

CONSTRUCTION PLANS FOR THE ESTATES AT FOREST GROVE

AN ADDITION TO THE CITY OF LUCAS
COLLIN COUNTY, TEXAS
10 SINGLE FAMILY LOTS, 49.58 ACRES

CONTACT INFORMATION:

City of Lucas - (972) 771-6228
Engineer - Stacy Caudell, P.E.
Development Services Director - Joe Hilbourn

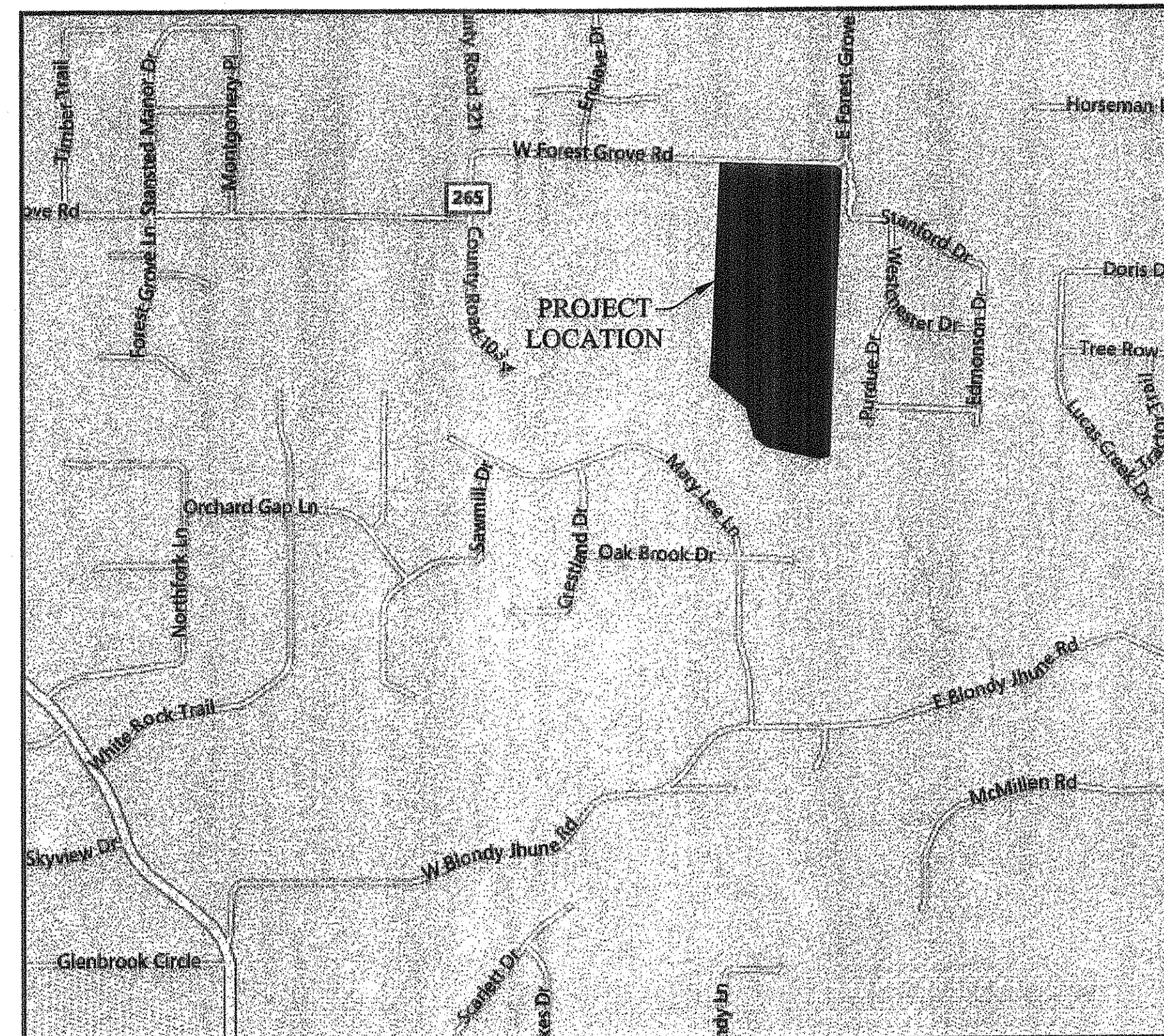
Lovejoy ISD - (469) 742-8017
Dennis Womack

Grayson-Collin Electric - (903) 482-7183
Michael Lauer

TXU Energy - (214) 812-4600
Brian Neitzel

North Texas Municipal Water District - (972) 442-5402
Bob Quinn

Co-Serve - (940) 321-7862
Lance Ehler



VICINITY MAP
NOT TO SCALE



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APPROVED
CITY OF LUCAS
CITY ENGINEER DATE
Stacy Caudell 9-7-12

RECORD DRAWINGS
THESE RECORD DRAWINGS HAVE BEEN PREPARED
BASED ON INFORMATION PROVIDED BY OTHERS.
THE ENGINEER HAS NOT VERIFIED THE ACCURACY
OF THIS INFORMATION AND SHALL NOT BE
RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY
BE INCORPORATED HEREIN AS A RESULT.

ENGINEERING CONCEPTS & DESIGNS, L.P.
Todd D. Winters 2-11-13
TODD D. WINTERS, P.E.

CAUTION! EXISTING UTILITIES
CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

SITE BENCHMARK:
An 'X' cut in top of curb at the southwest corner of the intersection of Stonegate Drive and Forest Grove Road. ELEV.=580.44

OWNER/DEVELOPER
LUCAS REAL ESTATE, LLC
1221 N INTERSTATE 35E STE 200
CARROLLTON, TX 75006-3806

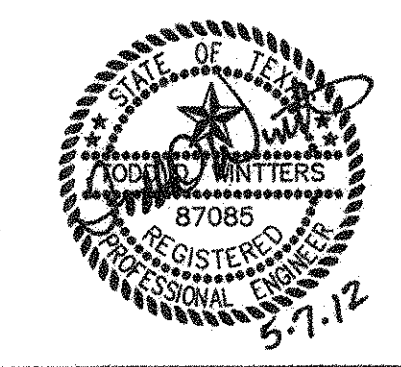
ENGINEERINGCONCEPTS
& DESIGN, L.P.

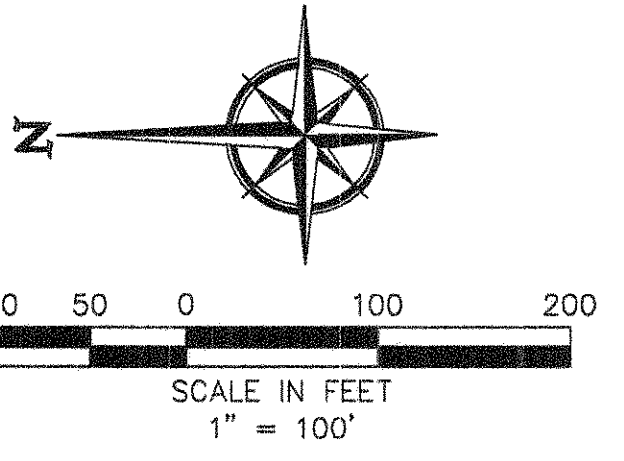
ENGINEERING / PROJECT MANAGEMENT /
CONSTRUCTION SERVICES FIRM REG # F-001145
201 WINDCO CIR, SUITE 200 WYLIE, TEXAS 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:	
DATE:	MAY 2012
PROJECT NO.:	8311
DWG FILE NAME:	8311 COVERSHEET

THIS DOCUMENT IS RELEASED FOR
THE PURPOSE OF CONSTRUCTION.

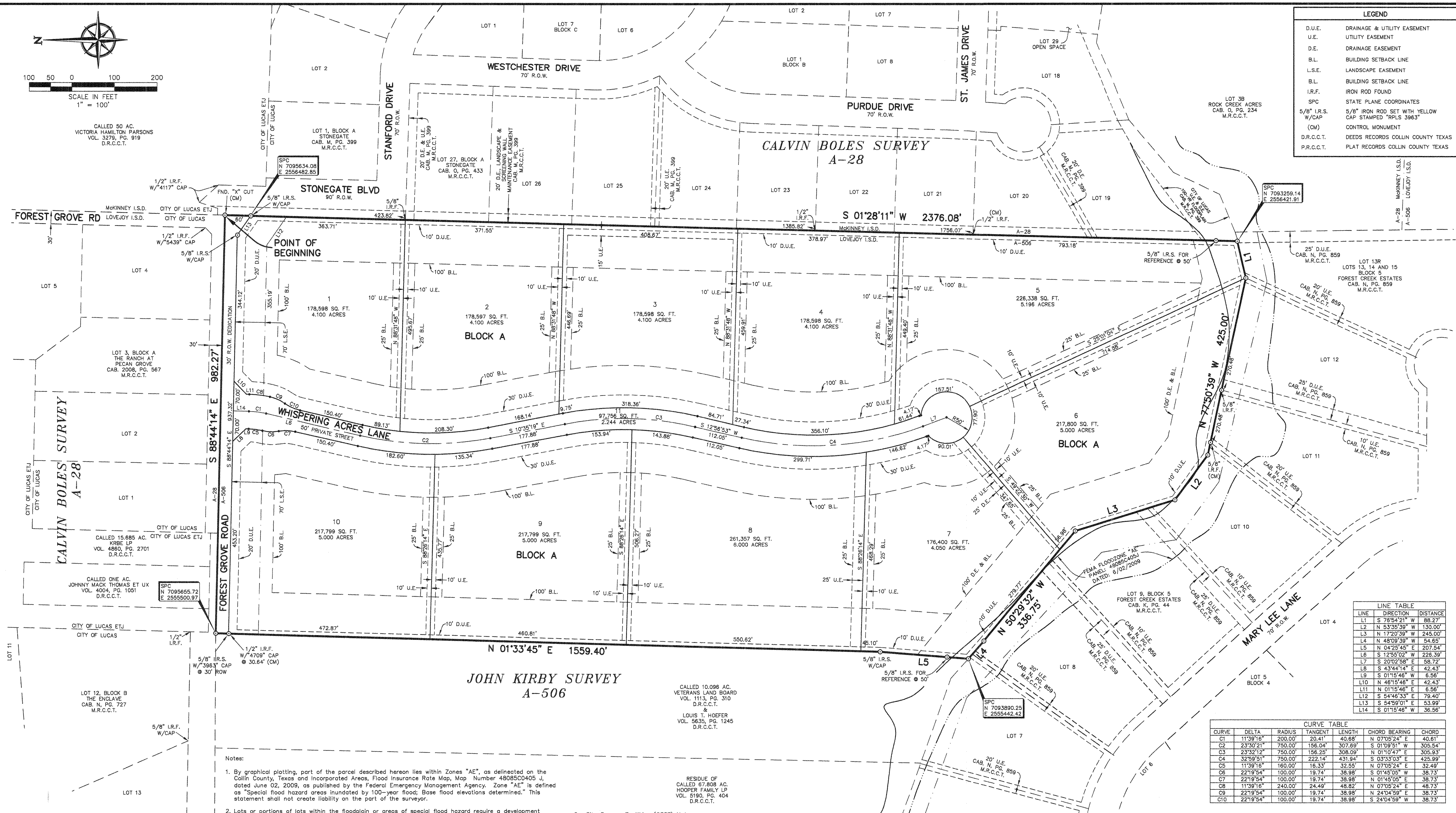
THE SEAL APPEARING ON THIS
DOCUMENT WAS AUTHORIZED BY
TODD D. WINTERS, P.E. 87085





CALLED 50 AC.
VICTORIA HAMILTON PARSONS
VOL. 3279, PG. 919
D.R.C.C.T.

LEGEND	
D.U.E.	DRAINAGE & UTILITY EASEMENT
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
B.L.	BUILDING SETBACK LINE
L.S.E.	LANDSCAPE EASEMENT
B.L.	BUILDING SETBACK LINE
I.R.F.	IRON ROD FOUND
SPC	STATE PLANE COORDINATES
5/8" I.R.S. W/CAP	5/8" IRON ROD SET WITH YELLOW CAP STAMPED "RPLS 3963"
(CM)	CONTROL MONUMENT
D.R.C.C.T.	DEEDS RECORDS COLLIN COUNTY TEXAS
P.R.C.C.T.	PLAT RECORDS COLLIN COUNTY TEXAS



LINE	DIRECTION	DISTANCE
L1	S 75°54'21" W	88.27'
L2	N 53°35'39" W	130.00'
L3	N 17°20'39" W	245.00'
L4	N 48°09'39" W	54.65'
L5	N 04°25'45" E	207.54'
L6	S 12°35'02" W	226.39'
L7	S 20°02'58" E	58.72'
L8	S 43°44'14" E	42.43'
L9	S 01°15'46" W	6.56'
L10	N 46°15'46" E	42.43'
L11	N 01°15'46" E	6.56'
L12	S 54°46'33" E	79.40'
L13	S 54°59'01" E	53.99'
L14	S 01°15'46" W	36.56'

CURVE	DELTA	RADIUS	TANGENT	LENGTH	CHORD BEARING	CHORD
C1	11°39'16"	200.00'	20.41'	40.68'	N 07°05'24" E	40.61'
C2	23°30'21"	750.00'	156.04'	307.69'	S 01°09'51" W	305.54'
C3	23°32'12"	750.00'	156.25'	308.09'	N 01°10'47" E	305.93'
C4	32°59'51"	750.00'	222.14'	431.94'	S 03°33'03" E	425.99'
C5	11°39'16"	160.00'	16.33'	32.55'	N 07°05'24" E	32.48'
C6	22°19'54"	100.00'	19.74'	38.98'	S 01°45'05" W	38.73'
C7	22°19'54"	100.00'	19.74'	38.98'	N 01°45'05" E	38.73'
C8	11°39'16"	240.00'	24.49'	48.82'	N 07°05'24" E	48.73'
C9	22°19'54"	100.00'	19.74'	38.98'	N 24°04'59" E	38.73'
C10	22°19'54"	100.00'	19.74'	38.98'	S 24°04'59" W	38.73'

- Notes:
- By graphical plotting, part of the parcel described hereon lies within Zones "AE", as delineated on the Collin County, Texas and Incorporated Areas, Flood Insurance Rate Map, Map Number 48085C0405 J, dated June 02, 2009, as published by the Federal Emergency Management Agency. Zone "AE" is defined as "Special flood hazard areas inundated by the 100-year flood; Base flood elevations determined." This statement shall not create liability on the part of the surveyor.
 - Lots or portions of lots within the floodplain or areas of special flood hazard require a development permit prior to issuance of a building permit or commencement of construction including site grading, on all or part of those lots.
 - Bearings are based on Texas State Plane Coordinates. Projection: State Plane NAD83 Texas North Central Zone 4202, Lambert Conformal Conic, Feet (TX83-NGF).
 - A 5/8-inch iron rod with yellow cap stamped "RPLS 3963" has been set at all boundary corners, lot corners, points of curvature, points of tangency and angle points in public rights-of-way unless otherwise shown or noted in this drawing.
 - Selling a portion of any lot within this addition by metes and bounds is a violation of state law and city ordinance and is subject to fines and withholding of utilities and building permits.
 - BENCHMARK: An "X" cut in top of curb at the southwest corner of the intersection of Stonegate Drive and Forest Grove Road. ELEV.=580.44
 - The Home Owners Association (HOA) will maintain the Landscape Easements.
 - The Home Owners Association (HOA) will maintain all easements and pavement in Lot 11 including the entry.
 - The entry feature structure shall not exceed 25 feet in height.

- On-Site Sewage Facilities (OSSF) Notes:
- All lots must utilize alternative type On-Site Sewage Facilities.
 - All lots must maintain state-mandated setback of all On-Site Sewage Facility components from any/all easements and drainage areas, water distribution lines, sharp breaks and/or creeks/streams/ponds, etc. (Per State regulations).
 - A portion of lots 5, 6 and 7 are located within the 100-year flood plain:
 - Any OSSF that is located within the 100-year flood plain is subject to special planning requirements.
 - All electrical/mechanical appurtenances located within the 100-year flood plain must be elevated at least 1' above base flood elevation.
 - A certificate of elevation establishing base flood elevation and proving that the finished floor will be at least 2' above base flood elevation must accompany any permit application for a structure that is proposed to be located within the curvilinear line of the 100-year flood plain.
 - Tree removal and/or grading for OSSF may be required on individual lots.
 - Individual site evaluations and OSSF design plans (meeting all State and County requirements) must be submitted to and approved by Collin County for each lot prior to construction of any OSSF system.

LAND SURVEYOR
R.C. MYERS SURVEYING, LLC
3400 OXFORD DRIVE
ROWLETT, TX 75088
(214) 532-0636
FAX (972) 412-4875
EMAIL: rcmysurveying@gmail.com
Job No. 167

EXISTING ZONING: AG
PROPOSED ZONING: R-2
10 RESIDENTIAL LOTS
DENSITY: 0.202 LOTS/ACRE
AVG. LOT SIZE: 4.655 ACRE
MIN. LOT SIZE: 4.100 ACRE

OWNER/DEVELOPER
LUCAS REAL ESTATE, LLC
1221 N INTERSTATE 35E STE 200
CARROLLTON, TX 75006-3806

FINAL PLAT
THE ESTATES AT FOREST GROVE
LOTS 1-11, BLOCK A
10 RESIDENTIAL LOTS
BEING 49.582 ACRES
SITUATED IN THE
JOHN W. KIRBY SURVEY, ABSTRACT NO. 506
CITY OF LUCAS, COLLIN COUNTY, TEXAS

ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
TEXAS FIRM REG. NO. 001146
201 WINDO CIRCLE, SUITE 200, WYLLIE TEXAS 75088
(972) 941-8400 FAX (972) 941-8401

OWNER'S CERTIFICATE & DEDICATION

STATE OF TEXAS
COUNTY OF COLLIN

WHEREAS, LUCAS REAL ESTATE, LLC., BEING the owner of a 49.582 acre tract of land situated in the City of Lucas, Collin County, State of Texas, and being part of the John W. Kirby Survey, Abstract No. 506, and being all of that certain 49.58 acre tract of land (Tract 2) described in deed to Lucas Real Estate, LLC, as recorded in Instrument 2011014001101190, Deed Records, Collin County, Texas, said 49.582 acre tract being more particularly described by metes and bounds as follows:

BEGINNING at an "x" cut in concrete found for the northeast corner of said 49.58 acre tract and the southeast corner of The Ranch at Pecan Grove, an addition to the City of Lucas, as recorded in Cabinet 2008, Page 567, Plat Records, Collin County, Texas, said corner being in the west boundary line of Stonegate, an addition to the City of Lucas, as recorded in Cabinet 0, Page 433 of said Plat Records;

THENCE South 01 degrees 28 minutes 11 seconds West, with the common boundary line of said 49.58 acre tract and said Stonegate addition, passing a 5/8-inch iron rod found for the northwest corner of Lot 27, Block A of said Stonegate addition at a distance of 423.82 feet, passing a 1/2-inch iron rod found for the northwest corner of Lot 22 of said Block A and the southwest corner of Lot 23 of said Block A at a distance of 1385.82 feet, passing a 1/2-inch iron rod found for the northwest corner of Lot 20 of said Block A and the southwest corner of Lot 21 of said Block A at a distance of 1756.07 feet and continuing a total distance of 2376.08 feet to the southeast corner of said 49.58 acre tract and the southwest corner of said Stonegate addition, said corner being in the north boundary line of Forest Creek Estates, an addition to the City of Lucas, as recorded in Cabinet K, Page 44 of said Plat Records and also being within the banks of White Rock Creek from which a 5/8-inch iron rod with cap stamped "RPLS 3963" set for reference bears North 01 degrees 28 minutes 11 seconds East a distance of 50.00 feet;

THENCE Northwesterly, with the common boundary line of said 49.58 acre tract and said Forest Creek Estates and within the banks or north of the northerly high bank of said creek, the following courses:

South 76 degrees 54 minutes 21 seconds West, with the, a distance of 88.27 feet to a point for corner;

North 77 degrees 50 minutes 39 seconds West, passing a 5/8-inch iron rod found for the northwest corner of Lot 12 and the northeast corner of Lot 11 of said Forest Creek Estates at a distance of 270.48 feet, passing a 5/8-inch iron rod found for the northwest corner of Lot 11 and the northeast corner of Lot 10 of said Forest Creek Estates at a distance of 394.81 feet and continuing a total distance of 425.00 feet to a point for corner;

North 53 degrees 35 minutes 39 seconds West, a distance of 130.00 feet to a point for corner;

North 17 degrees 20 minutes 39 seconds West, a distance of 245.00 feet to a point for corner;

North 50 degrees 29 minutes 32 seconds West, a distance of 336.75 feet to a point for corner;

North 48 degrees 09 minutes 39 seconds West, a distance of 54.65 feet to the southwest corner of said 49.58 acre tract and the southeast corner of called 10.096 acre tract of land described in deed to the Veterans Land Board, as recorded in Volume 1113, Page 310 of said Deed Records from which a 5/8-inch iron rod with cap stamped "RPLS 3963" set for reference bears North 04 degrees 25 minutes 45 East a distance of 50.00 feet;

THENCE North 04 degrees 25 minutes 45 East, with the common boundary line of said 10.096 acre tract and said 49.58 acre tract, a distance of 207.54 feet to a 5/8-inch iron rod with cap stamped "RPLS 3963" set for corner;

THENCE North 01 degrees 33 minutes 45 East, continuing with the common boundary line of said 10.096 acre tract and said 49.58 acre tract, passing a 1/2-inch iron rod with cap stamped "RPLS 4709" for reference at a distance of 1528.76 and continuing a total distance of 1559.40 feet to the northwest corner of said 49.58 acre tract, said corner being in the center of Forest Grove Road, a variable width right-of-way;

THENCE South 88 degrees 44 minutes 14 seconds East, with the north boundary line of said 49.58 acre tract and the center of said road, a distance of 982.27 feet to the POINT OF BEGINNING AND CONTAINING 2,159,785 square feet or 49.582 acres of land.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS:

THAT, LUCAS REAL ESTATE, LLC., does hereby adopt this plat designating the herein described property as THE ESTATES AT FOREST GROVE, an addition to the City of Lucas, Texas, and does hereby dedicate to the public use forever, the streets and alleys shown thereon. The streets and alleys are dedicated for street purposes. The Easements and public use areas, as shown, are dedicated, for the public use forever, for the purposes indicated on this plat. No buildings, fences, trees, shrubs or other improvements or growths shall be constructed or placed upon, over or across the Easements as shown. In addition, Utility Easements may also be used for the mutual use and accommodation of all public utilities desiring to use or using the same unless the easement limits the use to particular utilities, said use by public utilities being subordinate to the Public's and City of Lucas's use thereof. The City of Lucas and public utility entities shall have the right to remove and keep removed all or parts of any buildings, fences, trees, shrubs or other improvements or growths which may in any way endanger or interfere with the systems in said Easements. The City of Lucas and public utility entities shall at all times have the full right of Ingress and Egress to or from their respective easements for the purpose of constructing, reconstructing, inspecting, patrolling, maintaining, and adding to or removing all or parts of their respective systems without the necessity at any time procuring the permission from anyone.

