6	0.40	8.95	21.38	100	6.73	60.28	0.0009	54	3.79	0.16	0.22	0.73	22.12	
LINE G2	3+44.50	0+26.00	318.5	G2	2.73	0.80	2.18	11.14	22.12	100	6.66	74.15	0.0014	54	4.66	0.45	0.34	1.14	23.26	
LAT G1-10	0+10.50	0+00.00	10.5	G10	0.45	0.6	0.27	0.27	15.00	100	7.52	2.0	0.0004	18	1.15	0.00	0.02	0.15	15.15	
LAT G1-9	0+72.00	0+00.00	72	G9	0.45	0.6	0.27	0.27	15.00	100	7.52	2.0	0.0004	18	1.15	0.03	0.02	1.04	16.04	
LAT G1-8	0+10.50	0+00.00	10.5	G8	0.47	0.6	0.28	0.28	15.00	100	7.52	2.1	0.0004	18	1.20	0.00	0.02	0.15	15.15	
LAT G1-7	0+72.00	0+00.00	72	G7	0.47	0.6	0.28	0.28	15.00	100	7.52	2.1	0.0004	18	1.20	0.03	0.02	1.00	16.00	
LAT G1-6	0+10.50	0+00.00	10.5	G6	0.47	0.6	0.28	0.28	15.00	100	7.52	2.1	0.0004	18	1.20	0.00	0.02	0.15	15.15	
LAT G1-5	0+72.00	0+00.00	72	G5	0.47	0.6	0.28	0.28	15.00	100	7.52	2.1	0.0004	18	1.20	0.03	0.02	1.00	16.00	
LAT G1-4	0+10.50	0+00.00	10.5	G4	0.66	0.6	0.40	0.40	15.00	100	7.52	2.98	0.0008	18	1.69	0.01	0.04	0.10	15.10	
LAT G1-3	0+73.00	0+00.00	73	G3	0.67	0.6	0.40	0.40	15.00	100	7.52	3.02	0.0008	18	1.71	0.06	0.05	0.71	15.71	
LINE G2																				
	0+87.00	0+00.00	87	G2	2.73	0.8	2.18	2.18	10.00	100	8.74	19.09	0.0071	24	6.08	0.62	0.57	0.24	10.24	
LINE G3 (FUTURE)																				
	1+02.00	0+88.00	14				0.00	0.00	15.00	100	7.52	49.65	0.0024	42	5.16	0.03	0.41	0.00	15.00	
	0+88.00	0+00.00	88	G1, G1a, OG17	10.46	0.62	6.49	6.49	15.00	100	7.52	49.65	0.0024	42	5.16	0.21	0.41	0.28	15.28	
LINE H1 (EXISTING)																				
	9+16.00	9+04.50	11.5		0.00	0.6	0.00	0.00	10.00	100	7.52	0.0	0.0000	36	0.00	0.00	0.00	0.00	10.00	
LAT H1-5	9+04.50	8+15.50	89	H3	3.92	0.9	3.53	3.53	10.00	100	8.74	30.8	0.0021	36	4.36	0.19	0.30	0.34	10.34	
LAT H1-4	8+15.50	7+46.50	69	H2	0.31	0.6	0.19	3.71	15.00	100	7.52	32.2	0.0023	36	4.56	0.09	0.32	0.25	15.25	
LAT H1-3	7+46.50	7+07.50	39	H4	0.4	0.6	0.24	3.95	15.25	100	7.52	34.0	0.0026	36	4.82	0.01	0.36	0.13	15.39	
LAT H1-2	7+07.50	7+02.00	5.5	H1	0.4	0.6	0.24	4.19	15.39	100	7.52	35.8	0.0029	36	5.07	0.09	0.40	0.02	15.41	
LAT H1-1	7+02.00	6+70.00	32	H5	0.22	0.6	0.13	4.33	15.41	100	7.52	36.8	0.0031	36	5.21	0.10	0.42	0.10	15.51	
LAT H1-5	0+10.00	0+00.00	10	H3	3.92	0.9	3.53	3.53	10.00	100	8.74	30.8	0.0186	24	9.81	0.19	1.50	0.02	10.02	
LAT H1-4	0+71.50	0+00.00	71.5	H2	0.31	0.6	0.19	0.19	15.00	100	7.52	1.4	0.0002	18	0.79	0.01	0.01	1.51	16.51	
LAT H1-3	0+06.00	0+00.00	6	H4	0.40	0.6	0.24	0.24	15.00	100	7.52	1.8	0.0003	18	1.02	0.00	0.02	0.10	15.10	
LAT H1-2	0+59.00	0+00.00	59	H1	0.40	0.6	0.24	0.24	15.00	100	7.52	1.8	0.0003	18	1.02	0.02	0.02	0.96	15.96	
LAT H1-1	1+92.30	0+00.00	192.3	H5	0.22	0.6	0.13	0.13	15.00	100	7.52	1.0	0.0001	18	0.56	0.02	0.00	5.71	20.71	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole) Upstream Station	Downstream Station	Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_j	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE L1 (EXISTING)																				
	17+23.00	17+20.00	3		0.00	0.9	0.00	0.00	10.00	100	8.74	0.0	0.0000	27	0.00	0.00	0.00	0.00	10.00	
LAT L1-10	17+20.00	17+17.00	3	WATER TOWER OVERFLOW	0.00	0.9	0.00	0.00	10.00	100	8.74	0.0	0.0000	27	0.00	0.00	0.00	0.00	10.00	
LAT L1-9	17+17.00	15+23.00	194	L9	1.12	0.9	1.01	1.01	10.00	100	8.45	8.5	0.0008	27	2.14	0.15	0.07	1.51	11.51	
LAT L1-8	15+23.00	14+10.00	113	L8	1.55	0.9	1.40	2.40	11.51	100	8.13	19.5	0.0040	27	4.91	0.45	0.37	0.38	11.89	
	14+10.00	14+10.00	0		0	0.9	0.00	2.40	11.89	100	8.13	19.5	0.0009	36	2.76	0.00	0.12	0.00	11.89	
LAT L1-7	14+10.00	13+61.50	48.5	L7	1.74	0.9	1.57	3.97	11.89	100	8.06	32.0	0.0023	36	4.52	0.11	0.32	0.18	12.07	
LAT L1-6	13+61.50	13+03.00	58.5	L6	0.36	0.6	0.22	4.19	12.07	100	8.02	33.6	0.0025	36	4.75	0.15	0.35	0.21	12.28	
LAT L1-5	13+03.00	12+66.00	37	L5	0.66	0.6	0.40	4.58	12.28	100	7.98	36.6	0.0030	36	5.17	0.11	0.42	0.12	12.40	
LAT L1-4	12+66.00	12+01.50	64.5	L4	0.4	0.6	0.24	4.82	12.40	100	7.96	38.4	0.0033	36	5.43	0.21	0.46	0.20	12.59	
	12+01.50	11+98.50	3	PIPE SIZE CHANGE	0	0.6	0.00	4.82	12.59	100	7.96	38.4	0.0015	42	3.99	0.00	0.25	0.00	12.59	
LAT L1-3	11+98.50	9+77.00	221.5	L3	0.36	0.6	0.22	5.04	12.59	100	7.93	39.9	0.0016	42	4.15	0.35	0.27	0.89	13.48	
LAT L1-2	9+77.00	9+02.00	75	L2	0.75	0.6	0.45	5.49	13.48	100	7.77	42.6	0.0018	42	4.43	0.13	0.31	0.28	13.77	
LAT L1-1	9+02.00	8+90.00	12	L1	0.48	0.6	0.29	5.78	13.77	100	7.73	44.6	0.0020	42	4.64	0.02	0.33	0.04	13.81	
LAT L1-10	0+66.00	0+00.00	66	WATER TOWER OVERFLOW	0.36	0.6	0.22	0.22	15.00	100	7.52	1.6	0.0002	18	0.92	0.02	0.01	1.20	16.20	
LAT L1-9	0+17.00	0+00.00	17	L9	1.12	0.6	0.67	0.67	15.00	100	7.52	5.1	0.0010	21	2.10	0.02	0.07	0.13	15.13	
LAT L1-8	0+17.00	0+00.00	17	L8	1.55	0.6	0.93	0.93	15.00	100	7.52	7.0	0.0044	18	3.96	0.08	0.24	0.07	15.07	
LAT L1-7	0+17.00	0+00.00	17	L7	1.74	0.6	1.04	1.04	15.00	100	7.52	7.9	0.0056	18	4.44	0.09	0.31	0.06	15.06	
LAT L1-6	0+39.00	0+00.00	39	L6	0.36	0.6	0.22	0.22	15.00	100	7.52	1.6	0.0002	18	0.92	0.01	0.01	0.71	15.71	
LAT L1-5	0+31.00	0+00.00	31	L5	0.66	0.6	0.40	0.40	15.00	100	7.52	3.0	0.0008	18	1.69	0.02	0.04	0.31	15.31	
LAT L1-4	0+74.00	0+00.00	74	L4	0.40	0.6	0.24	0.24	15.00	100	7.52	1.8	0.0003	18	1.02	0.02	0.02	1.21	16.21	
LAT L1-3	0+10.50	0+00.00	10.5	L3	0.36	0.6	0.22	0.22	15.00	100	7.52	1.6	0.0002	18	0.92	0.00	0.01	0.19	15.19	
LAT L1-2	0+21.00	0+00.00	21	L2	0.75	0.6	0.45	0.45	15.00	100	7.52	3.4	0.0010	18	1.91	0.02	0.06	0.18	15.18	
LAT L1-1	0+21.00	0+00.00	21	L1	0.48	0.6	0.29	0.29	15.00	100	7.52	2.2	0.0004	18	1.23	0.01	0.02	0.29	15.29	
LINE J1																				
	19+34.00	19+31.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	24	0.00	0.00	0.00	0.00	15.00	PARTIAL FLOW
LAT J1-2	19+31.00	19+21.00	10	J2	1.24	0.6	0.74	0.74	15.00	100	7.52	5.6	0.0006	24	1.78	0.01	0.05	0.09	15.09	PARTIAL FLOW
	19+21.00	17+00.00	221	ROW LINE	0	0.6	0.00	0.74	15.09	100	7.52	5.6	0.0000	24	1.78	0.00	0.05	0.00	15.09	PARTIAL FLOW
LAT J1-1	17+00.00	16+77.00	23	J1	1.77	0.6	1.06	1.81	15.09	100	7.52	13.6	0.0036	24	4.32	0.08	0.29	0.09	15.18	PARTIAL FLOW
LINE J2, LINE J3	16+77.00	15+90.00	87	J3, J4, J5, J6, J7, J8	4.07	0.6	2.44	4.25	15.18	100	7.51	31.9	0.0023	36	4.51	0.20	0.32	0.32	15.50	PARTIAL FLOW
LAT J1-2	0+08.00	0+00.00	8	J2	1.24	0.6	0.74	0.74	15.00	100	7.52	5.6	0.0028	18	3.17	0.02	0.16	0.04	15.04	
LAT J1-1	0+28.00	0+00.00	28	J1	1.77	0.6	1.06	1.06	15.00	100	7.52	8.0	0.0058	18	4.52	0.16	0.32	0.10	15.10	PARTIAL FLOW
LINE J2 (EXISTING)																				
	2+81.00	2+78.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	24	0.00	0.00	0.00	0.00	15.00	
LAT J2-4	2+78.00	2+46.00	32	J5	0.84	0.6	0.50	0.50	15.00	100	7.52	3.8	0.0003	24	1.21	0.01	0.02	0.44	15.44	
LAT J2-3	2+46.00	0+57.00	189	J6	0.54	0.6	0.32	0.83	15.44	100	7.47	6.2	0.0007	24	1.97	0.14	0.06	1.60	17.04	
LAT J2-2	0+57.00	0+28.00	29	J3	0.75	0.6	0.45	1.28	17.04	100	7.25	9.3	0.0017	24	2.95	0.05	0.13	0.16	17.21	
LAT J2-1	0+28.00	0+00.00	28	J4	0.48	0.6	0.29	1.57	17.21	100	7.22	11.3	0.0025	24	3.60	0.07	0.20	0.13	17.34	
LAT J2-4	0+10.50	0+00.00	10.5	J5	0.84	0.6	0.50	0.50	15.00	100	7.52	3.8	0.0013	18	2.14	0.01	0.07	0.08	15.08	
LAT J2-3	0+72.00	0+00.00	72	J6	0.54	0.6	0.32	0.32	15.00	100	7.52	2.4	0.0005	18	1.38	0.04	0.03	0.87	15.87	
LAT J2-2	0+10.50	0+00.00	10.5	J3	0.75	0.6	0.45	0.45	15.00	100	7.52	3.4	0.0010	18	1.91	0.01	0.06	0.09	15.09	
LAT J2-1	0+72.00	0+00.00	72	J4	0.48	0.6	0.29	0.29	15.00	100	7.52	2.2	0.0004	18	1.23	0.03	0.02	0.98	15.98	

Line or Lateral Name	RUNOFF COLLECTION POINT (Inlet or Manhole) Upstream Station	Downstream Station	Distance Between Collection Points (ft)	INCREMENTAL DRAINAGE AREA Area No.	Drainage Area "A" (Acres)	Runoff Coeff. "C"	Incremental "CA"	Accum-ulated "CA"	Time at Upstream Station (minutes)	Design Storm Frequency (yrs)	Intensity "I" (inches/hr)	Storm Water Runoff "Q" (c.f.s.)	Slope of Hydraulic Gradient "S" (ft./ft.)	Selected Storm Sewer Size	Velocity in Sewer Between Collection Points "V" (f.p.s.)	Friction Head Loss Coeff. K_j	Velocity Head Loss of Upstream Station (feet)	Flow Time in Sewer Distance/V*60 (minutes)	Time of Downstream Station (minutes)	Remarks
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE J3 (EXISTING)																				
	2+29.00	2+26.00	3		0.00	0.6	0.00	0.00	15.00	100	7.52	0.0	0.0000	18	0.00	0.00	0.00	0.00	15.00	
LAT J3-2	2+26.00	1+97.00	29	J7	0.93	0.6	0.56	0.56	15.00	100	7.52	4.2	0.0016	18	2.37	0.05	0.09	0.20	15.20	
LAT J3-1	1+97.00	0+00.00	197	J8	0.53	0.6	0.32	0.88	15.20	100	7.52	6.6	0.0039	18	3.73	0.77	0.22	0.88	16.08	
LAT J3-2	0+10.50	0+00.00	10.5	J7	0.93	0.6	0.56	0.56	15.00	100	7.52	4.2	0.0016	18	2.37	0.02	0.09	0.07	15.07	
LAT J3-1	0+72.00	0+00.00	72	J8	0.53	0.6	0.32	0.32	15.00	100	7.52	2.4	0.0005	18	1.35	0.04	0.03	0.89	15.89	
LINE K1																				
	2+65.00	0+10.00	255	K1, K2	9.43	0.6	5.66	5.66	15.00	100	7.52	42.5	0.0018	42	4.42	0.46	0.30	0.96	15.96	

NOTE:

1. FOR DRAINAGE CALCULATIONS NOTED AS EXISTING REFERENCE ENGINEERING PLANS FOR LIGHT FARMS WAY IN LIGHT FARMS STORM SEWER PLAN AND PROFILE INFORMATION.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

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DRAINAGE CALCULATIONS
STORM SEWER

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	26

	INLET		DESIGN STORM FREQUENCY (yr)	AREA RUNOFF Q=CIA					CARRY-OVER FROM UPSTREAM INLET (cfs)	TOTAL GUTTER FLOW (cfs)	GUTTER CAPACITY (cfs)	GUTTER SLOPE (ft/100 ft)	CROWN TYPE	SELECTED INLET		CARRY-OVER TO DOWNSTREAM INLET (cfs)
	NO.	LOCATION (PAVING STATION)		TIME OF CONC. (min)	INTENSITY I (in/hr)	RUNOFF COEFF. "C"	AREA (ac)	"Q" (cfs)						LENGTH "Li" (feet)	TYPE	
	1	2	3	4	5	6	7	8	9.0	10	11	12	13	14	15	16
	A4	5+54.00 FIELDVIEW COURT	100	15	7.52	0.6	1.36	6.1	0.0	6.1	10.54	0.014	6" PARABOLIC	10	ON GRADE	0.0
*	A2	9+69.00 FIELDVIEW COURT	100	15	7.52	0.6	1.36	6.1	0.0	6.1	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
	A5	2+64.00 OLD ORCHARD COURT	100	15	7.52	0.6	1.64	7.4	0.0	7.4	6.30	0.005	6" PARABOLIC	10	ON GRADE	1.1
*	A3	8+09.00 FIELDVIEW COURT	100	15	7.52	0.6	0.76	3.4	1.1	4.5	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	A1	13+69.60 FIELDVIEW COURT	100	15	7.52	0.6	2.42	10.9	0.0	5.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A7	1+80.00 POST OAK WAY	100	15	7.52	0.6	1.72	7.8	0.0	5.2	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A6	1+80.00 POST OAK WAY	100	15	7.52	0.6	1.33	6.0	0.0	4.0	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A10	4+20.00 GROVE DRIVE	100	15	7.52	0.6	0.2	0.9	0.0	0.6	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A8	4+20.00 GROVE DRIVE	100	15	7.52	0.6	0.75	3.4	0.0	2.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A11	1+00.00 GROVE DRIVE	100	15	7.52	0.6	0.3	1.4	0.0	0.9	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	A9	1+00.00 GROVE DRIVE	100	15	7.52	0.6	0.89	4.0	0.0	2.7	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B14	8+00.00 MILLSTONE WAY	100	15	7.52	0.6	0.82	3.7	0.0	3.7	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	B4	2+41.00 JUNIPER COURT	100	15	7.52	0.6	1.69	7.6	0.0	7.6	6.30	0.005	6" PARABOLIC	10	ON GRADE	1.3
*	B1	5+70.74 JUNIPER COURT	100	15	7.52	0.6	1.35	6.1	1.3	4.9	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B13	8+70.00 MILLSTONE WAY	100	15	7.52	0.6	1.02	4.6	0.0	4.6	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	B3	3+38.00 JUNIPER COURT	100	15	7.52	0.6	1.89	8.5	0.0	8.5	6.30	0.005	6" PARABOLIC	10	ON GRADE	2.2
*	B2	5+20.00 JUNIPER COURT	100	15	7.52	0.6	1.63	7.4	2.2	6.4	6.30	0.005	6" PARABOLIC	10	SAG	0.1
	B12	0+55.00 FIELDVIEW COURT	100	15	7.52	0.6	0.9	4.1	0.0	4.1	8.91	0.01	6" PARABOLIC	10	ON GRADE	0.0
	B9	4+60.00 WAGON WHEEL WAY	100	15	7.52	0.6	0.57	2.6	0.0	2.6	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B8	9+30.00 WAGON WHEEL WAY	100	15	7.52	0.6	1.5	6.8	0.0	4.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B7	9+30.00 WAGON WHEEL WAY	100	15	7.52	0.6	1.52	6.9	0.0	4.6	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B11	2+90.00 WAGON WHEEL WAY	100	15	7.52	0.6	1.36	6.1	0.0	6.1	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
	B10	4+68.00 WAGON WHEEL WAY	100	15	7.52	0.6	1.54	6.9	0.0	6.9	6.30	0.005	6" PARABOLIC	10	SAG	0.6
*	B17	1+00.00 MILLSTONE WAY	100	15	7.52	0.6	0.76	3.4	0.0	2.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B18	1+00.00 MILLSTONE WAY	100	15	7.52	0.6	2.03	9.2	0.0	6.1	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B15	5+00.00 MILLSTONE WAY	100	15	7.52	0.6	1.41	6.4	0.0	4.2	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	B16	5+00.00 MILLSTONE WAY	100	15	7.52	0.6	1.22	5.5	0.0	3.7	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B22	1+90.00 NOONTIDE LANE	100	15	7.52	0.6	1.27	5.7	0.0	3.8	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B21	1+90.00 NOONTIDE LANE	100	15	7.52	0.6	0.78	3.5	0.0	2.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B19	4+60.00 NOONTIDE LANE	100	15	7.52	0.6	0.98	4.4	0.0	2.9	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B20	4+60.00 NOONTIDE LANE	100	15	7.52	0.6	0.52	2.3	0.0	1.6	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	B6	7+80.00 HARTLINE HILLS	100	15	7.52	0.6	0.69	3.1	0.0	2.1	7.13	0.0064	6" PARABOLIC	10	SAG	0.0
	B5	NOONTIDE LANE/HARTLINE HILLS	100	15	7.52	0.6	2.07	9.3	0.0	6.2	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	C2	1+00.00 BUFFALO WAY	100	15	7.52	0.6	0.92	4.2	0.0	4.2	7.13	0.0064	6" PARABOLIC	10	ON GRADE	0.0
*	C3	1+88.00 MESQUITE COURT	100	15	7.52	0.6	1.18	5.3	0.0	5.3	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	C1	4+61.00 MESQUITE COURT	100	15	7.52	0.6	2.69	12.1	0.0	6.1	7.13	0.0064	6" PARABOLIC	10	SAG	0.0
	E6	9+70.00 GRASSLAND DRIVE	100	15	7.52	0.6	0.97	4.4	0.0	4.4	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
	E5	9+98.00 GRASSLAND DRIVE	100	15	7.52	0.6	1.12	5.1	0.0	5.1	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	D10	8+40.00 WILDRYE RIDGE	100	15	7.52	0.6	0.76	3.4	0.0	3.4	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	D11	11+00.00 COTTONWOOD DRIVE	100	15	7.52	0.6	1.4	6.3	0.0	6.3	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	D12	11+00.00 COTTONWOOD DRIVE	100	15	7.52	0.6	1.61	7.3	0.0	7.3	6.30	0.005	6" PARABOLIC	10	ON GRADE	1.0
*	D9	4+30.00 WILDRYE RIDGE	100	15	7.52	0.6	1.54	6.9	1.0	5.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	D8	4+30.00 WILDRYE RIDGE	100	15	7.52	0.6	1.04	4.7	0.0	3.1	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	D7	1+38.00 CLEARLIGHT ROAD	100	15	7.52	0.6	1.68	7.6	0.0	7.6	6.30	0.005	6" PARABOLIC	10	ON GRADE	1.3
*	D4	4+60.00 GRISTMILL LANE	100	15	7.52	0.6	1.58	7.1	1.3	5.6	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	D6	2+43.00 GRISTMILL LANE	100	15	7.52	0.6	1.02	4.6	0.0	4.6	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	D5	4+36.00 COTTONWOOD DRIVE	100	15	7.52	0.6	0.77	3.5	0.0	3.5	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	D3	4+60.00 GRISTMILL LANE	100	15	7.52	0.6	0.97	4.4	0.0	2.9	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	D1	9+40.00 GRISTMILL LANE	100	15	7.52	0.6	1.5	6.8	0.0	4.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	D2	9+40.00 GRISTMILL LANE	100	15	7.52	0.6	1.68	7.6	0.0	5.1	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	E7	5+80.00 GRASSLAND DRIVE	100	15	7.52	0.6	1.12	5.1	0.0	3.4	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	E8	5+80.00 GRASSLAND DRIVE	100	15	7.52	0.6	1.18	5.3	0.0	3.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0

	INLET		DESIGN STORM FREQUENCY (yr)	AREA RUNOFF Q=CIA					CARRY-OVER FROM UPSTREAM INLET (cfs)	TOTAL GUTTER FLOW (cfs)	GUTTER CAPACITY (cfs)	GUTTER SLOPE (ft/100 ft)	CROWN TYPE	SELECTED INLET		CARRY-OVER TO DOWNSTREAM INLET (cfs)
	NO.	LOCATION (PAVING STATION)		TIME OF CONC. (min)	INTENSITY I (in/hr)	RUNOFF COEFF. "C"	AREA (ac)	"Q" (cfs)						LENGTH "Li" (feet)	TYPE	
	1	2	3	4	5	6	7	8	9.0	10	11	12	13	14	15	16
*	F9	0+60.00 BLUEBELL COURT	100	15	7.52	0.6	0.88	4.0	0.0	4.0	6.30	0.005	6" PARABOLIC	10	ON GRADE	0.0
*	F8	4+40.00 CYPRESS CREEK	100	15	7.52	0.6	1.48	6.7	0.0	4.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F7	4+40.00 CYPRESS CREEK	100	15	7.52	0.6	1.61	7.3	0.0	4.8	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F2	1+28.00 TERRACE WAY	100	15	7.52	0.6	1.56	7.0	0.0	4.7	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F1	1+28.00 TERRACE WAY	100	15	7.52	0.6	1.1	5.0	0.0	3.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	F6	2+50.00 SPRINGBELL STREET	100	15	7.52	0.6	1.5	6.8	0.0	4.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	F5	2+50.00 SPRINGBELL STREET	100	15	7.52	0.6	1.75	7.9	0.0	5.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F4	7+80.00 CYPRESS CREEK	100	15	7.52	0.6	0.41	1.8	0.0	1.2	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F3	7+80.00 CYPRESS CREEK	100	15	7.52	0.6	0.49	2.2	0.0	1.5	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	F11	6+00.00 SPRINGHOUSE WAY	100	15	7.52	0.6	1.32	6.0	0.0	4.0	6.30	0.005	6" PARABOLIC	10	SAG	0.0
*	F10	3+20.00 SPRINGHOUSE WAY	100	15	7.52	0.6	1.24	5.6	0.0	3.7	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	J2	2+85.00 HARTLINE HILLS	100	15	7.52	0.6	1.24	5.6	0.0	3.7	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	J1	2+85.00 HARTLINE HILLS	100	15	7.52	0.6	1.77	8.0	0.0	5.3	6.30	0.005	6" PARABOLIC	10	SAG	0.0
	D13	25+60.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.66	3.0	0.0	2.0	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	D14	25+60.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.49	2.2	0.0	1.5	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	D18	31+40.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.73	3.3	0.0	2.2	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	D17	31+40.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.6	2.7	0.0	1.8	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	D16	28+40.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.58	2.6	0.0	1.7	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	D15	28+40.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.49	2.2	0.0	1.5	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	E4	37+20.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.61	2.8	0.0	1.8	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	E3	37+20.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.45	2.0	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	E2	40+20.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.63	2.8	0.0	1.9	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	E1	40+20.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.55	2.5	0.0	1.7	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G10	56+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.45	2.0	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G9	56+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.45	2.0	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G8	53+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.47	2.1	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G7	53+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.47	2.1	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G6	50+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.47	2.1	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G5	50+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.47	2.1	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G3	48+30.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.67	3.02	0.0	2.0	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	G4	48+30.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.66	2.98	0.0	2.0	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	H2	5+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.31	1.4	0.0	1.4	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	L6	9+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.36	1.6	0.0	1.6	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	L3	11+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.36	1.6	0.0	1.6	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	L2	13+50.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.75	3.4	0.0	2.3	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	H1	5+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.4	1.8	0.0	1.8	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	H5	7+50.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.22	1.0	0.0	1.0	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	L4	10+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.4	1.8	0.0	1.8	6.55	0.0054	STRAIGHT CROWN	10	ON GRADE	0.0
	L1	13+50.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.48	2.2	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J5	16+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.84	3.8	0.0	2.5	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J6	16+80.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.54	2.4	0.0	1.6	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J3	19+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.75	3.4	0.0	2.3	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J4	19+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.48	2.2	0.0	1.4	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J7	22+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.93	4.2	0.0	2.8	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0
	J8	22+00.00 LIGHT FARMS WAY	100	15	7.52	0.6	0.53	2.4	0.0	1.6	6.30	0.005	STRAIGHT CROWN	10	SAG	0.0

EXISTING LIGHT FARMS WAY INLETS SEE NOTE

NOTE:
REFER TO LIGHT FARMS WAY DRAINAGE PLANS FOR INLET CALCULATIONS NOTED AS EXISTING.