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

FOR: LUCAS REAL ESTATE, LLC.

BY: _____

STATE OF TEXAS
COUNTY OF COLLIN

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

Given under my hand and seal of office, this ____ day of _____, 2012.

Notary Public in and for the State of Texas
My Commission Expires: _____

CITY APPROVAL CERTIFICATE

This plat is hereby approved by the Planning and Zoning Commission of the City of Lucas, Texas.

Chairman, Planning and Zoning Commission _____ Date _____

ATTEST:

Signature _____ Date _____

Name _____ Date _____

The The Director of Public Works of the City of Lucas, Texas hereby certifies that to the best of his/her knowledge or belief, this subdivision plat conforms to all requirements of the Code of Ordinances and with engineering construction standards and processes adopted by the City of Lucas, Texas as to which his/her approval is required.

Director of Public Works _____ Date _____

The Director of Planning and Community Development of the City of Lucas, Texas hereby certifies that to the best of his/her knowledge or belief, this subdivision plat conforms to all requirements of the Code of Ordinances, or as may have been amended or modified, as allowed, by the Planning and Zoning Commission as to which his/her approval is required.

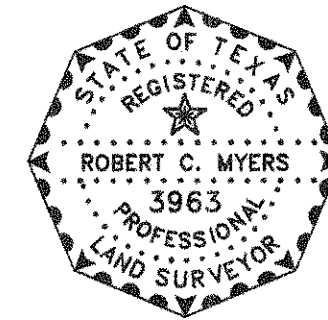
Director of Planning and Community Development _____ Date _____

SURVEYOR'S CERTIFICATION

KNOW ALL MEN BY THESE PRESENTS:

That I, Robert C. Myers, hereby certify, that I prepared this plat was made from an actual on the ground survey of the land as described and that the corner monuments shown thereon were properly placed under my personal supervision in accordance with the Platting Rules and Regulations of the City of Lucas Planning and Zoning Commission

ROBERT C. MYERS
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS NO. 3963



STATE OF TEXAS
COUNTY OF COLLIN

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

Given under my hand and seal of office, this ____ day of _____, 2012.

Notary Public in and for the State of Texas
My Commission Expires: 02/14/2015

HEALTH DEPARTMENT CERTIFICATION:

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

Registered Sanitarian or Designated Representative
Collin County Development Services

FINAL PLAT

THE ESTATES AT FOREST GROVE

LAND SURVEYOR
R.C. MYERS SURVEYING, LLC
3400 OXFORD DRIVE
ROWLETT, TX 75088
(214) 532-0636
FAX (972) 412-4875
EMAIL: rcmsurveying@gmail.com
Job No. 167

LOTS 1-11, BLOCK A
10 RESIDENTIAL LOTS

BEING 49.582 ACRES
SITUATED IN THE

JOHN W. KIRBY SURVEY, ABSTRACT NO. 506
CITY OF LUCAS, COLLIN COUNTY, TEXAS

OWNER/DEVELOPER
LUCAS REAL ESTATE, LLC
1221 N INTERSTATE 35E STE 200
CARROLLTON, TX 75006-3806

ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
TEXAS FIRM REG. NO. 001146
201 WINDCO CIRCLE, SUITE 200, WYLIE, TEXAS 76098
(972) 941-8400 FAX (972) 941-8401

DATE: DECEMBER 21, 2012

SHEET 2 OF 2

GENERAL NOTES:

- All work and materials shall conform to the City of LUCAS Engineering Design Manual and the "Standard Specifications for Public Works Construction" published by the North Central Texas Council of Governments (NCTCOG), latest edition. In the event of conflict, duplication, or variance, the City Engineer shall have the final decision on all construction materials, methods, and procedures.
- Prior to construction, the contractor shall familiarize himself with the contract documents and specifications, the plans including all notes and any other applicable standards or specifications relevant to the proper completion of the work specified. Failure on the part of the contractor to familiarize himself with all standards or specifications pertaining to this work shall in no way relieve the contractor of responsibility for performing the work in accordance with all such applicable standards and specifications.
- Contractor shall have in his possession, prior to construction, all-necessary permits, licenses, etc. Contractor shall have at least one set of approved engineering plans and specifications on site at all times.
- Any item of work called for by the plans and/or specification and not included, as a bid item shall be subsidiary to the construction of the various bid items.
- Construction inspection will be performed by representatives of the owner, engineer, city, geotechnical engineer, and reviewing authorities and agencies. Unrestricted access shall be provided to them at all times. Contractor is responsible for scheduling required inspections as required by contract documents.
- Any item requiring inspection by the City, must be performed between the hours of 8am-5pm Monday thru Friday.
- The contractor and all subcontractors must confine their activities to the work area. Any damage resulting from construction activities, shall be the contractor's responsibility.
- It will be the responsibility of each contractor to protect all existing public and private utilities throughout the construction of this project. Contractor shall contact the appropriate utility companies for line locations prior to commencement of construction and shall assume full liability to those companies for any damages caused to their facilities. Location of utilities are taken from the City of LUCAS and Utility Company records. Contractor shall field verify to determine exact location of utilities.
- Trench safety design will be the responsibility of the contractor. The contractor shall abide by all applicable federal, state, and local laws governing excavation. Trench side slopes shall meet OSHA standards. Benching, shoring, and bracing shall be required when side slope standards are not met. A pull box, meeting OSHA standards will be acceptable. The contractor shall submit detailed plans to the City Engineer for review showing how OSHA Standards for excavation shall be met prior to the start of any utility construction. The plans shall be sealed by an Engineer registered by the State of Texas.
- Contractor shall stockpile salvage materials for inspection. All items not salvaged by the owner shall be removed from the site at the contractor's expense. The owner will transport salvaged materials away from the site at the owner's expense. Salvage, stockpile, and removal of materials shall be considered subsidiary to the various bid items and shall not be paid for directly unless such items are specifically included in the bid items.
- The contractor shall be responsible for providing and maintaining all necessary warning and safety work, material, and operations needed to provide for the health and safety of the public until all work has been completed, including maintenance bond periods, and to be accepted by the City of LUCAS in writing.
- All construction and materials testing unless otherwise indicated, shall be performed by an Engineering Testing Laboratory employed by the Contractor. The testing laboratory shall be approved by the City of LUCAS. The testing laboratory shall make tests necessary to insure that construction is in accordance with the approved plans and specifications. Re-testing required due to construction not being performed in accordance with the plans and specifications shall be at the expense of the contractor. The testing laboratory shall submit testing reports to the City Engineer and Design Engineer.
- Any additional excavated material shall be placed as directed by the Owner.
- All fill areas to be density and moisture controlled. Fill shall be compacted to 95% of standard proctor density at a minimum of 2% above optimum moisture content.
- Water and sewer lines crossing the NTMWD easement shall be installed in compliance with the Rules and Regulations for Public Water Systems Paragraph 290.44 (e), Location of Water Lines.
- The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.

CLEARING AND GRADING NOTES:

- All grading shall conform to the City of LUCAS standards.
- Site Preparation: All surface vegetation and the foreign materials such as roots, grass, etc., shall be stripped to a minimum depth of 4 inches and removed. All cleared and grubbed materials shall be removed off-site in accordance with local, state, and federal regulations.
- Scarifying Area to be Filled: In areas where fills are desired, the stripped surface shall be scarified to a depth of at least 6 inches for uniform compaction. The scarified surface shall be such that it is free from lumps and uneven surfaces.
- Compacting Area to be Filled: After clearing and scarifying the area to be filled, the soils shall be brought to a moisture content of -2% to +4% of the optimum moisture value and compacted, in 6 inch maximum lifts, mechanically to at least 95% of Standard Proctor maximum dry density (ASTM D 698). R.O.W. areas to be filled shall be brought to moisture content of 0% to +4% of the optimum moisture value and compacted, in 6 inch maximum lifts, mechanically to at least 95% of Standard Proctor maximum dry density (ASTM D 698).
- Fill Material: On-site soil and/or rock could be used as random fill provided such material is free from vegetation and other deleterious substances. No fill material shall contain rocks or lumps having a diameter of 6 inches or greater.
- Depth and Mixing of Fill Layers: The fill materials shall be placed in level, uniform layers. Each layer shall be thoroughly blade mixed during spreading to insure uniform compaction. These materials shall be placed in loose lifts with density and moisture content shall conform to that specified herein.
- Compaction of Fill Layer: Compaction equipment shall be capable of compacting all fill soils to the specified density. Compaction of all fill shall be accomplished with the material at the specified moisture content. Each fill layer shall be compacted uniformly with sufficient effort to achieve the specified degree of compaction.
- Amount of Compaction: After each fill layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted to a minimum 95% of the Standard Proctor density (ASTM D 698).
- Moisture Content: All fill material shall be compacted at the appropriate moisture content as defined for the particular soil type. Each layer shall be brought to a moisture content of -2% to +4% of the optimum moisture value as determined by ASTM D 698. The compaction moisture content of limestone or other rock-like materials is not considered crucial, provided the proper degree of compaction is obtained. R.O.W. areas to be filled shall be brought to moisture content of 0% to +4% of the optimum moisture value and compacted, in 6 inch maximum lifts, mechanically to at least 95% of Standard Proctor maximum dry density (ASTM D 698).
- Slope Control: In areas where cut of fill slopes exceed 3 feet in depth/height, a slope ratio of one (vertical) to 4 (horizontal) shall not be exceeded. Compaction operations of fill slopes shall be continued until the slopes are stable.
- Field Density: Field density tests of fill and/or backfill shall be controlled by an Engineering Testing Laboratory. Density tests shall be taken in the compacted material below the disturbed surface. When these tests indicate that the density or any layer of fill is below the required density, the particular soil or rock layer shall be reworked until the proper density and/or moisture content is achieved. Re-testing of reworked areas shall be at contractors expense.
- Tolerance for Rough Grading: Streets shall be rough graded within 0.2' of plan grades prior to utility construction. Utility contractor shall return street to within 0.2' of plan grade prior to street paving.
- Supervision: Supervision by the Soils Engineer shall be of such continuity during the grading operations that he can adequately describe the work done and evaluate that work in comparison with the specifications. Actual supervision shall be the Contractor's Supervisor.
- Reports: The Testing Laboratory shall send 1 copy of each test, inspection, or evaluation report to the Public Works Department, Owner, and Design Engineer.
- All excess earth shall be used on-site or taken to an area designated by the Engineer at the Contractor's expense.

PAVING NOTES

- Concrete street pavement shall be NCTCOG Class "C", 3,600 PSI compressive strength. Air content shall be 3%-5%. Pavement thickness and reinforcing steel shall be as indicated on construction plans and conforming with current City of LUCAS Standards.
- The subgrade shall be treated 6 inches deep, minimum, with lime slurry. Lime slurry shall be Type B Grade 1 and applied in accordance with the City Standard Specifications. Lime shall be applied at a rate of 6.0% of the dry weight soil and have a P.I. of less than 15. Compaction of the lime stabilized subgrade shall be to 95% Standard Proctor density. Stabilization shall extend 1' ft. beyond back of curb (refer to typical paving section).
- All dimensions are to edge of pavement unless otherwise noted. Elevations are edge of pavement unless otherwise noted.
- Contractor to provide barrier free ramps for sidewalk at street intersections.
- Water meters and/or services shown to be in conflict with proposed paving or drainage facilities are to be relocated by the Contractor, subject to review by the Public Works Department, prior to commencement of construction of paving and drainage.
- Power and telephone poles shown to be in conflict with proposed sidewalk paving to be relocated by appropriate utility prior to paving.
- It will be the responsibility of the paving contractor to protect all public utilities of this project. All manholes, valve boxes, fire hydrants, etc., must be adjusted to proper line and grade by the paving contractor prior to and after the placing of permanent paving.
- Expansion or construction joints should be placed at 600 feet maximum spacing or the final pour of the construction day. Transverse contraction joints shall be placed on 20 feet maximum spacing. Refer to City of LUCAS Standard Details.
- Contraction joints shall be formed by sawing. Joint depth shall be equal to one-fourth (1/4) of slab thickness. Sawing of joints shall begin as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling. All joints should be completed before uncontrolled shrinkage cracking occurs. Joints should be continuous across the slab and extend completely through the curb. All joint openings to be cleaned and sealed with hot poured rubber joint sealing compound prior to opening to traffic.
- Any excess earth shall be taken to an area, to be designated by the Engineer at the contractors expense.
- Back fill shall be placed behind all curbs. Back fill material shall be free of earthwork debris such as muck, rock, refuse, stumps, concrete, asphalt, or other unsuitable materials and shall consist of soil suitable for sodding.
- Topsoil to stripped and placed on parkways and yards on lots.
- City will water test streets upon completion. Any standing water must be remedied before acceptance.

SITE BENCHMARK:
An "X" cut in top of curb at the southwest corner of the intersection of Stonegate Drive and Forest Grove Road. ELEV.=580.44



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DWG FILE NAME: 8311 GEN NOTES SECT.DWG	

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**GENERAL NOTES AND ROAD SECTION
ESTATES AT FOREST GROVE**

CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET
4
OF
13

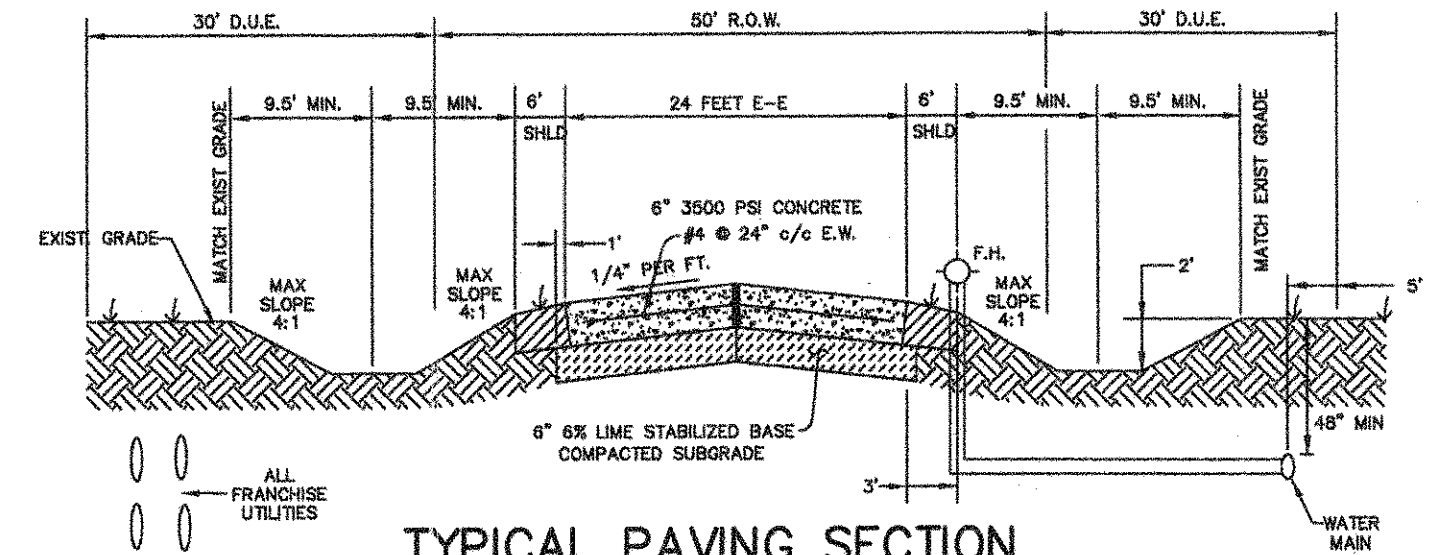
WATER SYSTEM IMPROVEMENTS NOTES

- All work and materials shall be in accordance with City of LUCAS standard specifications.
- Fire hydrants shall be Mueller or approved equal, 3-way breakaway type, no less than 5 1/2 inches in size and shall conform to the provisions of the latest AWWA Standard C500, and shall have a bury depth of five feet. Valves shall be placed on all fire hydrant leads and shall be F x M.J. Fire hydrants shall be located so that breakaway point is no less than 2-inches and no greater than 6-inches above the grade surface and a minimum of 2-feet and a maximum of 6-feet behind the curb line, based on the location of the sidewalk. The fire hydrant shall not be in the sidewalk and shall be installed so the steamer connection will face the street, or as directed by the fire department. A Blue Stinsonite, Fire-Lite reflector (or approved equal) shall be placed in the center of the drive lane on the side of the fire hydrant.
- Fire hydrant Bonnets shall be painted according to the capacity of the main to which it is attached. See chart below. The remainder of the hydrant above ground shall be painted aluminum.
- 8" Waterline - Blue
- Valves 12" and under to be Gate Valves meeting requirements of AWWA C500 or AWWA C509 (NCTOG Item 2.13.1) with non-rising stems. Contractor shall also mark curb with "V" at location of valve.
- Water Mains - All water mains, fittings, and valves shall meet AWWA specifications. All water lines to be C900 DR-18 (NCTCOG Item 2.12.2). Minimum cover over water mains shall be 6" dia. and under, 3.5-feet, 8" dia., 4-feet, 12" dia. 4.5 feet-5 feet. DR-18 water mains to be tested at 150 psi for a continuous period of four (4) hours. Leakage rate shall not exceed 25 gallons per inch of normal diameter per mile of pipe over test period. Contractor shall flush and sterilize lines and prove lines to be free of conforma organisms by obtaining samples for laboratory tests for contamination. The Contractor shall flush and sterilize until samples for test are free from contamination. Jetting of backfill will not be permitted.
- All water services shall be 1" copper. Meter boxes shall comply with current City of LUCAS Standards and Specifications.
- Contractor shall tie a 1" piece of blue plastic flagging to the water service and shall leave a minimum of 36" of flagging exposed after backfill. Contractor shall also mark curb with "W" at location of water service.
- Contractor shall furnish a maintenance bond to the City of LUCAS to run for two years from the date of acceptance.
- The source of water supply for this addition will be from the City of LUCAS.
- Valve boxes shall be furnished and set on each gate valve. After the final clean-up and alignment has been completed, the Contractor (utility) shall pour a concrete block 6" x 18" x 18" around all valves box tops so the finished grade is level with the finished parkway.
- Water lines shall be pressure tested and disinfected in accordance with AWWA C601.
- Water valves deeper than 4' shall have extensions in accordance with City of LUCAS Details.
- All embedment to be class B+ or better as detailed in the NCTCOG Construction Standards.

Texas Commission on Environmental Quality
Chapter 290 - Public Drinking Water
Subchapter D: Rules And Regulations For Public Water Systems
§290.44. Water Distribution.