* DENOTES EXISTING INLET FROM PHASE ONE

STATE OF TEXAS
ROBERT M. STENGELE
No. 50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED IN PART UPON INFORMATION FURNISED BY OTHERS. THE DESIGN PROFESSIONAL CANNOT ASSURE THE ACCURACY OF OTHERS' INFORMATION AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DOCUMENT OR FOR ANY ERROR OR OMISSION THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

DRAINAGE CALCULATIONS
INLET DESIGN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	27

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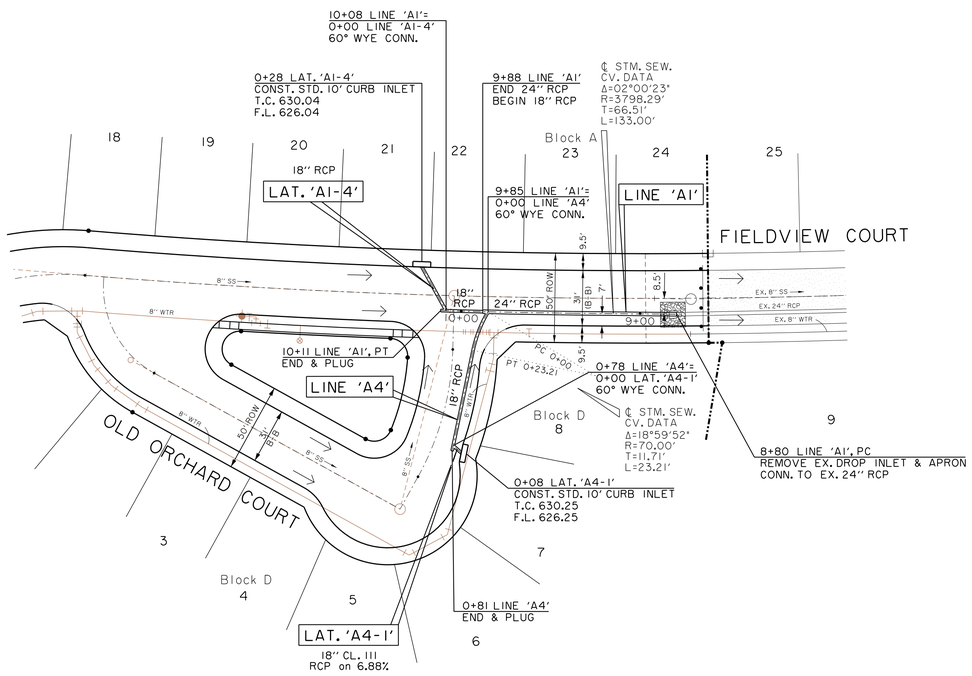
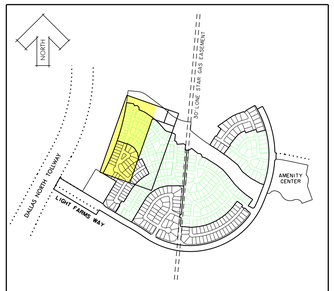
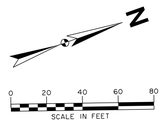


LEGEND

═══	PROPOSED STORM SEWER (RCP)
═══	EXISTING STORM SEWER (RCP)
▭	PROPOSED STORM INLET
▭	EXISTING STORM INLET
○	PROPOSED STORM MANHOLE
○	EXISTING STORM MANHOLE
→	SURFACE FLOW DIRECTION



KEY MAP
NTS



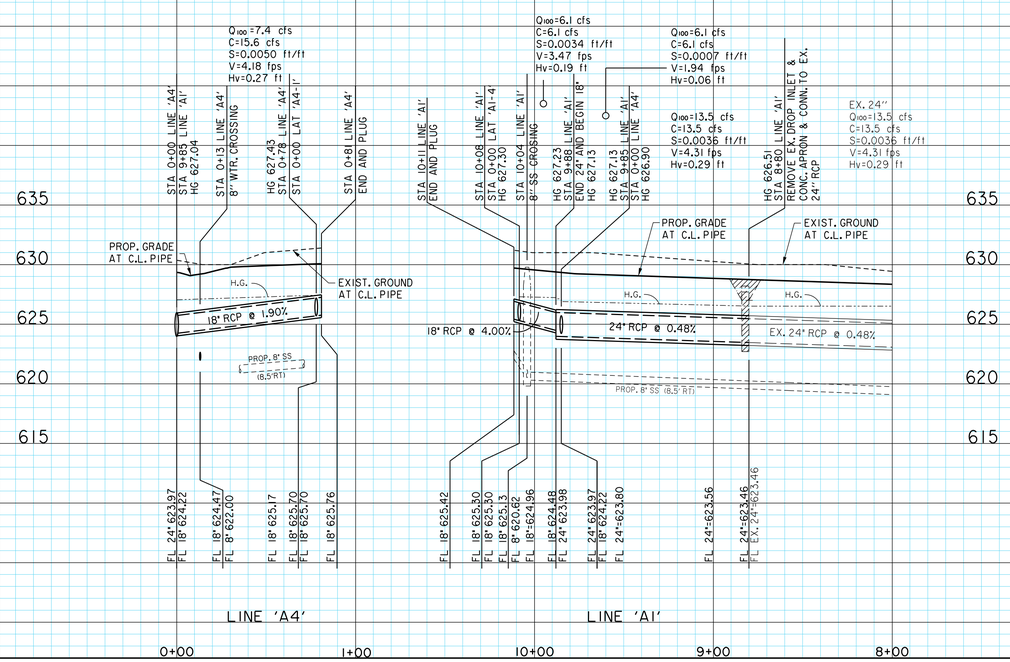
BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

NOTE:
SEE SHEETS 51-53 FOR DRAINAGE STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER

8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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STORM SEWER PLAN & PROFILE
LINE A1

LIGHT FARMS
LFC BIG II, LLC
Collin County Municipal Utility District No. 1
COLLIN COUNTY, TEXAS
HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	28

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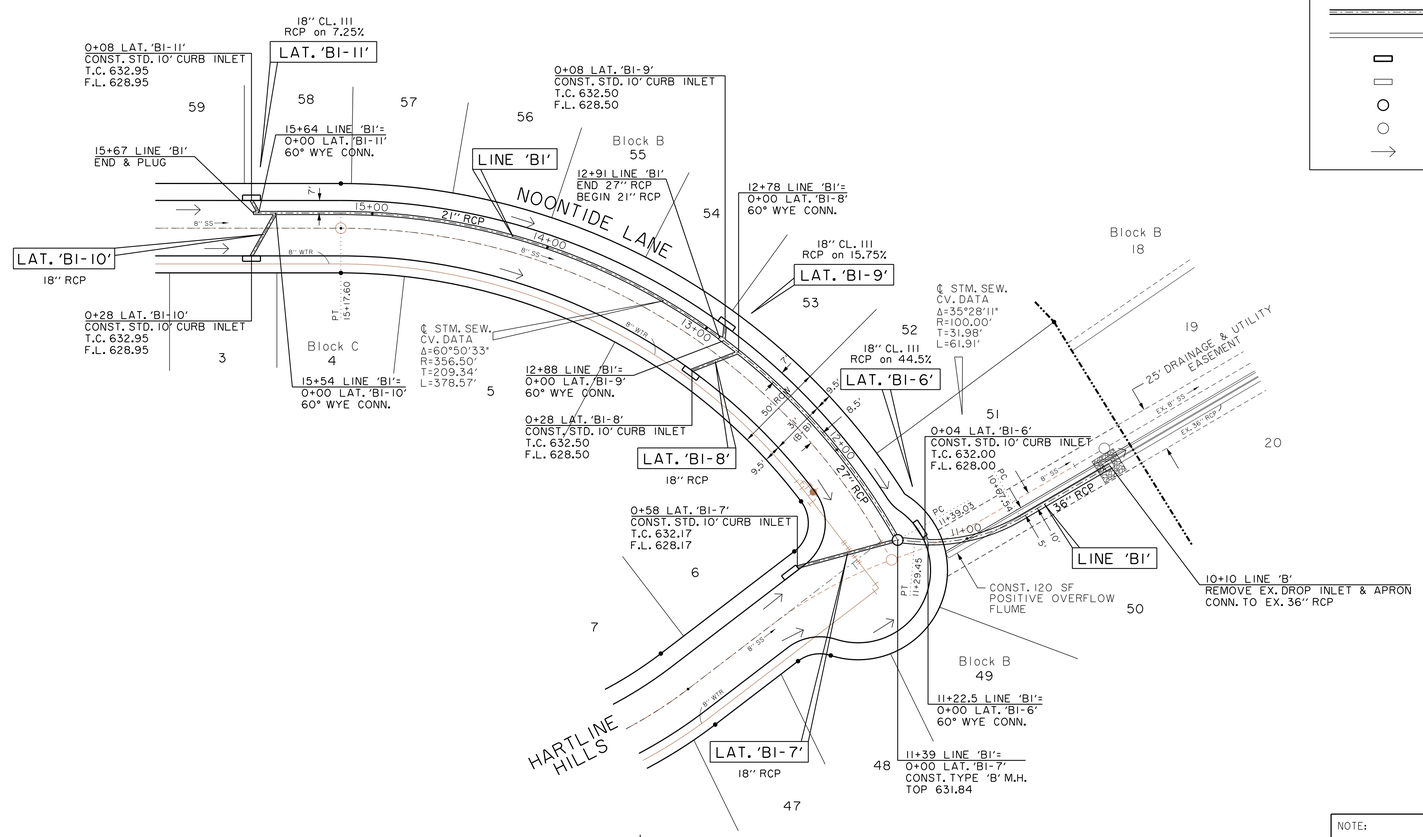
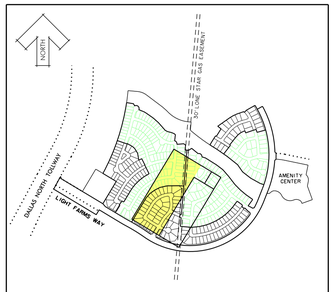
STORM SEWER LINE A1

P-201309-01

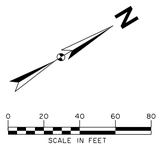


LEGEND

- PROPOSED STORM SEWER (RCP)
- EXISTING STORM SEWER (RCP)
- PROPOSED STORM INLET
- EXISTING STORM INLET
- PROPOSED STORM MANHOLE
- EXISTING STORM MANHOLE
- SURFACE FLOW DIRECTION



KEY MAP
NTS



BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

BM # 78 Brass monument set on curb inlet, south side of Light Farms Way, 1170+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 633.64

NOTE:
SEE SHEETS 51-53 FOR DRAINAGE STANDARD DETAILS.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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STORM SEWER PLAN & PROFILE
LINE BI

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	29

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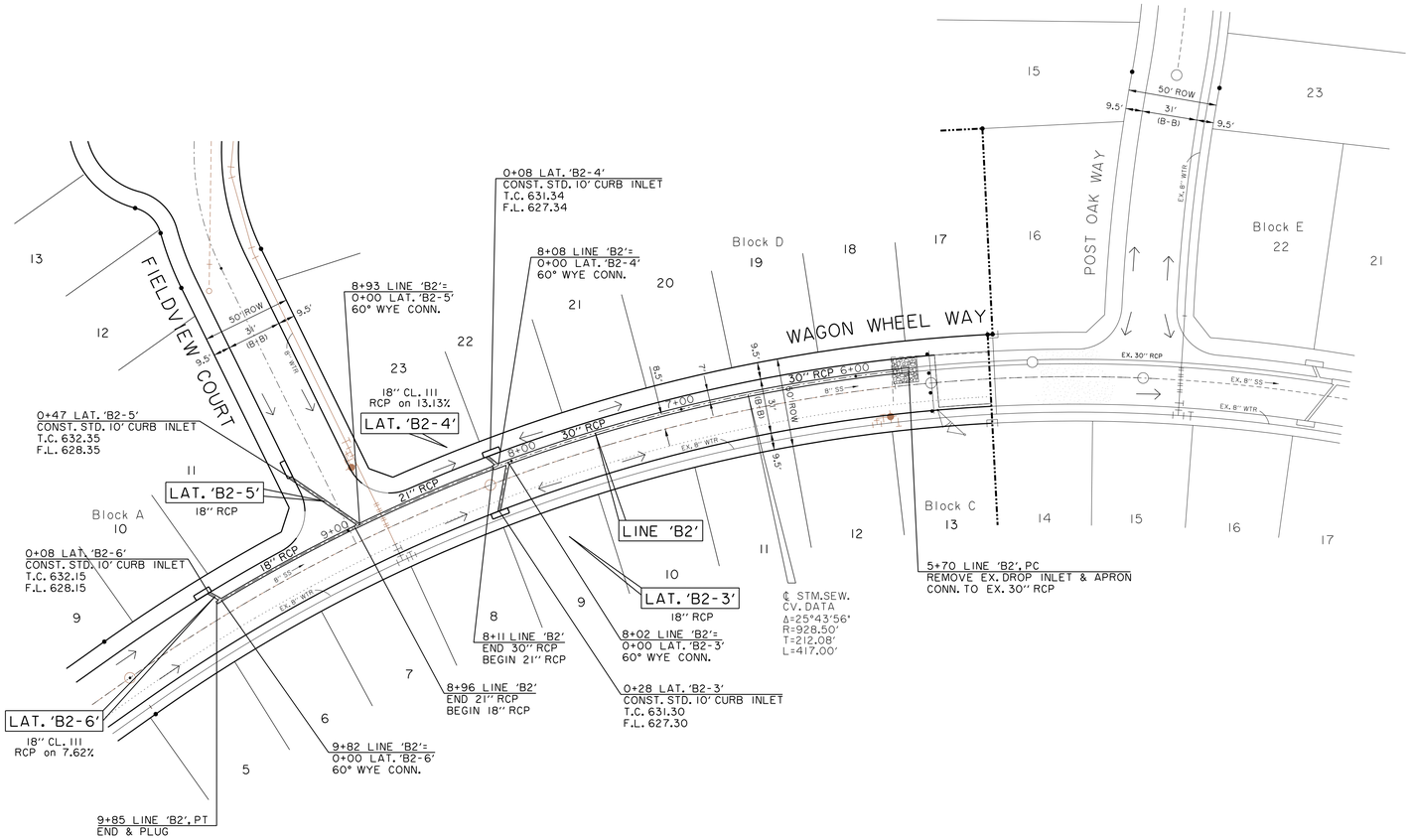
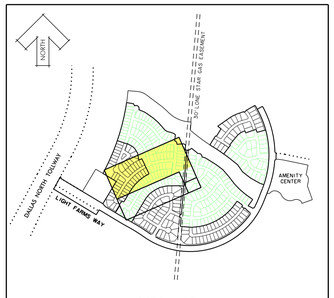
STOR SEWER LINE BI

P-201309-01

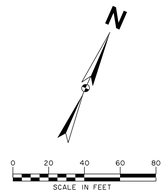


LEGEND

- PROPOSED STORM SEWER (RCP)
- EXISTING STORM SEWER (RCP)
- PROPOSED STORM INLET
- EXISTING STORM INLET
- PROPOSED STORM MANHOLE
- EXISTING STORM MANHOLE
- SURFACE FLOW DIRECTION



KEY MAP
NTS



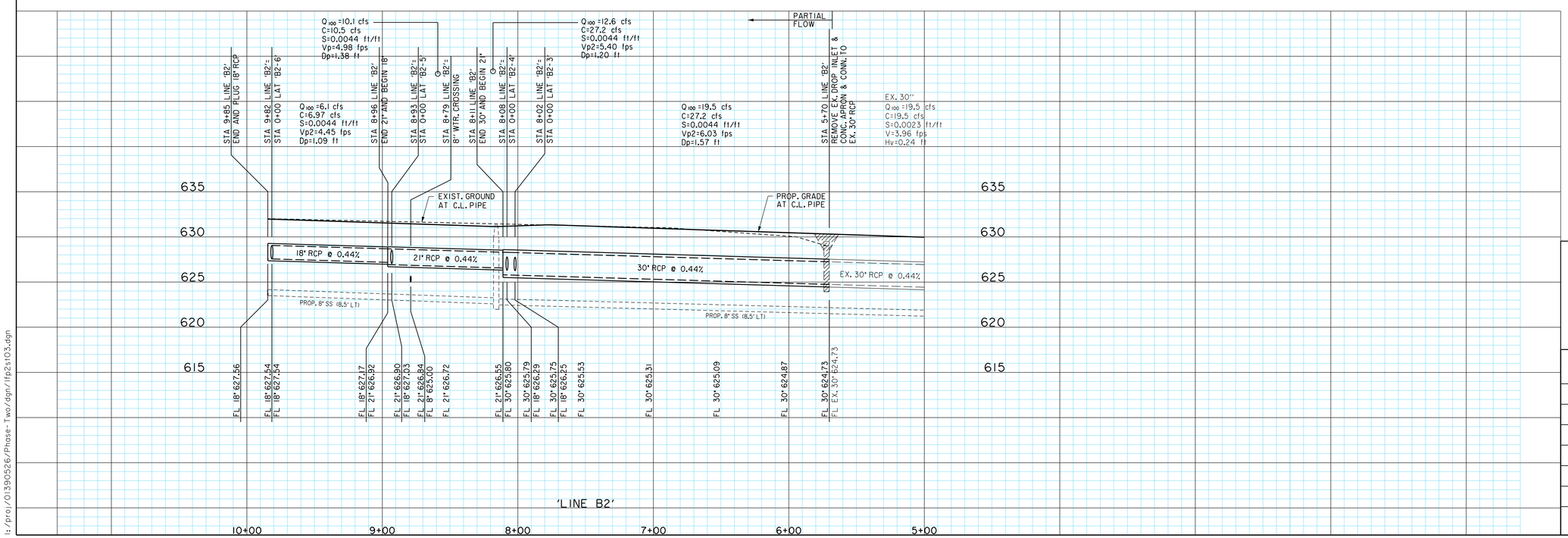
BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

NOTE:
SEE SHEETS 51-53 FOR DRAINAGE STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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STORM SEWER PLAN & PROFILE
LINE B2

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"= 6'		01-3905-35	30

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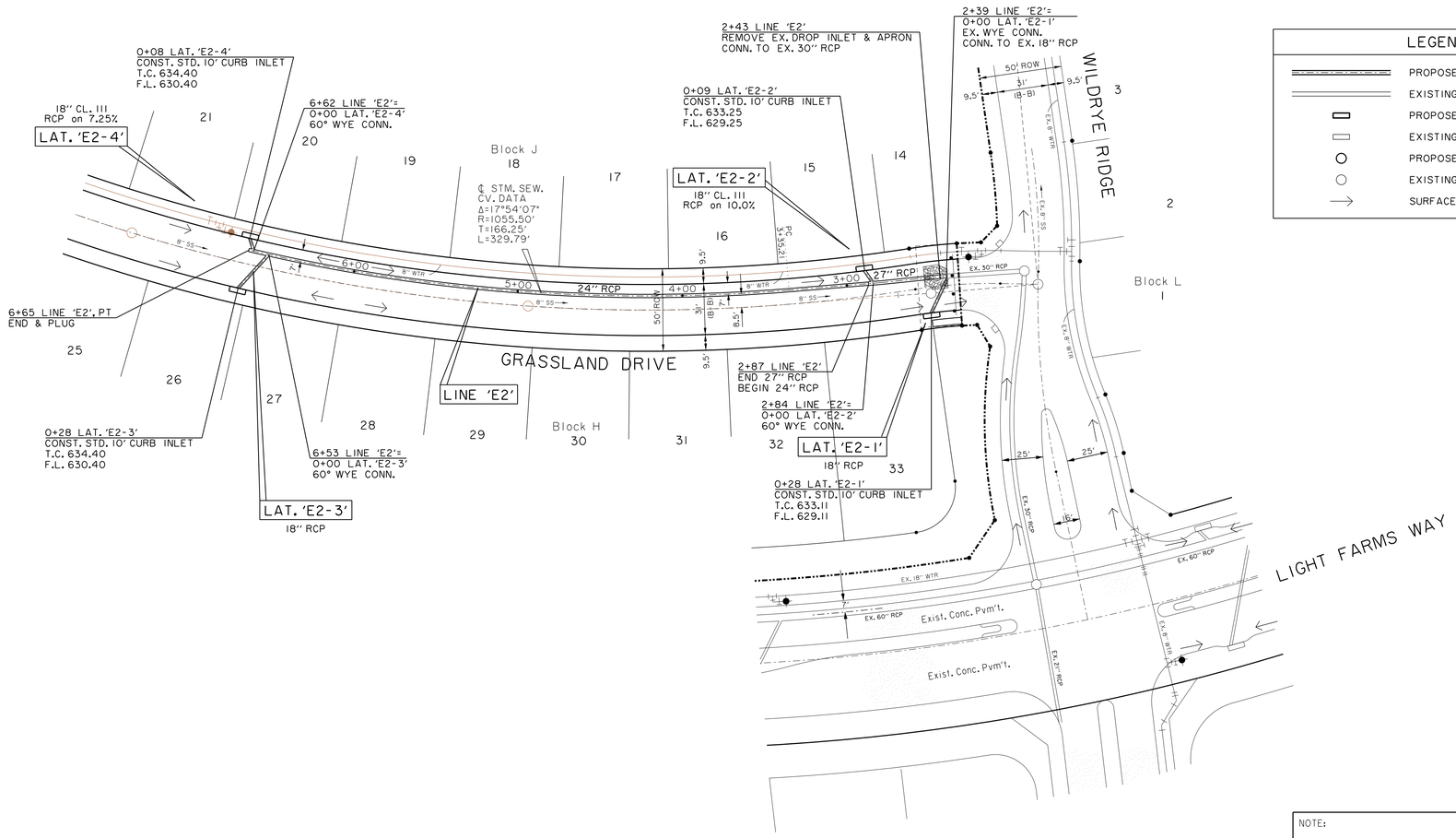
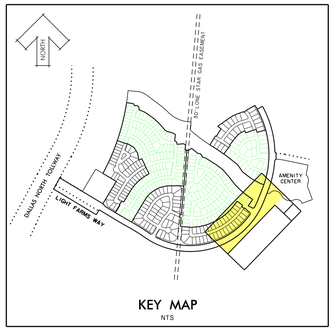
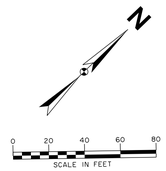


LEGEND

- PROPOSED STORM SEWER (RCP)
- EXISTING STORM SEWER (RCP)
- PROPOSED STORM INLET
- EXISTING STORM INLET
- PROPOSED STORM MANHOLE
- EXISTING STORM MANHOLE
- SURFACE FLOW DIRECTION



KEY MAP
NTS



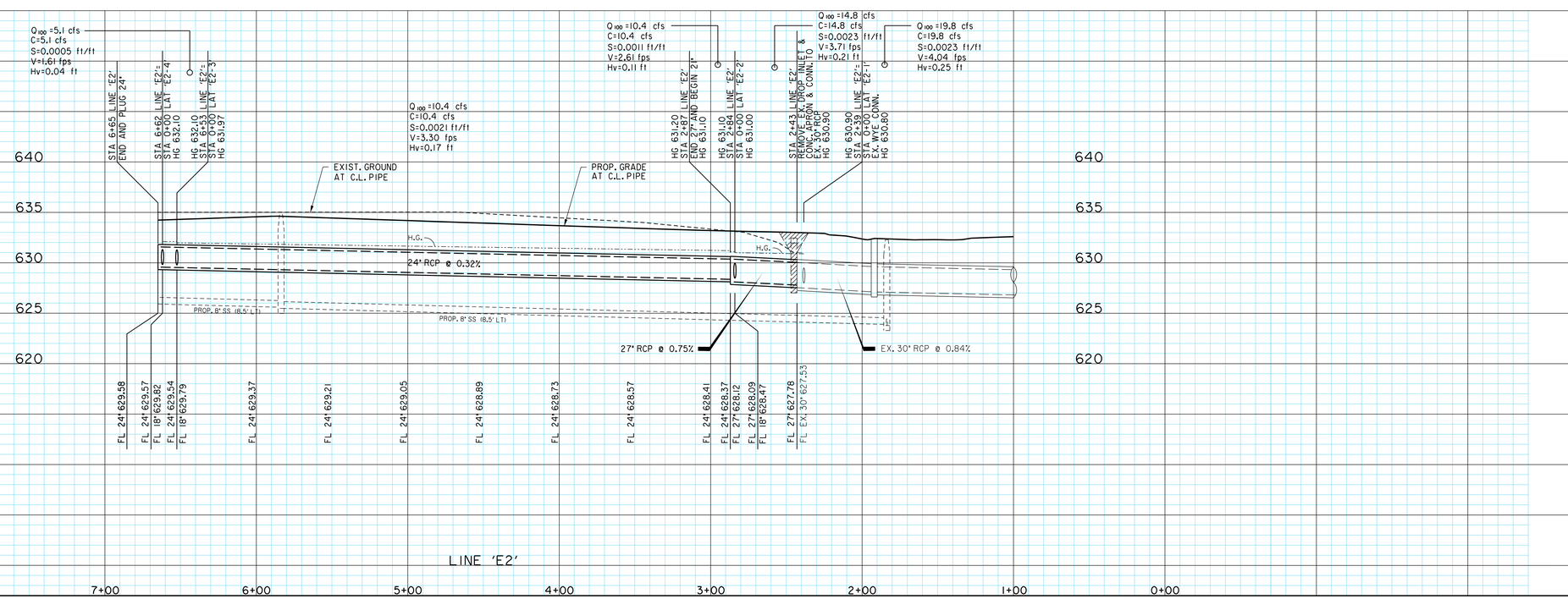
BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 79 Brass monument set on top of curb, southeast side of Light Farms Way, 520+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 635.51

BM # 80 Brass monument set on curb inlet, southeast side of Light Farms Way, 79+- feet northeasterly from the centerline of Wildrye Ridge. Elev. = 633.47

NOTE:
SEE SHEETS 51-53 FOR DRAINAGE STANDARD DETAILS.



ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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STORM SEWER PLAN & PROFILE
LINE E2

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	31

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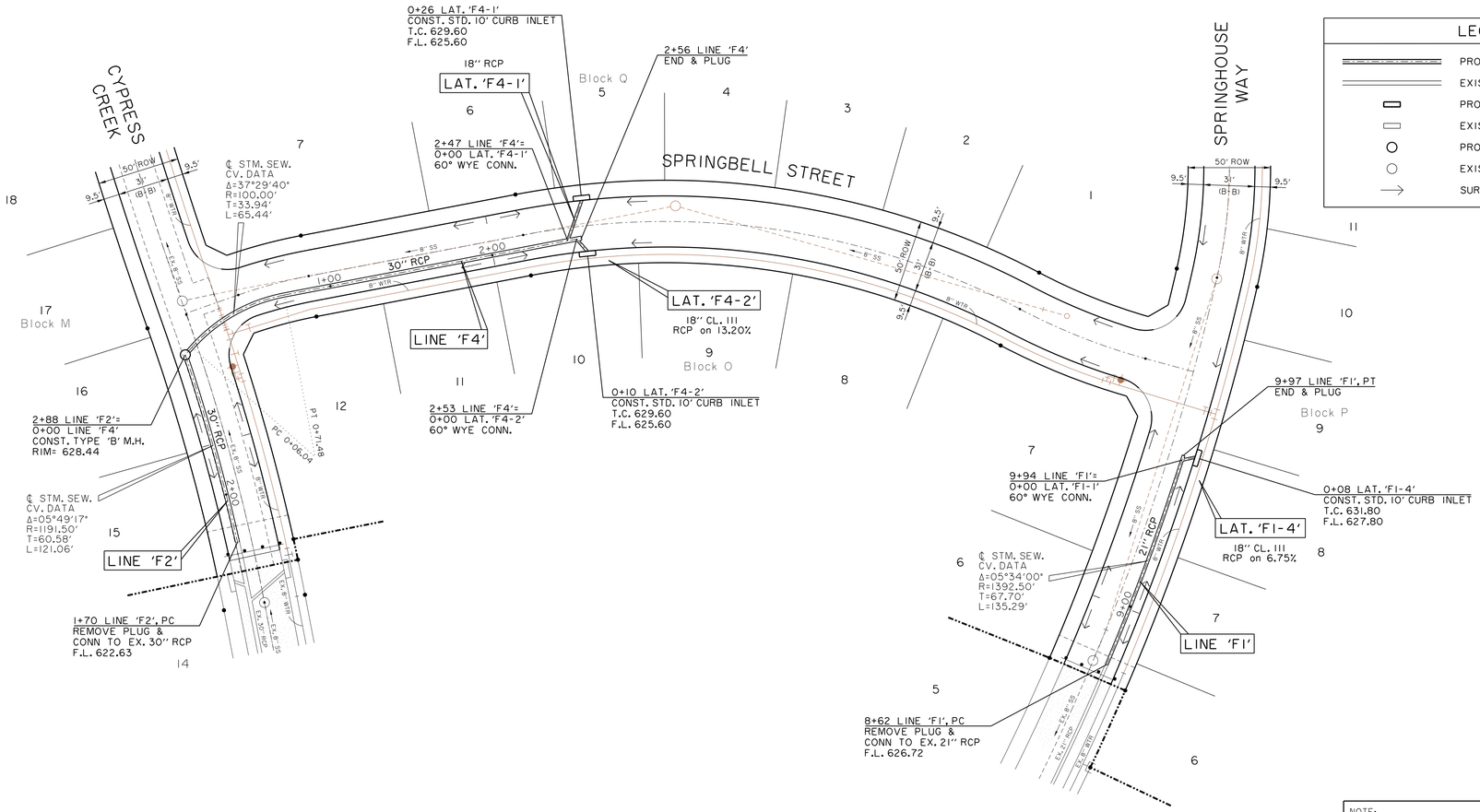
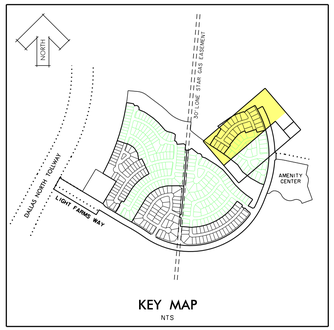
STORM SEWER LINE E2

P-201309-01

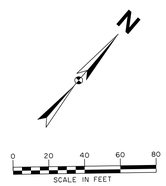


LEGEND

- PROPOSED STORM SEWER (RCP)
- EXISTING STORM SEWER (RCP)
- PROPOSED STORM INLET
- EXISTING STORM INLET
- PROPOSED STORM MANHOLE
- EXISTING STORM MANHOLE
- SURFACE FLOW DIRECTION



KEY MAP
NTS



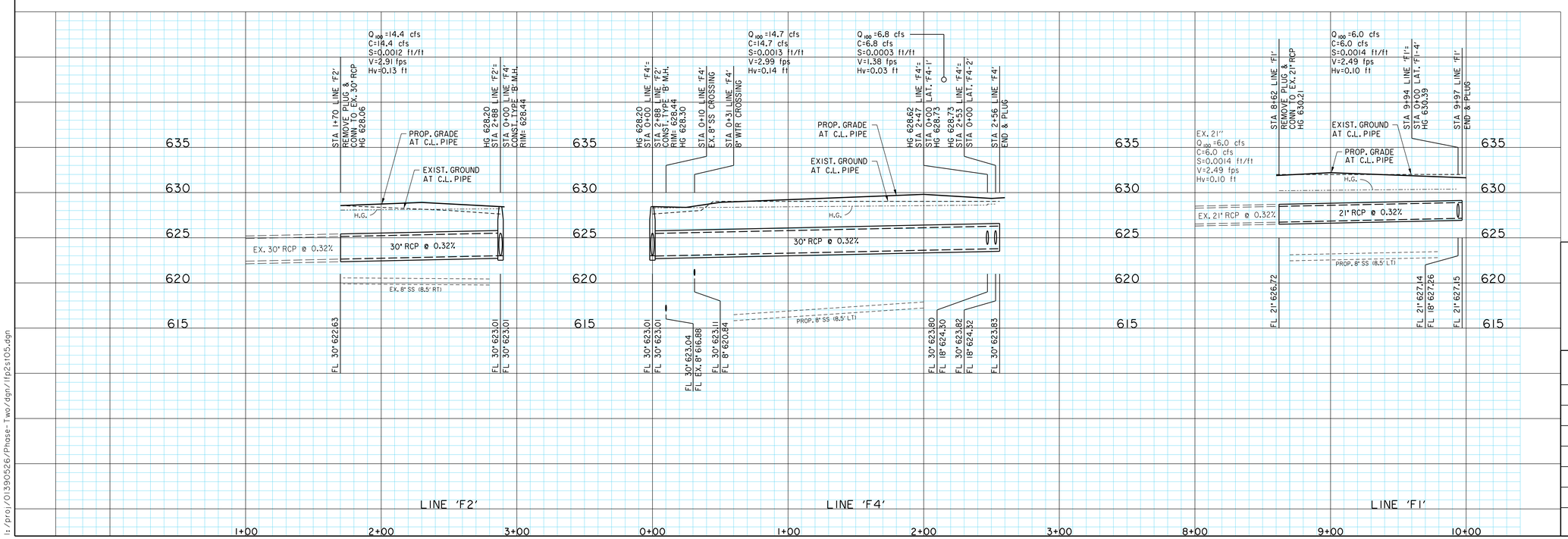
BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

NOTE:
SEE SHEETS 51-53 FOR DRAINAGE STANDARD DETAILS.