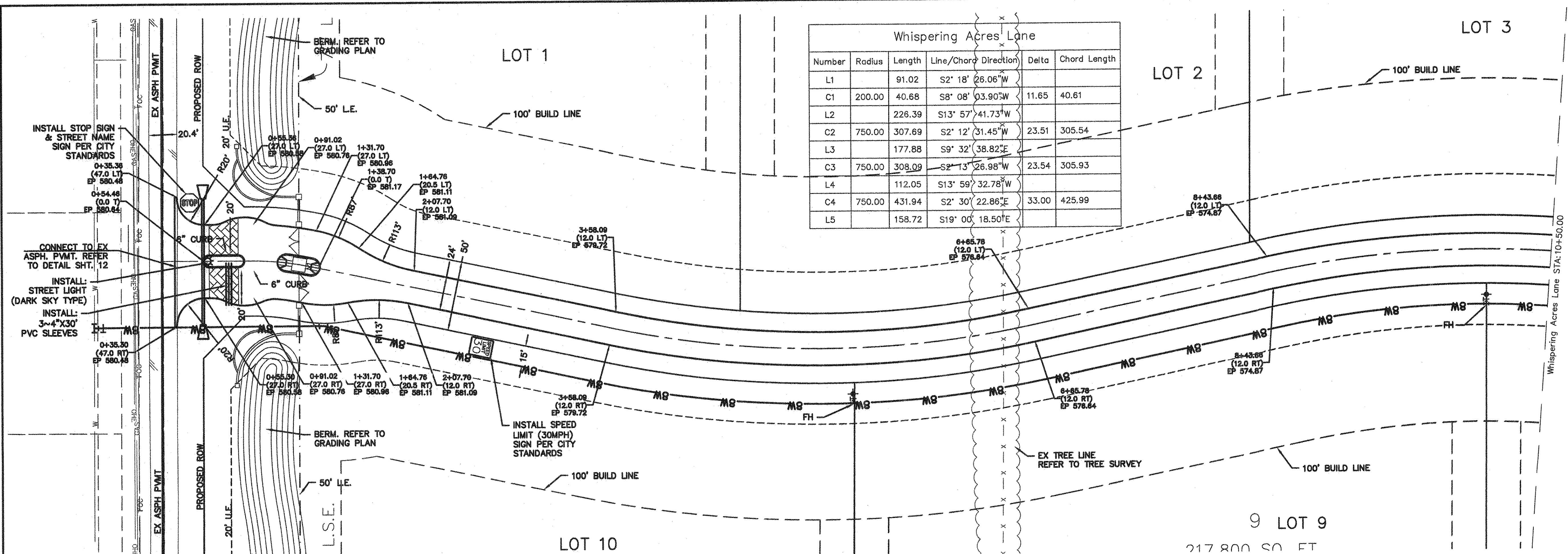
- Location of waterlines.
 - Where the nine-foot separation distance cannot be achieved, the following criteria shall apply.
 - New waterline installation - parallel lines.
 - Where a new potable waterline parallels an existing, non-pressure or pressure rated wastewater main or lateral and the licensed professional engineer licensed in the State of Texas is able to determine that the existing wastewater main or lateral is not leaking, the new potable waterline shall be located at least two feet above the existing wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the existing wastewater main or lateral. Every effort shall be exerted not to disturb the bedding and backfill of the existing wastewater main or lateral.
 - Where a new potable waterline parallels an existing pressure rated wastewater main or lateral and it cannot be determined by the licensed professional engineer if the existing line is leaking, the existing wastewater main or lateral shall be replaced with at least 150 psi pressure rated pipe. The new potable waterline shall be located at least two feet above the new wastewater line, measured vertically, and at least four feet away, measured horizontally, from the replaced wastewater main or lateral.
 - Where a new potable waterline parallels an existing pressure rated wastewater main or lateral and it cannot be determined by the licensed professional engineer if the existing line is leaking, the existing wastewater main or lateral shall be replaced with at least 150 psi pressure rated pipe. The new potable waterline shall be located at least two feet above the wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the wastewater main or lateral.
 - New waterline installation - crossing lines.
 - Where a new potable waterline crosses an existing, non-pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The potable waterline shall be at least two feet above the wastewater main or lateral. Whenever possible, the crossing shall be replaced for at least nine feet in both directions (18 feet total) with at least 150 psi pressure rated pipe.
 - Where a new potable waterline crosses an existing, pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The potable waterline shall be at least six inches above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. If the existing wastewater main or lateral shows signs of leaking, it shall be replaced for at least nine feet in both directions (18 feet total) with at least 150 psi pressure rated pipe.
 - Where a new potable waterline crosses a new, non-pressure rated wastewater main or lateral and the standard pipe segment length of the wastewater main or lateral is at least 18 feet, one segment of the waterline pipe shall be centered over the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. The wastewater pipe shall have a minimum pipe stiffness of 115 psi at 5.0% deflection. The wastewater main or lateral shall be embedded in cement stabilized sand (see clause (vi) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.
 - Where a new potable waterline crosses a new, non-pressure rated wastewater main or lateral and a standard length of the wastewater pipe is less than 18 feet in length, the potable water pipe segment shall be centered over the wastewater line. The materials and method of installation shall conform with one of the following options.
 - Within nine feet horizontally of either side of the waterline, the wastewater pipe and joints shall be constructed with pipe material having a minimum pressure rating of at least 150 psi. An absolute minimum vertical separation distance of two feet shall be provided. The wastewater main or lateral shall be located below the waterline.
 - All sections of wastewater main or lateral within nine feet horizontally of the waterline shall be encased in an 18-foot (or longer) section of pipe. Flexible encasing pipe shall have a minimum pipe stiffness of 115 psi at 5.0% deflection. The encasing pipe shall be centered on the waterline and shall be at least two nominal pipe diameters larger than the wastewater main or lateral. The space around the carrier pipe shall be supported at five-foot (or less) intervals with spacers or be filled to the springline with washed sand. Each end of the casing shall be sealed with watertight non-shrink cement grout or a manufactured watertight seal. An absolute minimum separation distance of six inches between the encasement pipe and the waterline shall be provided. The wastewater line shall be located below the waterline.
 - When a new waterline crosses under a wastewater main or lateral, the waterline shall be encased as described for wastewater mains or laterals in subclause (i) of this clause or constructed of ductile iron or steel pipe with mechanical or welded joints as appropriate. An absolute minimum separation distance of one foot between the waterline and the wastewater main or lateral shall be provided. Both the waterline and wastewater main or lateral must pass a pressure and leakage test as specified in AWWA C600 standards.
 - Where a new potable waterline crosses a new, pressure rated wastewater main or lateral, one segment of the waterline pipe shall be centered over the wastewater line such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the center line of the wastewater main or lateral. The potable waterline shall be at least six inches above the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. The wastewater pipe shall have a minimum pressure rating of at least 150 psi. The wastewater main or lateral shall be embedded in cement stabilized sand (see clause (vi) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.
 - Where cement stabilized sand bedding is required, the cement stabilized sand shall have a minimum of 10% cement per cubic yard of cement stabilized sand mixture, based on loose dry weight volume (at least 2.5 bags of cement per cubic yard of mixture). The cement stabilized sand bedding shall be a minimum of six inches above and four inches below the wastewater main or lateral. The use of brown coloring in cement stabilized sand for wastewater main or lateral bedding is recommended for the identification of pressure rated wastewater mains during future construction.

NOTE:
All backfill for utilities and pavement including lime stabilized subgrade to be +2% or higher of optimum moisture.

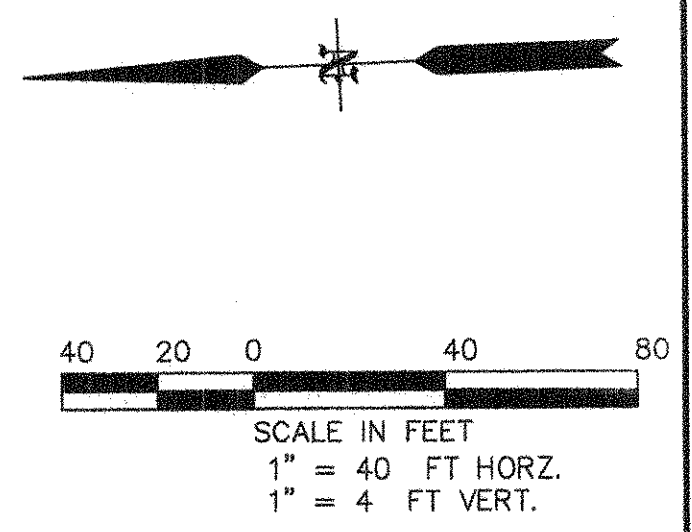


**TYPICAL PAVING SECTION
(24 E-E CONCRETE STREET)**

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TODD D. WINTTERS, P.E.

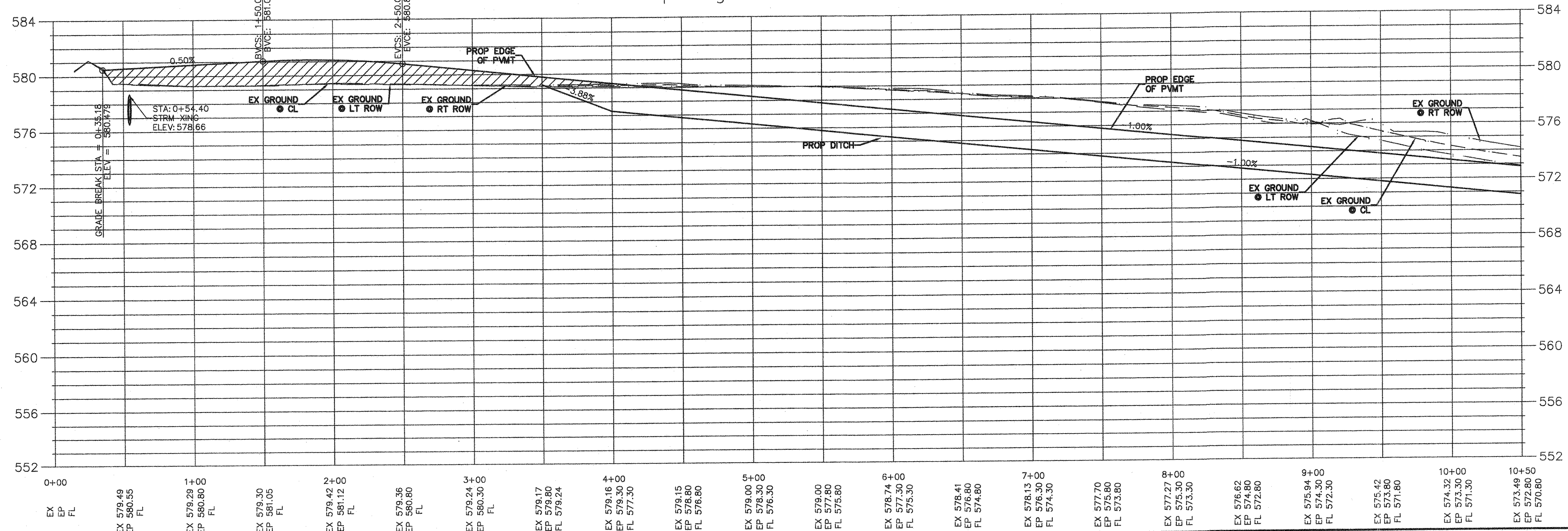


Whispering Acres Lane					
Number	Radius	Length	Line/Chord Direction	Delta	Chord Length
L1	91.02	91.02	S2° 18' 26.06"W		
C1	200.00	40.68	S8° 08' 03.90"W	11.65	40.61
L2	226.39	226.39	S13° 57' 41.73"W		
C2	750.00	307.69	S2° 12' 31.45"W	23.51	305.54
L3	177.88	177.88	S9° 32' 38.82"E		
C3	750.00	308.09	S2° 13' 26.98"W	23.54	305.93
L4	112.05	112.05	S13° 59' 32.78"W		
C4	750.00	431.94	S2° 30' 22.86"E	33.00	425.99
L5	158.72	158.72	S19° 00' 18.50"E		



HIGH PT STA: 1+83.33
 HIGH PT ELEV: 581.14
 PVI STA: 2+00.00
 PVI ELEV: 581.30
 K: 66.67
 LVC: 100.00

Whispering Acres Lane PROFILE



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 TODD WINTTERS, P.E. DATE: 2-11-13

SITE BENCHMARK:
 An 'X' cut in top of curb at the southwest corner of the intersection of Stonegate Drive and Forest Grove Road. ELEV.=580.44

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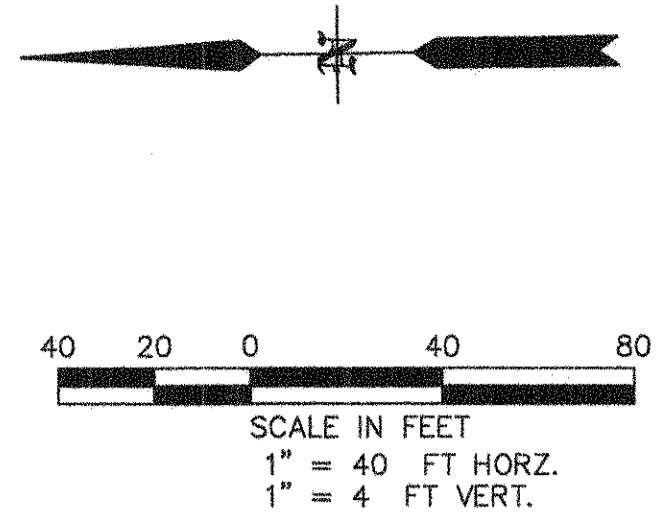
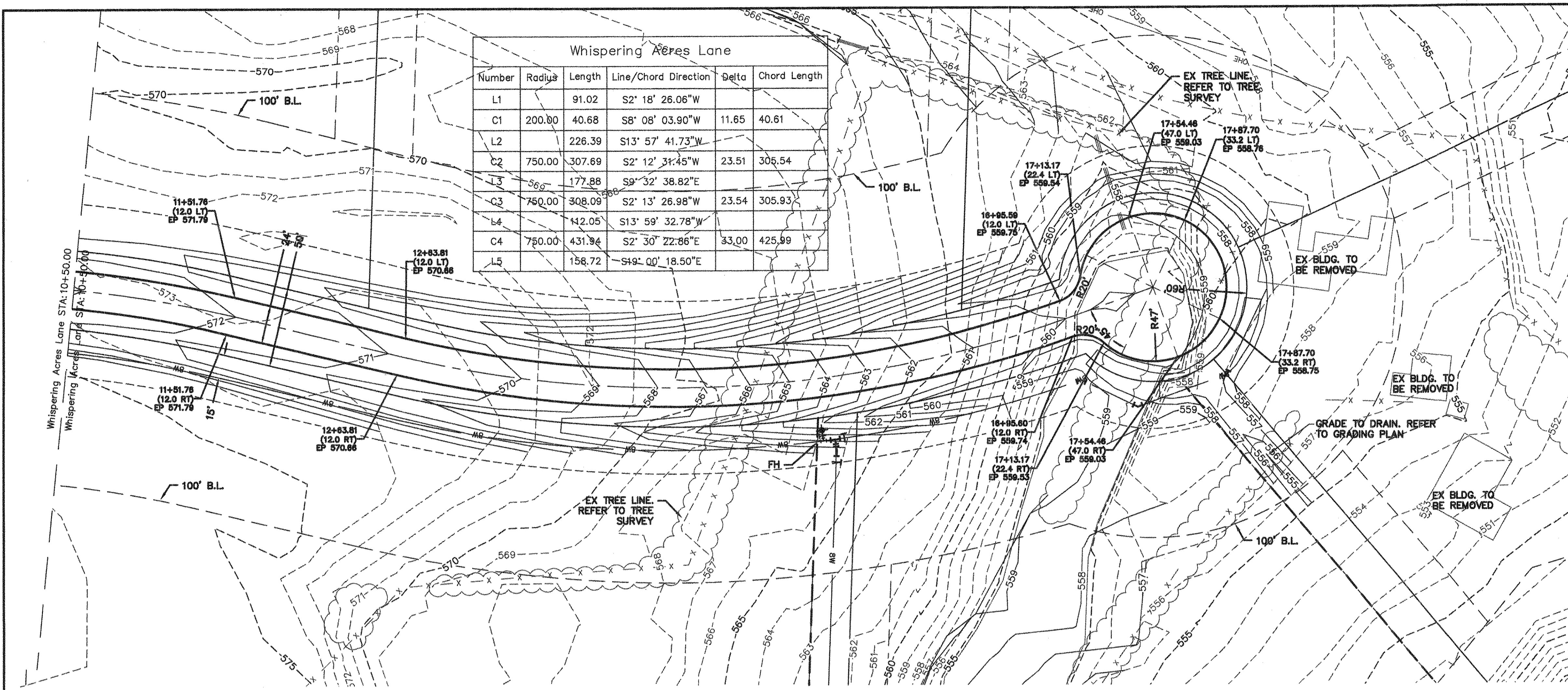
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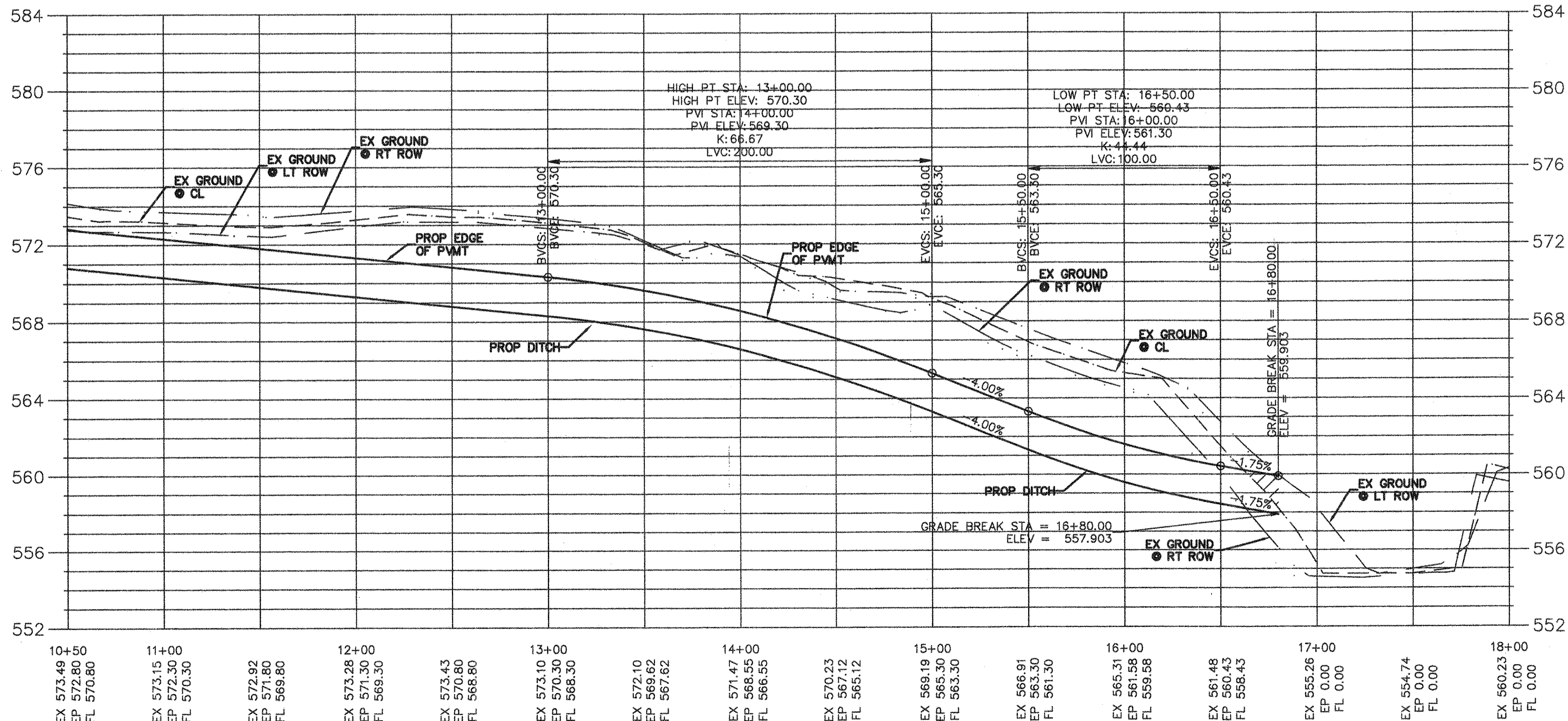
WHISPERING ACRES LANE 0+00 TO 10+50 ESTATES AT FOREST GROVE

CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET 5 OF 13

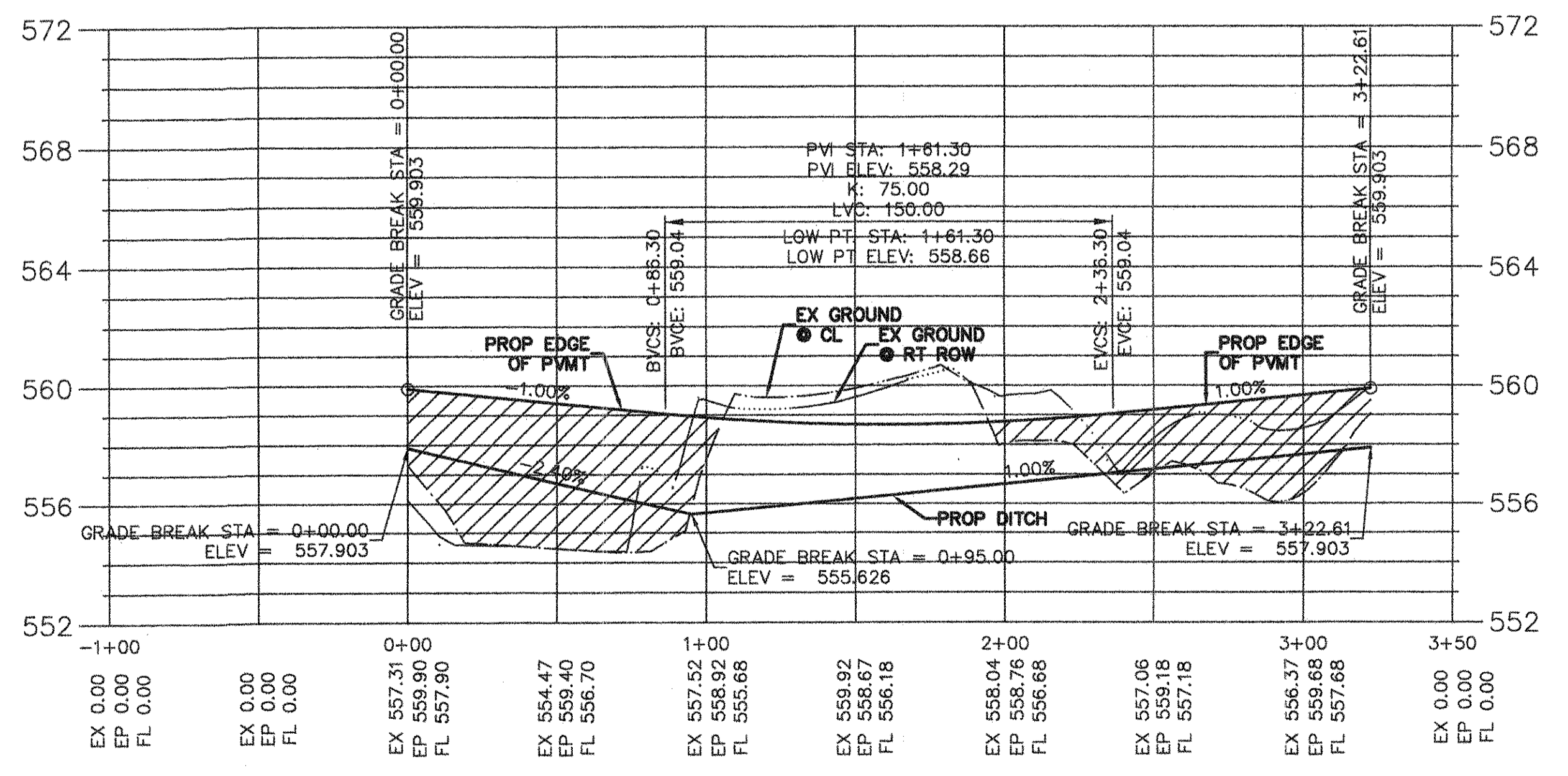


Whispering Acres Lane PROFILE



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Todd D. Winters 2-11-13
TODD D. WINTERS, P.E.

Whispering Acres Lane Cul-De-Sac PROFILE



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Road. ELEV.=580.44



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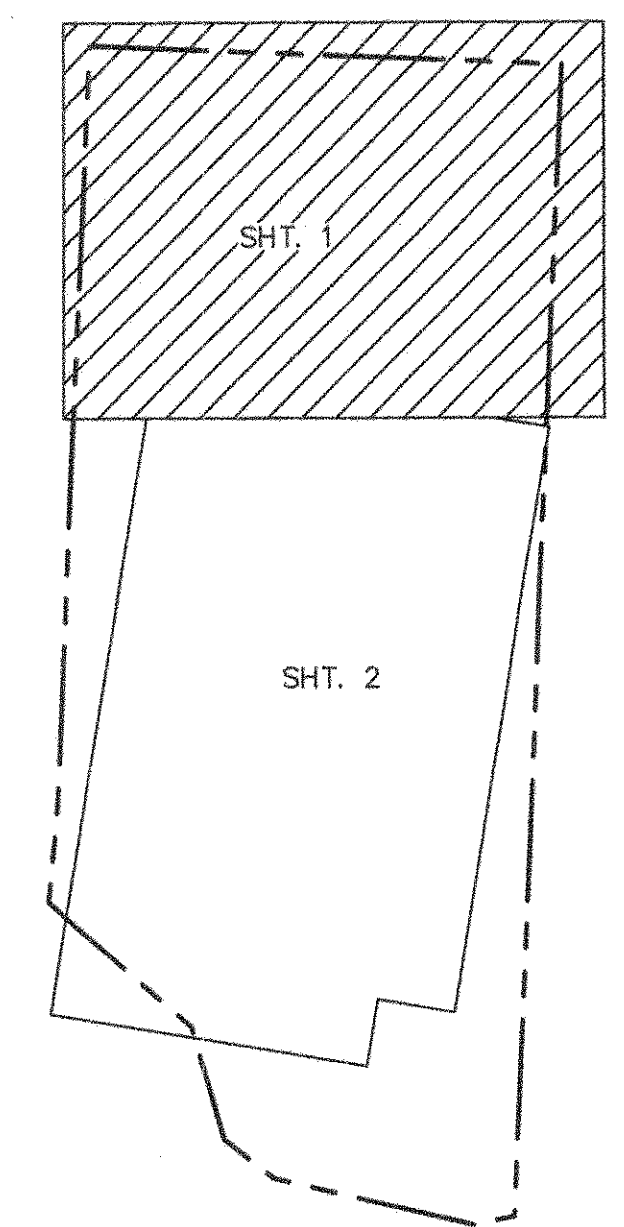
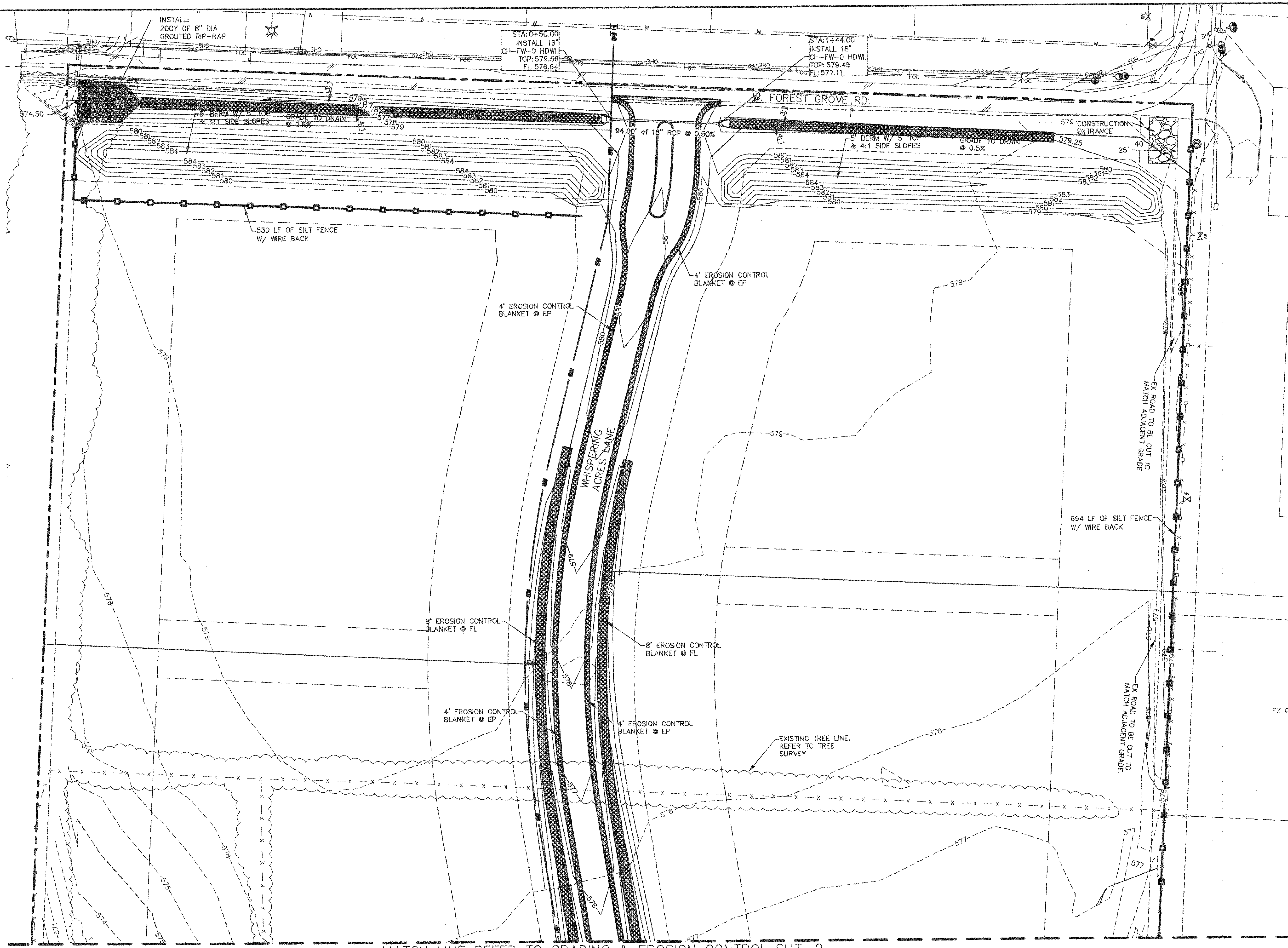
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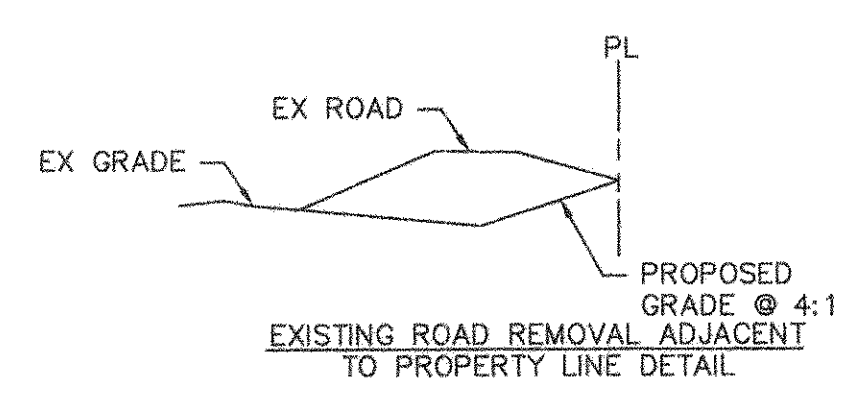
WHISPERING ACRES LANE 10+50 TO END
ESTATES AT FOREST GROVE

CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET
6
OF
13



NOTE: ALL OTHER DISTURBED AREAS TO BE SEED & MAINTAINED UNTIL 80% COVERAGE.



MATCH LINE REFER TO GRADING & EROSION CONTROL SHT. 2

SITE BENCHMARK:
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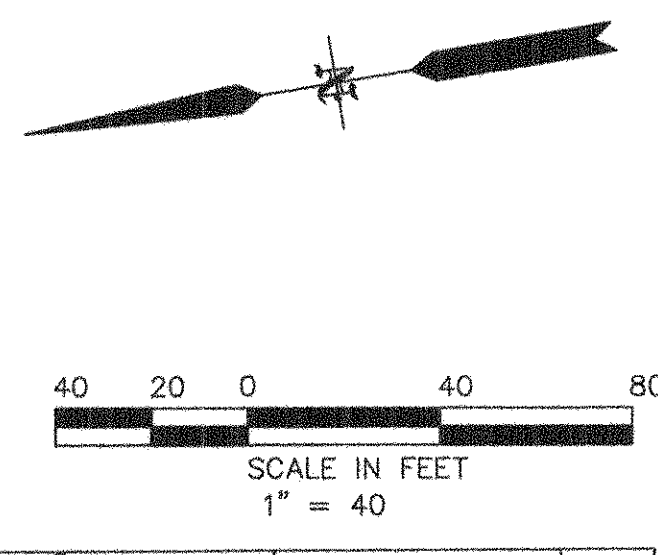
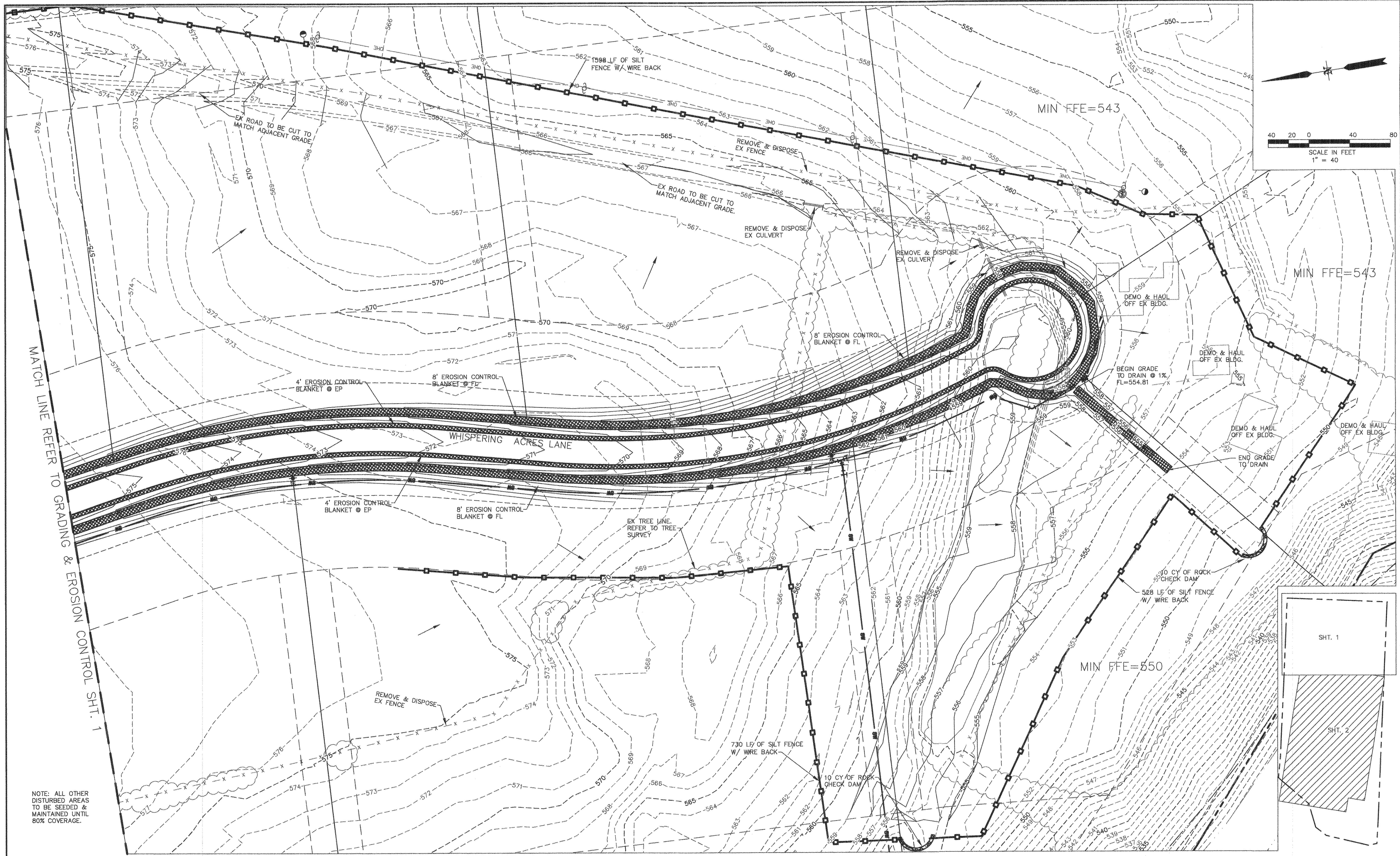
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GRADING & EROSION CONTROL PLAN 1 ESTATES AT FOREST GROVE

CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET
7
OF
13



MATCH LINE REFER TO GRADING & EROSION CONTROL SHT. 1

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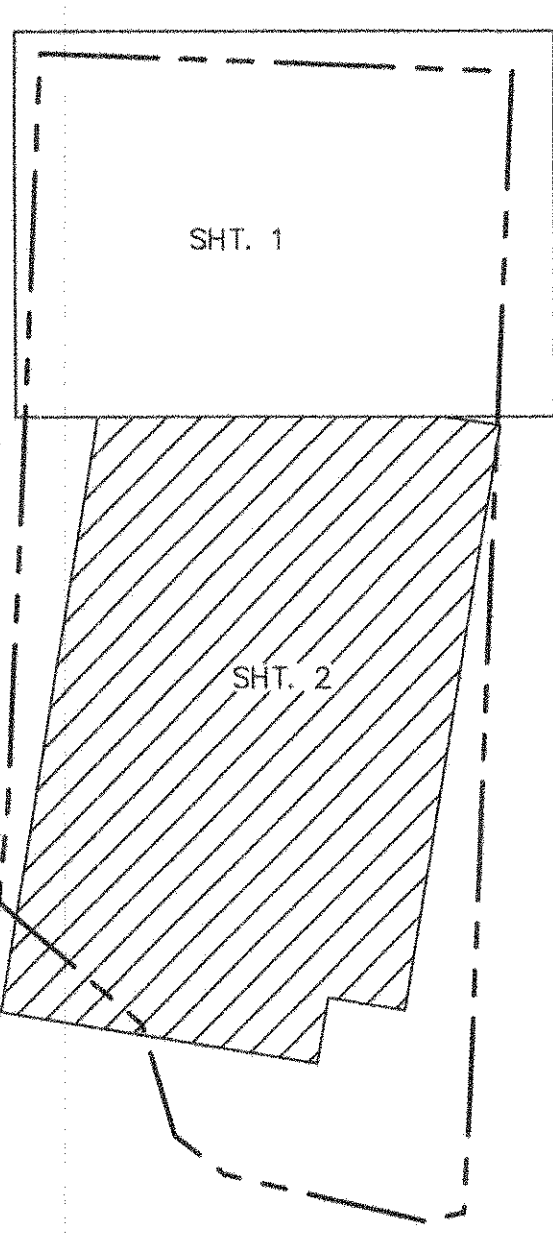
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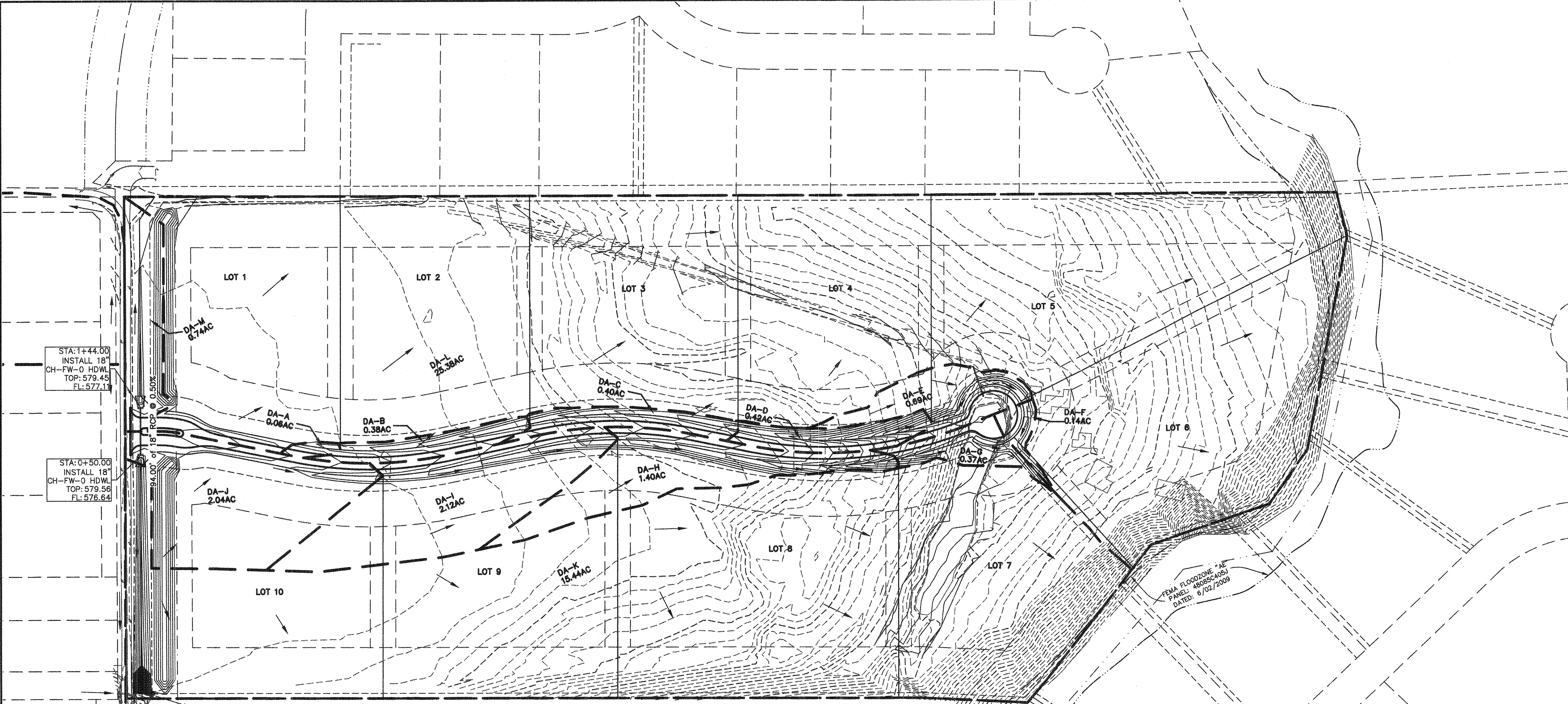
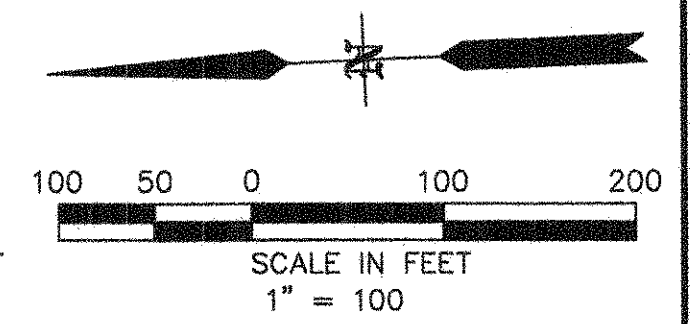
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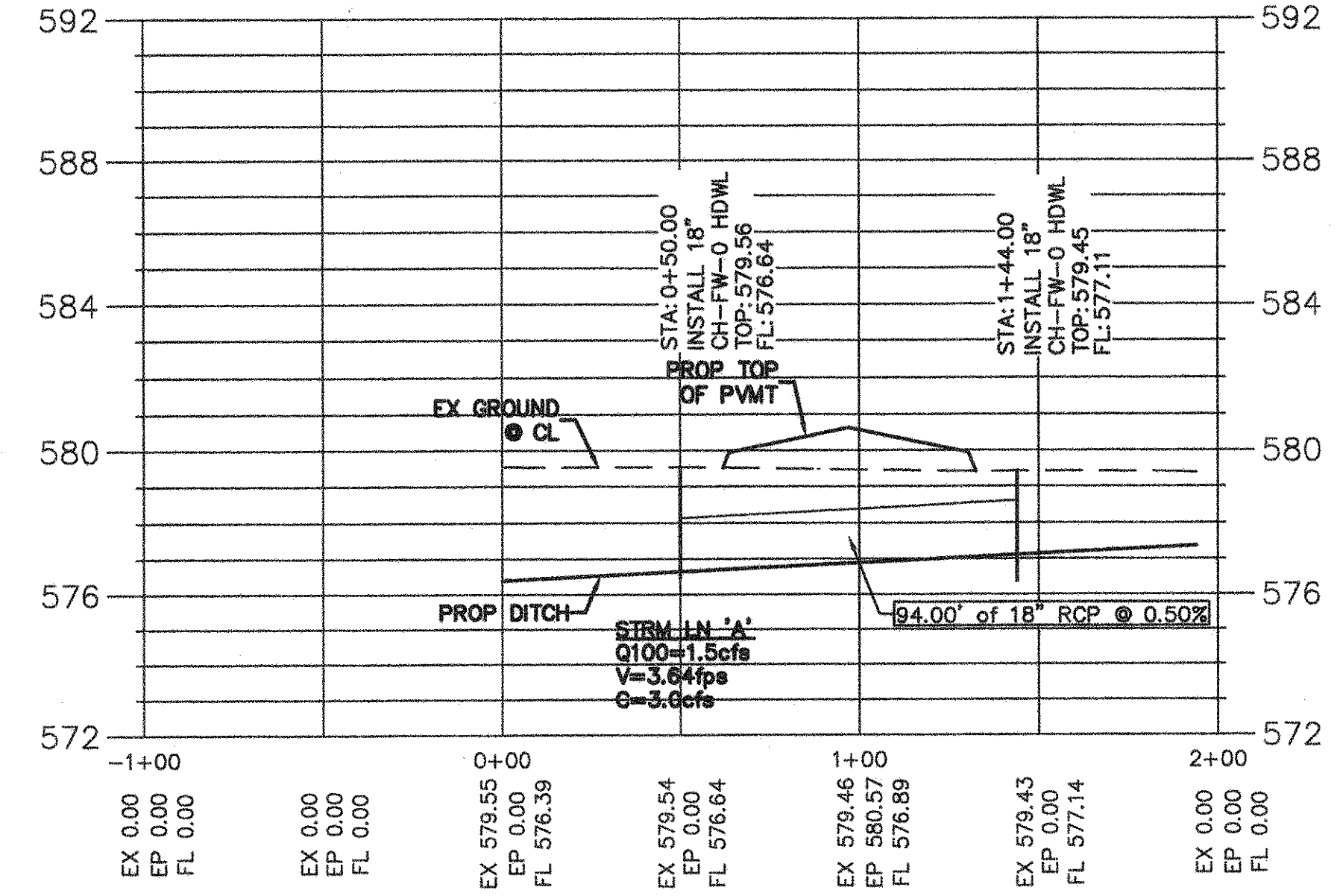
GRADING & EROSION CONTROL PLAN 2 ESTATES AT FOREST GROVE

CITY OF LUCAS, COLLIN COUNTY, TEXAS





STRM LN 'A' PROFILE



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 ENGINEERING CONCEPTS & DESIGN, L.P.
 Todd D. Winters, P.E.
 2-11-13

DRAINAGE & CULVERT CALCULATIONS

Lot Information		Selected Culvert						Existing Area Runoff			Proposed Area Runoff			CHANGE							
Lot No	Paving Station Location of Culvert	Design Flow (cfs)	Culvert Length (ft)	Culvert Size (in)	Culvert Slope (%)	Discharge Velocity (fps)	Culvert Capacity (cfs)	Design Storm Freq. (years)	Drainage Area Designation	Drainage Area Size (SQFT)	Drainage Area Size (ac)	Tc (min)	I100 (in/hr)	C	Q100 (cfs)	Tc (min)	I100 (in/hr)	C	Q100 (cfs)	Flow (%)	
1	4+50	0.33	30	18	1%	1.75	6.1	100	A	2655	0.06	30	5.8	0.35	0.12	10	8.9	0.6	0.33	163%	
2	8+30	1.77	30	18	1%	2.84	6.1	100	B	16481	0.38	30	5.8	0.35	0.77	15	7.66	0.5	1.45	89%	
3	12.3	3.29	30	18	1%	3.34	6.1	100	C	17247	0.40	30	5.8	0.35	0.80	15	7.66	0.5	1.52	89%	
4	16+32	4.91	30	18	4%	6.20	12.2	100	D	18454	0.42	30	5.8	0.35	0.86	15	7.66	0.5	1.62	89%	
5	18+14	6.82	30	21	1%	3.96	9.2	100	E	30131	0.69	30	5.8	0.35	1.40	20	6.88	0.4	1.90	36%	
6	17+75	7.12	30	21	1%	3.99	9.2	100	F	6075	0.14	30	5.8	0.35	0.28	30	5.8	0.37	0.30	6%	
7	17+75	20.05	30	24	2.4%	6.83	20.4	100	G	16322	0.37	30	5.8	0.35	0.76	30	5.8	0.37	0.80	6%	
8	15+53	19.24	30	24	4%	8.64	26.4	100	H	60981	1.40	30	5.8	0.35	2.84	20	6.88	0.38	3.66	29%	
9	10+02	15.58	30	24	1%	4.79	16.8	100	I	92337	2.12	30	5.8	0.35	4.30	15	7.66	0.4	6.49	51%	
10	5+34	9.09	30	21	1%	4.03	9.2	100	J	88957	2.04	30	5.8	0.35	4.15	10	8.9	0.5	9.09	119%	
BYPASS																					
100	K	672453	15.44	30	5.8	0.35	31.34	30	5.8	0.36	32.23	3%									
100	L	1105537	25.38	30	5.8	0.35	51.52	30	5.8	0.36	52.99	3%									
100	M	92215	0.74	30	5.8	0.35	1.50	30	5.8	0.36	1.54	3%									

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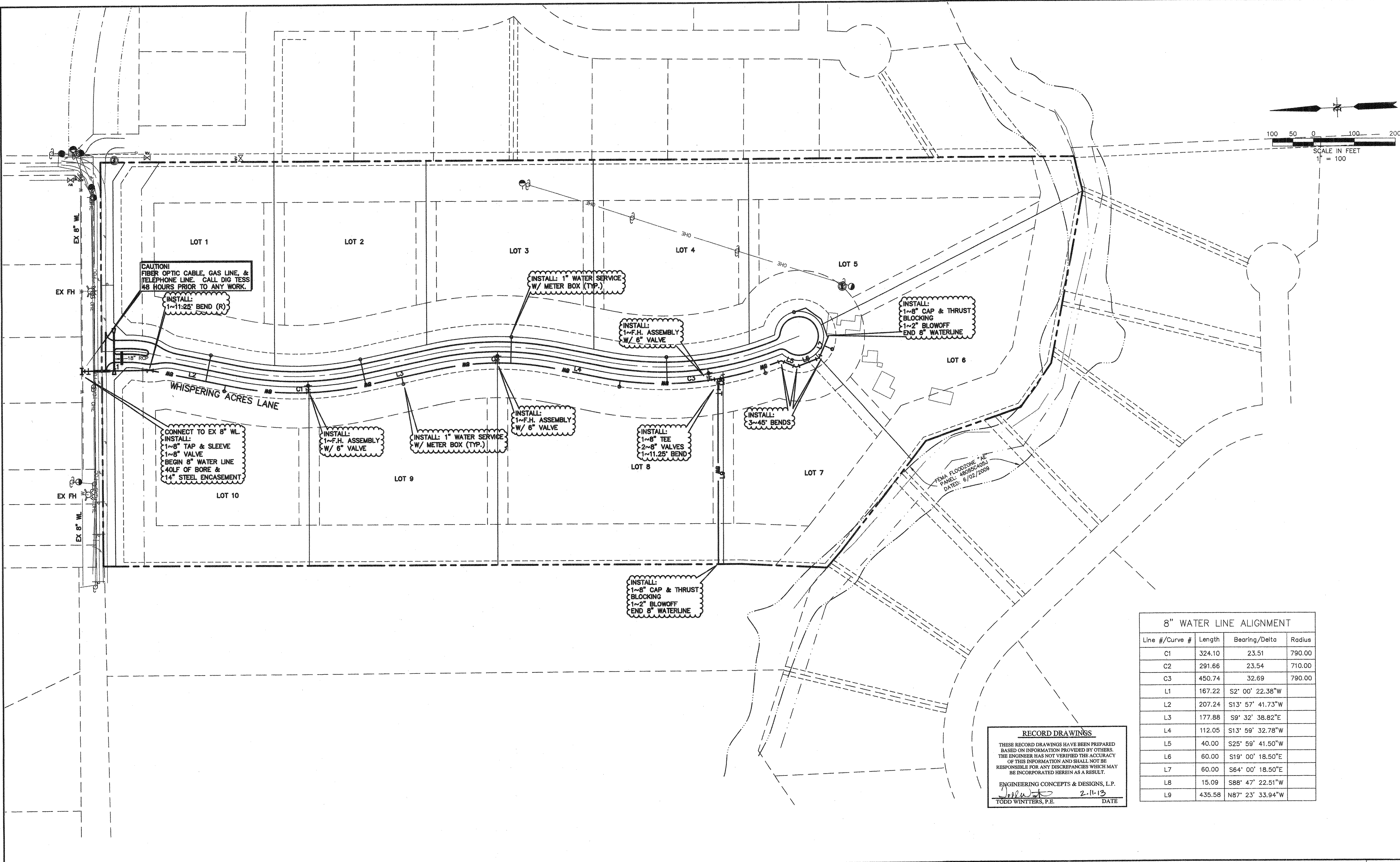
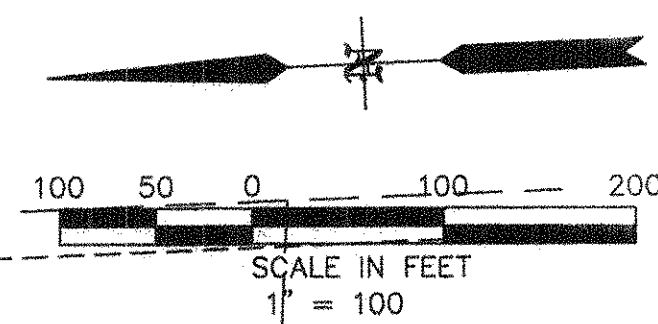
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**DRAINAGE AREA MAP
 ESTATES AT FOREST GROVE**

CITY OF LUCAS, COLLIN COUNTY, TEXAS



8" WATER LINE ALIGNMENT

Line #/Curve #	Length	Bearing/Delta	Radius
C1	324.10	23.51	790.00
C2	291.66	23.54	710.00
C3	450.74	32.69	790.00
L1	167.22	S2° 00' 22.38"W	
L2	207.24	S13° 57' 41.73"W	
L3	177.88	S9° 32' 38.82"E	
L4	112.05	S13° 59' 32.78"W	
L5	40.00	S25° 59' 41.50"W	
L6	60.00	S19° 00' 18.50"E	
L7	60.00	S64° 00' 18.50"E	
L8	15.09	S88° 47' 22.51"W	
L9	435.58	N87° 23' 33.94"W	

RECORD DRAWINGS
 THESE RECORD DRAWINGS HAVE BEEN PREPARED
 BASED ON INFORMATION PROVIDED BY OTHERS.
 THE ENGINEER HAS NOT VERIFIED THE ACCURACY
 OF THIS INFORMATION AND SHALL NOT BE
 RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY
 BE INCORPORATED HEREIN AS A RESULT.
 ENGINEERING CONCEPTS & DESIGNS, L.P.
 TODD WINTTERS, P.E. DATE: 2-11-13

SITE BENCHMARK:
 An 'X' cut in top of curb at the southwest corner of
 the intersection of Stonegate Drive and Forest Grove
 Road. ELEV.=580.44

ENGINEERINGCONCEPTS
 & DESIGN, L.P.
 ENGINEERING / PROJECT MANAGEMENT /
 CONSTRUCTION SERVICES - FIRM REG. #F-001145
 201 WINDCO CIR, STE 200, WYLIE, TX 75098
 972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

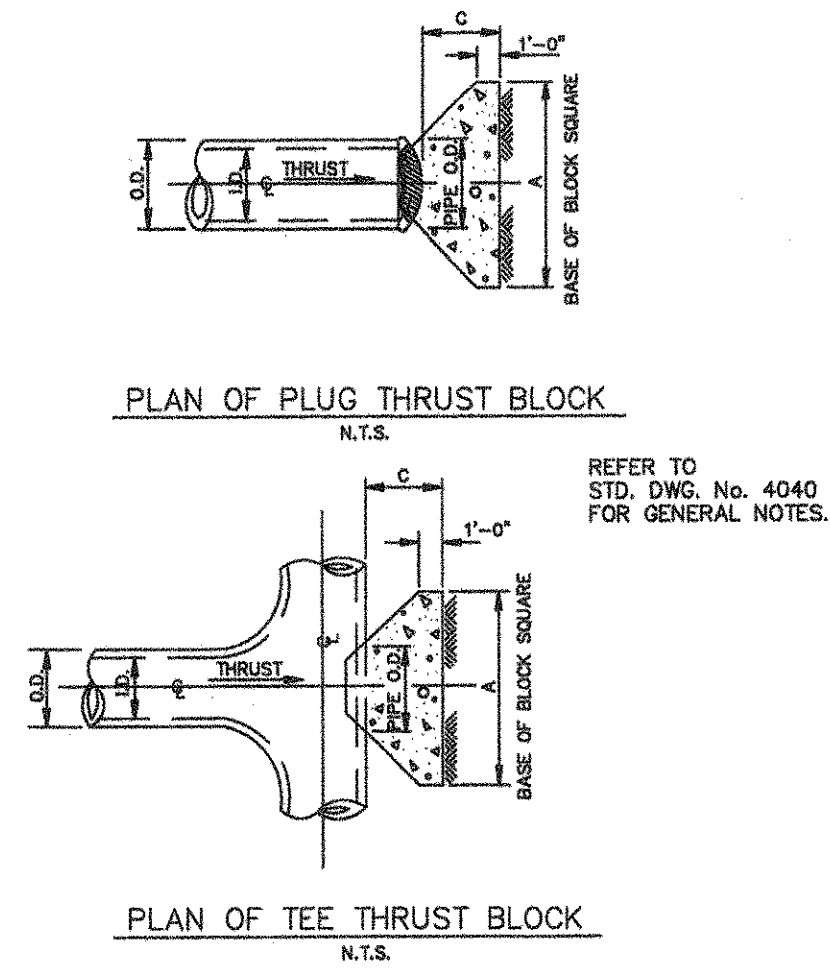
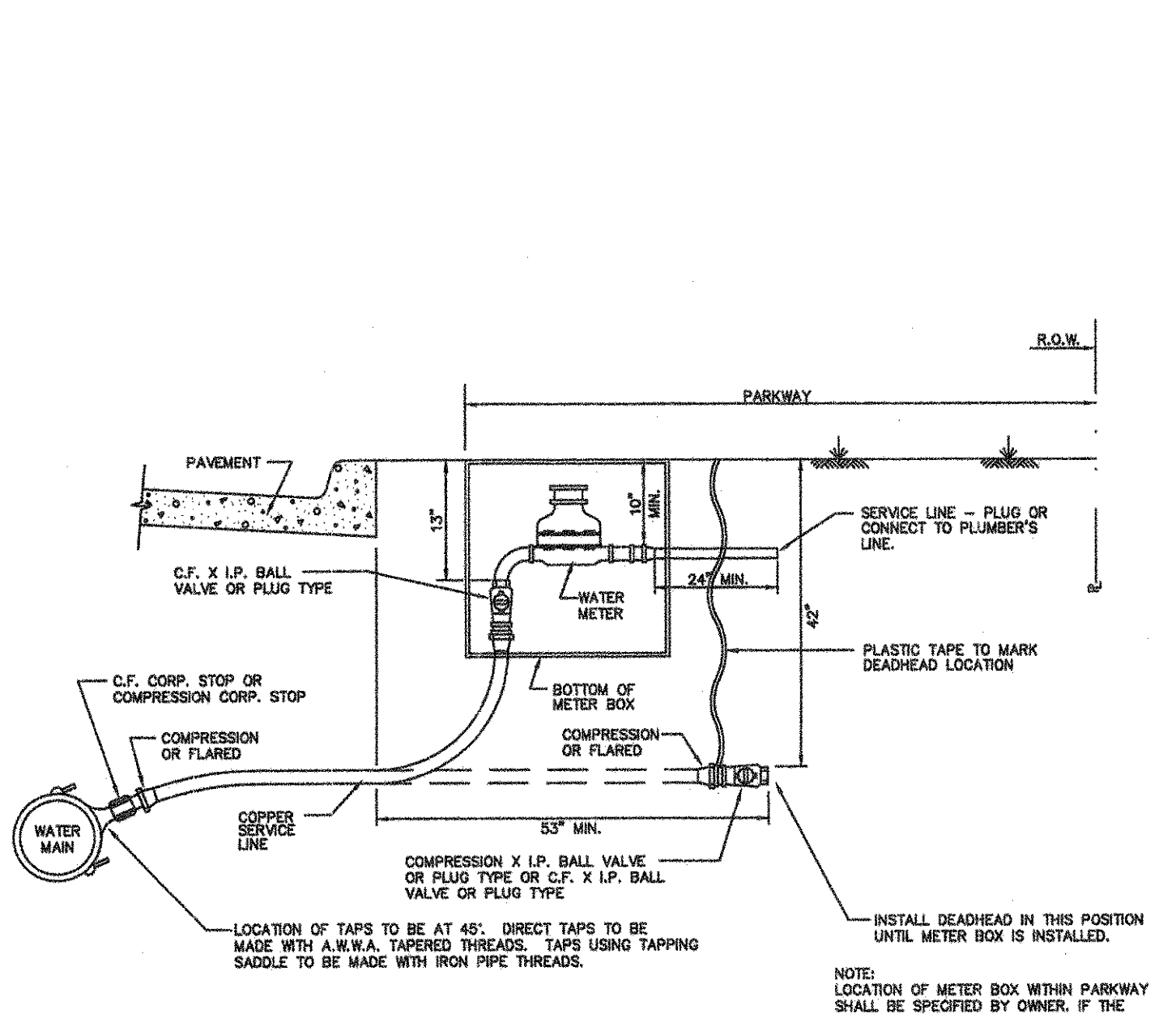
DRAWN: DENNY	DATE: 11-Feb-13
CHECKED: TW	DATE: 11-Feb-13
PROJECT NO: 8311	
DWG FILE NAME: 8311 WATER.DWG	