STATE OF TEXAS
ROBERT M. STENGELE
50145
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PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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STORM SEWER PLAN & PROFILE
LINES F1, F2 & F3

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	32

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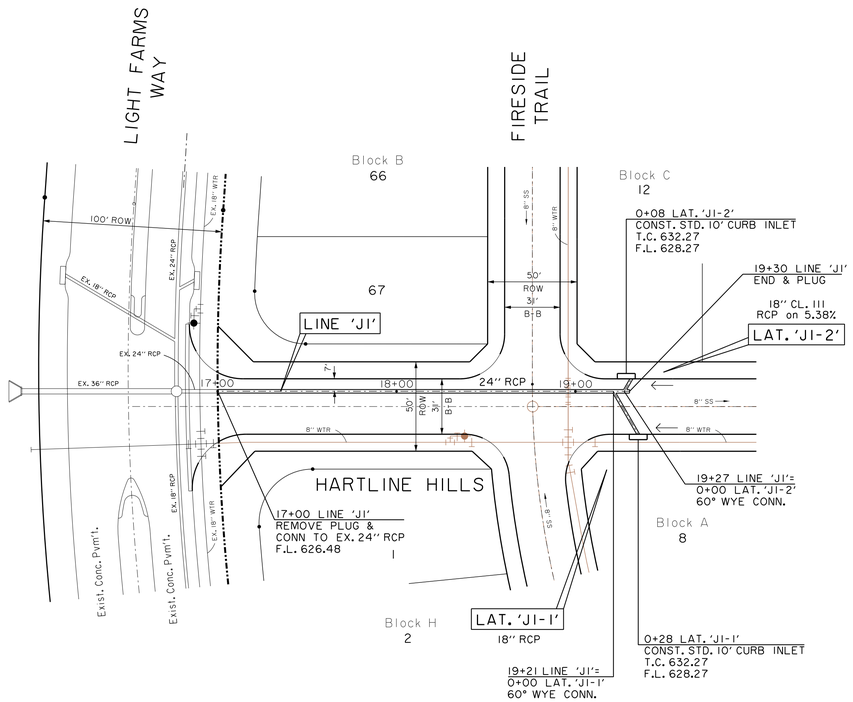
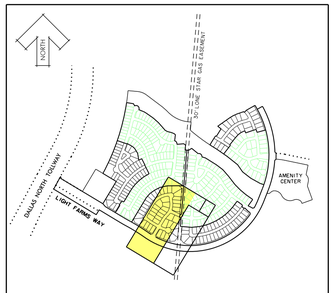
STORM SEWER LINES F1, F2 & F3

P-201309-01

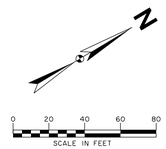


LEGEND

═══	PROPOSED STORM SEWER (RCP)
═══	EXISTING STORM SEWER (RCP)
▭	PROPOSED STORM INLET
▭	EXISTING STORM INLET
○	PROPOSED STORM MANHOLE
○	EXISTING STORM MANHOLE
→	SURFACE FLOW DIRECTION



KEY MAP
NTS



BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

NOTE:
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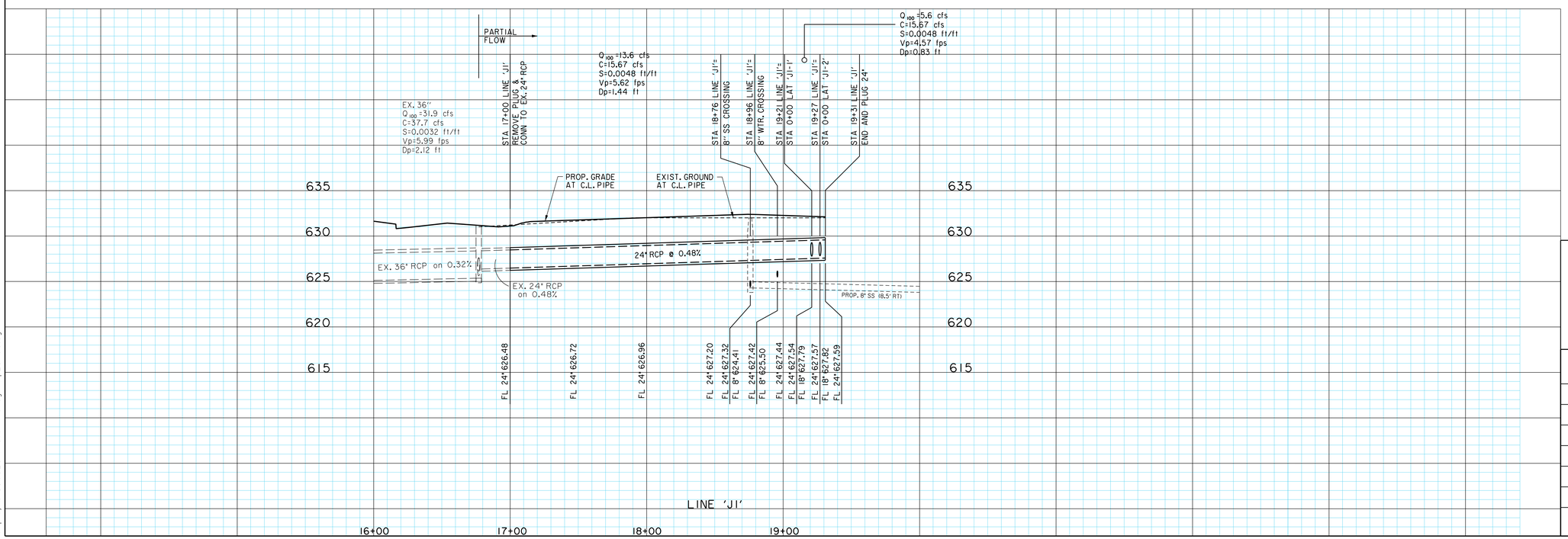

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

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STORM SEWER PLAN & PROFILE
LINE JI

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	33

STORM SEWER LINE JI

P-201309-01

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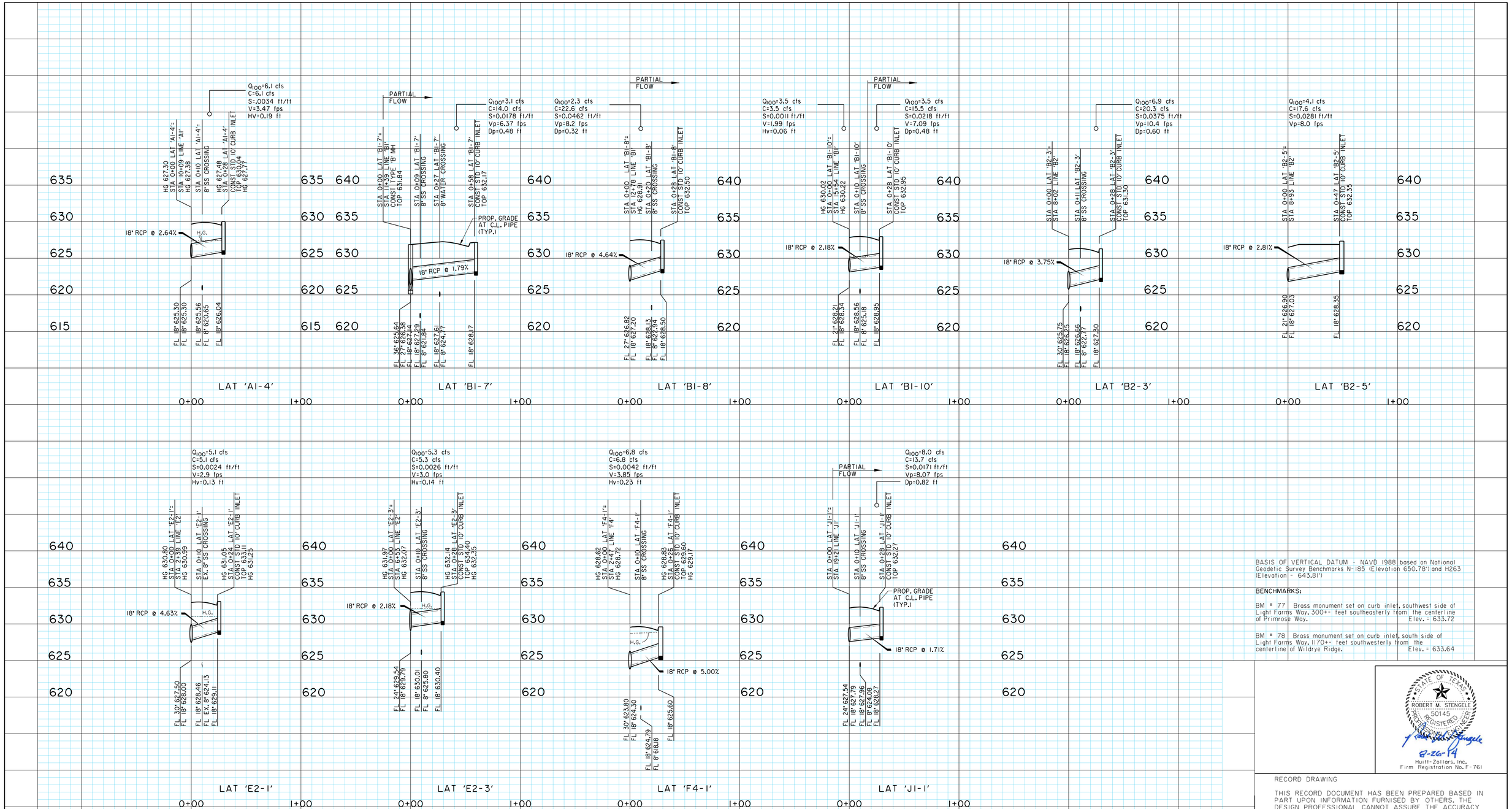

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

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STATE OF TEXAS
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STORM SEWER LATERAL PROFILES

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI				01-3905-35	34

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LEGEND

- PROPOSED WATER MAIN (PVC)
- EXISTING WATER MAIN (PVC)
- PROPOSED SANITARY SEWER (PVC)
- EXISTING SANITARY SEWER (PVC)
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- PROPOSED SANITARY SEWER M.H.
- EXISTING SANITARY SEWER M.H.
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER SERVICE
- PROPOSED WATER SERVICE (BULLHEAD)
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER CLEANOUT

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

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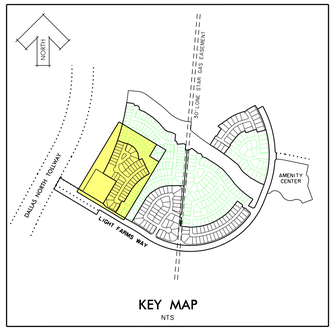
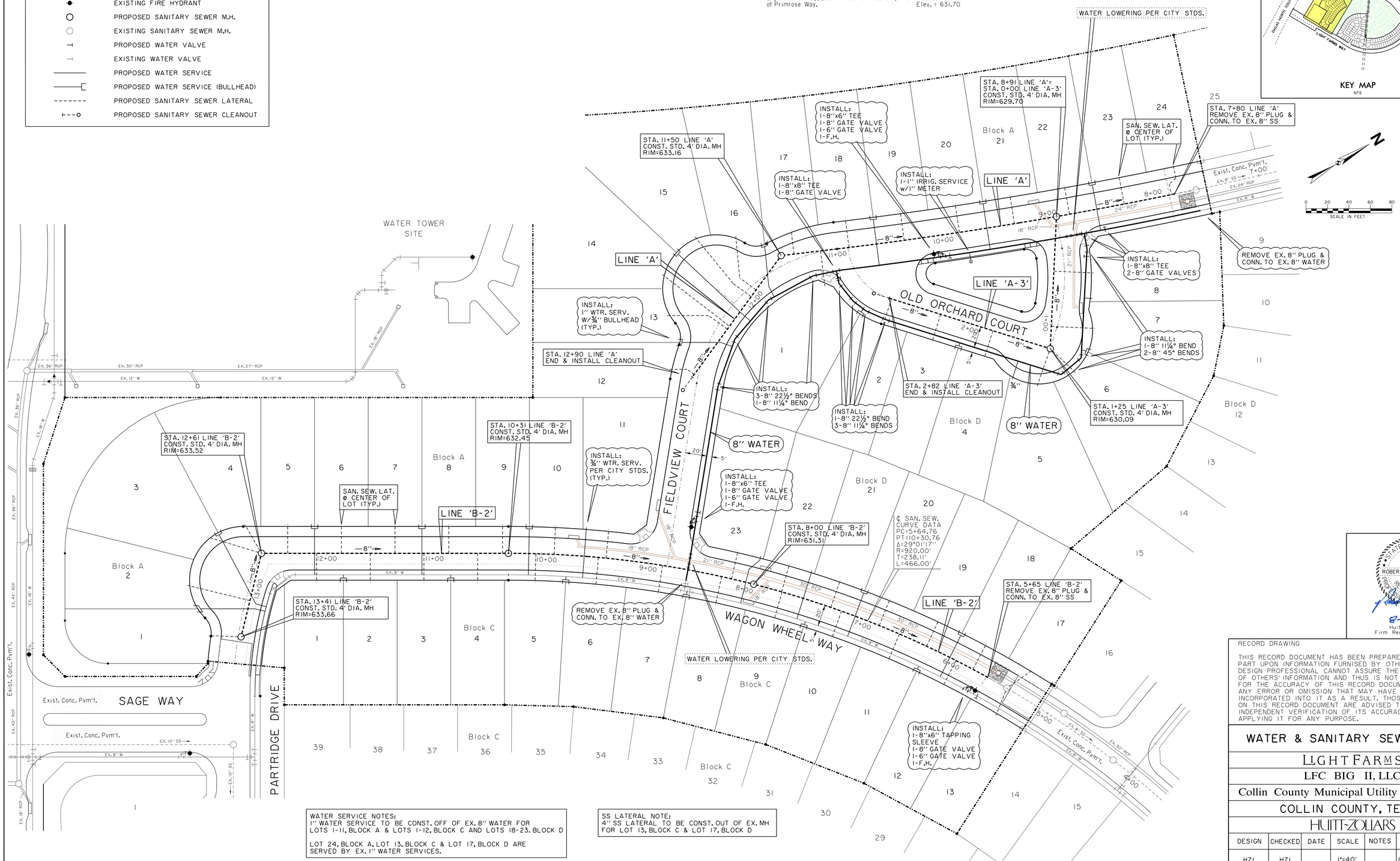
NOTE:
SEE SHEETS 54-57 FOR WATER AND SANITARY SEWER STANDARD DETAILS.



KEY MAP
NTS



WATER SERVICE NOTES:
1" WATER SERVICE TO BE CONST. OFF OF EX. 8" WATER FOR LOTS 1-11, BLOCK A & LOTS 1-12, BLOCK C AND LOTS 18-23, BLOCK D

LOT 24, BLOCK A, LOT 13, BLOCK C & LOT 17, BLOCK D ARE SERVED BY EX. 1" WATER SERVICES.

SS LATERAL NOTE:
4" SS LATERAL TO BE CONST. OUT OF EX. MH FOR LOT 13, BLOCK C & LOT 17, BLOCK D

STATE OF TEXAS
ROBERT M. STENGELE
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WATER & SANITARY SEWER PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=40'		01-3905-35	35

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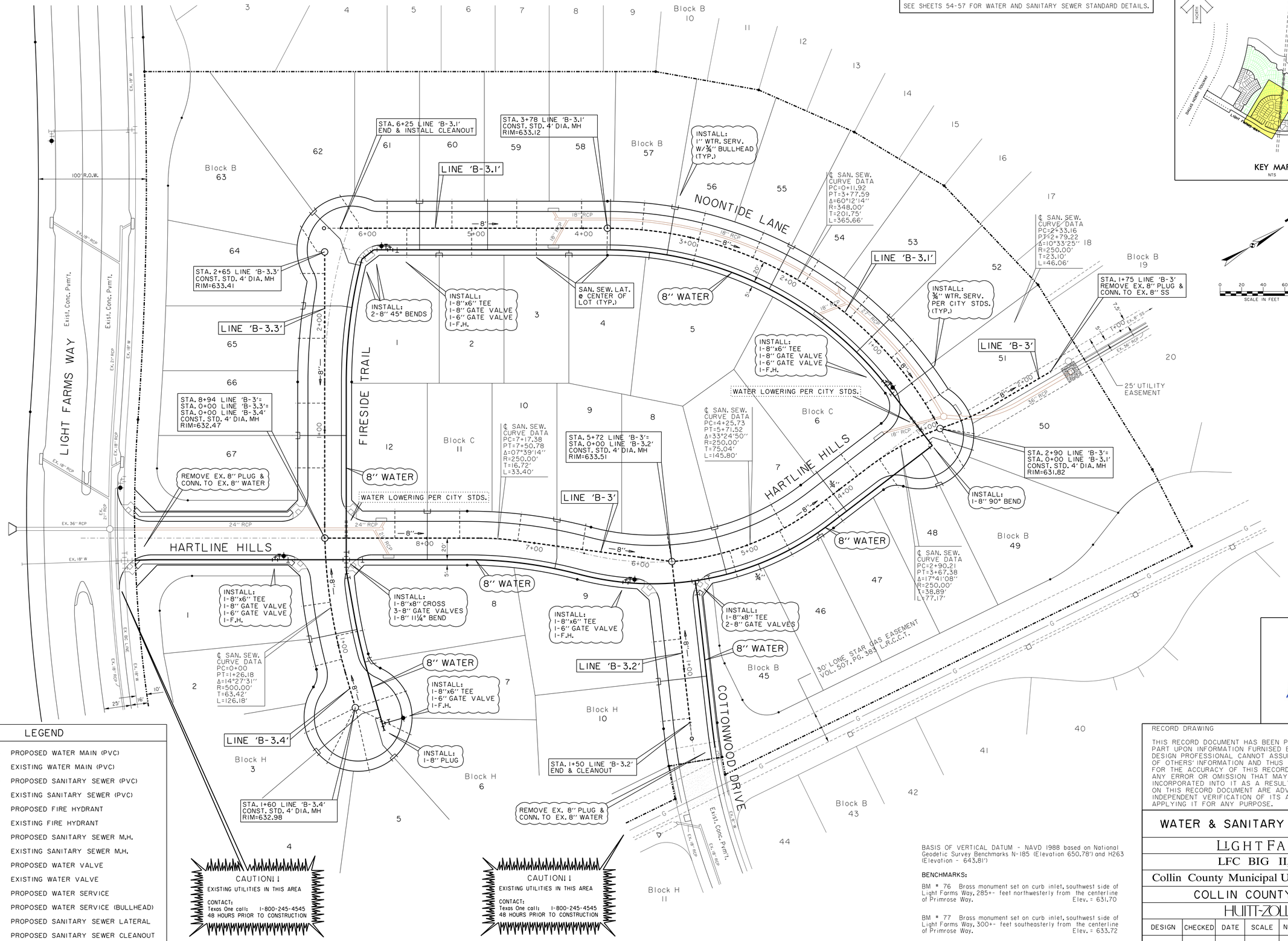
NOTE:
SEE SHEETS 54-57 FOR WATER AND SANITARY SEWER STANDARD DETAILS.



LEGEND

- PROPOSED WATER MAIN (PVC)
- EXISTING WATER MAIN (PVC)
- PROPOSED SANITARY SEWER (PVC)
- EXISTING SANITARY SEWER (PVC)
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- PROPOSED SANITARY SEWER M.H.
- EXISTING SANITARY SEWER M.H.
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER SERVICE
- PROPOSED WATER SERVICE (BULLHEAD)
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER CLEANOUT

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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WATER & SANITARY SEWER PLAN

LIGHT FARMS
LFC BIG II, LLC
Collin County Municipal Utility District No. 1
COLLIN COUNTY, TEXAS
HUITT-ZOLLARS

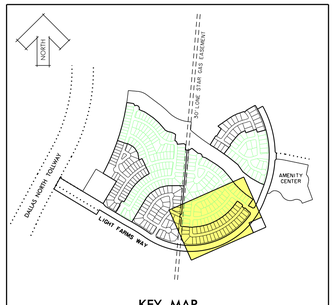
DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=40'		01-3905-35	36

I:/proj/01390526/Phase-Two/dgn/lfp2ws02.dgn

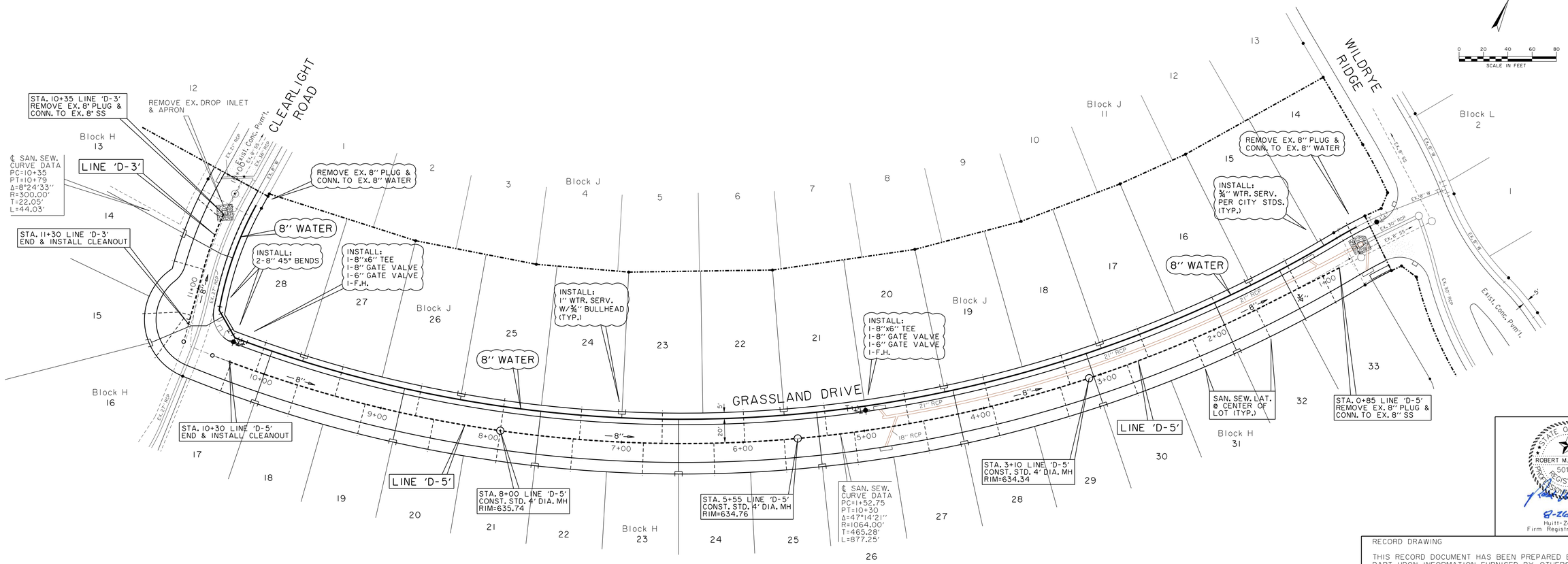
LEGEND

- PROPOSED WATER MAIN (PVC)
- EXISTING WATER MAIN (PVC)
- PROPOSED SANITARY SEWER (PVC)
- EXISTING SANITARY SEWER (PVC)
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- PROPOSED SANITARY SEWER M.H.
- EXISTING SANITARY SEWER M.H.
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER SERVICE
- PROPOSED WATER SERVICE (BULLHEAD)
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER CLEANOUT

NOTE:
SEE SHEETS 54-57 FOR WATER AND SANITARY SEWER STANDARD DETAILS.



KEY MAP
NTS



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BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 78 Brass monument set on curb inlet, south side of Light Farms Way, 1170+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 633.64

BM # 79 Brass monument set on top of curb, southeast side of Light Farms Way, 520+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 635.51

WATER & SANITARY SEWER PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=40'		01-3905-35	37

I:/proj/01390526/Phase-Two/dgn/lfp2ws03.dgn

LEGEND

- PROPOSED WATER MAIN (PVC)
- EXISTING WATER MAIN (PVC)
- PROPOSED SANITARY SEWER (PVC)
- EXISTING SANITARY SEWER (PVC)
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- PROPOSED SANITARY SEWER M.H.
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- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER SERVICE
- PROPOSED WATER SERVICE (BULLHEAD)
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED SANITARY SEWER CLEANOUT

NOTE:
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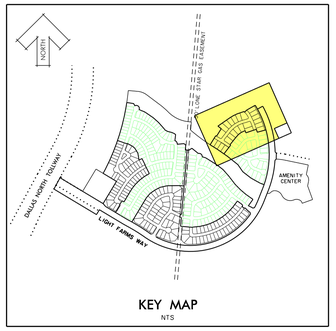

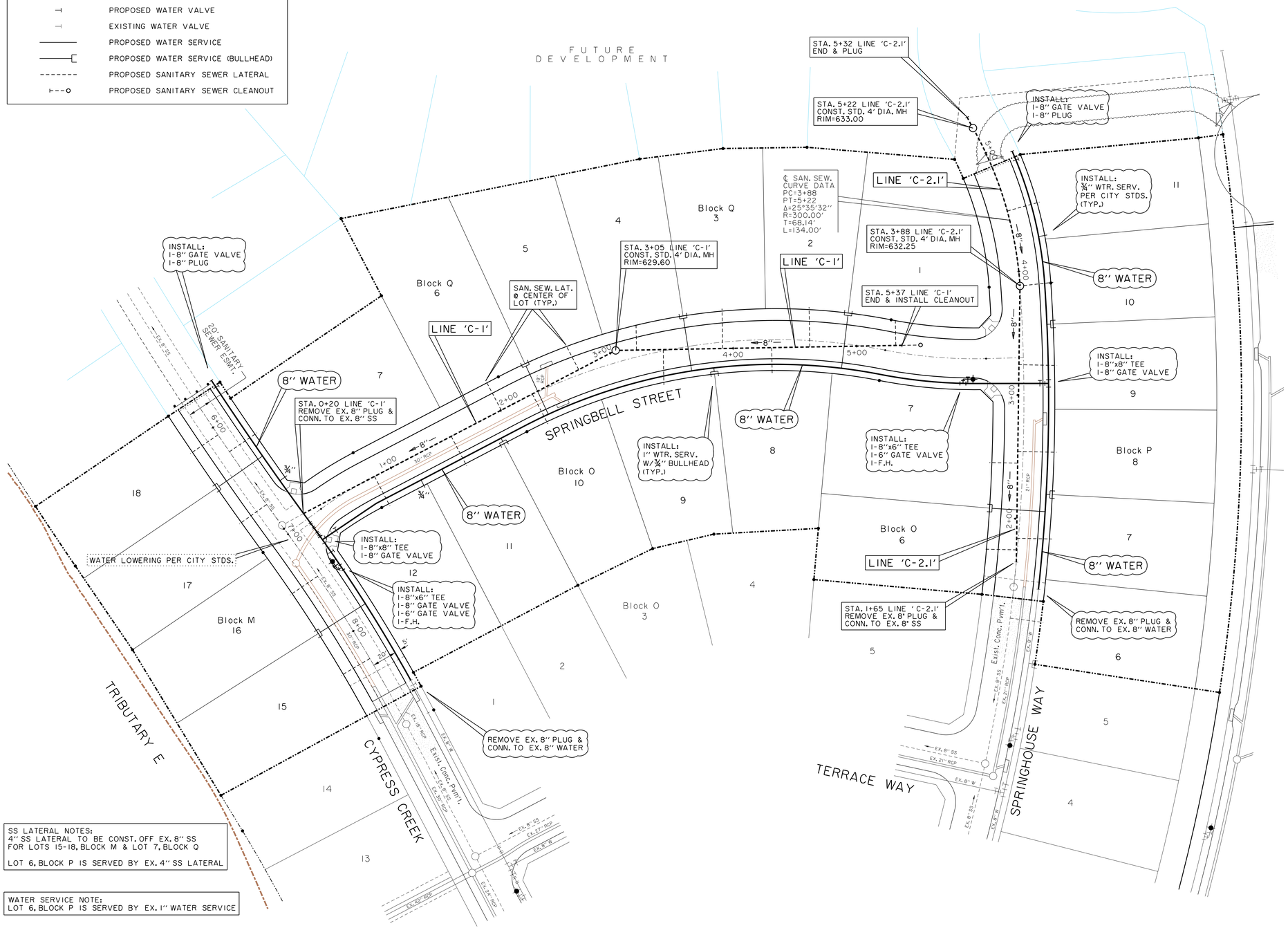

N

0 20 40 60 80
SCALE IN FEET

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 81 Brass monument set on top of curb, east side of Light Farms Way, 185+- feet south from the centerline of Cypress Creek. Elev. = 632.00

BM # 82 Brass monument set on curb inlet, east side of Light Farms Way, 450+- feet north from the centerline of Cypress Creek. Elev. = 633.00

SS LATERAL NOTES:
4" SS LATERAL TO BE CONST. OFF EX. 8" SS FOR LOTS 15-18, BLOCK M & LOT 7, BLOCK Q

LOT 6, BLOCK P IS SERVED BY EX. 4" SS LATERAL

WATER SERVICE NOTE:
LOT 6, BLOCK P IS SERVED BY EX. 1" WATER SERVICE

STATE OF TEXAS
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50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14
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WATER & SANITARY SEWER PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=40'		01-3905-35	38

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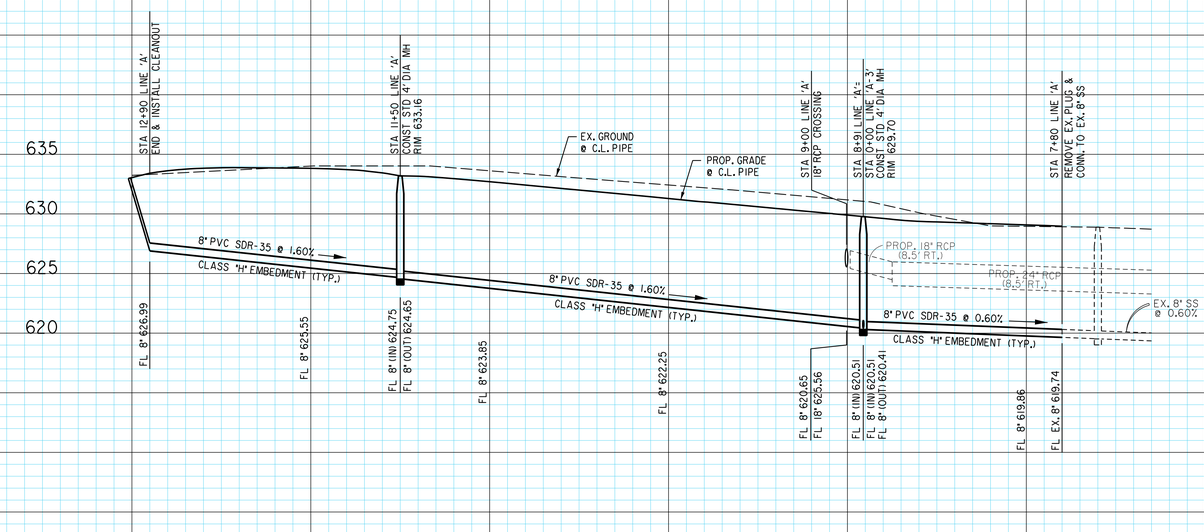