THIS DOCUMENT IS RELEASED FOR
 THE PURPOSE OF CONSTRUCTION.
 THE SEAL APPEARING ON THIS
 DOCUMENT WAS AUTHORIZED BY
 TODD D. WINTTERS, P.E. 87085



WATER PLAN
ESTATES AT FOREST GROVE
 CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET
10
 OF
13

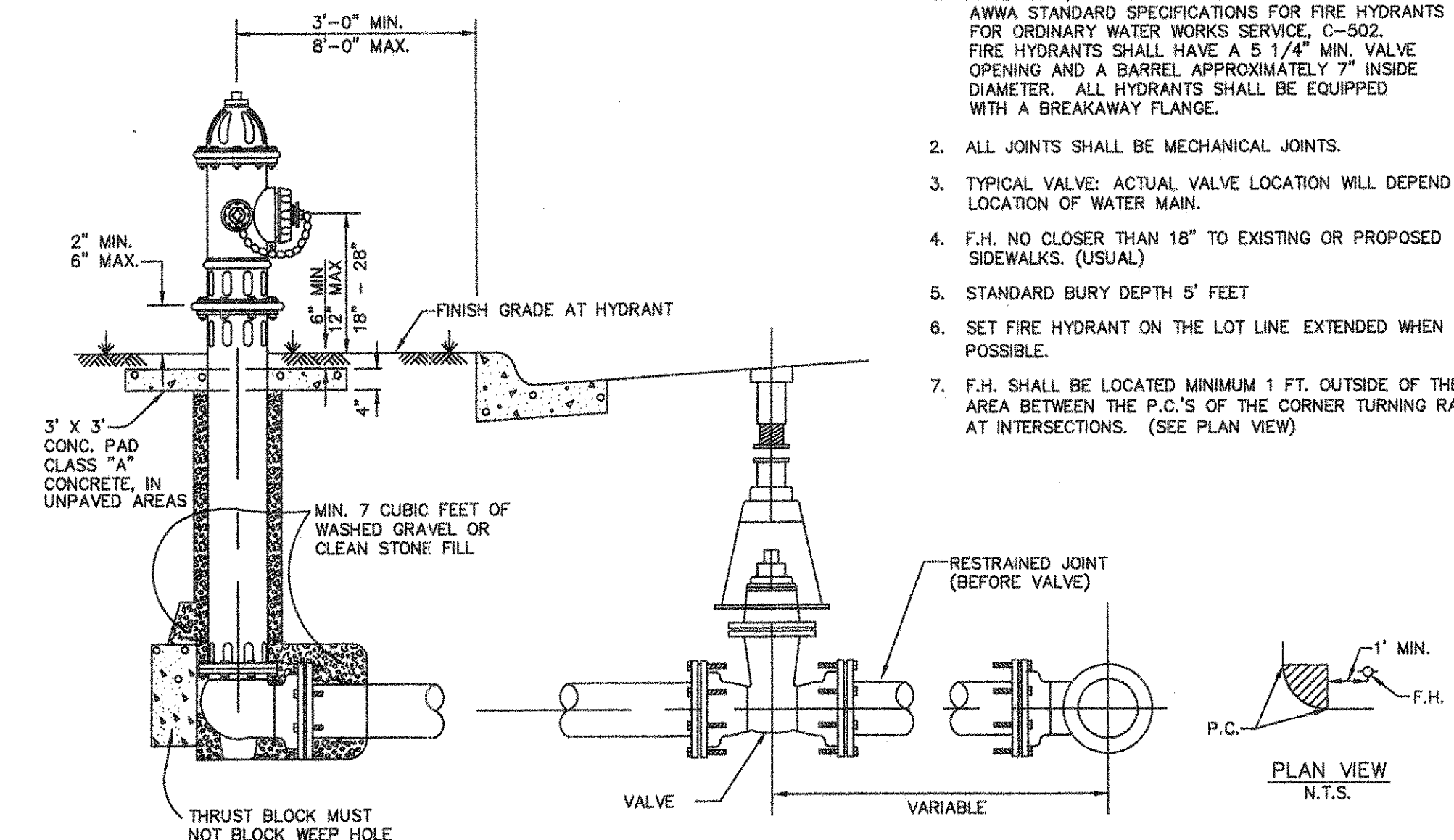


I.D. (IN.)	T (IN.)	A (IN.)	B (IN.)	E (IN.)
4.6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.8	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.8	2.6	3.8
48	5.5	2.0	3.0	4.3
54	6.0	2.3	3.4	4.8
60	6.5	2.5	3.8	5.3
66	6.8	2.8	4.1	5.7
72	7.5	3.0	4.6	6.3
78	7.5	3.3	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.8	5.6	7.7
96	9.0	4.0	6.0	8.2

I.D. (IN.)	G THRU (IN.)	EARTH				ROCK			
		A	B	VOL. (CY)	WEIGHT (LBS.)	A	B	VOL. (CY)	WEIGHT (LBS.)
4.6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
10,12	0.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
16,18	0.6	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
20	0.7	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
24	0.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
30	2.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
36	4.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
42	5.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
48	5.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
54	6.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
60	6.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
66	6.8	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
72	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
78	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
84	8.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
90	8.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
96	9.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1

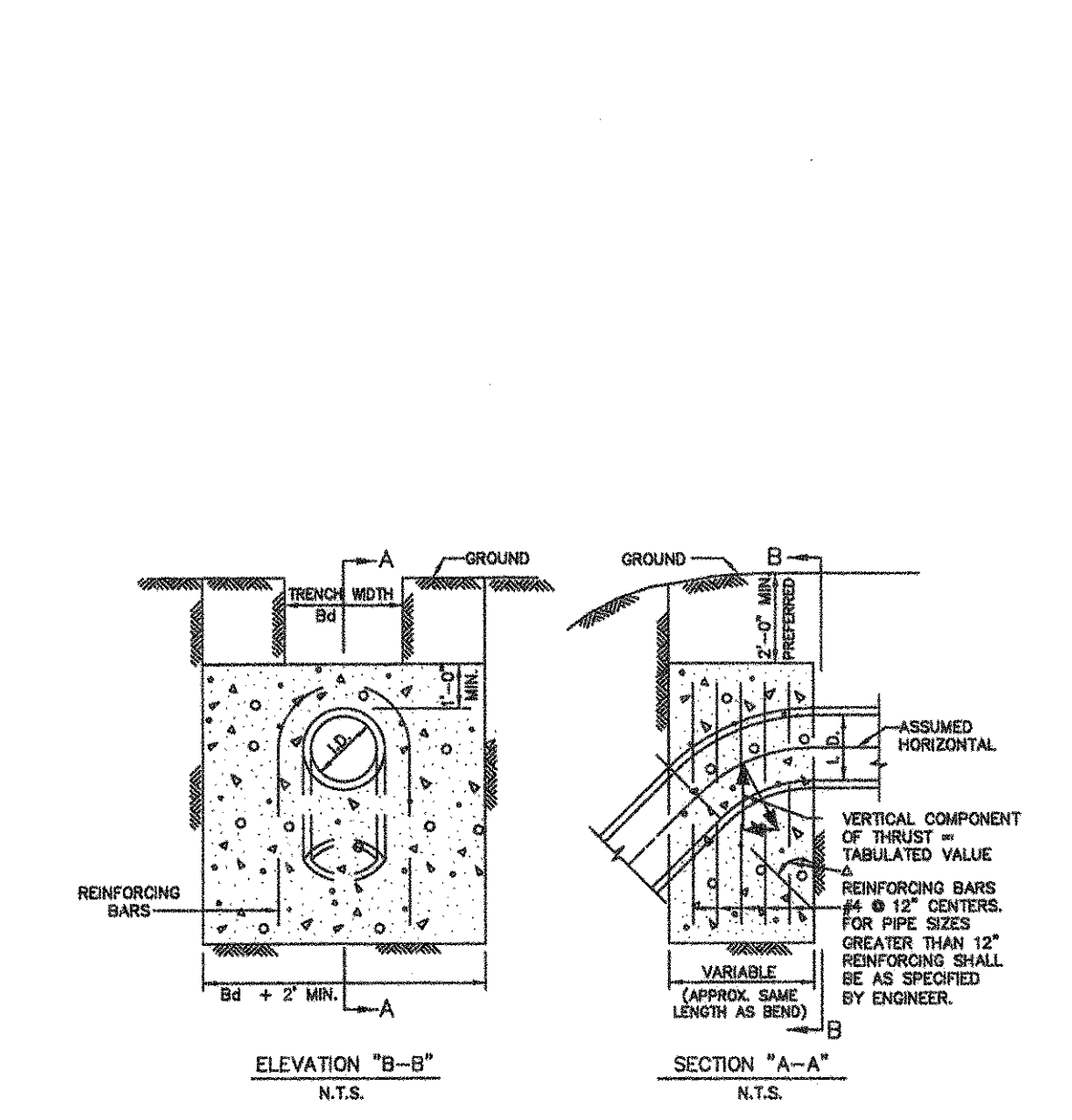
I.D. (IN.)	G THRU (IN.)	EARTH				ROCK			
		A	B	VOL. (CY)	WEIGHT (LBS.)	A	B	VOL. (CY)	WEIGHT (LBS.)
4.6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
10,12	0.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
16,18	0.6	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
20	0.7	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
24	0.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
30	2.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
36	4.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
42	5.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
48	5.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
54	6.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
60	6.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
66	6.8	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
72	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
78	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
84	8.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
90	8.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
96	9.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1

I.D. (IN.)	G THRU (IN.)	EARTH				ROCK			
		A	B	VOL. (CY)	WEIGHT (LBS.)	A	B	VOL. (CY)	WEIGHT (LBS.)
4.6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
10,12	0.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
16,18	0.6	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
20	0.7	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
24	0.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
30	2.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
36	4.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
42	5.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
48	5.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
54	6.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
60	6.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
66	6.8	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
72	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
78	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
84	8.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
90	8.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
96	9.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1

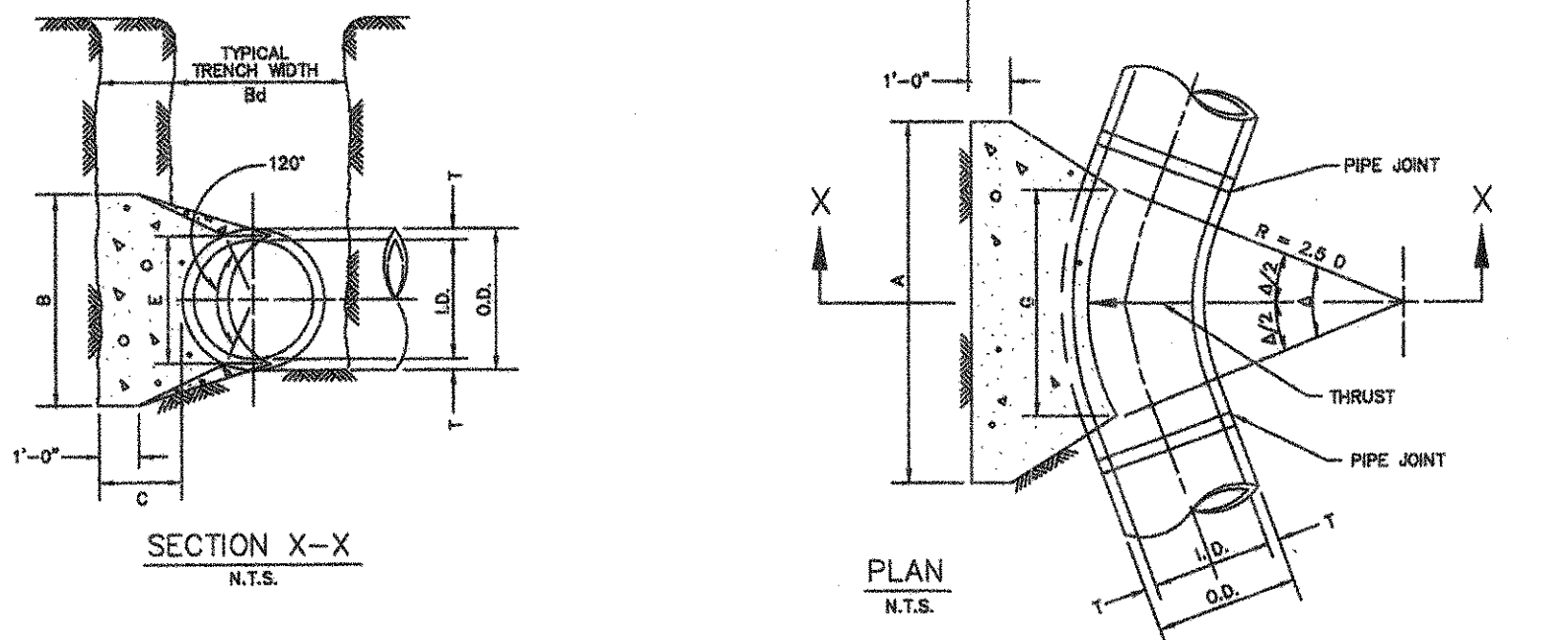


- NOTES:
- IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
 - ALL JOINTS SHALL BE MECHANICAL JOINTS.
 - TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
 - F.H. NO CLOSER THAN 18" TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
 - STANDARD BURY DEPTH 5' FEET
 - SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.
 - F.H. SHALL BE LOCATED MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADI AT INTERSECTIONS. (SEE PLAN VIEW)

WATER SERVICE INSTALLATION
3/4" OR 1" LINE



I.D. (IN.)	THRUST (TONS)	11.25°				22.50°				30°				45°				67.50°				90°			
		A	B	VOL.	WEIGHT	A	B	VOL.	WEIGHT	A	B	VOL.	WEIGHT	A	B	VOL.	WEIGHT	A	B	VOL.	WEIGHT				
4.6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
10,12	0.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
16,18	0.6	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
20	0.7	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
24	0.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
30	2.9	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
36	4.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
42	5.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
48	5.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
54	6.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
60	6.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
66	6.8	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
72	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
78	7.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
84	8.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
90	8.5	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1
96	9.0	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1	1.0	1.0	1.5	0.1

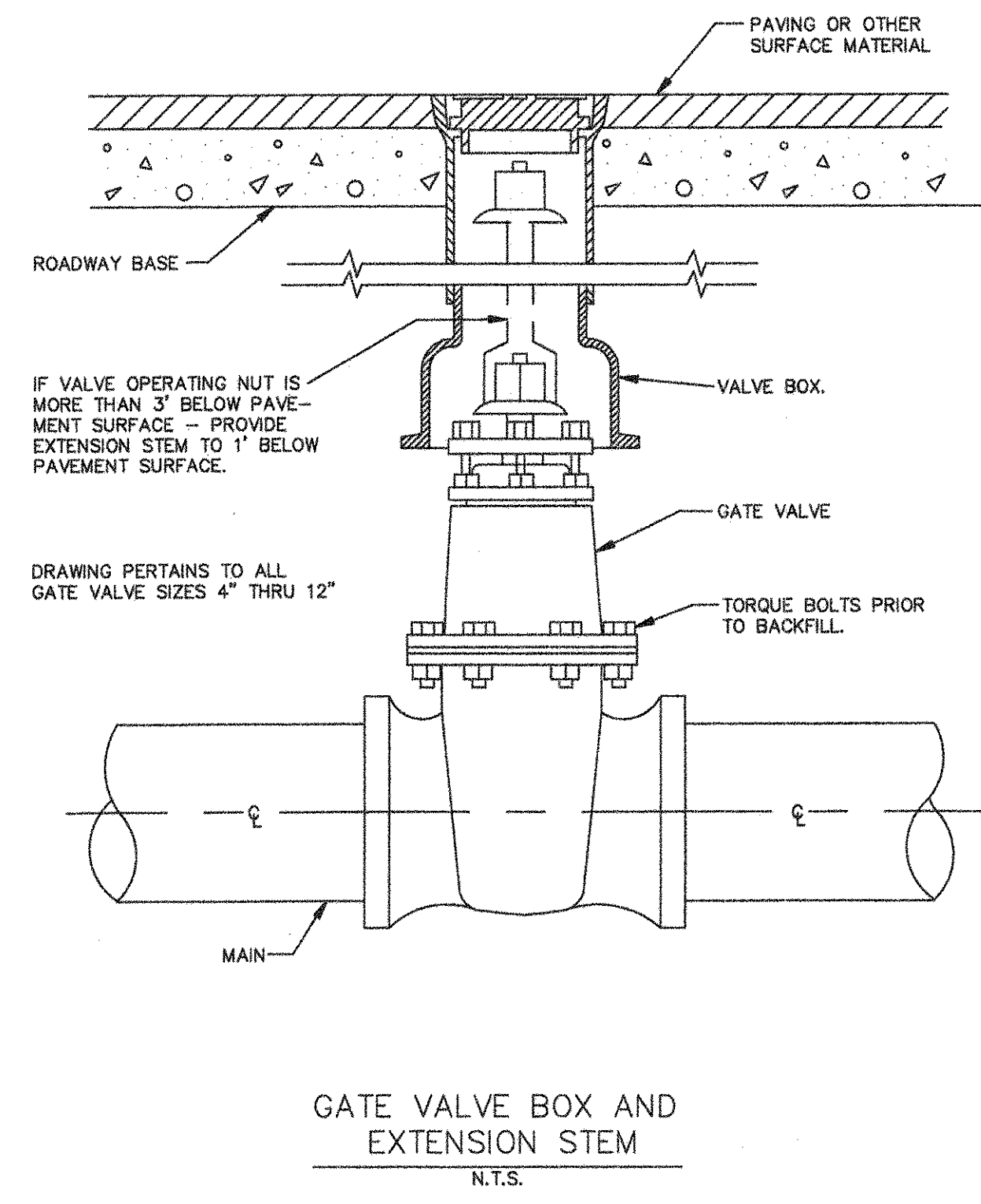


- GENERAL NOTES FOR ALL THRUST BLOCKS:
- CONCRETE FOR BLOCKING SHALL BE CLASS "B".
 - ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
 - VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
 - WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
 - POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
 - DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
 - THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
 - USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
 - CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

- GRANULAR MATERIAL (SAND) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- SELECT MATERIAL FREE OF ROCKS, CLUMPS OR DEBRIS LARGER THAN 6" IN GREATEST DIMENSION. COMPACT TO 90% STANDARD PROCTOR DENSITY. UNDER STRUCTURES, ROADWAYS AND PAVEMENT, EXCLUDE MATERIAL WITH LL >50 COMPACT TO 95% STANDARD PROCTOR DENSITY. GRANULAR MATERIAL MUST BE WELL GRADED.