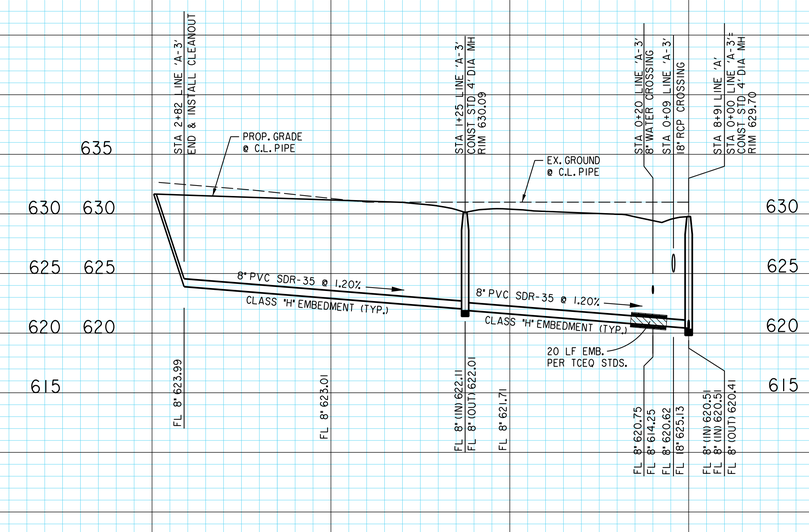

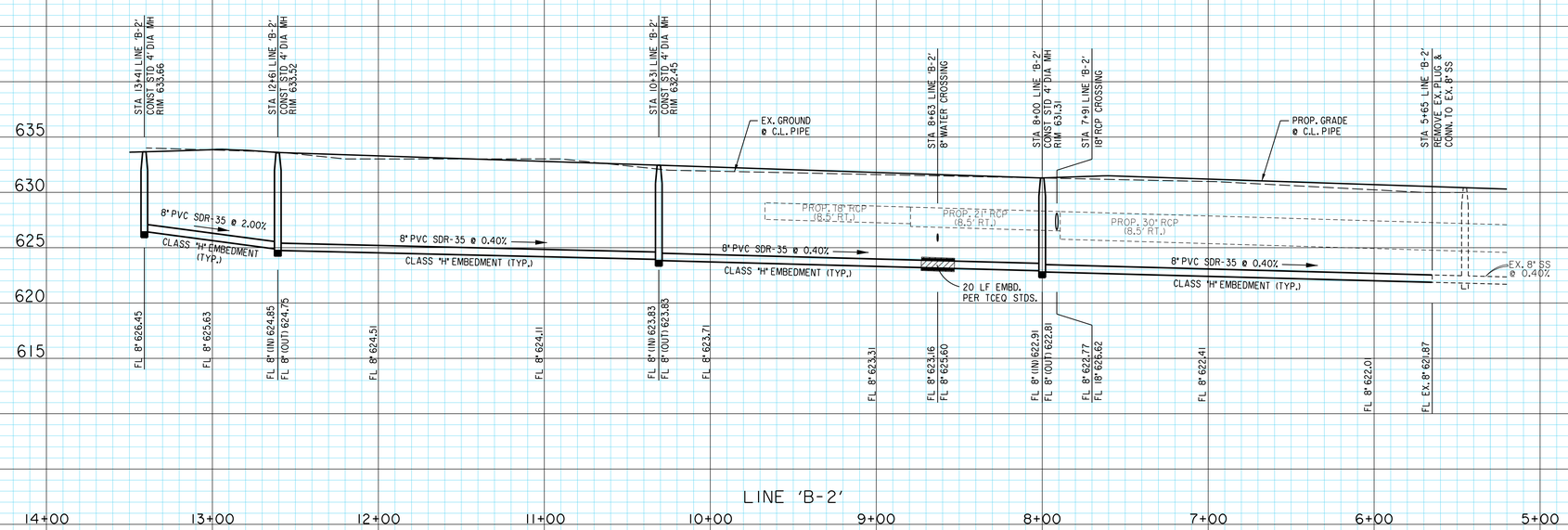

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 75 Brass monument set on curb inlet, southwest side of Light Farms Way, 490+- feet northwesterly from the centerline of Sage Way. Elev. = 634.68

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

STATE OF TEXAS
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REGISTERED
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8-26-14

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SANITARY SEWER PROFILES
LINES 'A', 'A-3' & 'B-2'

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	39

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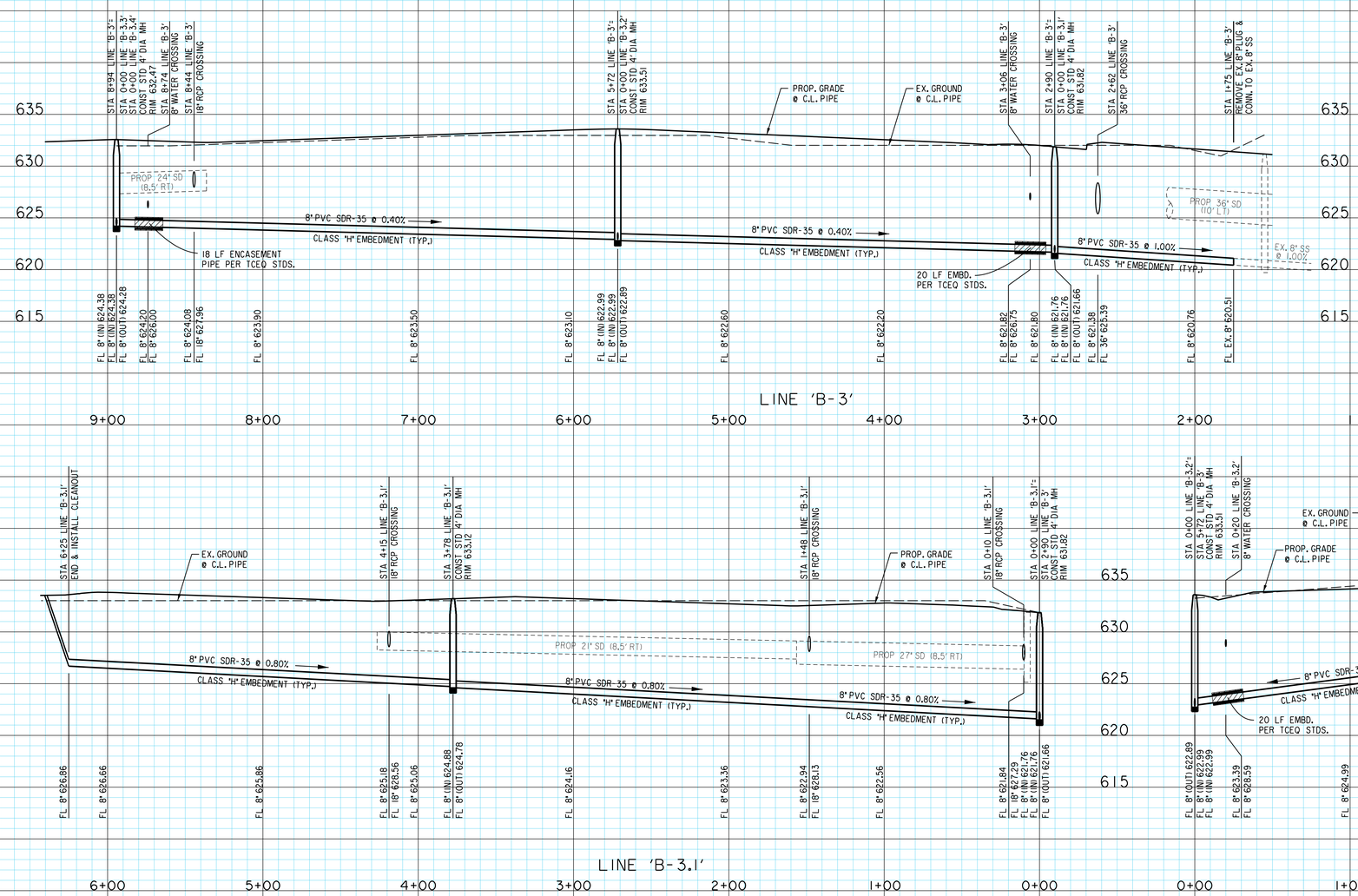
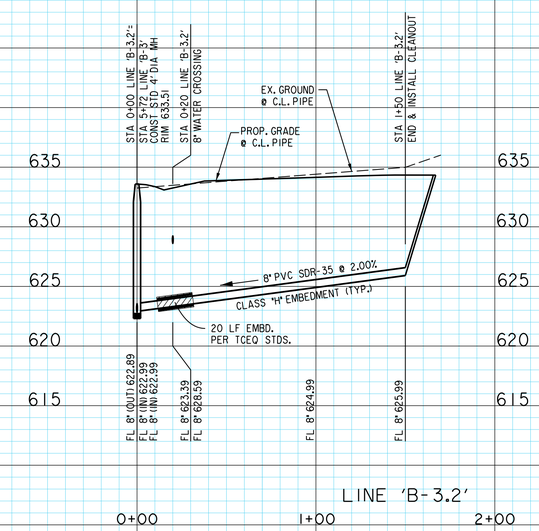
lfp2ssp01.dgn 8/27/2014 8:57:03 AM

SANI. SEWER PROFILES (LINES 'A', 'A-3' & 'B-2') P-201309-01





BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

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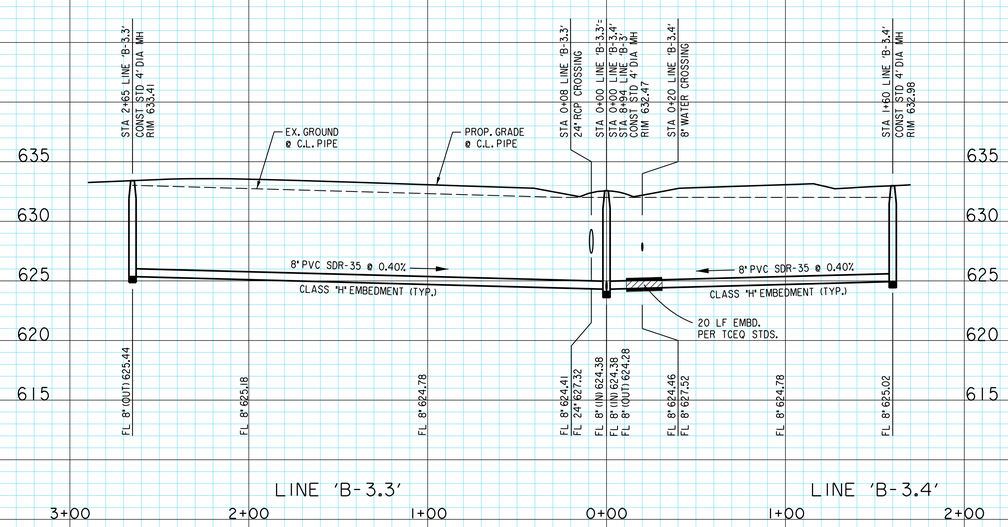

STATE OF TEXAS
ROBERT M. STENGELE
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8-26-14

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Firm Registration No. F-761

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SANITARY SEWER PROFILES

LINES 'B-3', 'B-3.1', 'B-3.2', 'B-3.3' & 'B-3.4'

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	40

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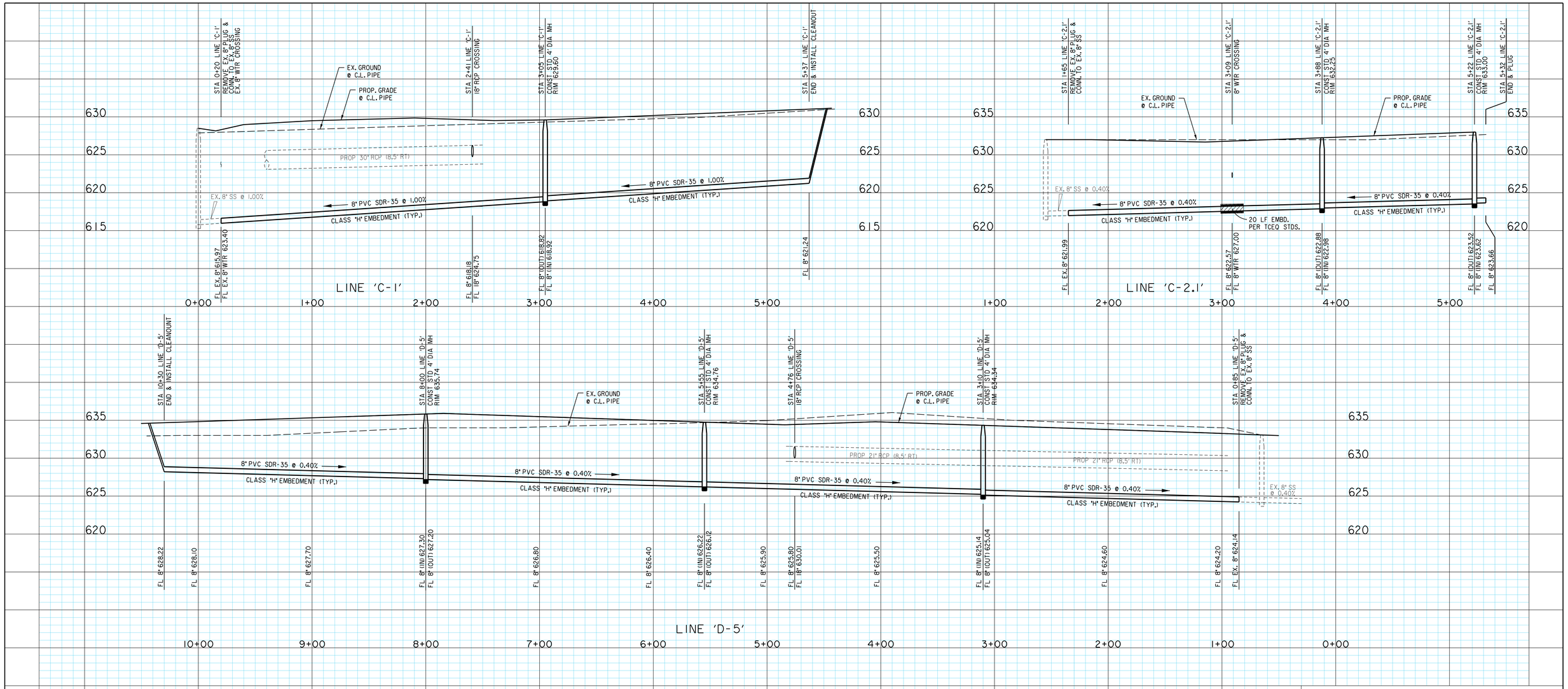
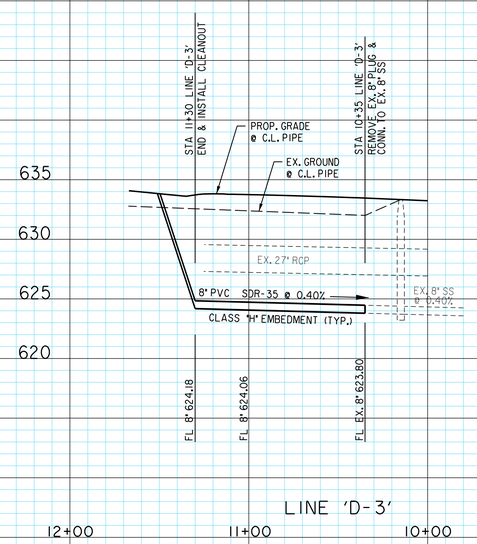
SANI. SEWER PROFILES (LINES 'B-3', 'B-3.1', 'B-3.2', 'B-3.3' & 'B-3.4')

B-201309-01





BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 79 Brass monument set on top of curb, southeast side of Light Farms Way, 520+- feet southwesterly from the centerline of Wildrye Ridge. Elev. = 635.51

BM # 80 Brass monument set on curb inlet, southeast side of Light Farms Way, 79+- feet northeasterly from the centerline of Wildrye Ridge. Elev. = 633.47

STATE OF TEXAS
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8-26-14

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SANITARY SEWER PROFILES

LINES 'C-1', 'C-2.1', 'D-3' & 'D-5'

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		H: 1"=40' V: 1"=6'		01-3905-35	41

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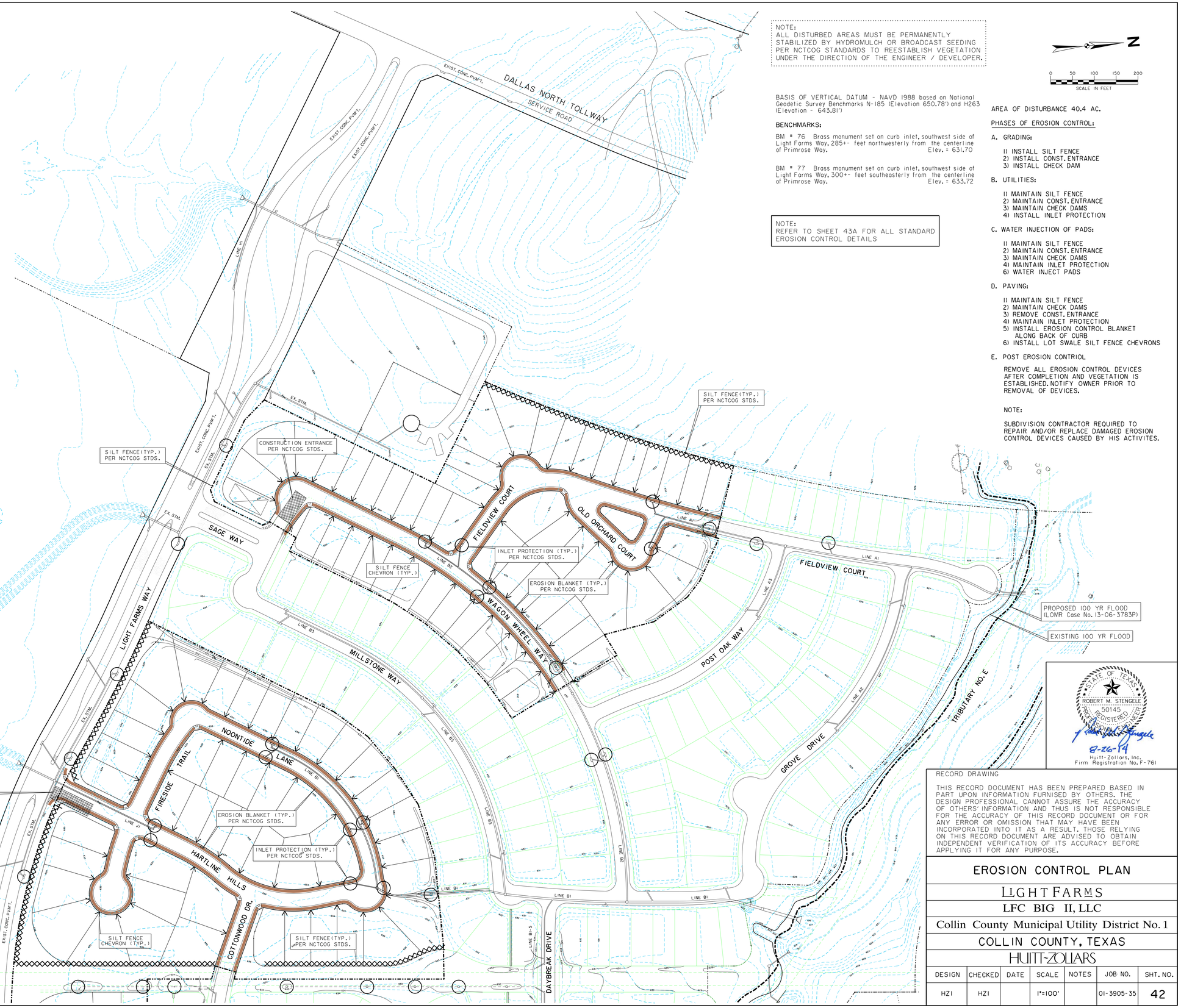
lfp2ssp03.dgn 8/27/2014 8:58:06 AM

SANI. SEWER PROFILES (LINES 'C-1', 'C-2.1', 'D-3' & 'D-5 P-201309-01

LEGEND

630	EXISTING CONTOUR
633	PROPOSED CONTOUR
	INLET PROTECTION
	SILT FENCE CHEVRON
	SILT FENCE
	EROSION BLANKET
	CONSTRUCTION ENTRANCE
	STORM SEWER

NOTE:
GRADING CONTRACTOR SHALL PREPARE THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND FILE AN NOTICE OF INTENT (NOI) WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) PRIOR TO CONSTRUCTION. A COPY OF THE NOI WILL BE PROVIDED TO THE CITY OF CELINA AND COLLIN COUNTY MUD NO. 1.



NOTE:
ALL DISTURBED AREAS MUST BE PERMANENTLY STABILIZED BY HYDROMULCH OR BROADCAST SEEDING PER NCTCOG STANDARDS TO REESTABLISH VEGETATION UNDER THE DIRECTION OF THE ENGINEER / DEVELOPER.

BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

BM # 76 Brass monument set on curb inlet, southwest side of Light Farms Way, 285+- feet northwesterly from the centerline of Primrose Way. Elev. = 631.70

BM # 77 Brass monument set on curb inlet, southwest side of Light Farms Way, 300+- feet southeasterly from the centerline of Primrose Way. Elev. = 633.72

NOTE:
REFER TO SHEET 43A FOR ALL STANDARD EROSION CONTROL DETAILS

0 50 100 150 200
SCALE IN FEET

AREA OF DISTURBANCE 40.4 AC.

PHASES OF EROSION CONTROL:

A. GRADING:

1) INSTALL SILT FENCE
2) INSTALL CONST. ENTRANCE
3) INSTALL CHECK DAM

B. UTILITIES:

1) MAINTAIN SILT FENCE
2) MAINTAIN CONST. ENTRANCE
3) MAINTAIN CHECK DAMS
4) INSTALL INLET PROTECTION

C. WATER INJECTION OF PADS:

1) MAINTAIN SILT FENCE
2) MAINTAIN CONST. ENTRANCE
3) MAINTAIN CHECK DAMS
4) MAINTAIN INLET PROTECTION
6) WATER INJECT PADS

D. PAVING:

1) MAINTAIN SILT FENCE
2) MAINTAIN CHECK DAMS
3) REMOVE CONST. ENTRANCE
4) MAINTAIN INLET PROTECTION
5) INSTALL EROSION CONTROL BLANKET ALONG BACK OF CURB
6) INSTALL LOT SWALE SILT FENCE CHEVRONS

E. POST EROSION CONTRIOL

REMOVE ALL EROSION CONTROL DEVICES AFTER COMPLETION AND VEGETATION IS ESTABLISHED. NOTIFY OWNER PRIOR TO REMOVAL OF DEVICES.

NOTE:

SUBDIVISION CONTRACTOR REQUIRED TO REPAIR AND/OR REPLACE DAMAGED EROSION CONTROL DEVICES CAUSED BY HIS ACTIVITES.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

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EROSION CONTROL PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		1"=100'		01-3905-35	42

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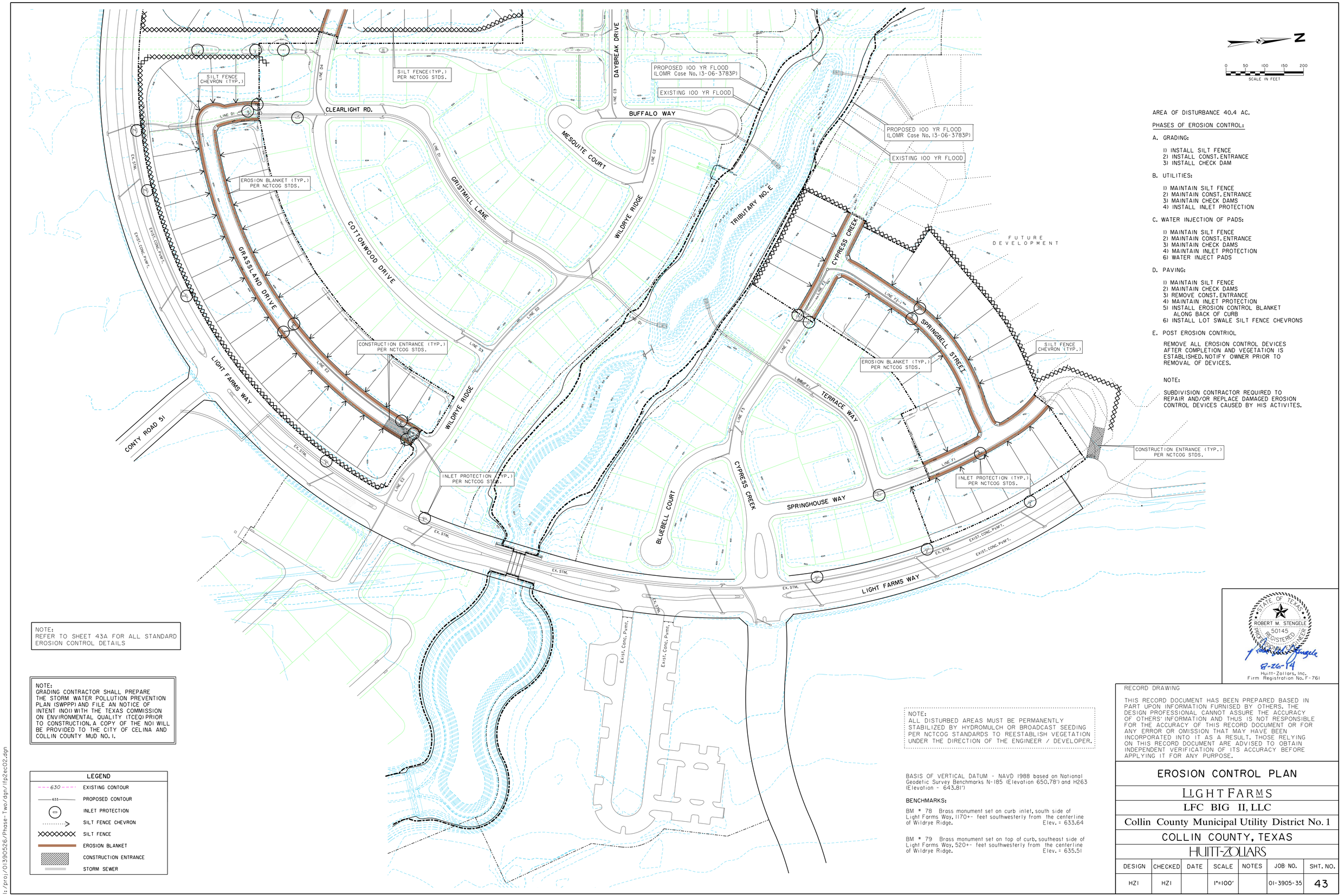

AREA OF DISTURBANCE 40.4 AC.

PHASES OF EROSION CONTROL:

A. GRADING:

1) INSTALL SILT FENCE
2) INSTALL CONST. ENTRANCE
3) INSTALL CHECK DAM

B. UTILITIES:

1) MAINTAIN SILT FENCE
2) MAINTAIN CONST. ENTRANCE
3) MAINTAIN CHECK DAMS
4) INSTALL INLET PROTECTION

C. WATER INJECTION OF PADS:

1) MAINTAIN SILT FENCE
2) MAINTAIN CONST. ENTRANCE
3) MAINTAIN CHECK DAMS
4) MAINTAIN INLET PROTECTION
6) WATER INJECT PADS

D. PAVING:

1) MAINTAIN SILT FENCE
2) MAINTAIN CHECK DAMS
3) REMOVE CONST. ENTRANCE
4) MAINTAIN INLET PROTECTION
5) INSTALL EROSION CONTROL BLANKET ALONG BACK OF CURB
6) INSTALL LOT SWALE SILT FENCE CHEVRONS

E. POST EROSION CONTRIOL

REMOVE ALL EROSION CONTROL DEVICES AFTER COMPLETION AND VEGETATION IS ESTABLISHED. NOTIFY OWNER PRIOR TO REMOVAL OF DEVICES.

NOTE:

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LEGEND

630	EXISTING CONTOUR
633	PROPOSED CONTOUR
	INLET PROTECTION
	SILT FENCE CHEVRON
	SILT FENCE
	EROSION BLANKET
	CONSTRUCTION ENTRANCE
	STORM SEWER

NOTE:
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BASIS OF VERTICAL DATUM - NAVD 1988 based on National Geodetic Survey Benchmarks N-185 (Elevation 650.78') and H263 (Elevation - 643.81')

BENCHMARKS:

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EROSION CONTROL PLAN

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

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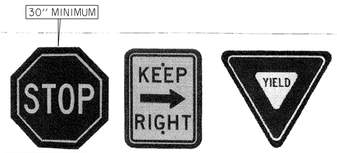
HZI	HZI		1"=100'		01-3905-35	43

I:/proj/01390526/Phase-Two/dgn/lfp2ec02.dgn

lfp2ec02.dgn 8/27/2014 8:40:44 AM

EROSION CONTROL PLAN

P-201309-01



Cast Aluminum Backplate Highlights:

Heavy cast aluminum design with 1" wide and ¾" thick raised border.

Designed to accept D.O.T. standard street signs in sizes and shapes below.

Easy installation on 3", 4" or 5" O.D., straight, round poles, with no alterations to pole, with two (2) of our 3", 4" or 5" mounting collars.

Installation on 3", 4" or 5" O.D., tapered round poles, may be accomplished by using our 3", 4" or 5" mounting collars with extra setscrews for levelling.

All Stainless Steel hardware

Durable Powder coat finish, (Medium Gloss Black Polyester, Standard).

Custom colors available.

18" Stop Signs available for golf course cart path application.*

Applied Vinyl, aluminum, D.O.T. standard, street signs are available but not included. **(See our "SIGN" section)**

Ordering Information:

Sample catalog number
#TSC-24x24-D-4S-BLK

Type	Size	Orientation	Mounting	Color
TSC	24x24	D	4S	BLK

Stop Sign - Cast Aluminum Back plate, with two mtg. collars:

Type & Nominal Size	Actual size of Stop Sign
STC-18	18" (For Golf Courses Only)
STC-24	24"
STC-30	30"
STC-36	36"

Traffic Sign - Cast Aluminum Back plate with two mtg. collars:

Type & Nominal Size	Actual size of Sign
TSC-6x12	6" x 12" (Needs only one mtg. collar)
TSC-12x18	12" x 18"
TSC-18x18	18" x 18"
TSC-18x24	18" x 24"
TSC-24x24	24" x 24"
TSC-24x30	24" x 30"
TSC-30x30	30" x 30"

Orientation of Traffic Sign
D Diamond

Yield Sign - Cast Aluminum Back plate, with two mtg. collars:

Type & Nominal Size	Actual size of Sign
YDC-30	30"
YDC-36	36"

Mounting collar size and type

3S	Two 3" Mounting Collars for 3" straight pole
4S	Two 4" Mounting Collars for 4" straight pole
5S	Two 5" Mounting Collars for 5" straight pole
3T	Two 3" Mounting Collars for tapered pole
4T	Two 4" Mounting Collars for tapered pole
5T	Two 5" Mounting Collars for tapered pole
6.5T	Two 6.5" x 2" Mounting collars for tapered poles
BOS	Two Bolt or strap on brackets for any pole

Colors

BLK	Medium Gloss Black Polyester (Standard)
BLKP	Medium Gloss Black Polyester, Orange Peel Texture.
RAL-6012	Dark Green Polyester
WHT	White Polyester
CC	Custom Colors.

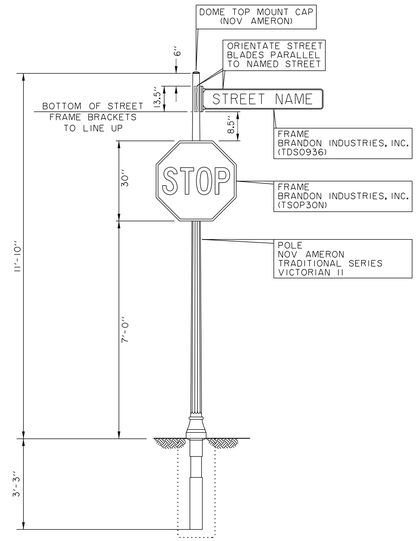
Notes
1. Contact us for pricing.
2. Mounting collars are shipped in separate, individual boxes.
3. Applied Vinyl, aluminum, D.O.T. standard, street signs are available but not included. **(See our "SIGN" section)**
4. Tapered poles must be accurately measured at of mounting points. Next size collar must be used when pole diameter is larger than standard size.

Celina Street Sign Example

Street Name: 6" initial uppercase letter followed by 4.5" lowercase letters
Must meet 2009 (or latest) MUTCD requirements
9" flat blank, high intensity prismatic

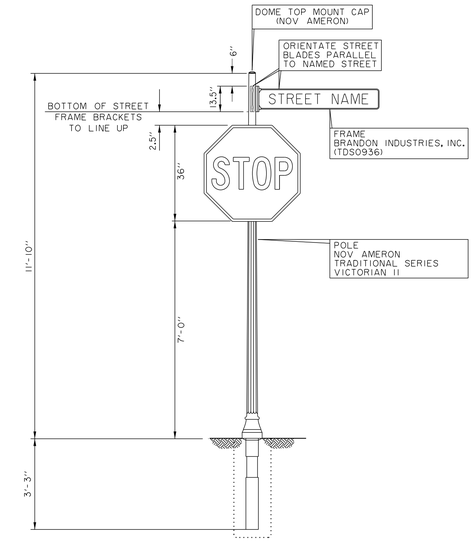
Front:
(Left to Right)

Back:
(Left to Right)



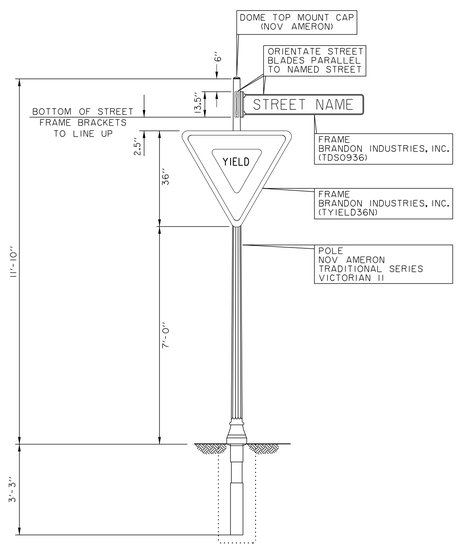
TYPICAL SIGN & POLE DETAIL
30" STOP SIGN
NTS

NOTE:
USE MANUFACTURERS INSTALLATION GUIDELINES AND PROCEDURES.
(PER CITY APPROVAL)



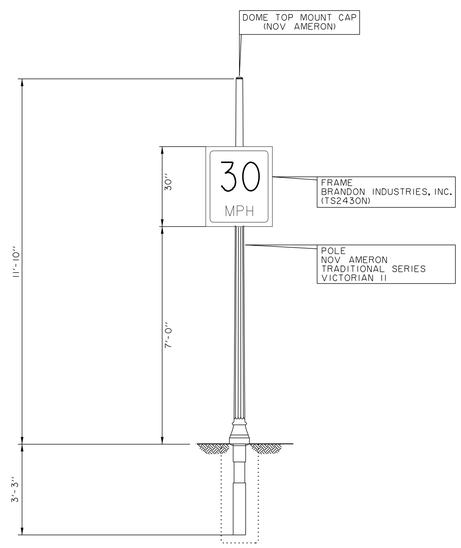
TYPICAL SIGN & POLE DETAIL
36" STOP SIGN
(Primrose Way At Light Farms Way)
NTS

NOTE:
USE MANUFACTURERS INSTALLATION GUIDELINES AND PROCEDURES.
(PER CITY APPROVAL)



TYPICAL SIGN & POLE DETAIL
36" X 36" YIELD SIGN
NTS

NOTE:
USE MANUFACTURERS INSTALLATION GUIDELINES AND PROCEDURES.
(PER CITY APPROVAL)



TYPICAL SIGN & POLE DETAIL
24" X 30" SPEED LIMIT SIGN
NTS

NOTE:
USE MANUFACTURERS INSTALLATION GUIDELINES AND PROCEDURES.
(PER CITY APPROVAL)

MANUFACTURERS

BRANDON INDUSTRIES, INC.
1601 W. WILMETH ROAD
MCKINNEY, TEXAS
75069-8250
PHONE: 1-800-247-1274

NOV AMERON
SOUTH CENTRAL DIVISION
8505 CLAY HIBBINS ROAD
KELLER, TEXAS
76248
PHINE: 817-999-6867

SPECIFICATIONS ARE NOT MEANT TO EXCLUDE ANY OTHER MANUFACTURER. ANY SPECIFICATION MAY BE REPLACED WITH AN APPROVED EQUAL UPON APPROVAL BY THE CITY OF CELINA.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED
PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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STREET SIGN DETAILS

LIGHT FARMS

LFC BIG II, LLC

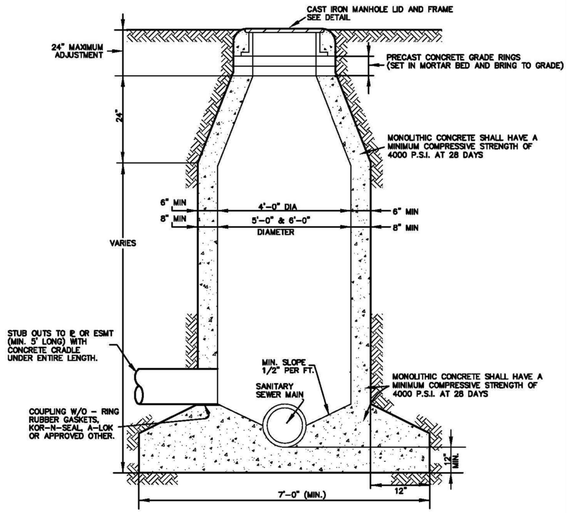
Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

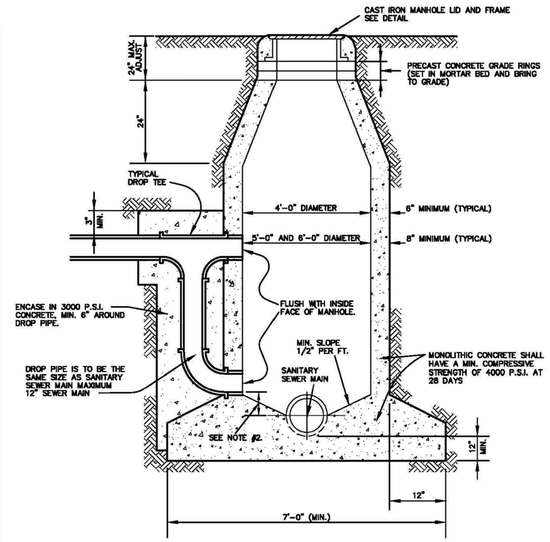
DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	44

I:/proj/01390526/Phase-Two/dgn/lfp2det01.dgn



NOTES:
1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), AND TWELVE-INCH (12"), THE MANHOLE SHALL BE FOUR-FOOT (4') MINIMUM DIAMETER, FOR FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE-INCH (21"), TWENTY-FOUR-INCH (24") AND TWENTY-SEVEN-INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH (30") AND THIRTY-SIX-INCH (36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.

STANDARD
CAST IN PLACE MANHOLE
NTS



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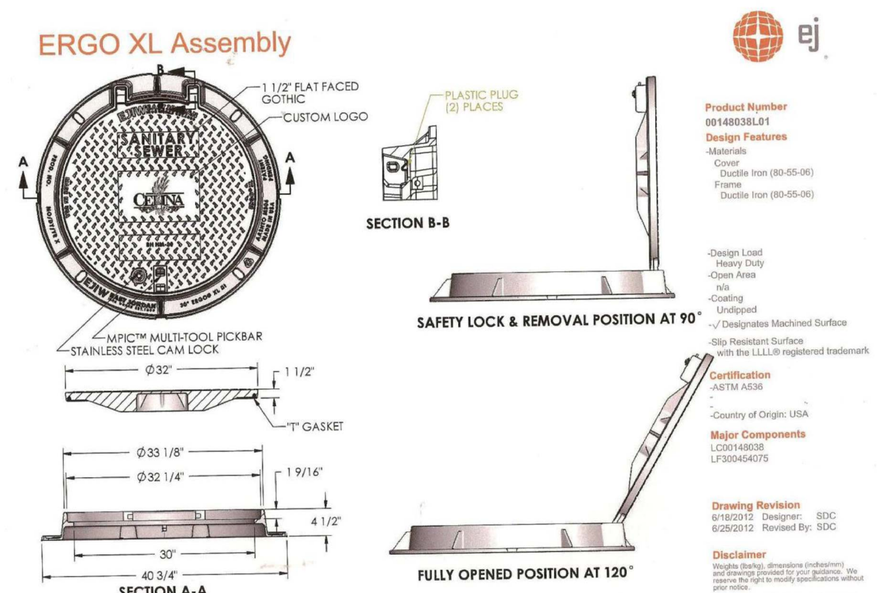
2. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN THE CENTERLINE AND TOP OF SEWER MAIN.

MANHOLE
DROP CONNECTION
NTS



Product Number
00148038L01

Design Features
-Materials
Cover
Ductile Iron (80-55-06)
Frame
Ductile Iron (80-55-06)

-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-√ Designates Machined Surface
-Slip Resistant Surface
with the LLLL® registered trademark

Certification
-ASTM A536
-
-
-Country of Origin: USA

Major Components
LC00148038
LF300454075

Drawing Revision
6/18/2012 Designer: SDC
6/25/2012 Revised By: SDC

Disclaimer
Weights (lbs/kg), dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

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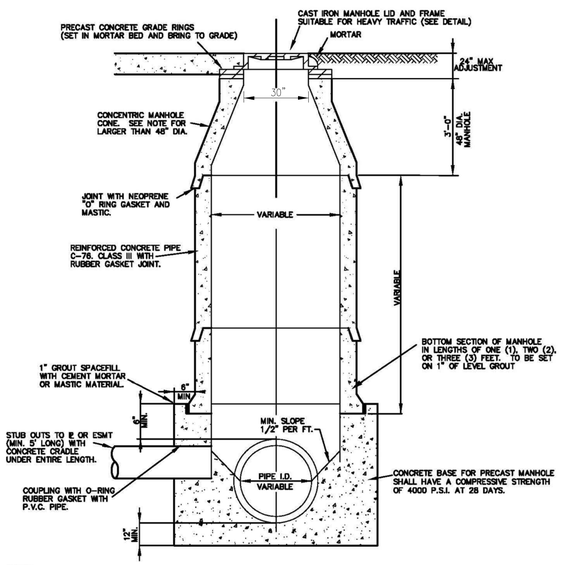
Contact
800.626.4653
ejco.com



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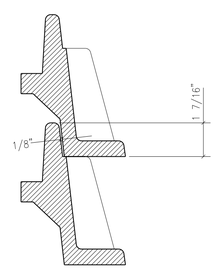
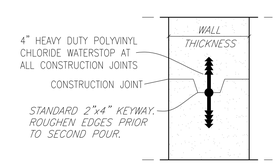
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.

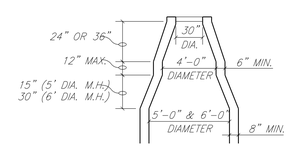
PRECAST
CONCRETE PIPE MANHOLE
NTS



STACK DETAIL
(NTS)



MANHOLE
CONSTRUCTION JOINT
KEYWAY WITH WATERSTOP



CONE TRANSITION
5' & 6' DIAMETER MANHOLES ONLY

MANHOLE CONE NOTE:
FOR MANHOLES WITH DIAMETER LARGER THAN 48" I.D., A PRE-CAST FLAT TOP MANHOLE COVER AS PER A.S.T.M. C478 SHALL BE INSTALLED.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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SANITARY SEWER MANHOLE DETAILS

LIGHT FARMS

LFC Land Company LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	45

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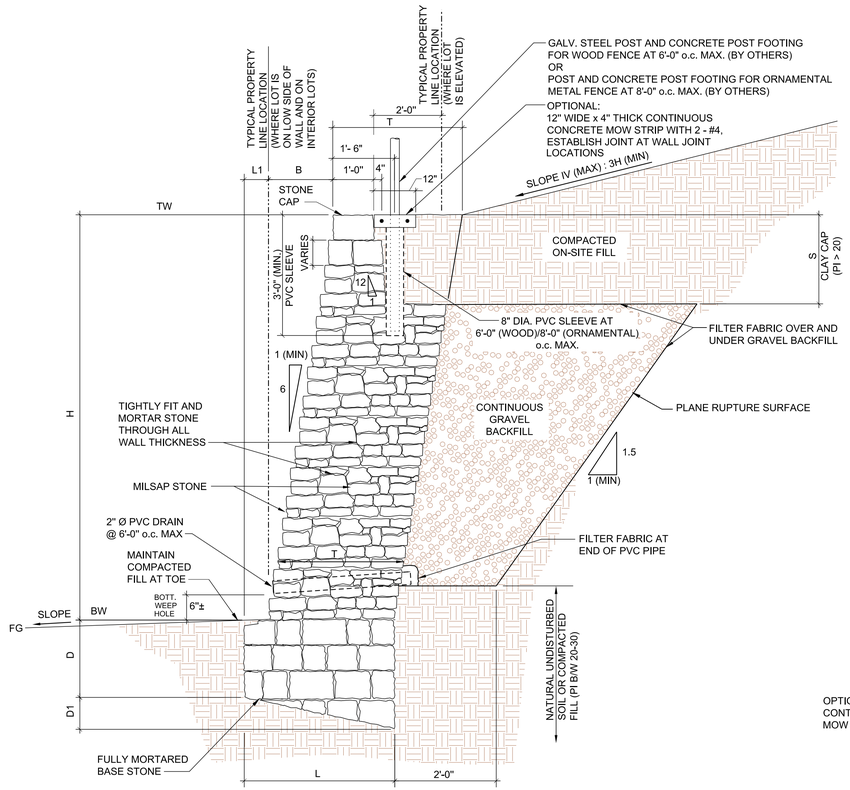


1 RETAINING WALL DESIGN SECTION

SCALE: N.T.S.

MASONRY WALL SCHEDULE (SUBGRADE BEARING: STIFF NATIVE SOIL OR COMPACTED & TESTED SOIL)									
H	B	L	L1	T	D	D1	S	WALL/BASE CONSTRUCTION	MIN. REQ'D. BEARING CAPACITY
2'-0"	0'-4"	1'-7"	0'-1"	1'-6"	0'-9"	0'-6"	1'-0"	FULLY MORTARED	1500 psf (CONFIRM)
3'-0"	0'-6"	1'-10"	0'-2"	1'-8"	0'-9"	0'-7"	1'-0"	FULLY MORTARED	
4'-0"	0'-8"	2'-3"	0'-3"	2'-0"	1'-0"	0'-8"	1'-0"	FULLY MORTARED	

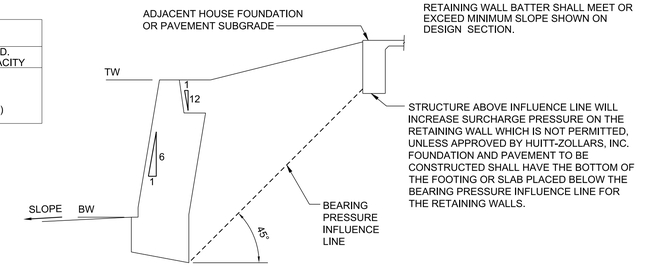
2 RETAINING WALL DESIGN SCHEDULE

SCALE: N.T.S.

RETAINING WALL SHALL HAVE OWNER FENCE PLACED AS SHOWN INSIDE FRONT FACE OF STONE CAP AT TOP OF WALL.

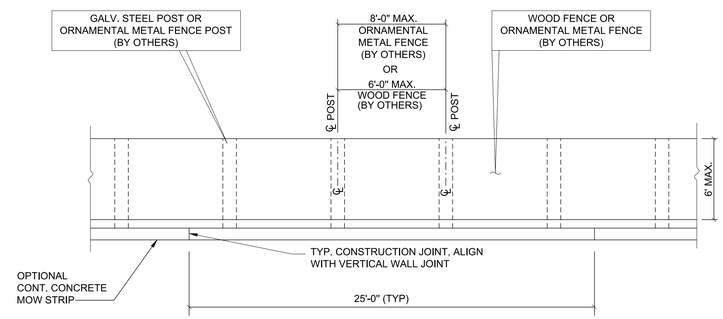
RETAINING WALL SHALL NOT HAVE ADDITIONAL LIVE LOAD SURCHARGE PLACED BEHIND WALL EXCEPT AS PERMITTED WITH PLAN NOTES.

RETAINING WALL BATTER SHALL MEET OR EXCEED MINIMUM SLOPE SHOWN ON DESIGN SECTION.



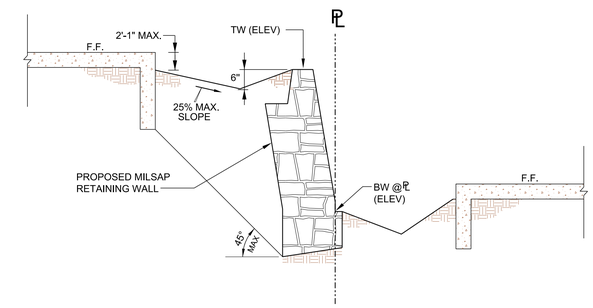
3 TYPICAL WALL SECTION WITH NOTED DESIGN CONSTRAINTS

SCALE: N.T.S.



4 SCHEMATIC DETAIL - WOOD FENCE/ORNAMENTAL METAL FENCE

SCALE: N.T.S. (TYP. CONSTRUCTION JOINT LOCATIONS)



SECTION A-A

SIDE YARD RETAINING WALL SWALE

SCALE: N.T.S.

PLAN NOTES:

DESIGN AND CONSTRUCTION CODE:

1. INTERNATIONAL BUILDING CODE, 2006 EDITION - SECTION 1611.6.

GEOTECHNICAL CRITERIA:

1. GEOTECHNICAL ENGINEERING REPORT, LIGHT FARMS - PHASE I, CELINA, TEXAS, ALPHA REPORT NO. G071129, ISSUED DECEMBER 31, 2007 BY ALPHA TESTING, INC., PHONE NO. 972-620-8911.

2. WALL FOOTING SHALL BEAR IN STIFF CLAY OR COMPACTED AND TESTED SOIL.

3. ALLOWABLE BEARING = 2500 PSF (>18") AND 1500 PSF (9"-18") BELOW FINISH GRADE, VERIFY WITH GEOTECHNICAL ENGINEER. CONTACT HUITT-ZOLLARS FOR FURTHER WALL DESIGN AT SUBGRADE LOCATIONS WHERE BEARING CAPACITY IS LESS THAN DESIGN ALLOWABLE. PROOF-ROLL WHERE FEASIBLE TO DETECT ANY SOFT AREAS. IF SOFT AREAS DETECTED, SCARIFY AND RE-COMPACT THE SOIL TO 95% STANDARD PROCTOR NEAR OPTIMUM MOISTURE CONTENT.

4. BACKFILL SOIL PARAMETERS ASTM C33 (COARSE OR FINE AGGREGATE).
BACKFILL SOIL SHALL BE POORLY-GRADED, CLEAN AND FREE-DRAINING SAND OR GRAVEL MATERIAL OR CRUSHED LIMESTONE GRAVEL. GRAVEL SIZE MAY VARY FROM ½" TO 4" (GRADE 57) WITH LESS THAN 5% PASSING THE NO. 200 SIEVE. FOR SAND MATERIAL, PROVIDE BACKFILL WITH A SAND EQUIVALENT OF AT LEAST 80 IN ACCORDANCE WITH TXDOT TEX-203-F PROCEDURE.
BACKFILL ANGLE OF INTERNAL FRICTION, PHI-I=32 DEGREES.
EQUIVALENT FLUID PRESSURE PER COULOMB THEORY, EFP=34 PCF WITH BACKSLOPE.
UNIT WEIGHT = 125 PCF.
COMPACTION FOR GRAVEL: TAMP/COMPACT AT 70% RELATIVE DENSITY, ASTM D4253/4254.
COMPACTION FOR SAND/SELECT: 95% OF STANDARD PROCTOR DRY DENSITY (ASTM D698) NEAR OPTIMUM MOISTURE CONTENT. COMPACT BACKFILL IN LOOSE LIFTS NOT TO EXCEED 10-INCHES.
FRICTION ANGLE BETWEEN BACK OF WALL AND SOIL, DELTA=21 DEGREES.

5. BASE SOIL PARAMETERS (TO BE VERIFIED BY GEOTECHNICAL ENGINEER)
a. SOIL AT BASE SHALL BE NATURAL UNDISTURBED OR COMPACTED FILL SOILS.
b. ANGLE OF INTERNAL FRICTION PHI-B=22 DEGREES.
c. MASONRY FRICTION REDUCTION FACTOR, Ub=0.55.
d. COHESION BETWEEN BOTTOM OF FOOTING AND SUBGRADE, C=200 PSF.
e. ALLOWABLE PASSIVE RESISTANCE IS 150 PSF ACTING ON VERTICAL PROJECTION OF SLOPED BASE AT FOOTING.
f. AT SANDY BASE CONDITION, PHI-B=24.5 DEGREES WITH ZERO COHESION.

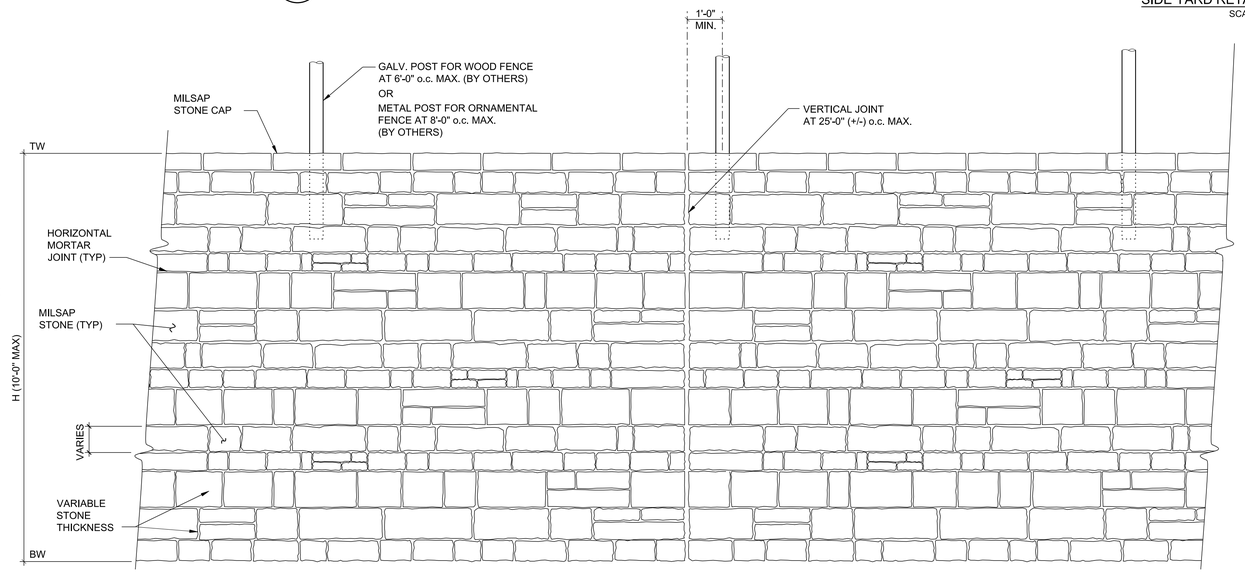
6. REFER GEOTECHNICAL ENGINEER (ALPHA TESTING, INC.) FOR RECOMMENDED TECHNICAL PROVISIONS FOR THE CONSTRUCTION PRACTICE IN SHORING AND SLOPING OF EXCAVATIONS AND REQUIRED COMPACTION REQUIREMENTS.

7. MAXIMUM VERTICAL LIVE LOAD DESIGN SURCHARGE: 50 PSF.

MATERIALS

1. CONCRETE MORTAR - A MIXTURE OF PORTLAND CEMENT (ASTM C150-TYPE I/II) AND SAND (ASTM C33) WITH MINIMUM STRENGTH OF f'c = 3000 PSI AT 28 DAYS.

2. ASSUMED DENSITY OF MASONRY STONE WALL APPROXIMATELY 140 PCF.



5 RETAINING WALL ELEVATION

SCALE: N.T.S.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER

8-26-14

Huitt-Zollars, Inc.
Firm Registration No. F-761

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RETAINING WALL DETAILS
0'-0" TO 4'-0" HEIGHT

LIGHT FARMS

LFC BIG II, LLC

Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	46

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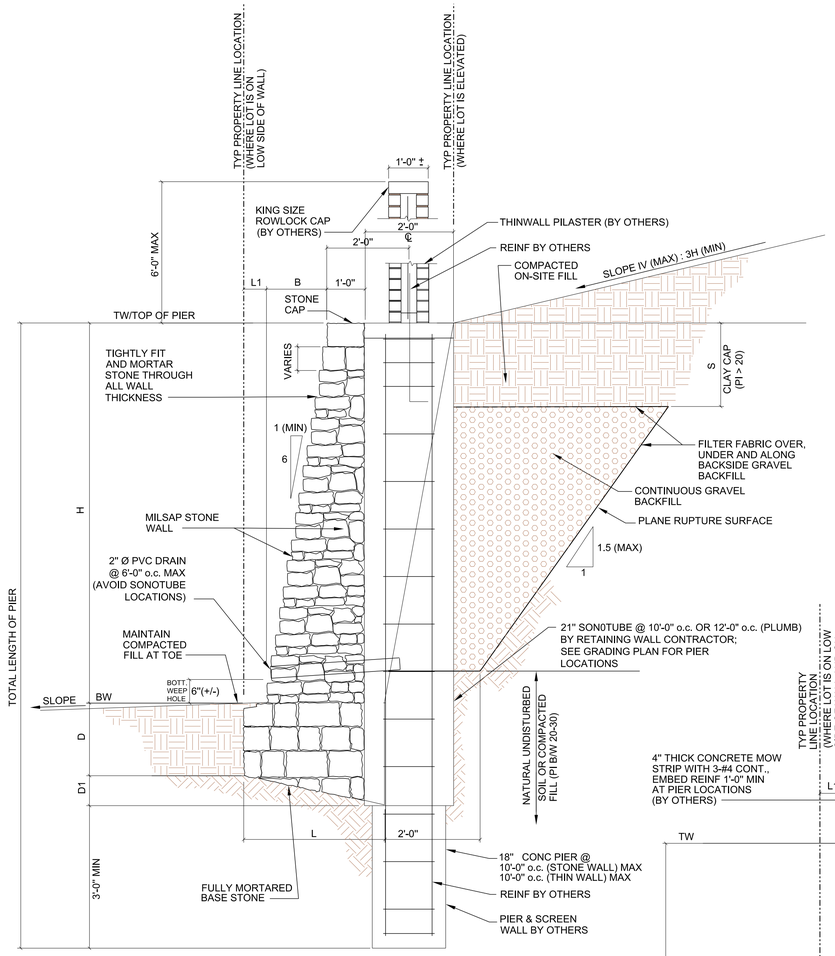
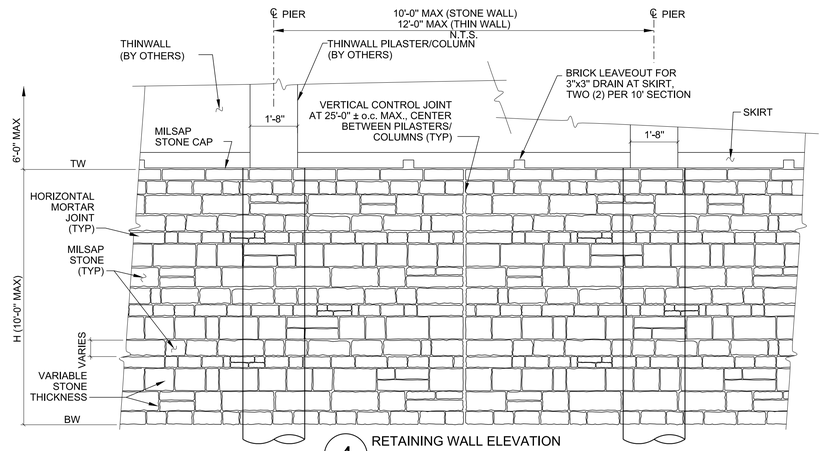


1 RETAINING WALL DESIGN SECTION & SCHEDULE

SCALE:N.T.S. (AT PIER LOCATION)



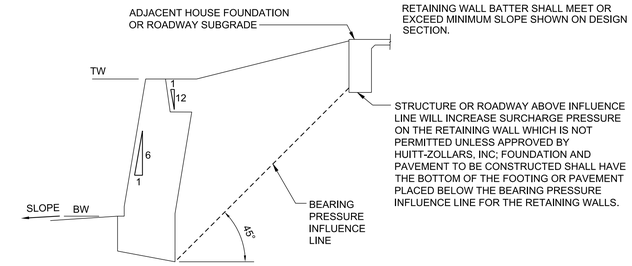
4 RETAINING WALL ELEVATION

SCALE: N.T.S.

CONTINUOUS SCREEN WALL PLACED ON TOP OF RETAINING WALL SHALL BE SUPPORTED WITH REINFORCED CONCRETE PIERS (BY OTHERS) PLACED BEHIND STONE CAP AT TOP OF WALL.

RETAINING WALL SHALL NOT HAVE ADDITIONAL LIVE LOAD SURCHARGE PLACED BEHIND WALL EXCEPT AS PERMITTED WITH PLAN NOTES.

RETAINING WALL BATTER SHALL MEET OR EXCEED MINIMUM SLOPE SHOWN ON DESIGN SECTION.



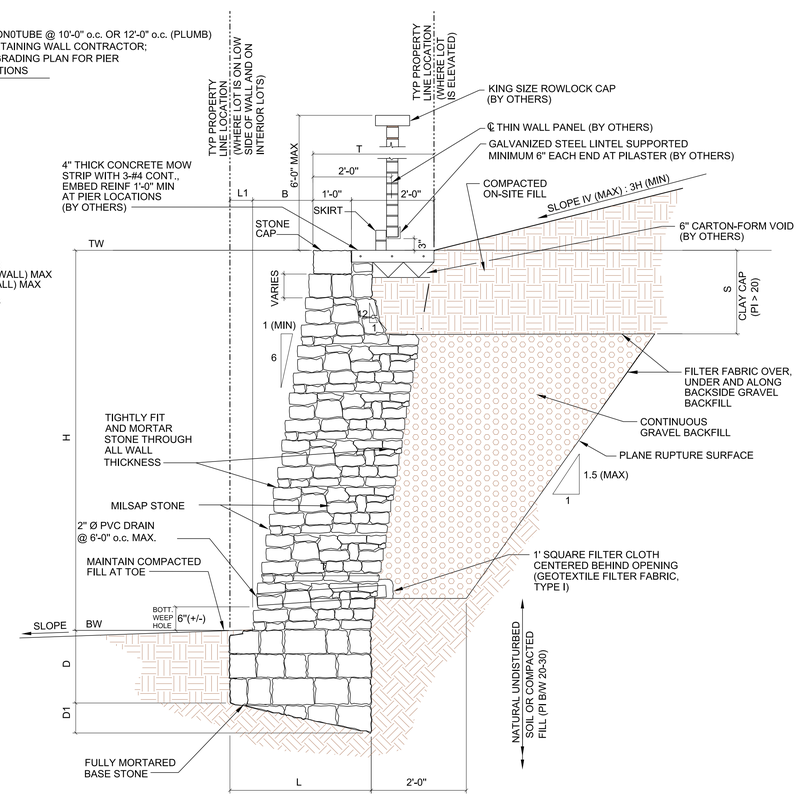
5 TYPICAL WALL SECTION WITH NOTED DESIGN CONSTRAINTS

SCALE: N.T.S.