SIZE OF PIPE IN INCHES DIA.	KIND OF PIPE	EXTERNAL DIA. (Bc) IN INCHES	TRENCH WIDTH (Bd) IN INCHES
6"	PVC SEWER PIPE	6.28	24
8"	PVC SEWER PIPE	8.16	24
10"	PVC SEWER PIPE	10.2	26

WATER EMBEDMENT
CLASS "B-3"



RECORD DRAWINGS
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY BE INCORPORATED HEREIN AS A RESULT.
ENGINEERING CONCEPTS & DESIGNS, L.P.
Todd D. Wintters, P.E. 2-11-13

ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT /
CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

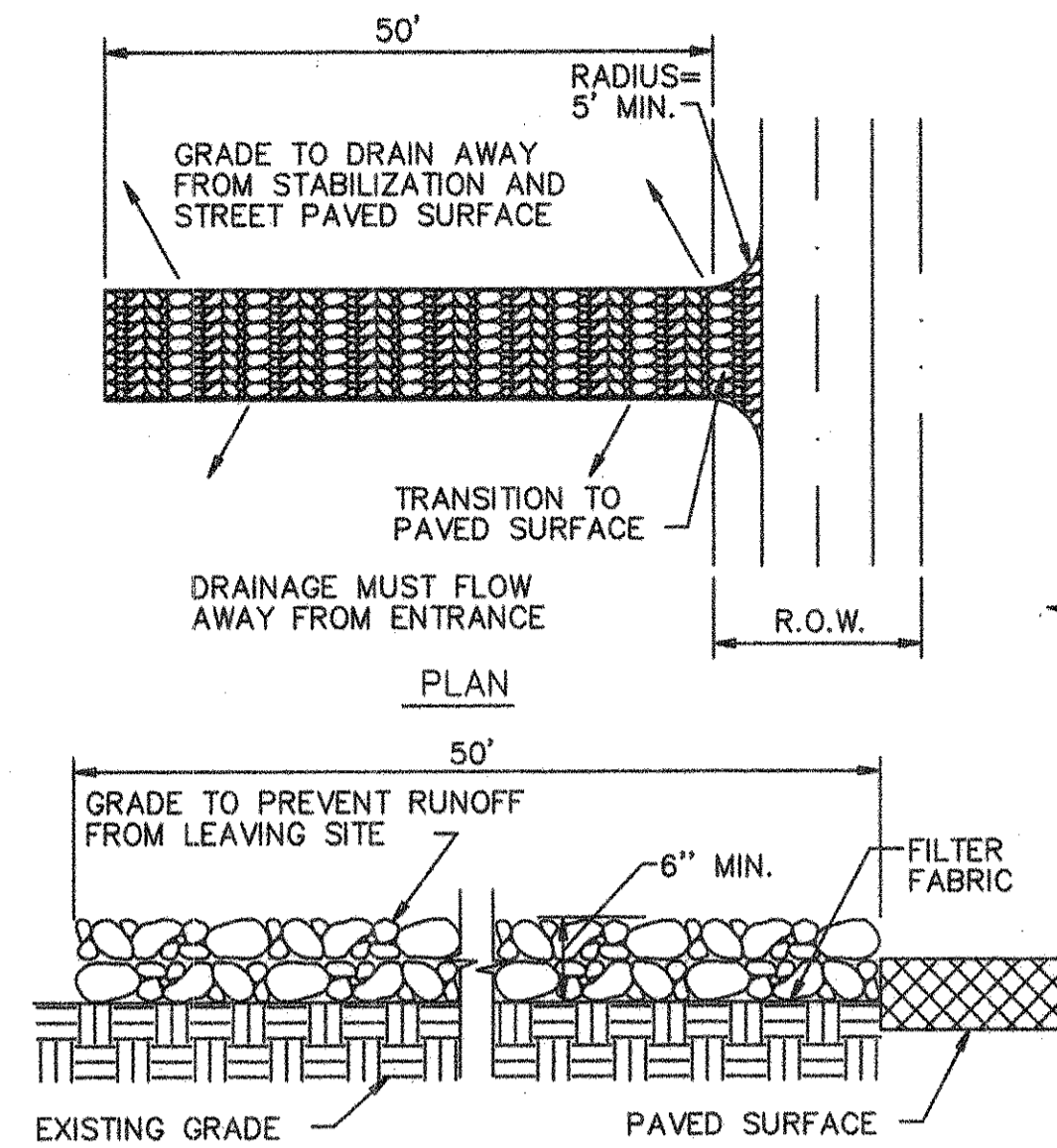
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CHECKED: TW	DATE: 7-May-12
PROJECT NO.: 8311	
DWG FILE NAME: 8311 DETAILS.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TODD D. WINTTERS, P.E. 87085



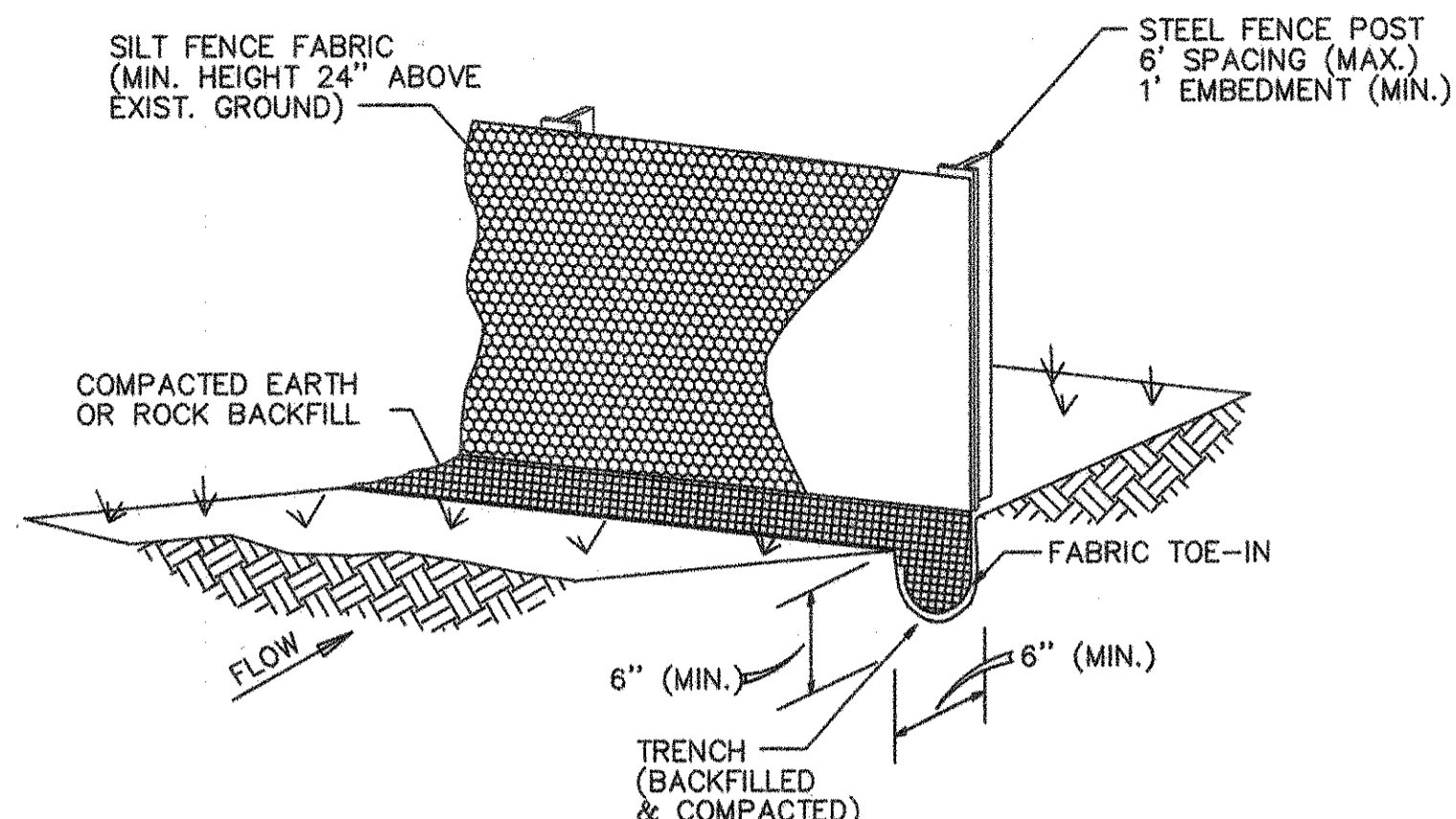
WATER DETAILS
ESTATES AT FOREST GROVE
CITY OF LUCAS, COLLIN COUNTY, TEXAS

SHEET
11
OF
13



STABILIZED CONSTRUCTION ENTRANCE / EXIT
N.T.S.

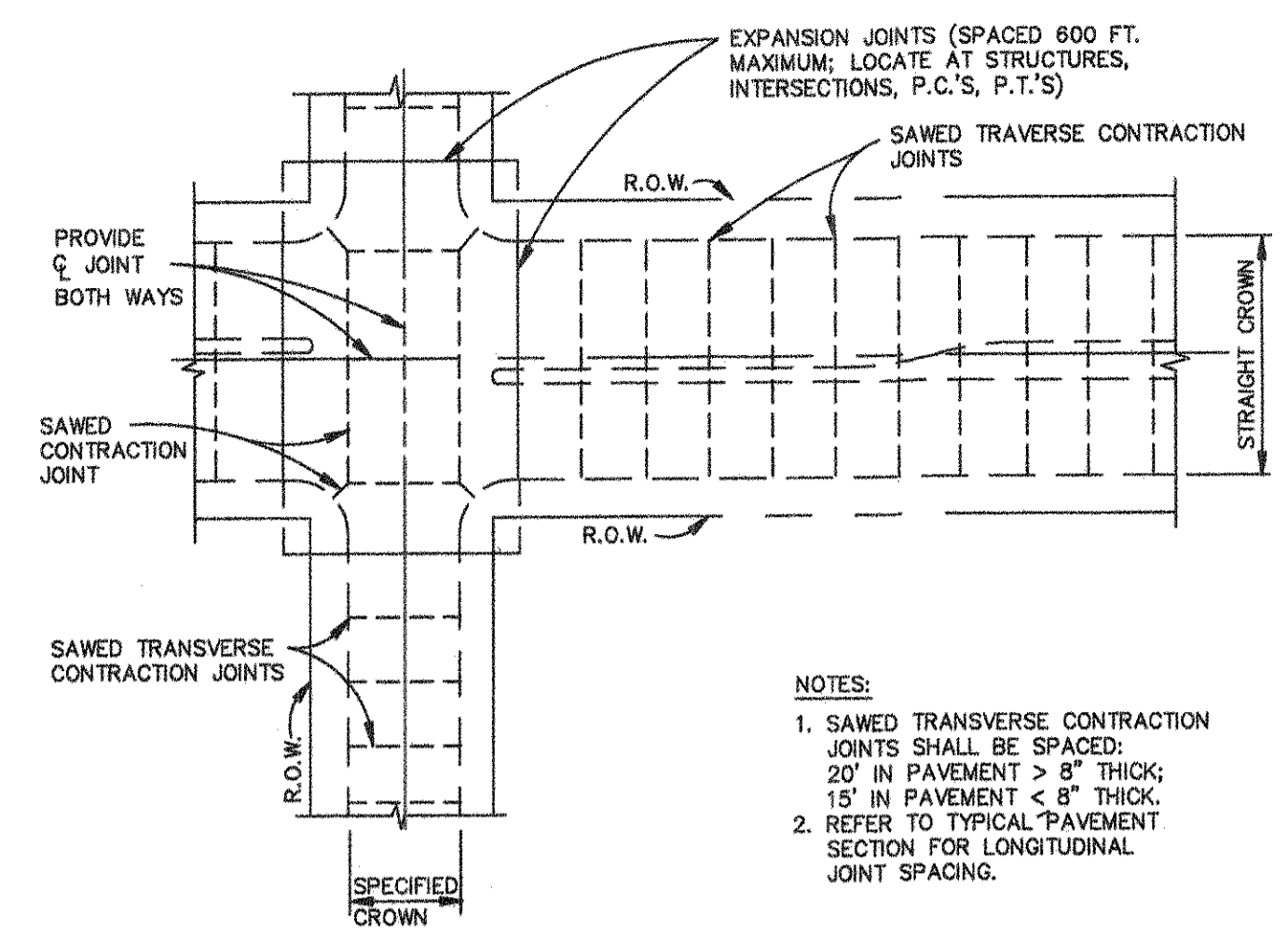
NCTCOG 02270.G
STORM WATER QUALITY
BEST MANAGEMENT PRACTICES
FOR CONSTRUCTION ACTIVITIES



SILT FENCE SHOULD BE SECURELY FASTENED TO BACKING SUPPORT AND POSTS.

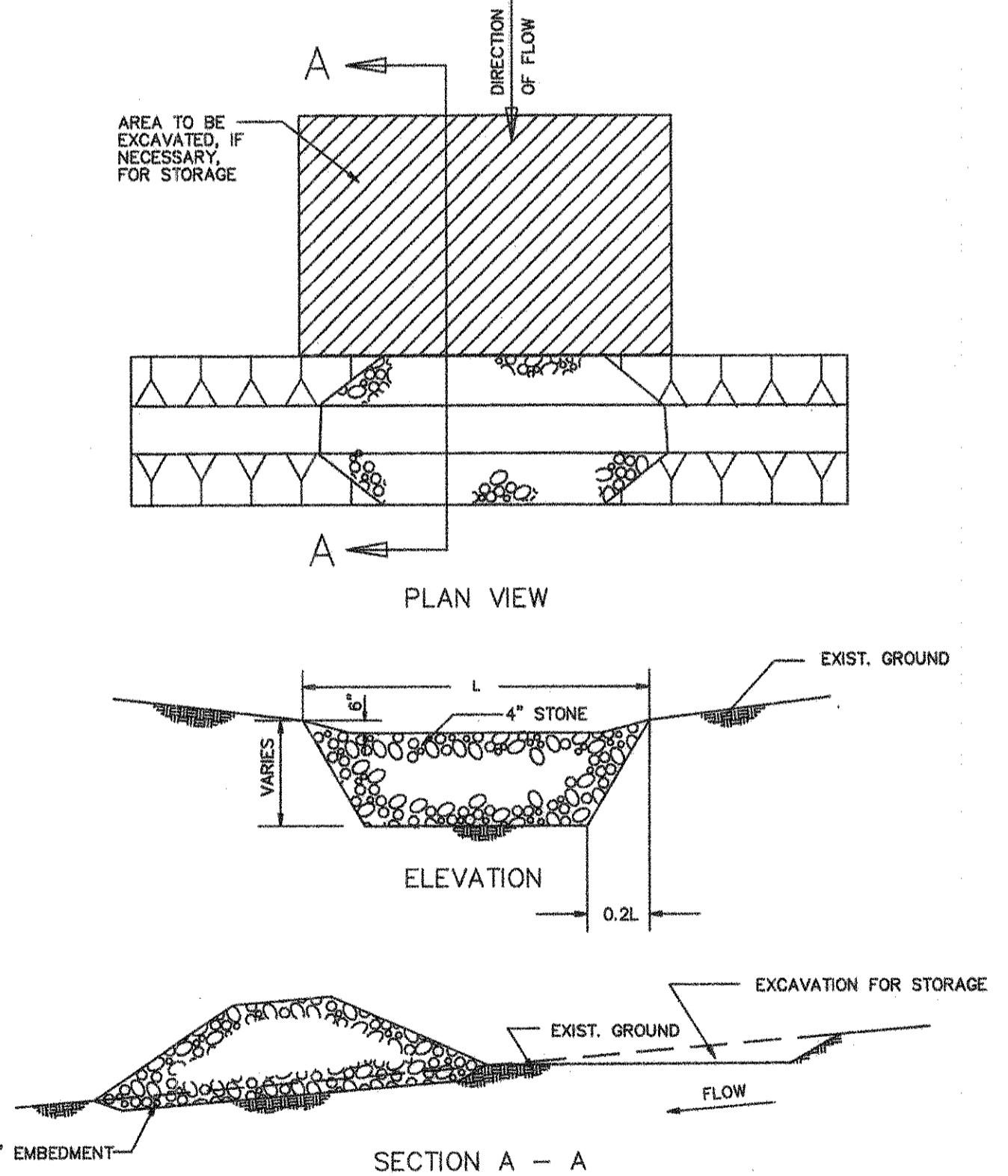
SILT FENCE
N.T.S.

NCTCOG 02270.B
STORM WATER QUALITY
BEST MANAGEMENT PRACTICES
FOR CONSTRUCTION ACTIVITIES



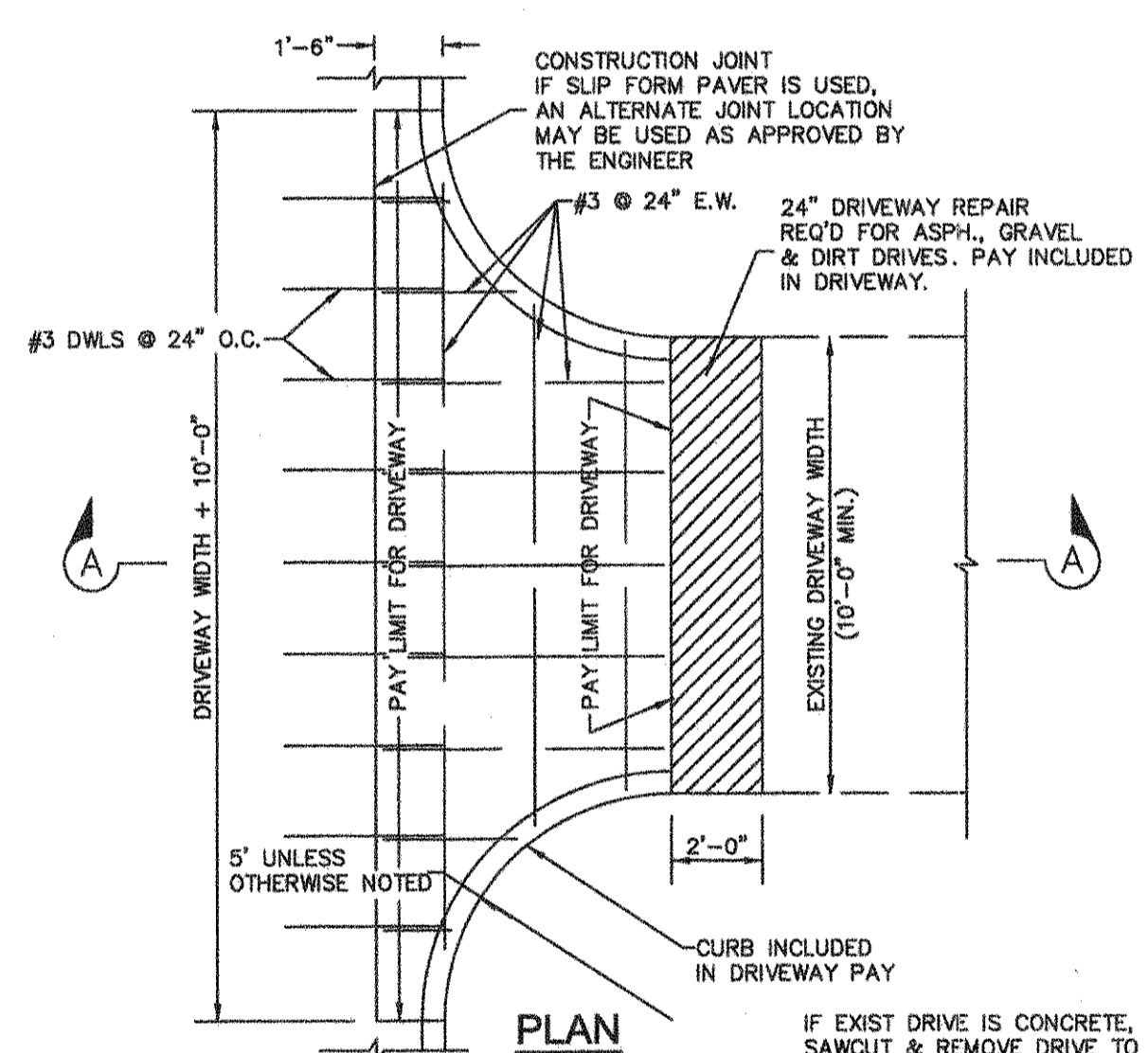
- NOTES:**
1. SAWED TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED: 20' IN PAVEMENT > 8" THICK; 15' IN PAVEMENT < 8" THICK. REFER TO TYPICAL PAVEMENT SECTION FOR LONGITUDINAL JOINT SPACING.

SPACING DIAGRAM FOR TRANSVERSE JOINTS
N.T.S.