3 RETAINING WALL DESIGN SCHEDULE

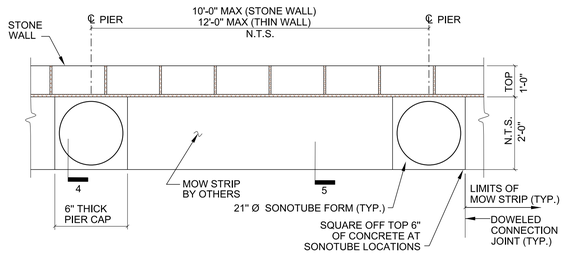
MASONRY WALL SCHEDULE
(SUBGRADE BEARING: STIFF NATIVE SOIL OR COMPACTED & TESTED SOIL)

H	B	L	L1	T	D	D1	S	WALL/BASE CONSTRUCTION	MIN. REQ'D. BEARING CAPACITY
2'-0"	0'-4"	1'-7"	0'-1"	1'-6"	0'-9"	0'-6"	1'-0"	FULLY MORTARED	1500 psf (CONFIRM)
3'-0"	0'-6"	1'-10"	0'-2"	1'-8"	0'-9"	0'-7"	1'-0"	FULLY MORTARED	
4'-0"	0'-8"	2'-3"	0'-3"	2'-0"	1'-0"	0'-8"	1'-0"	FULLY MORTARED	
5'-0"	0'-10"	2'-9"	0'-3"	2'-6"	1'-3"	0'-9"	1'-3"	FULLY MORTARED	
6'-0"	1'-0"	3'-2"	0'-3"	2'-11"	1'-6"	0'-11"	1'-3"	FULLY MORTARED	2000 psf (CONFIRM)
7'-0"	1'-2"	3'-8"	0'-5"	3'-3"	1'-8"	1'-0"	1'-3"	FULLY MORTARED	
8'-0"	1'-4"	4'-3"	0'-7"	3'-8"	1'-10"	1'-2"	1'-6"	FULLY MORTARED	
9'-0"	1'-6"	4'-7"	0'-7"	4'-0"	2'-0"	1'-4"	1'-6"	FULLY MORTARED	2500 psf (CONFIRM)
10'-0"	1'-8"	5'-2"	0'-10"	4'-4"	2'-2"	1'-6"	1'-6"	FULLY MORTARED	



2 THIN WALL DETAIL AT RETAINING WALL

SCALE: N.T.S.



6 PARTIAL PLAN

SCALE: N.T.S. (STONE RETAINING WALL)

PLAN NOTES:

DESIGN AND CONSTRUCTION CODE:

1. INTERNATIONAL BUILDING CODE, 2006 EDITION - SECTION 1611.6.

GEOTECHNICAL CRITERIA:

1. GEOTECHNICAL ENGINEERING REPORT, LIGHT FARMS-PHASE I, CELINA, TEXAS, ALPHA REPORT NO. G071129, ISSUED DECEMBER 31, 2007 BY ALPHA TESTING, INC. PHONE NO. 972-620-8911

2. WALL FOOTING SHALL BEAR IN STIFF CLAY OR COMPACTED AND TESTED SOIL.

3. ALLOWABLE BEARING = 2500 PSF (>18") AND 2000 PSF (9"-18") BELOW FINISH GRADE, VERIFY WITH GEOTECHNICAL ENGINEER. CONTACT HUITT-ZOLLARS FOR FURTHER WALL DESIGN AT SUBGRADE LOCATIONS WHERE BEARING CAPACITY IS LESS THAN DESIGN ALLOWABLE.

4. BACKFILL SOIL PARAMETERS ASTM C33 GR 57.
BACKFILL SOIL SHALL BE POORLY-GRADED FREE-DRAINING MATERIAL: CRUSHED LIMESTONE GRAVEL, REMANUFACTURED CONCRETE GRAVEL OR SANDSTONE GRAVEL. GRAVEL SIZE MAY VARY FROM ½" TO 4" WITH LESS THAN 5% PASSING NO. 200 SLEEVE.
BACKFILL ANGLE OF INTERNAL FRICTION, PHI-1=32 DEGREES.
EQUIVALENT FLUID PRESSURE PER COULOMB THEORY, EFP=34 PCF WITH BACKSLOPE.
UNIT WEIGHT = 125 PCF.
COMPACTION: TAMP/COMPACT AT 70% RELATIVE DENSITY, ASTM D4253/4254.
FRICTION ANGLE BETWEEN BACK OF WALL AND SOIL, DELTA=21 DEGREES.

5. BASE SOIL PARAMTERS (TO BE VERIFIED BY GEOTECNICAL ENGINEER)
a. SOIL AT BASE SHALL BE NATURAL UNDISTURBED OR COMPACTED FILL SOILS.
b. ANGLE OF INTERNAL FRICTION PHI-B=22 DEGREES.
c. MASONRY FRICTION REDUCTION FACTOR, Ub=0.55.
d. COHESION BETWEEN BOTTOM OF FOOTING AND SUBGRADE, C=200 PSF.
e. ALLOWABLE PASSIVE RESISTANCE IS 150 PSF ACTING ON VERTICAL COMPONENT OF SLOPED BASE AT FOOTING.
f. AT SANDY BASE CONDITION, PHI-B=28 DEGREES WITH ZERO COHESION.

6. REFER GEOTECHNICAL ENGINEER (ALPHA TESTING, INC.) FOR RECOMMENDED TECHNICAL PROVISIONS FOR THE CONSTRUCTION PRACTICE IN SHORING AND SLOPING OF EXCAVATIONS AND REQUIRED COMPACTION REQUIREMENTS.

7. MAXIMUM VERTICAL LIVE LOAD DESIGN SURCHARGE: 50 PSF.

MATERIALS

1. CONCRETE MORTAR - A MIXTURE OF PORTLAND CEMENT (ASTM C150-TYPE I/II) AND SAND (ASTM C33) WITH MINIMUM STRENGTH OF f'c = 3000 PSI AT 28 DAYS.

2. ASSUMED DENSITY OF MASONRY STONE WALL APPROXIMATELY 140 PCF.

CONSTRUCTION:

1. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAGING.

2. SONOTUBE FORMING SHALL BE PROTECTED DURING CONSTRUCTION AND LEFT IN PLACE.

3. DRILLING CONSTRUCTION OF PIERS AND CONCRETE PLACEMENT SHALL NOT SURCHARGE STONE GRAVITY WALL FOR ALL WALL HEIGHTS.

4. SONOTUBE SHALL EXTEND TO BOTTOM OF FOOTING. TOTAL LENGTH OF PIER SHALL BE 9'-0" MINIMUM.

STATE OF TEXAS
ROBERT M. STENGELE
50145
REGISTERED PROFESSIONAL ENGINEER
8-26-14
Huitt-Zollars, Inc.
Firm Registration No. F-761

RECORD DRAWING

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RETAINING WALL DETAILS
2'-0" TO 10'-0" HEIGHT

LIGHT FARMS

LFC BIG II, LLC

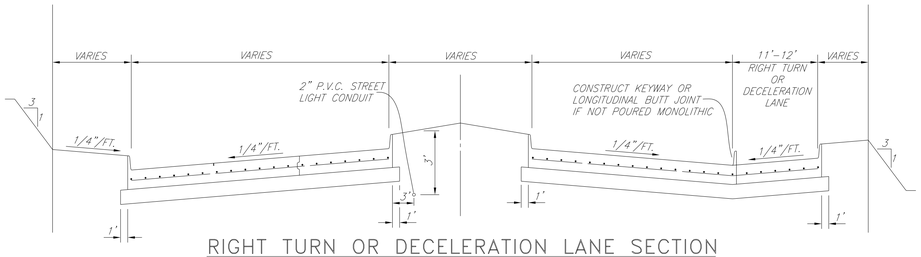
Collin County Municipal Utility District No. 1

COLLIN COUNTY, TEXAS

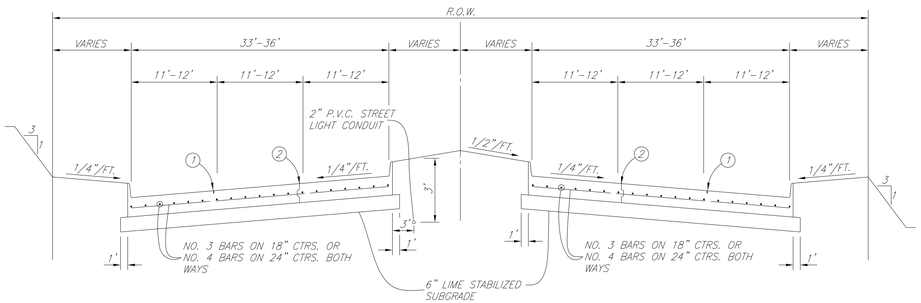
HUITT-ZOLLARS

DESIGN	CHECKED	DATE	SCALE	NOTES	JOB NO.	SHT. NO.
HZI	HZI		NA		01-3905-35	47

I:/proj/01390526/Phase-Two/dgn/lfp2walldet2.dgn



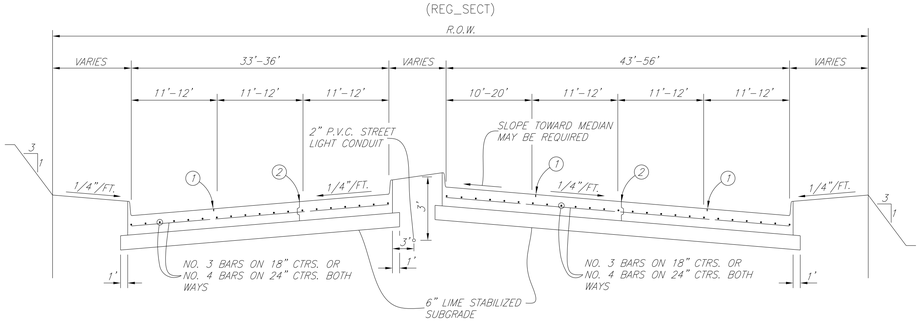
RIGHT TURN OR DECELERATION LANE SECTION



REGULAR SECTION

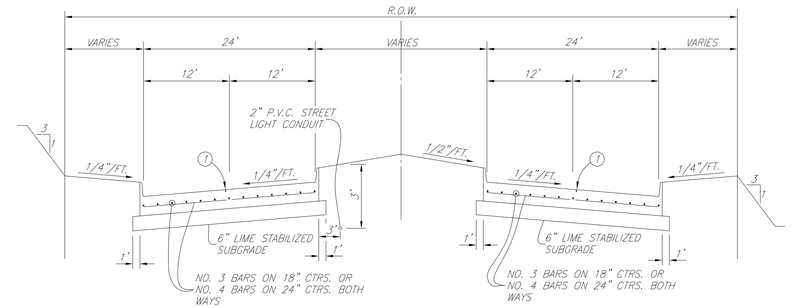
M6D & P6D

(REG_SECT)



LEFT TURN SECTION

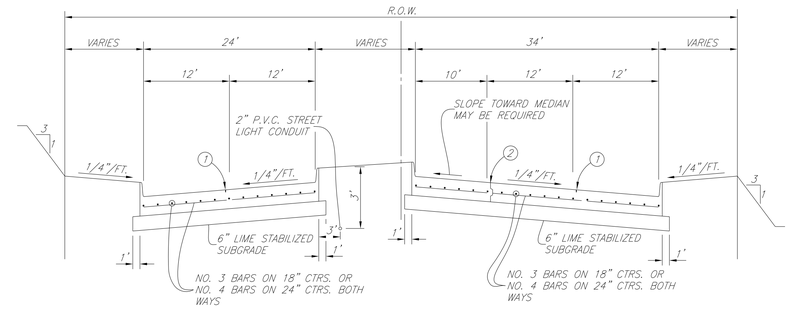
(LTURN_SECT)



REGULAR SECTION

M4D

(REG_SECT2)



LEFT TURN SECTION

NOTE:
FOR RETROFIT TURN LANES AND MEDIAN OPENINGS. TWO ADDITIONAL INCHES OF CONCRETE CAN BE PLACED IN LIEU OF LIME STABILIZATION.

(LTURN_SECT2)

M60, P60, M4D SECTIONS SHALL HAVE MINIMUM PAVEMENT THICKNESS OF 8 INCHES.

LIME STABILIZED SUBGRADE – THE RATE OF HYDRATED LIME SHALL BE 7 1/2% BY UNIT DRY WEIGHT OR THAT PERCENT TO REDUCE THE SOIL P.I. TO LESS THAN 15. CONTRACTOR TO PROVIDE CITY WITH LIME SERIES TEST TO DETERMINE THE OPTIMUM LIME CONTENT.

LEGEND

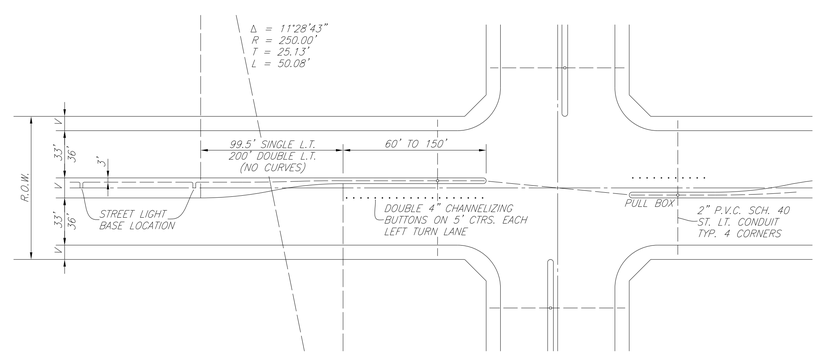
(1) – SAWED LONGITUDINAL DUMMY JOINT

A. CONSTRUCTION JOINT (FULL WIDTH PVMT. IS ALLOWED WHERE APPROVED BY CITY).

(2) – B. DELETE IT WHEN PAVING IS 25 FT. WIDTH TO BE WIDENED IN FUTURE.

C. INSTALL CURB IF PAVING IS LESS THAN FULL WIDTH OF 33'-36'.

(LEGNED_PVMT)



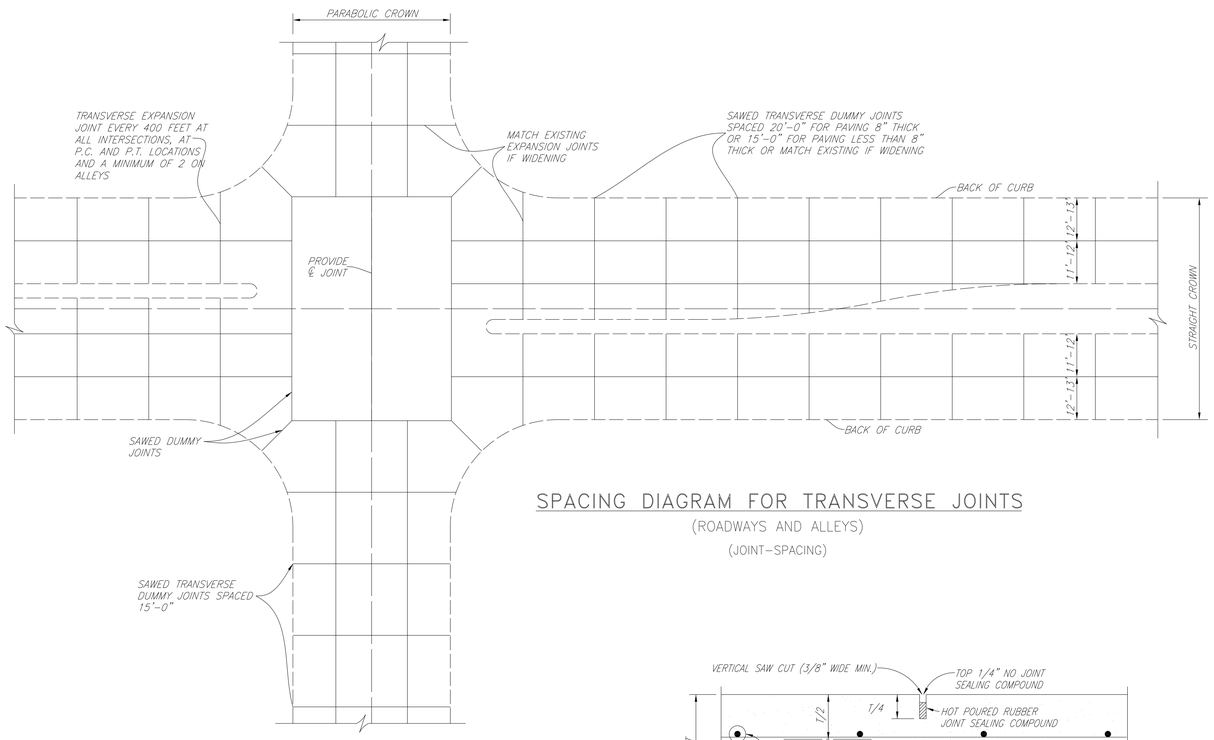
LEFT TURN PLAN

(PVMT-PLAN)

CITY OF CELINA, TEXAS

PAVING
STANDARD DETAILS

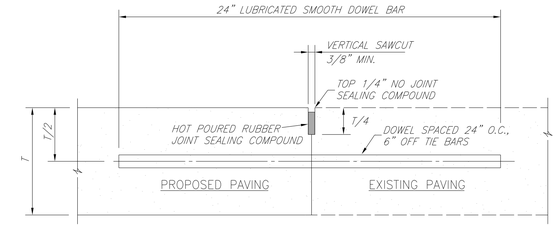
I:/proj/01390526/Phase-Two/dgn/fp2det03.dgn



SPACING DIAGRAM FOR TRANSVERSE JOINTS

(ROADWAYS AND ALLEYS)

(JOINT-SPACING)

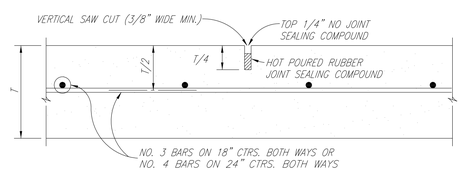


NOTE:

1. T-8" AND GREATER NO. 6 BAR, T-6" AND LESS NO. 5 BAR
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG. HAND DRILLING NOT ACCEPTABLE. DAMAGE TO EXISTING PAVEMENT SHALL BE REMOVED BY CONTRACTOR AND JOINT CONSTRUCTED AT CONTRACTORS EXPENSE.
4. DOWEL BAR SHOWN IS IN ADDITION TO TIE BARS (12" O.C.-6" OFF DOWELS).
5. TIE BARS SHALL BE NO. 5 BAR DEFORMED. TIE BAR SHALL HAVE A LENGTH OF 24 INCHES.

LONGITUDINAL BUTT JOINT

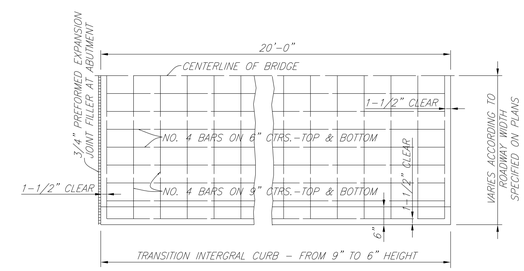
(BUTTJNT)



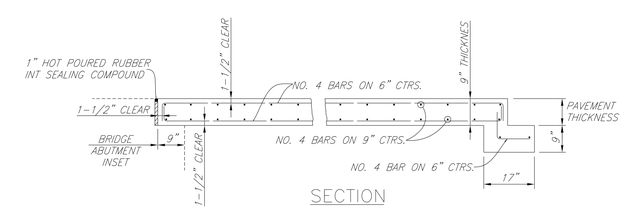
TRANSVERSE JOINTS SPACED 15 FT. C.-C. (MAX.)
LONGITUDINAL JOINTS SPACED 20 FT. C.-C. (MAX.)

SAWED DUMMY JOINT

(DUMMYJNT)



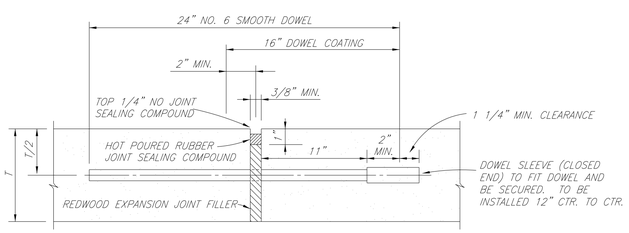
PLAN



SECTION

BRIDGE APPROACH SLAB

(APPROACHSLAB)

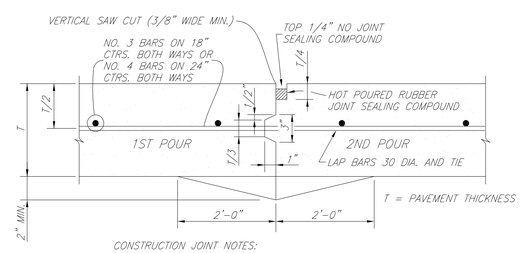


TRANSVERSE EXPANSION JOINT NOTES:

1. DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.
2. TRANSVERSE EXPANSION JOINTS SHALL BE SPACED AT 400 FT. MAXIMUM AND AT ALL INTERSECTIONS.

TRANSVERSE EXPANSION JOINT

(EXPJNT)



CONSTRUCTION JOINT NOTES:

1. CONTRACTOR SHALL PROTECT KEYWAY PRIOR TO SECOND POUR. IF LONGITUDINAL KEYWAY IS DAMAGED, CONTRACTOR SHALL REPAIR WITH THE USE OF LONGITUDINAL BUTT JOINT (DRILL DOWELS INTO FIRST POUR).
2. THICKENED EDGES ARE REQUIRED FOR FUTURE WIDENING ONLY.

CONSTRUCTION JOINT

(CONSTJNT)

CITY OF CELINA, TEXAS

PAVING
STANDARD DETAILS

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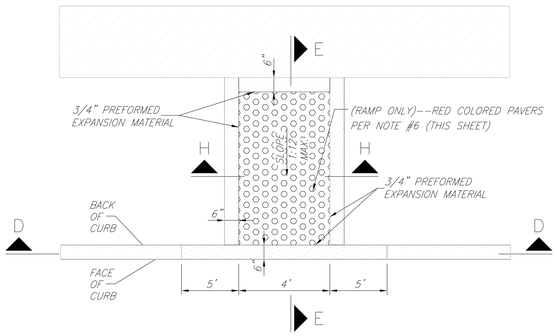
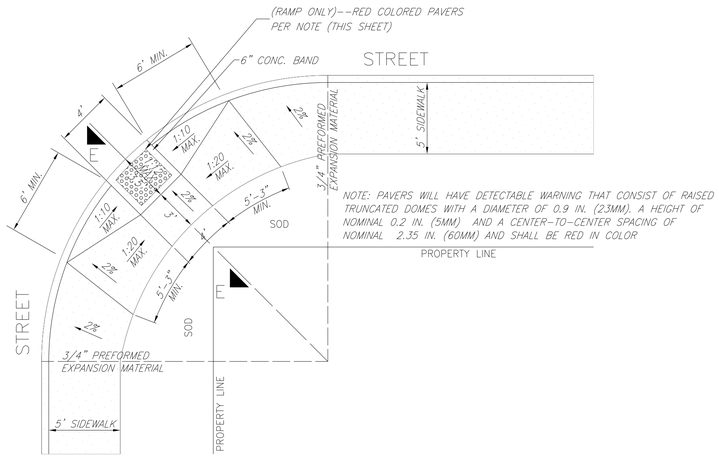
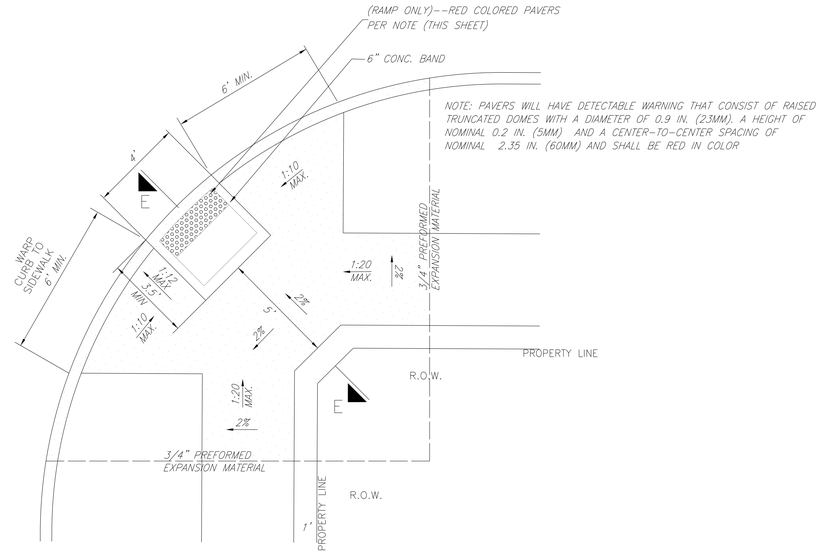


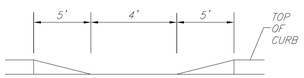
BARRIER FREE RAMP @ STRAIGHT CURB



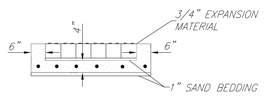
RAMP FOR 5 FEET SIDEWALK NEXT TO CURB



BARRIER FREE RAMP
STREET INTERSECTION
PLAN VIEW
NTS



SECTION D–D

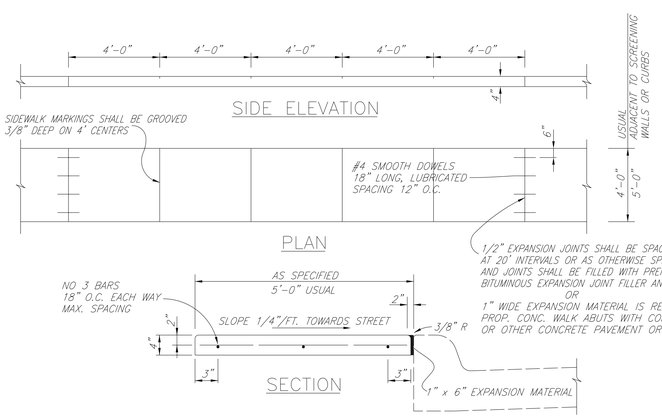


SECTION H–H

GENERAL NOTES:

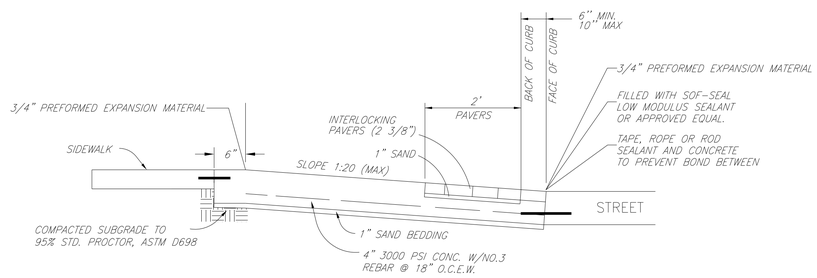
1. BARRIER FREE RAMPS SHALL BE CONSTRUCTED AS EXTENSIONS OF STANDARD CONCRETE SIDEWALKS EXCEPT AS NOTED IN THESE DETAILS.
2. MAXIMUM SLOPE ON BARRIER FREE RAMPS SHALL NOT EXCEED 1" PER FOOT AT ANY LOCATION.
3. DESIGNS SHOWN ARE FOR 6" CURBS. FOR CURBS WITH HEIGHT GREATER THAN 6", DIMENSIONS SHALL BE INCREASED PROPORTIONATELY.
4. STREETS ON STEEP GRADE WILL REQUIRE LONGER TRANSITIONS ON UPGRADE SIDE.
5. LOCATION OF BARRIER FREE RAMP MAY BE SHIFTED TO CLEAR OBSTRUCTIONS WITH THE APPROVAL OF THE CITY ENGINEER.
6. ACCESS RAMP FROM STREET GRADE SHALL HAVE DETECTABLE WARNING GROVES THAT SHALL BE 1/4" TO 3/4" WIDE, 1/8" DEEP, SPACED 2" APART.
7. ALL LANDINGS ARE TO BE 5'X5' AREAS WITH 2% (MAX) SLOPES IN ANY DIRECTION

RAMP WITH DOMES



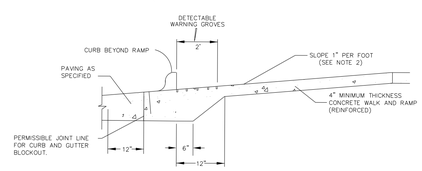
REINFORCED CONCRETE SIDEWALK

(SIDEWALK)



SECTION E–E

(BARRIER_FREE)



BARRIER FREE RAMP
TYPICAL SECTION THRU RESIDENTIAL RAMP
NTS

CITY OF CELINA, TEXAS

PAVING
STANDARD DETAILS

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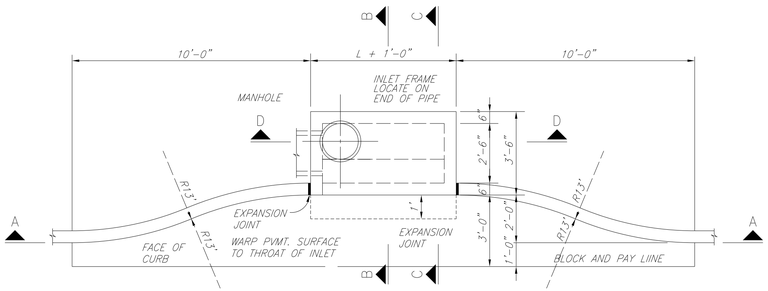
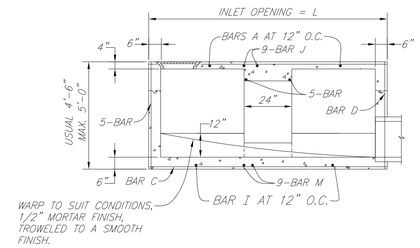


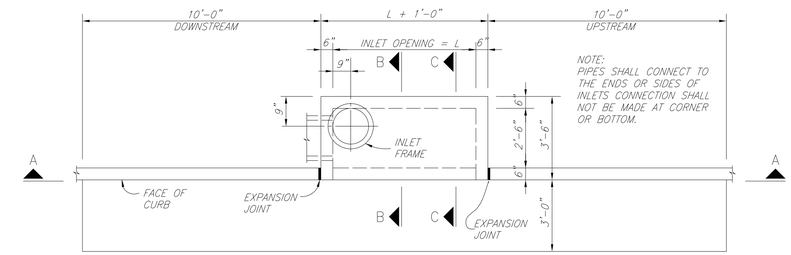
PLAN – RECESSED INLET

(REC–INT1)



SECTION A–A – STANDARD AND RECESSED INLETS

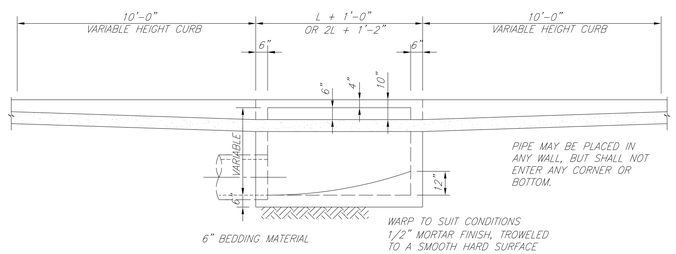
(SECT_A–A1)



PLAN – STANDARD INLET

4, 6, 8 AND 10 FOOT INLETS

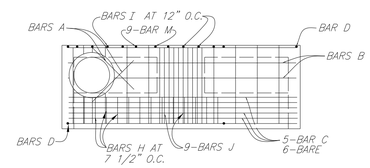
(STDINLT1)



SECTION A–A–RECESSED AND STANDARD INLETS

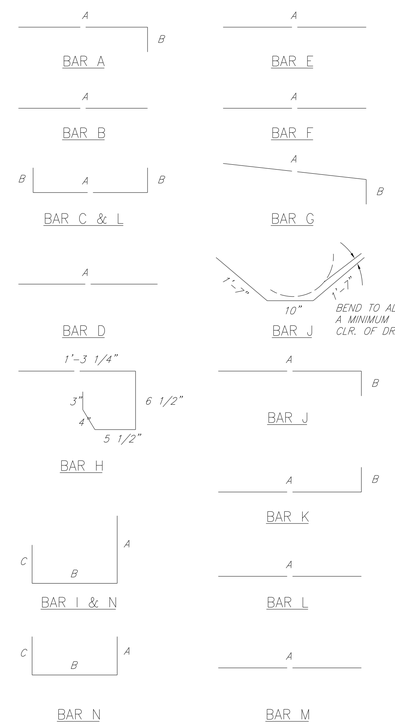
4, 6, 8, AND 10 FOOT INLETS

(PLAN–10)



PLAN – STANDARD INLET

(PLAN_STDINL)



BAR DIAGRAMS

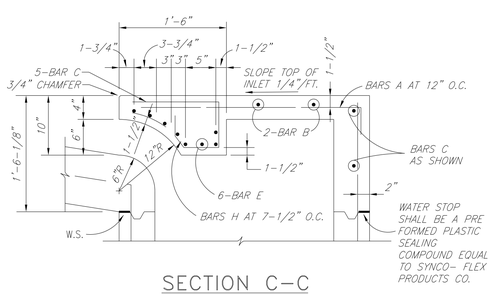
(BARDIAG)

REINFORCING STEEL SCHEDULE

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

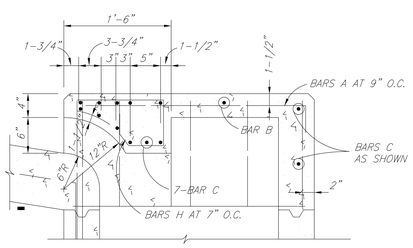
INLET LENGTH	BAR TYPE	BAR DIA. (1/8 IN.)	NO. REQ'D	BAR DIMENSIONS		
				A	B	C
4	A	3	6	3'–2"	0'–3"	–
	B	3	1	2'–10"	–	–
	C	4	15	4'–8"	0'–6"	–
	D	4	5	4'–8"	–	–
	F	4	1	3'–2"	–	–
	G	3	5	2'–0"	1'–3"	–
	H	3	6	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
6	A	3	9	3'–2"	0'–3"	–
	B	3	1	4'–10"	–	–
	C	4	15	6'–8"	0'–6"	–
	D	4	5	4'–8"	–	–
	F	4	1	3'–2"	–	–
	G	3	5	2'–0"	1'–3"	–
	H	3	9	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
8	A	3	12	3'–2"	0'–3'	–
	B	4	1	6'–10"	–	–
	C	4	15	8'–8"	0'–6"	–
	D	4	5	4'–8"	–	–
	F	4	1	3'–2"	–	–
	G	3	5	2'–0'	1'–3"	–
	H	3	12	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
10	A	3	13	3'–2"	0'–3'	–
	B	3	2	8'–10"	–	–
	C	4	16	10'–8"	0'–6"	–
	D	4	4	4'–8"	–	–
	E	5	6	10'–8"	–	–
	G	3	5	2'–0"	1'–3"	–
	H	3	14	*	*	*
	I	4	8	4'–8"	3'–2"	3'–2"
	L	4	5	4'–3"	–	–

* SEE DIAGRAM FOR DIMENSIONS. 4', 6', 8' AND 10' INLETS



SECTION C–C

(SECT_C–C)



NOTE: FOR ADDITIONAL INFORMATION SEE SECTION C–C

SECTION E–E

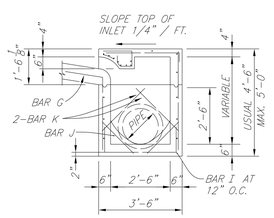
(SECT_E–E)

NOTES:

THE FLOOR OF THE EXCAVATION FOR INLET BOX MUST PROVIDE A FIRM, LEVEL BED FOR THE BASE SECTION TO REST UPON.

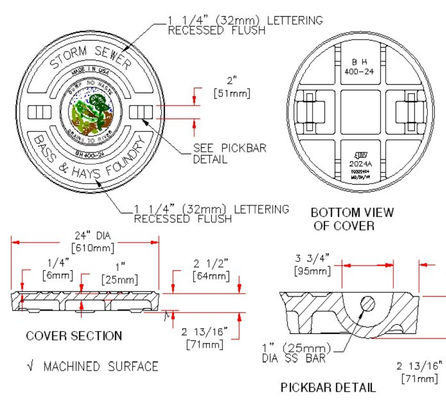
A MINIMUM OF 6 INCHES OF 1" DIAMETER (MAXIMUM) ROCK OR GRAVEL SHALL BE USED TO PREPARE THE BEDDING TO FINAL GRADE OR LIEU OF THIS, AT LEAST 6 INCHES OF 2–SACK CEMENT STABILIZED SAND SHALL BE USED TO PREPARE THE BEDDING TO GRADE. CEMENT STABILIZED–SAND SHALL BE ALLOWED TO SET BY KEEPING HOLE PUMPED DRY.

AFTER CASING HAS BEEN INSTALLED ON THE PROPER BEDDING, THE BACKFILL MATERIAL, WHICH IS FREE FLOWING AND CLEAR OF ROCKS, IN EXCESS OF 4" DIAMETER AND OTHER LUMPS WHICH WOULD PROHIBIT PROPER COMPACTION, SHALL BE COMMENCED IN LIFTS OF NO MORE THAN 18". THE MATERIAL USED FOR BACKFILL SHOULD BE A TYPE SUITABLE TO OBTAIN THE DENSITY REQUIREMENTS FOR THE SPECIFIC JOB.



SECTION B–B

(SECT_B–B)



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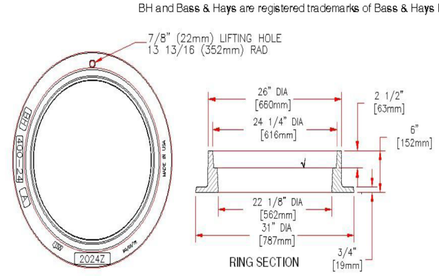
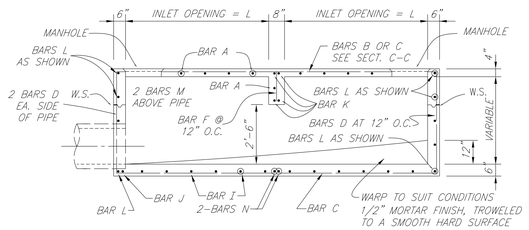


CITY OF CELINA, TEXAS

DRAINAGE
STANDARD DETAILS

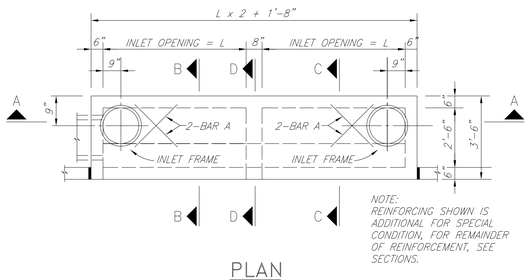
I:/proj/0130526/Phase-Two/dgn/lfp2de106.dgn



SECTION A–A

12, 14, 16 AND 20 FOOT INLETS

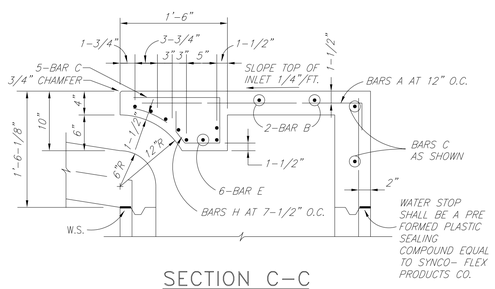
(SECT_A–A)



PLAN

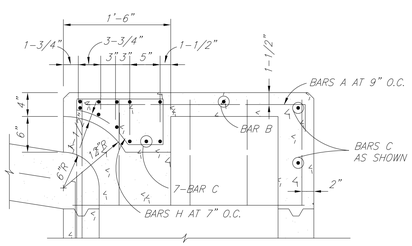
20 FOOT INLETS

(PLAN_20)



SECTION C–C

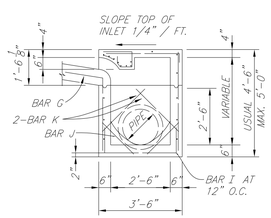
(SECT_C–C)



NOTE: FOR ADDITIONAL INFORMATION SEE SECTION C–C

SECTION D–D

(SECT_D–D)



SECTION B–B

(SECT_B–B)

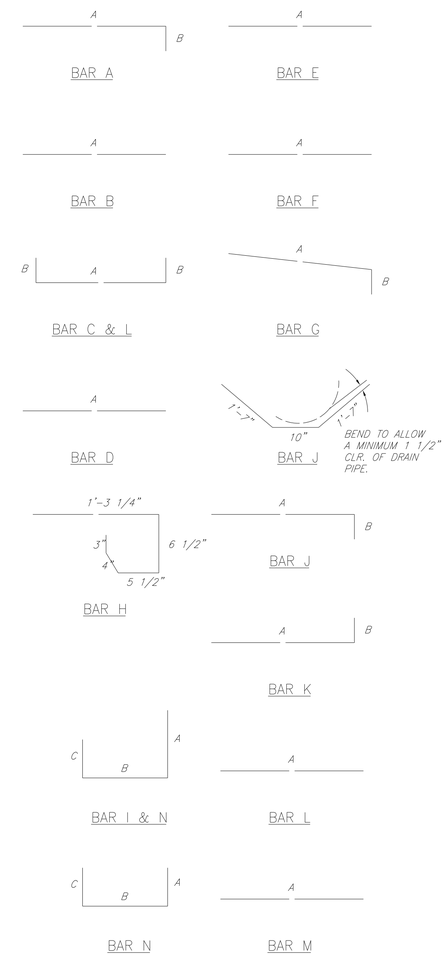
DOUBLE INLETS

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

INLET LENGTH	BAR TYPE	BAR DIA. (1/8 IN.)	NO. REQ'D	BAR DIMENSIONS		
				A	B	C
6 FT.	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"	0'-6"	–
	M	4	2	3'-0" **	–	–
	N	4	2	4'-8"	3'-2"	4'-8"
7 FT.	A	3	17	3'-2"	0'-6"	–
	B	3	2	13'-6"	–	–
	C	4	16	15'-4"	0'-3'	–
	D	4	9	4'-8"	–	–
	E	5	6	15'-4"	–	–
	F	4	5	1'-2"	–	–
	G	3	15	2'-0"	1'-3"	–
	H	3	32	*	*	*
	I	4	14	4'-8"	3'-2"	3'-2"
	J	5	1	*	*	*
	K	5	6	3'-2"	0'-6"	–
	L	4	11	3'-2"	0'-6"	–
	M	4	2	3'-0" **	–	–
	N	4	2	4'-8"	3'-2"	4'-8"
8 FT.	A	3	19	3'-2"	0'-6"	–
	B	3	2	15'-6"	–	–
	C	4	16	17'-4"	0'-6"	–
	D	4	9	4'-8"	–	–
	E	5	6	17'-4"	–	–
	F	4	5	1'-2"	–	–
	G	3	12	2'-0"	1'-3"	–
	H	3	26	*	*	*
	I	4	16	4'-8"	3'-2"	3'-2"
	J	5	1	*	*	*
	K	5	6	3'-2"	0'-6"	–
	L	4	11	3'-2"	0'-6"	–
	M	4	2	3'-0" **	–	–
	N	4	2	4'-8"	3'-2"	4'-8"
10 FT.	A	3	23	3'-2"	0'-6"	–
	B	3	2	19'-6"	–	–
	C	4	16	21'-4"	0'-6"	–
	D	4	9	4'-8"	–	–
	E	5	6	21'-4"	–	–
	F	4	5	1'-2"	–	–
	G	3	15	2'-0"	1'-3"	–
	H	3	32	*	*	*
	I	4	20	4'-8"	3'-2"	3'-2"
	J	5	1	*	*	*
	K	5	6	3'-2"	0'-6"	–
	L	4	11	3'-2"	0'-6"	–
	M	4	2	3'-0" **	–	–
	N	4	2	4'-8"	3'-2"	4'-8"

* SEE DIAGRAM FOR DIMENSIONS.
** FIELD CUT AS REQUIRED TO ACCOMMODATE DRAIN PIPE 16' AND 20' INLETS

REINFORCING STEEL SCHEDULE



△ BEND TO ALLOW A MINIMUM 1 1/2" CIR. OF DRAIN PIPE
* SEE DIAGRAMS FOR DIMENSIONS
** FIELD CUT AS REQUIRED TO ACCOMODATE DRAIN PIPE

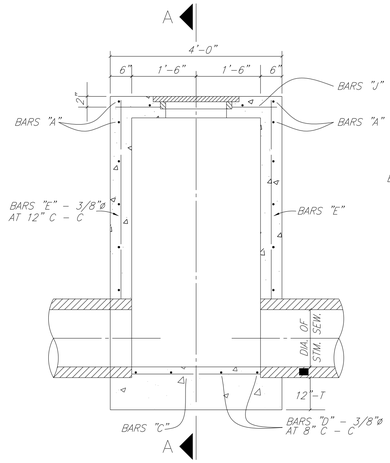
BAR BENDING DIAGRAMS

(BARLIST2)

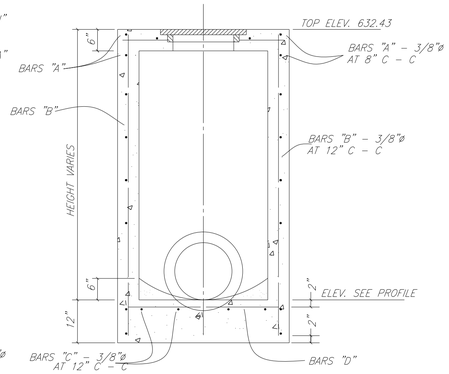
CITY OF CELINA, TEXAS

DRAINAGE
STANDARD DETAILS

I:/proj/01390526/Phase-Two/dgn/lfp2de107.dgn



ELEVATION

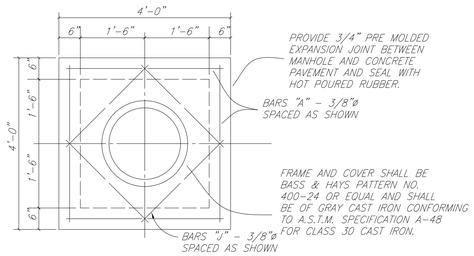


SECTION A–A

STORM SEWER TYPE A MANHOLE

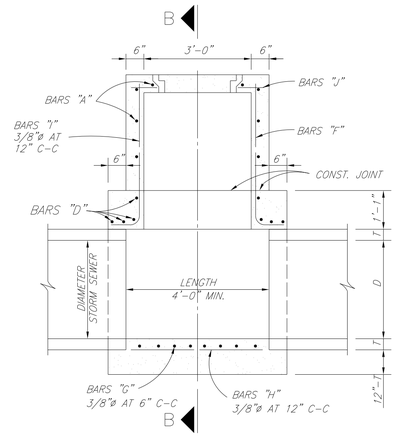
MAX. PIPE SIZE 30"

(TYPEAMH)

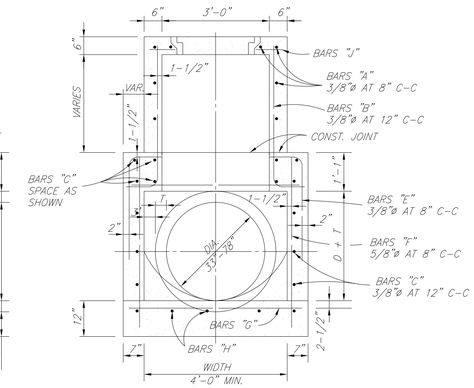


TOP PLAN
TYPE A & TYPE B
STORM SEWER MANHOLE

(MH_TOP)



ELEVATION

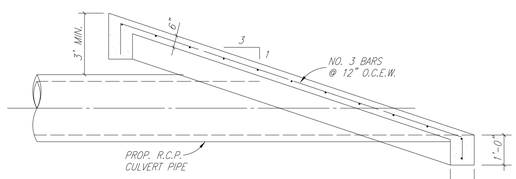


SECTION B–B

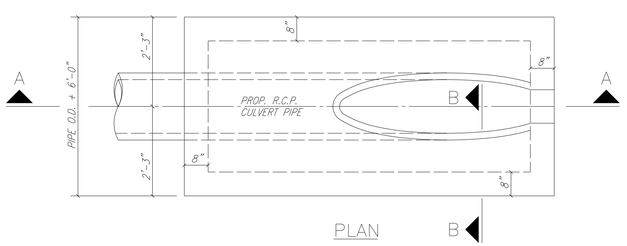
TYPE B STORM SEWER MANHOLE

MAX. PIPE SIZE 78"

(TYPEBMH)



SECTION A–A

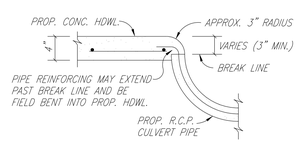


PLAN

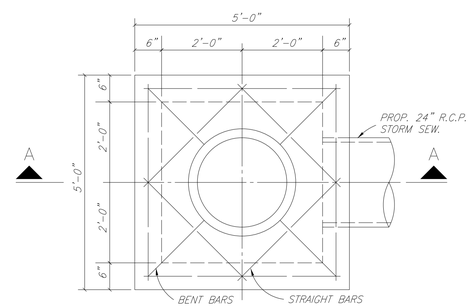
B

SLOPED CONCRETE HEADWALL

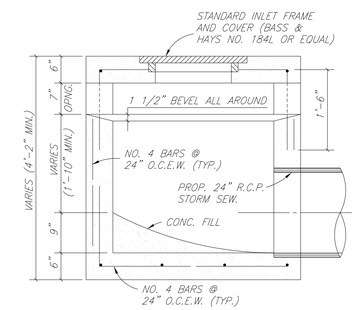
(SLOPEHWL)



SECTION B–B



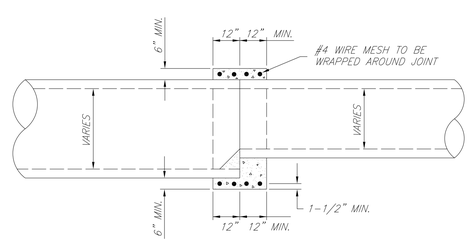
PLAN



SECTION A–A

STANDARD DROP INLET

(DROPINLET)



DETAIL OF CONCRETE COLLAR FOR R.C.P. OR R.C.A.P. CONNECTIONS

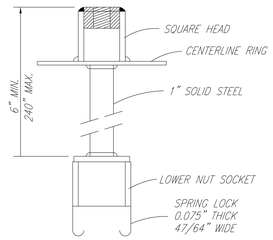
INSIDE JOINT SHALL BE CONCRETE MORTAR

(CONCCOL)

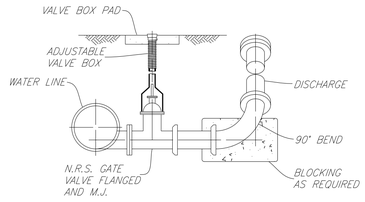
CITY OF CELINA, TEXAS

DRAINAGE
STANDARD DETAILS

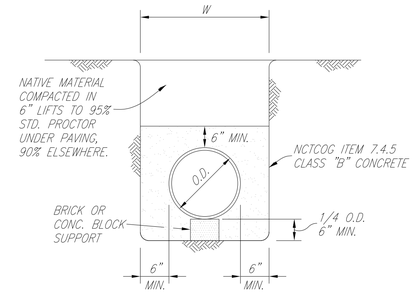
I:/proj/01390526/Phase-Two/dgn/ltp2det08.dgn



SPRING LOCK VALVE EXTENSION



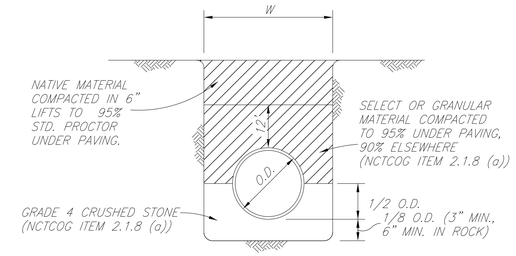
BLOW OFF VALVE



CLASS G EMBEDMENT

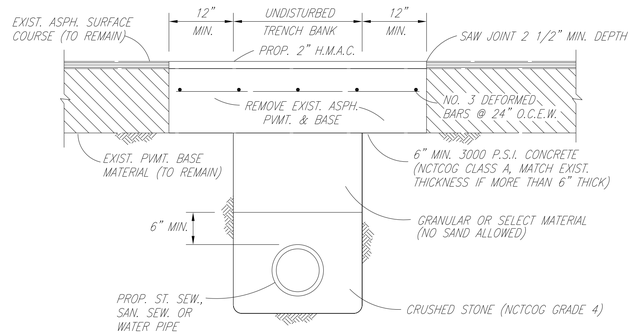
CONCRETE ENCASEMENT

NO SCALE



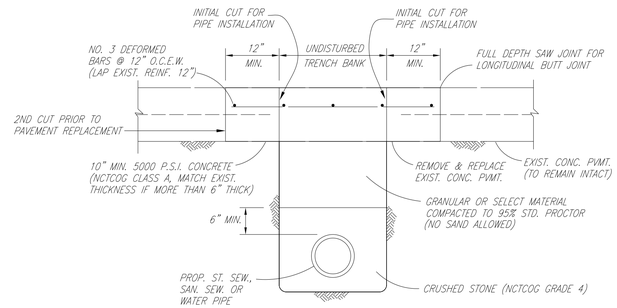
CLASS B+ EMBEDMENT

STD PVC WATER



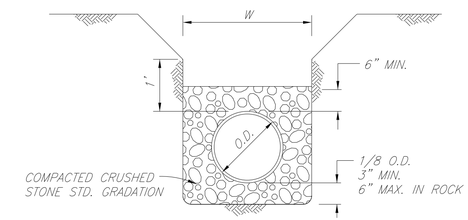
ASPHALT STREET REPAIR

NO SCALE



CONCRETE STREET REPAIR

NO SCALE

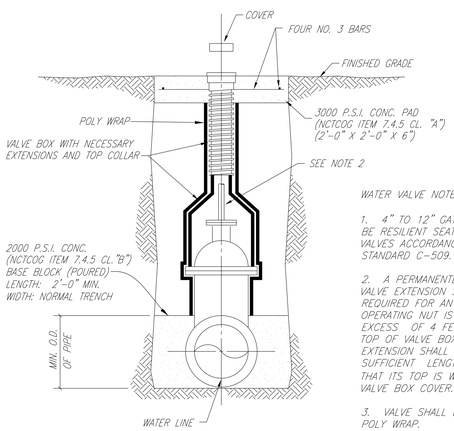


CLASS H EMBEDMENT

P.V.C. PIPE ONLY

STD. P.V.C. SEWER INSTALLATION

STD. P.V.C., R.C.C.P. & DUCTILE WATER INSTALLATION



WATER VALVE NOTES:

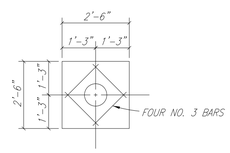
1. 4" TO 12" GATE VALVE SHALL BE RESILIENT SEATED WEDGE GATE VALVES ACCORDANCE WITH AWWA STANDARD C-509.

2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4" OF THE VALVE BOX COVER.

3. VALVE SHALL BE WRAPPED IN POLY WRAP.

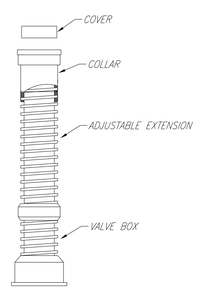
VALVE SETTING & BOX

NO SCALE



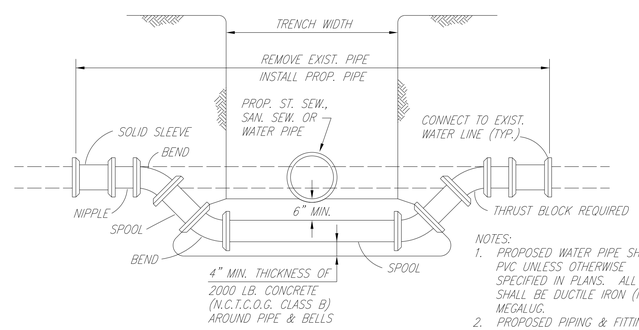
VALVE BOX PAD PLAN

NO SCALE



VALVE BOX WITH EXTENSION

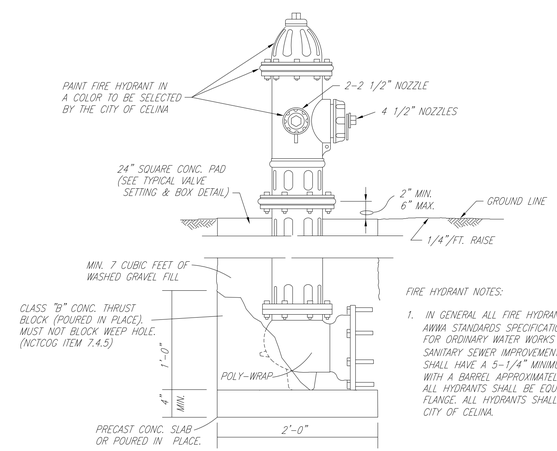
NO SCALE



NOTES:

1. PROPOSED WATER PIPE SHALL BE PVC UNLESS OTHERWISE SPECIFIED IN PLANS. ALL FITTINGS SHALL BE DUCTILE IRON (M.J.-P.E.) MEGALUG.
2. PROPOSED PIPING & FITTINGS ARE SYMMETRIC ABOUT CENTER OF PROP. SAN. SEW. OR ST. SEW. PIPE AND SHALL RETAIN TEST PRESSURES.
3. ALL THRUST BLOCKING SHALL BE SUBSIDIARY TO UNIT PRICE.
4. CROSSING OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH T.N.R.C.C. REQUIREMENTS. (CHAPTER 317.13 APPENDIX E)

WATER MAIN LOWERING



FIRE HYDRANT NOTES:

1. IN GENERAL ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARDS SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE FOR WATER AND SANITARY SEWER IMPROVEMENTS. FIRE HYDRANTS SHALL HAVE A 5-1/4" MINIMUM VALVE OPENING AND WITH A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE. ALL HYDRANTS SHALL BE APPROVED BY THE CITY OF CELINA.

TYPICAL FIRE HYDRANT INSTALLATION

NO SCALE

CITY OF CELINA, TEXAS

WATER DISTRIBUTION SYSTEM
STANDARD DETAILS

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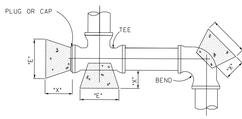
P-201309-01



NOTE: ALL CALCULATIONS ARE BASED ON A 4" 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.

HORIZONTAL BLOCKING TABLE

PIPE SIZE	"X" 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	1.06	1.00	1.00
6"	1.5	1.00	1.00	1.00	1.00	1.14	1.30	1.55	2.40	1.30	1.70
8"	1.5	1.00	1.00	1.08	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	6.66	2.17	4.71
12"	1.5	1.00	1.33	1.63	2.65	1.86	5.19	3.10	9.60	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	1.33	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	15.91	5.42	29.39	4.56	20.78
24"	2.0	1.77	5.32	3.25	10.59	4.56	20.77	6.20	38.39	5.21	27.14
27"	2.5	1.99	6.73	3.66	13.40	5.13	26.29	6.97	48.58	5.86	34.35
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.

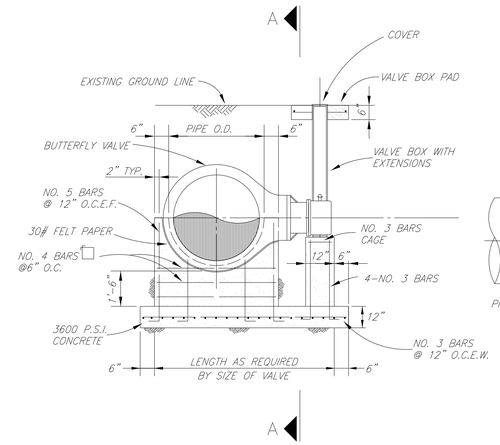
FOR 22-1/2°, 45°, 90°, AND TEES AND PLUGS, THE VERTICAL DIMENSION SHALL BE EQUAL TO THE HORIZONTAL DIMENSION SHOWN TO PRODUCE THE REQUIRED MINIMUM AREA.

ALL MINIMUM AREAS ARE IN SQUARE FEET.

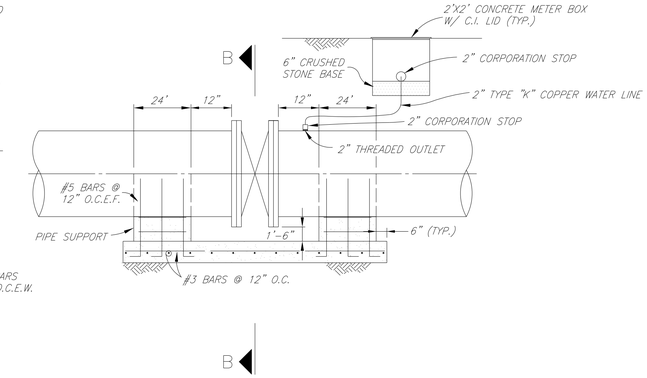
BLOCKING TO BE AGAINST UNDISTURBED TRENCH WALLS AND BOTTOM.