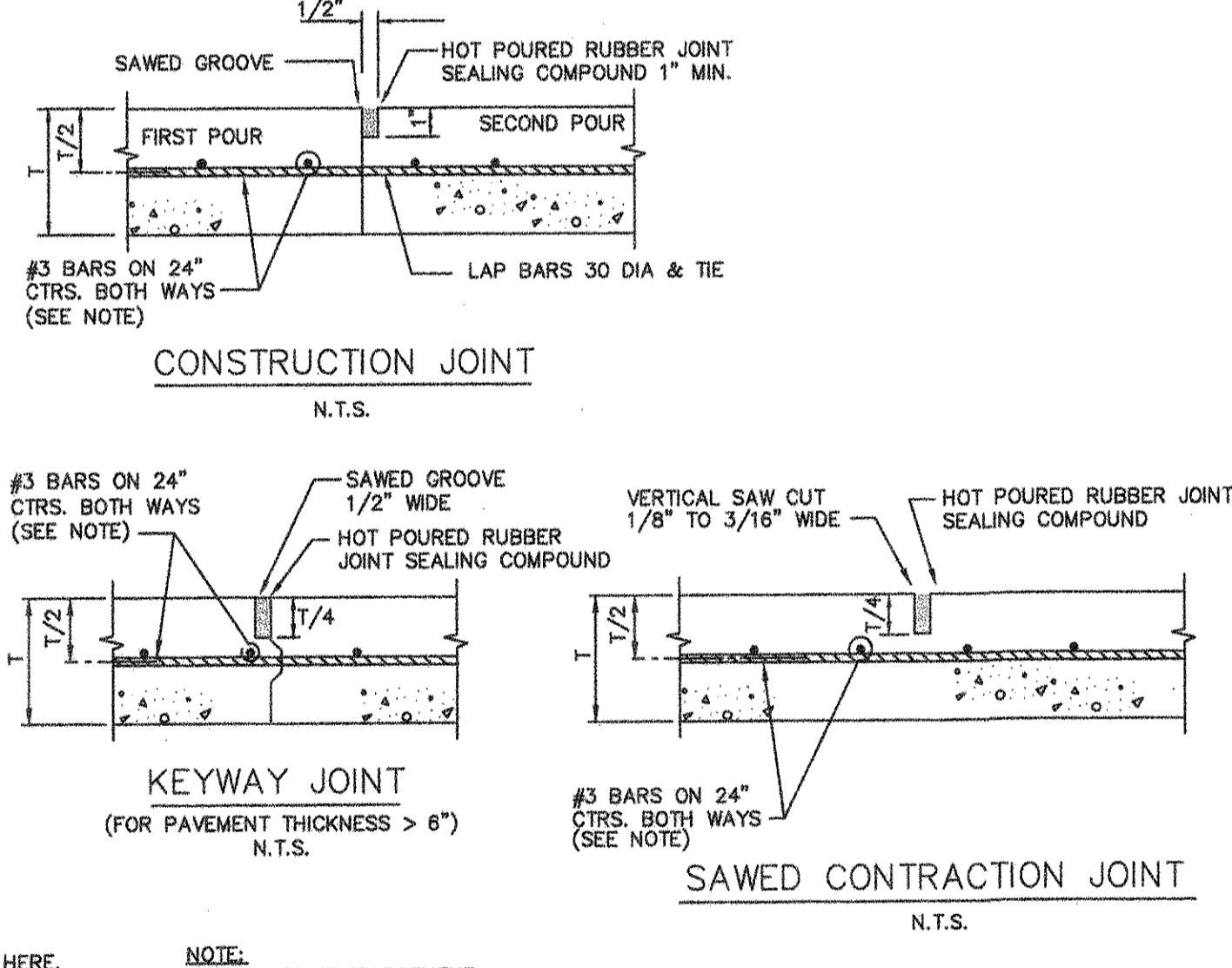
STONE SILTATION STRUCTURE
N.T.S.

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

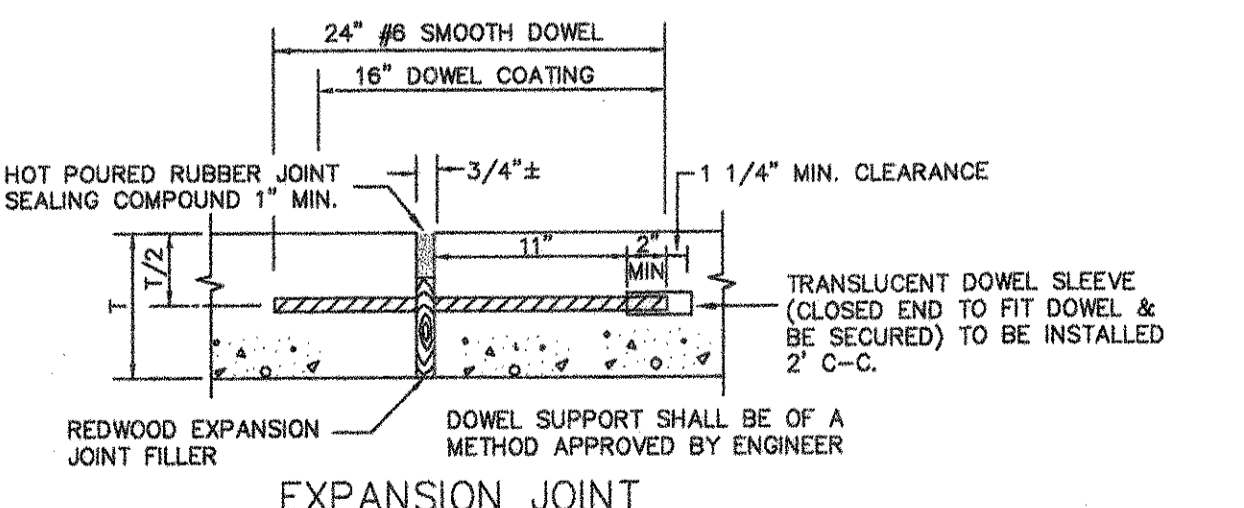


- SECTION A-A**
1. IF EXIST DRIVEWAY IS ASPHALT, SAWCUT & REMOVE DRIVE TO HERE. INSTALL 24" WIDE ASPHALT PAVT. BEHIND CONC. APPROACH
 2. IF EXIST DRIVE IS GRAVEL, REMOVE DRIVE TO HERE. INSTALL 6" FLEX. BASE. COMPACT UNTIL SETTLEMENT CEASES.
 3. IF EXIST DRIVE IS DIRT, BACKFILL BEHIND APPROACH AND COMPACT TO 95% STD. PROCTOR DENSITY

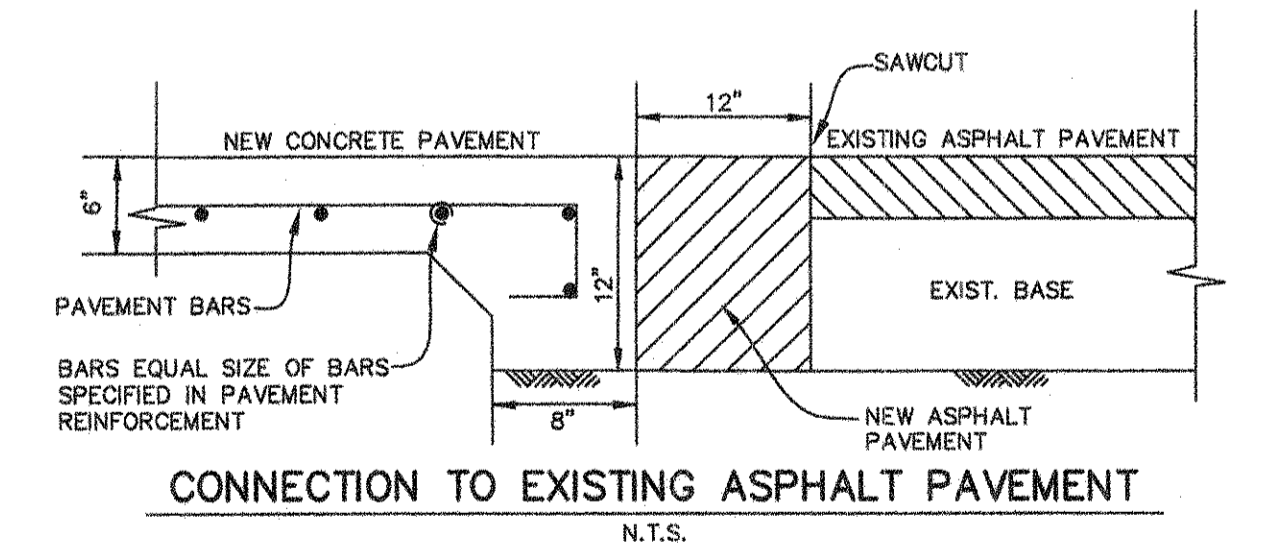
DRIVEWAY APPROACH DETAIL



NOTE:
ALTERNATE REINFORCEMENT
#4 BARS ON 30" CTRS.
BOTH WAYS.



EXPANSION JOINT
(SPACED 600 FT. MAXIMUM; LOCATE AT STRUCTURES AND AT INTERSECTION P.C.'S & P.T.'S)
N.T.S.



CONNECTION TO EXISTING ASPHALT PAVEMENT
N.T.S.

- NOTES:**
1. A STORM WATER POLLUTION PREVENTION PLAN (S.W.P.P.P.) INCLUDING NOTICE OF INTENT (N.O.I.) WILL BE PREPARED BY THE GENERAL CONTRACTOR FOR THIS PROJECT IN ACCORDANCE WITH THE REQUIREMENTS OF THE N.P.D.E.S. GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION.
 2. ALL CONTRACTORS WILL COMPLY WITH THE REQUIREMENTS AND INTENT OF THE N.P.D.E.S. GENERAL PERMIT FOR STORM WATER DISCHARGES.
 3. EACH CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT (N.O.I.) FOR STORM WATER DISCHARGE PERMIT COVERAGE. THIS SUBMITTAL SHALL BE COORDINATED WITH THE OWNER AND SHALL OCCUR NO LESS THAN 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
 4. EACH CONTRACTOR SHALL OBTAIN AND SUBMIT TO THE OWNER A POLLUTION PREVENTION CERTIFICATION FROM EACH SUBCONTRACTOR WHOSE WORK IMPACTS THE STORM WATER POLLUTION PREVENTION PLAN (S.W.P.P.P.) PRIOR TO THE PERFORMANCE OF ANY WORK BY SAID SUBCONTRACTOR. THESE CERTIFICATIONS SHALL BECOME A PART OF THE STORM WATER POLLUTION PREVENTION PLAN.
 5. CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES, AS INDICATED ON THE PLANS AND AS FIELD CONDITIONS WARRANT, PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY. REPAIRS OR MODIFICATIONS TO THE MEASURES WILL BE MADE BY THE CONTRACTOR IF THE CONTROL MEASURES PROVE INEFFECTIVE OR IF ADDITIONAL CONTROL MEASURES ARE NECESSARY.
 6. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT TRACKING OF MUD AND/OR SOILS ONTO EXISTING AND/OR NEW PAVEMENT. ANY TRACKING THAT OCCURS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
 7. AT A MINIMUM, PERIMETER CONTROLS SUCH AS SILT FENCE SHALL BE INSTALLED AT ALL DOWN SLOPE BOUNDARIES AND AS WARRANTED WHERE PAVEMENT REMOVAL, UTILITY CONSTRUCTION, GRADING, OR OTHER CONSTRUCTION ACTIVITIES ARE TO BE PERFORMED. THE CONTRACTOR SHALL AT ALL TIMES TAKE SUCH MEASURES AS NECESSARY TO MINIMIZE OFFSITE TRACKING OR TRANSPORT OF SEDIMENT AND DEBRIS.
 8. DAMAGE TO ADJACENT PROPERTY AND/OR TO RECEIVING WATERS CAUSED BY IMPROPERLY INSTALLED OR POORLY MAINTAINED EROSION CONTROL MEASURES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ANY SILTATION CAUSED BY HIS OPERATIONS AND/OR FAILURE OF THE EROSION CONTROL MEASURES.
 10. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ACCUMULATED SILT AND SEDIMENT FROM EROSION CONTROL MEASURES WHEN IT REACHES A DEPTH OF SIX (6) INCHES OR IMPAIRS THE EFFECTIVENESS OF THE MEASURES.
 11. THE CONTRACTORS REPRESENTATIVE WILL INSPECT THE PROJECT EVERY SEVEN DAYS, AT A MINIMUM, AND AFTER EVERY RAINFALL OF ONE-HALF INCHES OR GREATER TO DETERMINE THE INTEGRITY AND EFFECTIVENESS OF THE EROSION CONTROL MEASURES. A WRITTEN INSPECTION REPORT WILL BE FILED WITH THE POLLUTION PREVENTION PLAN. THIS INSPECTION DOES NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR INSPECTION AND MAINTENANCE OF THE EROSION CONTROL MEASURES OR HIS DUTY TO COMPLY WITH THE INTENT AND CONDITIONS OF THE N.P.D.E.S. GENERAL PERMIT.
 12. ALL STOCKPILED SOILS WILL BE SURROUNDED BY A STRAW BALE DIKE, SILT FENCE, SEDIMENT CONTROL SWALE, OR EQUIVALENT MEASURE TO PROPERLY CONTROL SEDIMENT RUNOFF, AS APPROVED BY THE OWNER.
 13. GRASS SEEDING SHALL BE INSTALLED PER N.T.C.O.G. SPECIFICATIONS, INCLUDING UNHULLED BERMUDA IF RYE GRASS IS SPECIFIED. GRASS SEEDING SHALL OBTAIN 80% COVERAGE PRIOR TO FINAL ACCEPTANCE.
 14. CONTRACTOR SHALL STABILIZE ANY AREA WHERE CONSTRUCTION ACTIVITY IS TO BE TEMPORARILY OR PERMANENTLY CEASED FOR MORE THAN 14 DAYS.

RECORD DRAWINGS
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

ENGINEERING CONCEPTS & DESIGNS, L.P.
Todd D. Winters 2-11-13
TODD D. WINTERS, P.E.

ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT /
CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

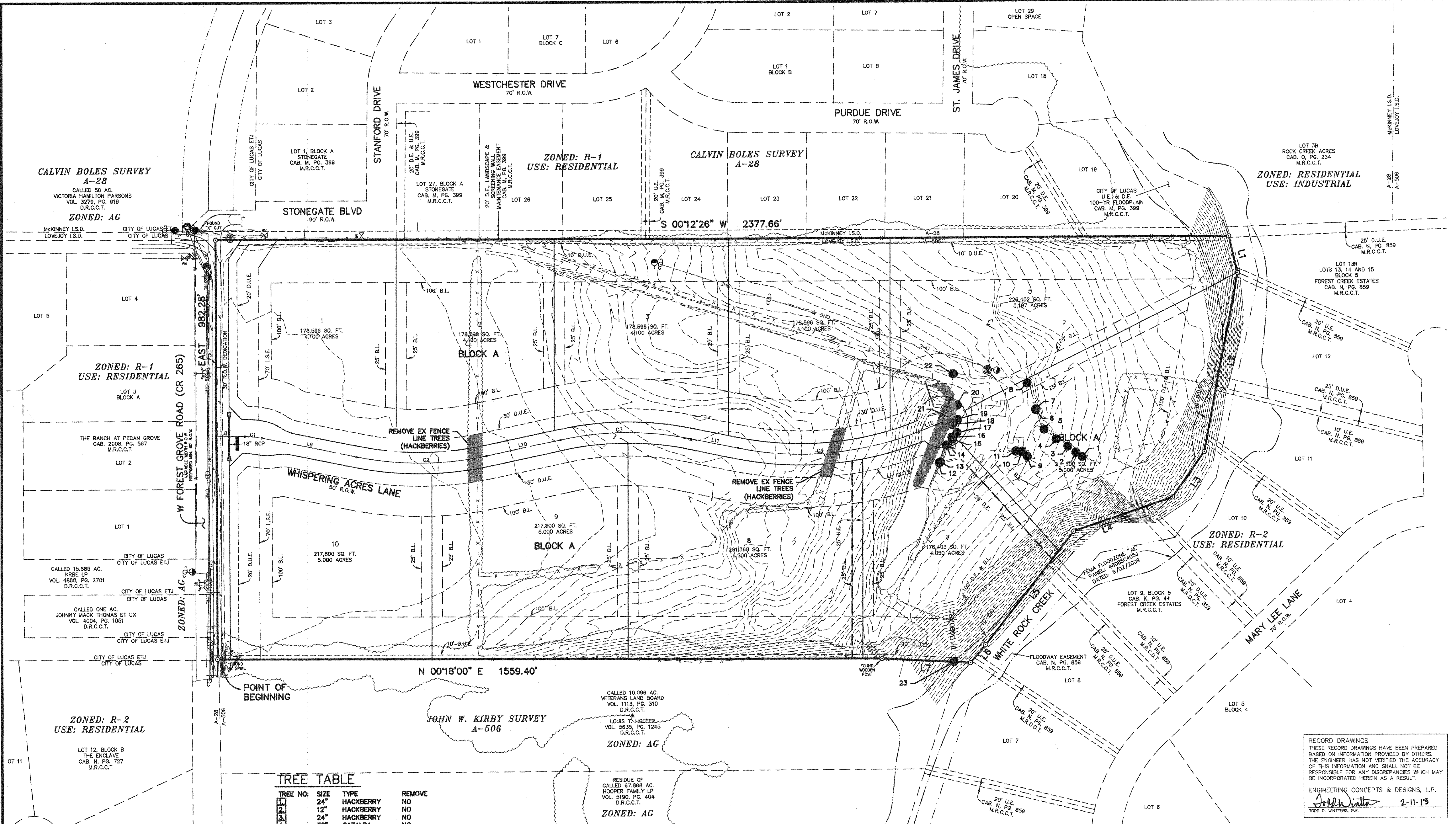
DRAWN: DENNY	DATE: 7-May-12
CHECKED: TW	DATE: 7-May-12
PROJECT NO.: 8311	
DWG FILE NAME: 8311 DETAILS.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TODD D. WINTERS, P.E. 87085



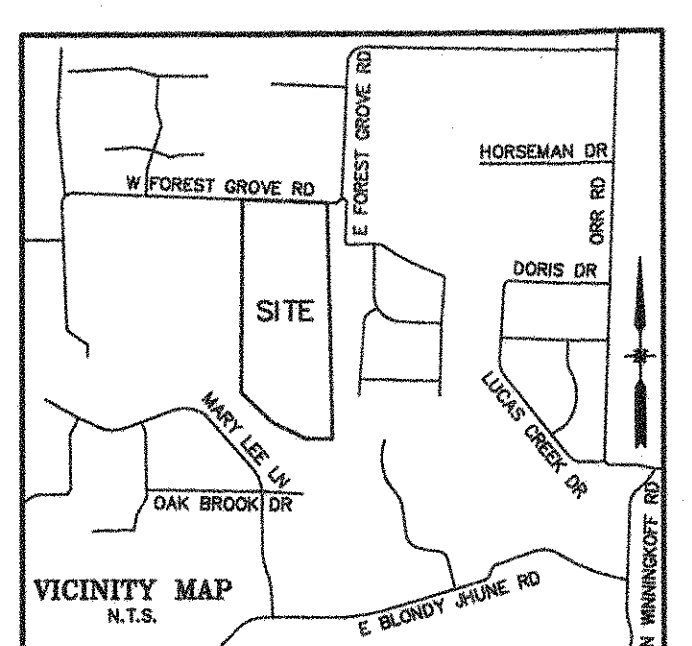
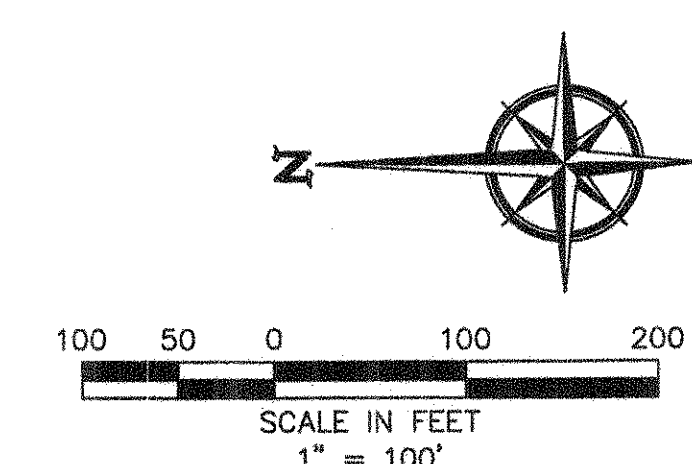
**EROSION CONTROL & PAVING DETAILS
ESTATES AT FOREST GROVE**

CITY OF LUCAS, COLLIN COUNTY, TEXAS



TREE TABLE

TREE NO:	SIZE	TYPE	REMOVE
1.	24"	HACKBERRY	NO
2.	12"	HACKBERRY	NO
3.	24"	HACKBERRY	NO
4.	30"	CATALPA	NO
5.	14"	CATALPA	NO
6.	12"	HACKBERRY	NO
7.	12"	HACKBERRY	NO
8.	14"	HACKBERRY	NO
9.	30"	CATALPA	NO
10.	30"	HACKBERRY	NO
11.	36"	HACKBERRY	NO
12.	12"	BOIS D ARC	YES
13.	12"	HACKBERRY	YES
14.	12"	HACKBERRY	YES
15.	14"	HACKBERRY	YES
16.	18"	BOIS D ARC	YES
17.	10"	HACKBERRY	YES
18.	18"	BOIS D ARC	YES
19.	14"	BOIS D ARC	YES
20.	10"	CEDAR	YES
21.	10"	CEDAR	YES
22.	16"	PECAN	NO
23.	30"	BOIS D ARC	NO



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 ENGINEERING CONCEPTS & DESIGN, L.P.
 7000 D. WINTERS, P.E.
 2-11-13

TREE SURVEY
THE ESTATES AT FOREST GROVE
 LOTS 1-10, BLOCK A
 10 RESIDENTIAL LOTS
 BEING 49.58 ACRES
 SITUATED IN THE
 JOHN W. KIRBY SURVEY, ABSTRACT NO. 506
 CITY OF LUCAS, COLLIN COUNTY, TEXAS
 OWNER/DEVELOPER
LUCAS REAL ESTATE, LLC
 1221 N. INTERSTATE 35E STE 200
 CARROLLTON, TX 75006-3806
 DATE: 19 April 2012