HORIZONTAL THRUST BLOCKING DETAIL

NO SCALE

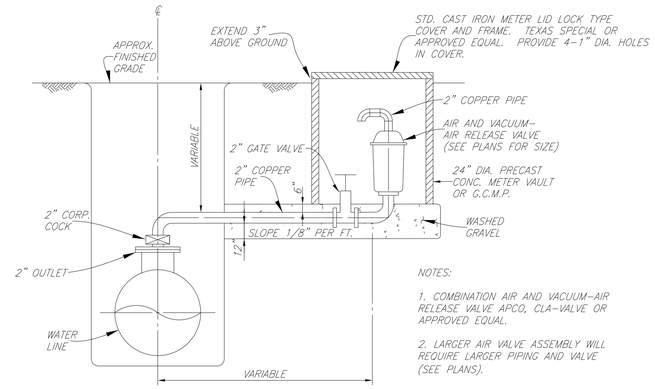


SECTION B–B



SECTION A–A

BUTTERFLY VALVE INSTALLATION



NOTES:

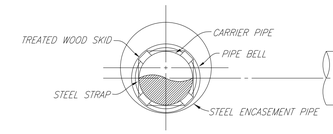
1. COMBINATION AIR AND VACUUM-AIR RELEASE VALVE APCO, CLA-VALVE OR APPROVED EQUAL.

2. LARGER AIR VALVE ASSEMBLY WILL REQUIRE LARGER PIPING AND VALVE (SEE PLANS).

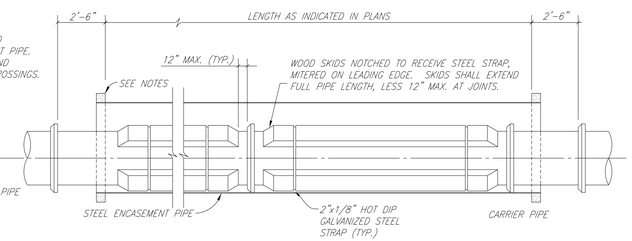
AIR AND VACUUM – AIR RELEASE VALVE INSTALLATION

BORING NOTES:

1. 2 MORTAR BANDS FOR R.C.C.P. AND CEMENT LINED & COATED STEEL PIPE MAY BE USED IN LIEU OF SKIDS & STRAPS.
2. CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO HAVE MIN. 1" CLEARANCE BETWEEN PIPE BELL AND ENCASEMENT PIPE.
3. ENDS OF ENCASEMENT PIPE SHALL BE PLUGGED WITH BRICK AND MORTAR FOR ROADWAY CROSSINGS AND CLAY FOR RAILROAD CROSSINGS.

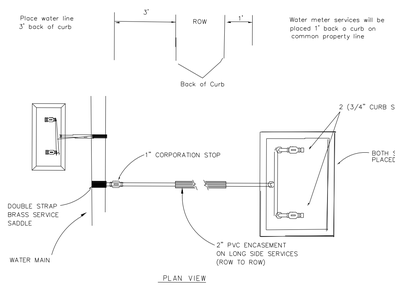


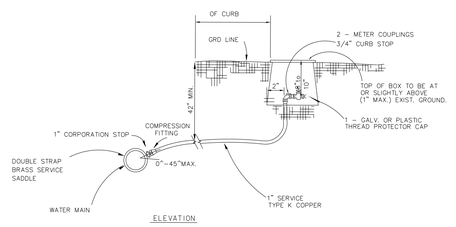
SECTION



ELEVATION

ENCASED ROAD OR RAILROAD BORE



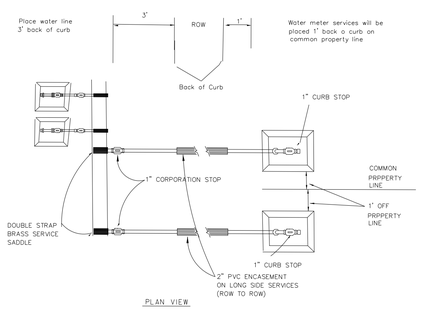


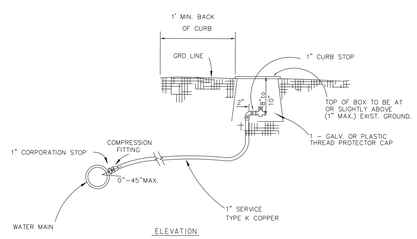
NOTES

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

SERVICE CONNECTION DETAIL (LOTS SMALLER THAN10,000 S.F.)

NO SCALE



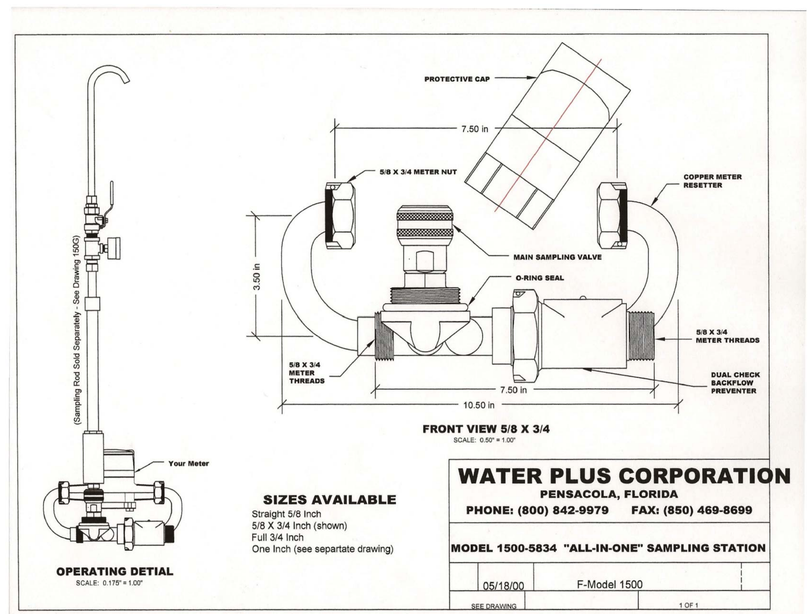


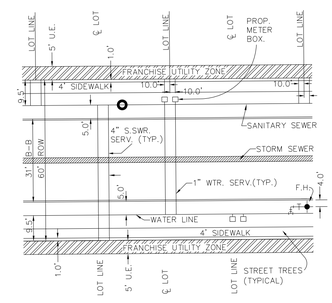
NOTES

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

SERVICE CONNECTION DETAIL (LOTS10,000 S.F. OR LARGER)

NO SCALE





UTILITY PLACEMENT DETAIL

NO SCALE

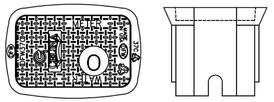
CITY OF CELINA, TEXAS

WATER DISTRIBUTION SYSTEM
STANDARD DETAILS

i:/proj/01390526/Phase-Two/dgn/1fp2del10.dgn

DFW PLASTICS, INC.

PO Box 648
Bedford, Texas 76095
Tel: 817.439.3600
Fax: 817.439.3700
www.dfwplasticsinc.com



DFW37C-12-1SAF CELINA

21x14x12 Black Polymer Box w/
Black Polymer AMR/AMI Lid w/ Security Lock & Knockout

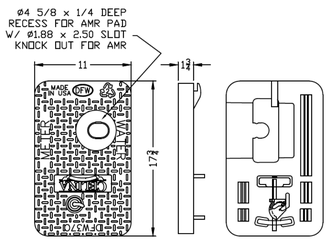
This product is designed to withstand loading in non-deliberate and incidental traffic. Not to be installed in roadway. Meter Box shall be black and constructed out of modified polyethylene material for maximum durability and corrosion resistance. The black material is for maximum UV protection. The black material shall be uniform throughout the Meter Box for maximum longevity and **not have** a foaming agent that creates air pockets within the plastic wall.

Vertical and Lateral Load Rating:

- Compliant with AASHTO, Design Load of H-10; ASTM C 857-12a, Design Load of A-8, 8,000 lbs. transferred through a 10" x 10" steel plate centered in the cover and body.
- Compliant with AASHTO, Design Load of H-20; ASTM C 857-12a, Design Load of A-16, 16,000 lbs. transferred through a 10" x 20" steel plate centered on the cover and body.
- This product is designed to withstand H-10 and H-20 loading in non-deliberate or incidental traffic areas. **NOT INTENDED TO BE INSTALLED IN ROADWAYS.**

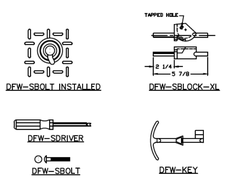
Polymer Lid

- The polymer lid shall have a molded key hole and Security Lock underneath lid (DFW-SBLOCK-XL) - *as illustrated.*
- The polymer lid shall have one (1) **MOLDED knock out plug (1.88" x 2.50"), recessed (4 5/8" x 1/4") deep** - *as illustrated.*
- The polymer lid shall have a molded slide mount bracket for placement of AMR/AMI device - *as illustrated.*
- The polymer lid shall seat securely and evenly inside the Meter Box and shall not overlap the top edge of the Meter Box.
- The polymer lid shall have molded **tread-pattern** for skid resistance - **tread dimensions shall be 0.188" x 0.938" x 0.150" deep.**
- The polymer lid shall have "Water Meter" molded into the lid - **Font shall be Std Fadal CNC Font with 1" characters x 0.150" deep.**
- The polymer lid shall have "CELINA" molded into the lid - *as illustrated.*
- The polymer lid shall retrofit existing cast iron meter boxes with similar dimensions and be able to adjust in the field.
- The polymer lid shall be black and have a molded recycled emblem with a minimum of 50% Post Consumer Recycled and 50% Post Industrial/ Pre Consumer Recycled Content- Verified with a **Leed Product Documentation.**
- The polymer lid shall be DFW Plastics Inc, **MADE IN USA.** - Domestic Only.



DFW37C-1SAF CELINA-LID

OPTIONAL SECURITY HARDWARE



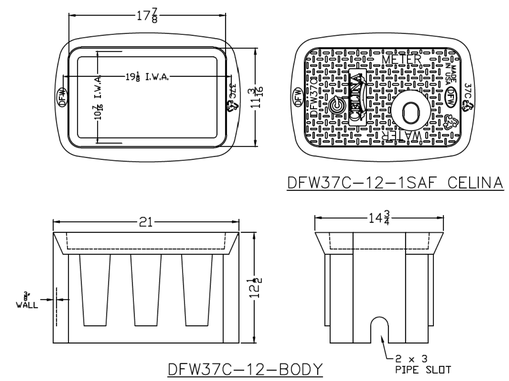
This product is designed to withstand loading in non-deliberate and incidental traffic. Not to be installed in roadway. Meter Box shall be black and constructed out of modified polyethylene material for maximum durability and corrosion resistance. The black material is for maximum UV protection. The black material shall be uniform throughout the Meter Box for maximum longevity and not have a foaming agent that creates air pockets within the plastic wall.

Vertical and Lateral Load Rating:

- Compliant with AASHTO, Design Load of H-10; ASTM C 857-12a, Design Load of A-8, 8,000 lbs. transferred through a 10" x 10" steel plate centered in the cover and body.
- Compliant with AASHTO, Design Load of H-20; ASTM C 857-12a, Design Load of A-16, 16,000 lbs. transferred through a 10" x 20" steel plate centered on the cover and body.
- This product is designed to withstand H-10 and H-20 loading in non-deliberate or incidental traffic areas. **NOT INTENDED TO BE INSTALLED IN ROADWAYS.**

Polymer Body

- The polymer body shall be BLACK and have a **Minimum** of 3/8" wall thickness - *as illustrated.*
- The polymer body shall have **Minimum** inside working room of (19 3/8" x 10 7/16") - *as illustrated.*
- The polymer body shall have crush resistant ribbing along the outside of the box.
- The polymer body shall have a flange around the lid opening to help prevent settling and aide in the adjustment to grade.
- The polymer body shall have one pipe slot molded on each end of the body that measures (3" x 4").
- The polymer body shall be black and have a molded recycled emblem with a minimum of 35% Post Industrial/ Pre Consumer Recycled Content - Verified with a **Leed Product Documentation.**
- The polymer Body shall be DFW Plastics Inc., **MADE IN USA.** - Domestic Only.



Meter Box shall be C Series by DFW Plastics, Inc. or an approved equal. All Specs are subject to change without notice.

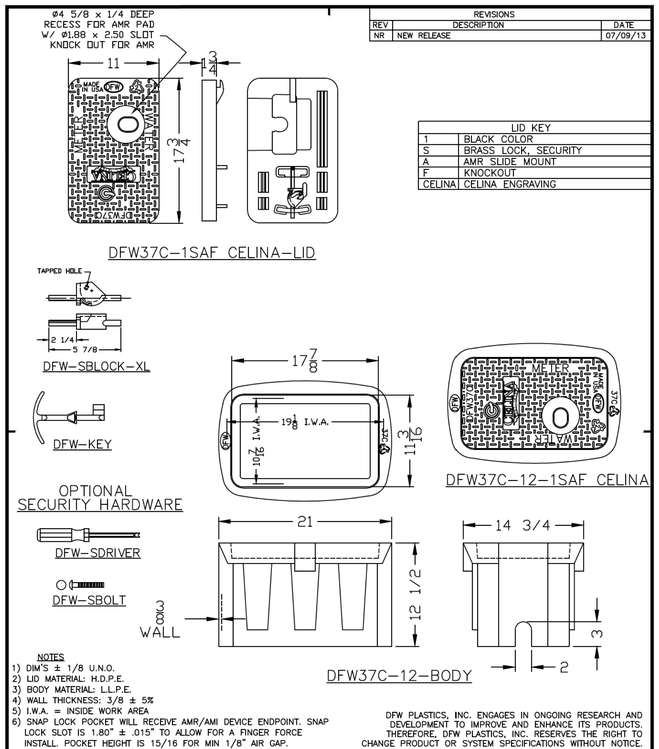
Part No.	Series	Size	Height	Width	Length
DFW37C-12-BODY	37C	21" x 14"	12"	Top - 14-3/4"	Top- 21"
DFW37C-12-1SAF CELINA	37C	21" x 14"	12"	Base - 11-1/4"	Base- 21"
DFW37C-1SAF CELINA-LID	37C	21" x 14"	1-7/8"	11"	17-3/4"

Single Service Box for 5/8", 3/4", & 1" Meters
File: Submittal -DFW37C-12-1SAF CELINA
Rev. A July 2013

Submitted by:

REVISIONS		
REV	DESCRIPTION	DATE
NR	NEW RELEASE	07/09/13

LID KEY	
1	BLACK COLOR
S	BRASS LOCK, SECURITY
A	AMR SLIDE MOUNT
F	KNOCKOUT
CELINA	CELINA ENGRAVING



NOTES
1) DIM'S ± 1/8 U.N.O.
2) LID MATERIAL: H.D.P.E.
3) BODY MATERIAL: L.L.P.E.
4) WALL THICKNESS: 3/8 ± 5%
5) I.W.A. = INSIDE WORK AREA
6) SNAP LOCK POCKET WILL RECEIVE AMR/AMI DEVICE ENDPOINT. SNAP LOCK SLOT IS 1.80" ± .015" TO ALLOW FOR A FINGER FORCE INSTALL. POCKET HEIGHT IS 15/16 FOR MIN 1/8" AIR GAP.

DFW PLASTICS, INC. ENGAGES IN ONGOING RESEARCH AND DEVELOPMENT TO IMPROVE AND ENHANCE ITS PRODUCTS. THEREFORE, DFW PLASTICS, INC. RESERVES THE RIGHT TO CHANGE PRODUCT OR SYSTEM SPECIFICATIONS WITHOUT NOTICE.

DFW PLASTICS, INC.
PO BOX 648
BEDFORD, TEXAS 76095
(817) 439-3600
(817) 439-3700 (f)
www.dfwplasticsinc.com

CITY OF CELINA

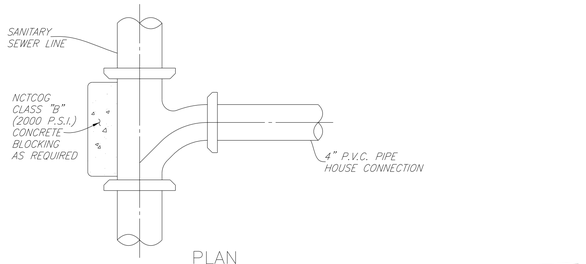
DFW37C-12-1SAF CELINA

CREATED: 07/09/13
UPDATED: *
ACCEPTED: BMcK
DRAWN BY: J.C.A.
PLOT SCALE: 1:10

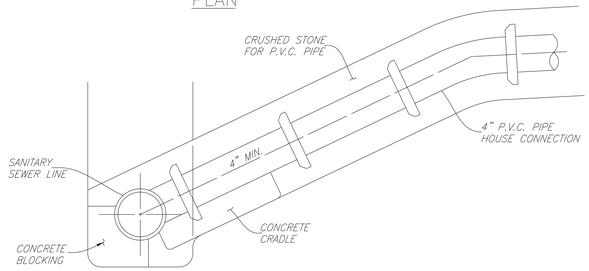
CITY OF CELINA, TEXAS

WATER DISTRIBUTION SYSTEM
STANDARD DETAILS

I:/proj/01390526/Phase-Two/dgn/lfp2detll.dgn



PLAN

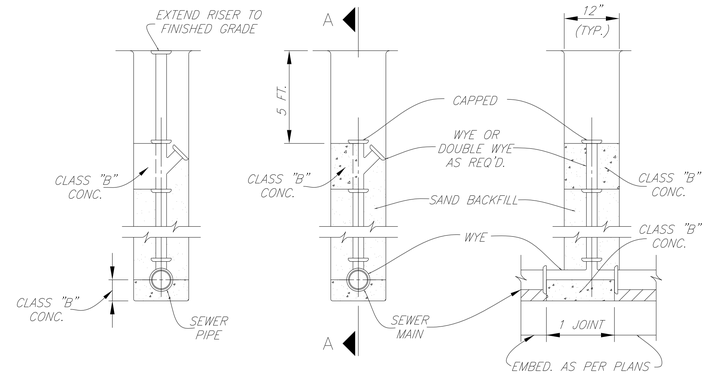


SECTION

TYPICAL SEWER HOUSE SERVICE CONNECTION

SANITARY SEWER CLEANOUT BOOTS SHALL BE BASS & HAYS # 339 OR APPROVED EQUAL.

(HOUSE_SERVICE)

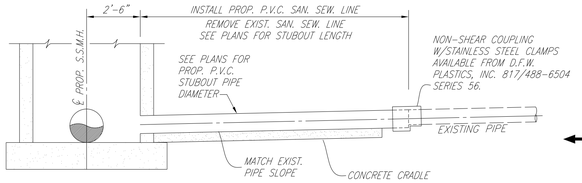


WITH CLEAN OUT

SECTION "A-A"

DEEP CUT CLEANOUT

(DEEPCUT-CO)

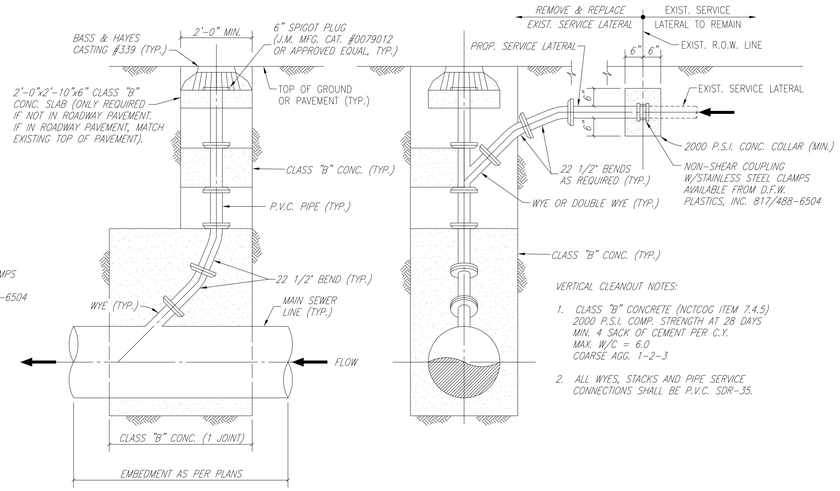


TYPICAL STUBOUT CONNECTION

NO SCALE

NOTE:
MATCH SOFFITS UPSTREAM OF MANHOLE
MATCH FLOW LINES DOWNSTREAM OF MANHOLE

(STUBOUT)



VERTICAL CLEANOUT NOTES:

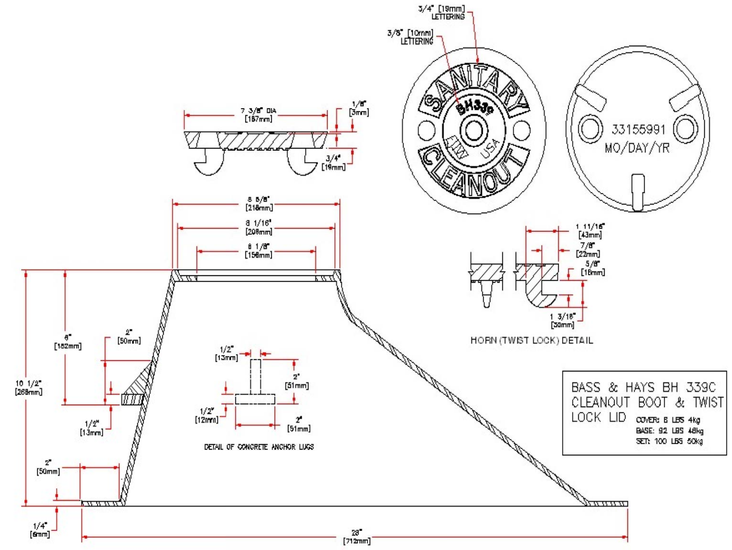
1. CLASS "B" CONCRETE (NCTCOG ITEM 7.4.5) 2000 P.S.I. COMP. STRENGTH AT 28 DAYS MIN. 4 SACK OF CEMENT PER C.Y. MAX. W/C = 6.0 COARSE AGG. 1-2-3
2. ALL WYES, STACKS AND PIPE SERVICE CONNECTIONS SHALL BE P.V.C. SDR-35.

VERTICAL CLEANOUT CONNECTION

(CONNECTION, WYE, CONCRETE, BENDS, CASTING, ETC. ALL SUBSIDIARY TO CLEANOUT)

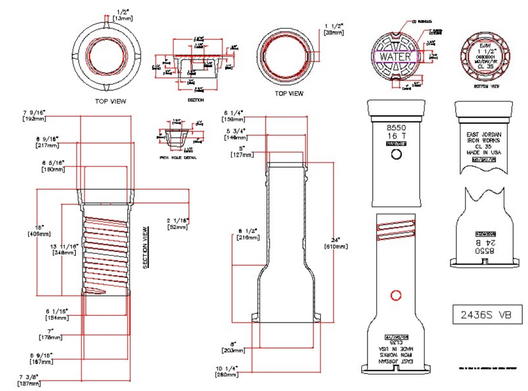
(VERT-CO)

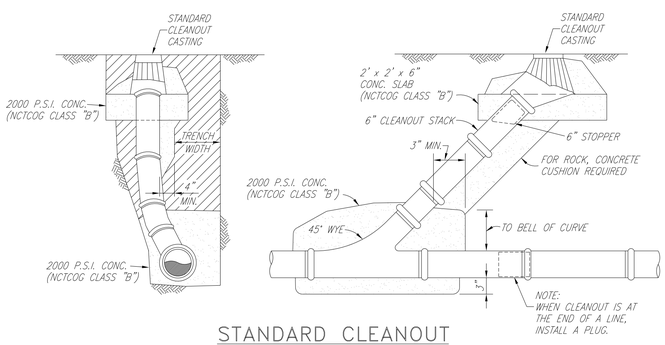
Cleanout



BASS & HAYS BH 339C CLEANOUT BOOT & TWIST LOCK LID COVER: 6 LBS 4kg BASE: 92 LBS 48kg SET: 100 LBS 60kg

Valve box

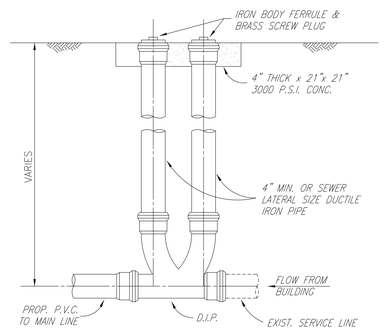




STANDARD CLEANOUT

NO SCALE

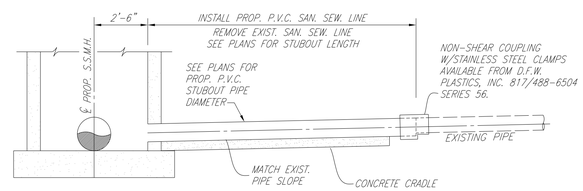
(CLEANOUT)



TYPICAL TWO WAY CLEANOUT

NO SCALE

(2-WAY-CO)



TYPICAL STUBOUT CONNECTION

NO SCALE

NOTE:
MATCH SOFFITS UPSTREAM OF MANHOLE
MATCH FLOW LINES DOWNSTREAM OF MANHOLE

(STUBOUT)

CITY OF CELINA, TEXAS

SANITARY SEWER SYSTEM
STANDARD DETAILS

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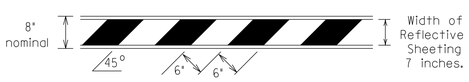
TYPE III BARRICADES

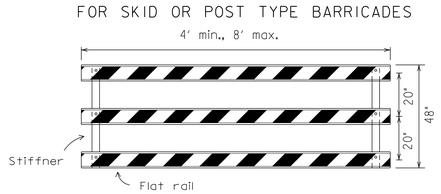
1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type III Barricades and a list of all materials used in the construction of Type III Baricades.
2. Type III Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specfication DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



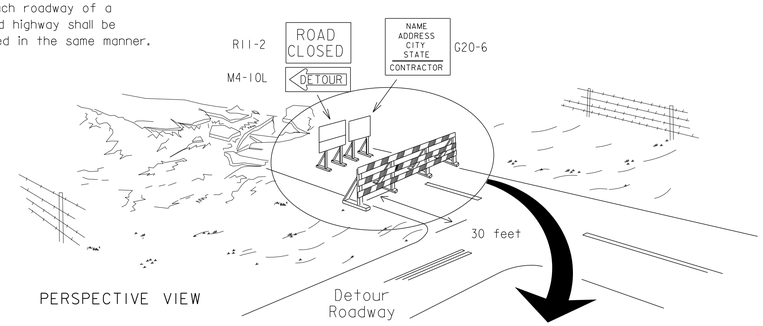
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



Stiffner may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

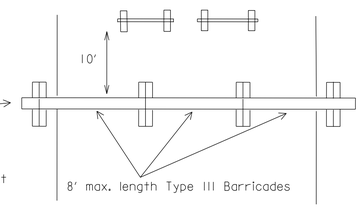
TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

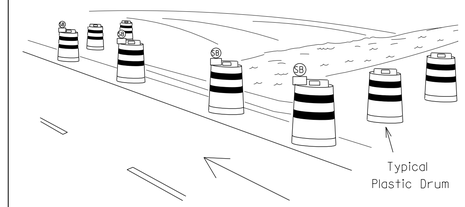
The three rails on Type III barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

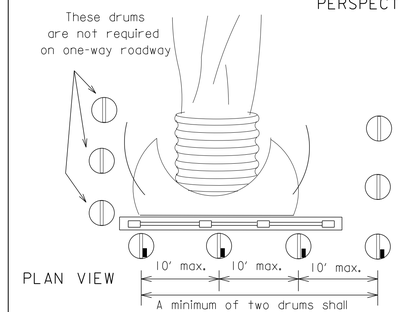
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type III Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



PERSPECTIVE VIEW

1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



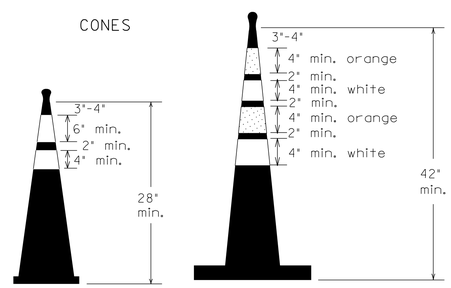
PLAN VIEW

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)

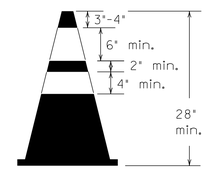
Legend

- Plastic drum
- Plastic drum with steady burn light or yellow warning reflector
- SB — Steady burn warning light or yellow warning reflector

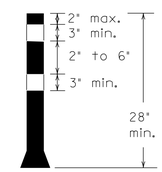
CONES



Two-Piece cones



One-Piece cones

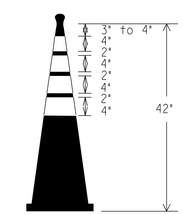


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

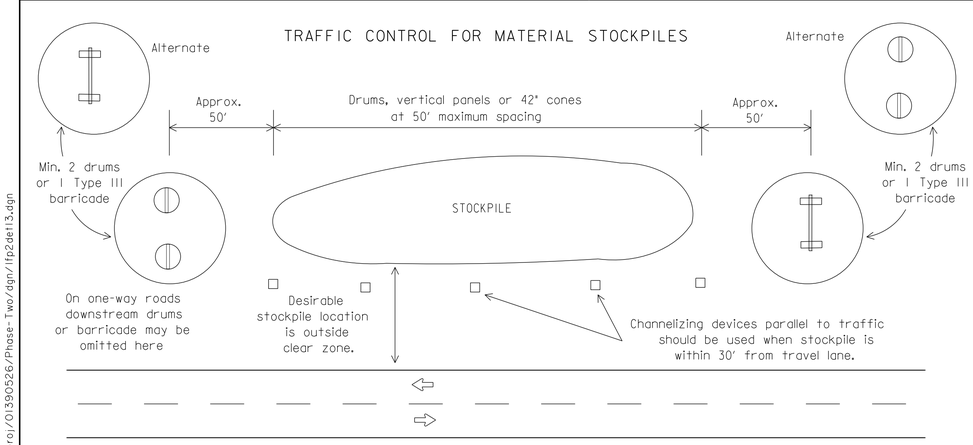
1. Traffic cones and tubular markers shall be a minimum of 28 inches in height when used either on freeways or at nighttime.
2. Cones or tubular markers shall be predominantly orange, fluorescent red-orange, or fluorescent yellow-orange. They should be kept clean and bright for maximum visibility.
3. Cones used only for daytime operations do not require the reflectorized bands.
4. Cones and tubular markers used for nighttime operations shall be reflectorized. Reflectorized material shall have a smooth, sealed outer surface that displays the same approximate color during the day and night. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
5. When used at night, appropriate personnel shall ensure that cones and tubular markers remain in their proper location and in an upright position.
6. Reflectorization of 28"cones shall consist of a minimum 6 inch band placed at least 3 inches but not more than 4 inches from the top, supplemented by a minimum 4 inch band spaced a minimum of 2 inches below the 6 inch band.
7. Reflectorization of 42" cones shall be provided by alternating 4 to 6" orange and white stripes with orange on top.
8. Reflectorization of tubular markers shall be a minimum of two 3 inch bands placed a maximum of 2 inches from the top with a maximum of 6 inches between bands.
9. One-piece cones or tubular markers are generally suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels, drums or two-piece cones for long term usage. Care should be taken to ensure they remain in their proper location and in an upright position.
10. Cones or tubular markers used on each project shall be of the same size and shape.
11. The handle may be designed as a hook or other shape, fabricated from non-rigid materials similar to the cone material, and may extend up to a maximum of 8 inches above the top of cone. Length of the handle shall not be considered with regard to the overall height of the cone.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type C encapsulated bead (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

TRAFFIC CONTROL FOR MATERIAL STOCKPILES



Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

10 of 12 BC(10)-07

©TxDOT 11-4-02	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-07 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

109A

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