



AGENDA
City of Lucas
Planning and Zoning Commission
November 14, 2019
7:00 PM
City Hall – Council Chambers
665 Country Club Road – Lucas, Texas

Notice is hereby given that a City of Lucas Planning and Zoning Commission meeting will be held on Thursday, November 14, 2019 at 7:00 pm at the Lucas City Hall, 665 Country Club Road, Lucas, Texas 75002 at which time the following agenda will be discussed.

Call to Order

- Roll Call
- Determination of Quorum
- Reminder to turn off or silence cell phones
- Pledge of Allegiance

Regular Agenda

1. Consider approval of the minutes of the October 10, 2019 Planning and Zoning Commission meeting. **(City Secretary Stacy Henderson)**
2. Consider the request by OW Homes, LLC for final plat approval for Farmstead Estates, a tract of land being 11.941 acres situated in the James Grayum Survey, Abstract Number 354 otherwise known as 1890 Estates Parkway. **(Development Services Director Joe Hilbourn)**
3. Discuss stormwater ordinance regulations regarding drainage challenges in the City of Lucas and provide direction to staff on any recommended amendments to install, maintain, and promote drainage on private and public property and rights-of-way, and provide direction to staff on amendments to consider for the January 9, 2020 Planning and Zoning Commission meeting. **(Planning and Zoning Commission, City Engineer Stanton Foerster, Development Services Director Joe Hilbourn)**

Executive Session Agenda

As authorized by Section 551.071 of the Texas Government Code, the Planning and Zoning Commission may convene into closed Executive Session for the purpose of seeking confidential legal advice from the City Attorney regarding any item on the agenda at any time during the meeting. This meeting is closed to the public as provided in the Texas Government Code.

4. Executive Session: An Executive Session is not scheduled for this meeting.
5. Adjournment.

Certification

I do hereby certify that the above notice was posted in accordance with the Texas Open Meetings Act on the bulletin board at Lucas City Hall, 665 Country Club Road, Lucas, Texas 75002 and on the City's website at www.lucastexas.us on or before 6:00 p.m. on November 7, 2019.

Stacy Henderson, City Secretary

In compliance with the American with Disabilities Act, the City of Lucas will provide for reasonable accommodations for persons attending public meetings at City Hall. Requests for accommodations or interpretive services should be directed to Stacy Henderson at 972-912-1211 or by email at shenderson@lucastexas.us at least 48 hours prior to the meeting.



City of Lucas

Planning and Zoning Agenda Request

November 14, 2019

Requester: City Secretary Stacy Henderson

Agenda Item Request

Consider approval of the minutes of the October 10, 2019 Planning and Zoning Commission meeting.

Background Information

NA

Attachments/Supporting Documentation

1. October 10, 2019 Planning and Zoning Commission minutes

Budget/Financial Impact

NA

Recommendation

NA

Motion

I make a motion to approve the minutes of the October 10, 2019 Planning and Zoning Commission meeting.



City of Lucas
Planning and Zoning Commission
Regular Meeting
October 10, 2019
7:00 PM

City Hall – 665 Country Club Road – Lucas, Texas
MINUTES

Call to Order

Chairman Rusterholtz called the meeting to order at 7:00 pm.

It was determined that a quorum was present. Chairman Rusterholtz stated that Alternate Members Tommy Tolson and Adam Sussman would be seated as voting members. Everyone was reminded to turn off or silence their cell phones and the Pledge of Allegiance was recited.

Commissioners Present:

Chairman Peggy Rusterholtz
Vice Chairman David Keer
Commissioner Andre Guillemaud
Alternate Commissioner Tommy Tolson
Alternate Commissioner Adam Sussman

Staff Present:

City Manager Joni Clarke
City Secretary Stacy Henderson
Development Services Director Joe Hilbourn

Commissioners Absent:

Commissioner Tim Johnson
Commissioner Joe Williams

Regular Agenda

1. **Consider approval of the minutes of the August 8, 2019 Planning and Zoning Commission meeting, and the minutes of the September 12, 2019 Joint Planning and Zoning Commission and City Council Drainage Workshop meeting.**

MOTION: A motion was made by Vice Chairman Keer, seconded by Commissioner Guillemaud, to approve the minutes of the August 8, 2019 Planning and Zoning Commission meeting, and the minutes of the September 12, 2019 Joint Planning and Zoning Commission and City Council Drainage Workshop meeting as presented. The motion passed by a 5 to 0 vote with Vice Chairman Keer abstaining.

2. **Consider the request by Chris Leavell on behalf of LV Phase II, LLC for final plat approval of the Lucas Plaza Addition located at 491 Angel Parkway, Abstract A0821 of the William Snyder Survey, Tract 58, being 1.3237 acres of Lot 2, Block A.**

Development Services Director Joe Hilbourn stated that the plat meets all City requirements and recommended the final plat be approved.

MOTION: A motion was made by Commissioner Sussman, seconded by Commissioner Guillemaud to approve the final plat for LV Phase II, LLC of the Lucas Plaza Addition located at 491 Angel Parkway, Abstract A0821 of the William Snyder Survey, Tract 58, being 1.3237 acres of Lot 2, Block A. The motion passed unanimously by a 5 to 0 vote.

3. **Discuss stormwater ordinance regulations regarding drainage challenges in the City of Lucas and provide direction to staff on any recommended amendments to install, maintain, and promote drainage on private and public property and rights of ways.**

Chairman Rusterholtz noted that a copy of the Town of Fairview stormwater ordinance was included in the Planning and Zoning Commission packet for review. Chairman Rusterholtz explained that she believed the ordinance was a good reference point to begin review of the City's stormwater ordinance.

Chairman Rusterholtz verified with Mr. Hilbourn that new developments were required to submit drainage studies as part of their development. Mr. Hilbourn stated that drainage studies were a requirement with every new development as part of flood damage prevention.

Chairman Rusterholtz clarified with the Commission that for this meeting, the Commission was focusing on stormwater requirements for new development and addressing possible amendments to the City's existing stormwater ordinance.

Mr. Hilbourn suggested the Commission review and consider adding a section related to penalties for property owners that adjust drainage on their property without permits. Mr. Hilbourn also noted that the Commission should review whether drainage calculation studies should be required on subdivisions of five lots or less. Currently the City has no requirements related to subdivisions of this size.

The Commission discussed assessing fees to property owners if the homeowners associations failed, to include requirements for detention ponds if circumstances were warranted, and maintenance of easements on private property.

The Commission also discussed the need to clarify minimum standards for culverts, if metal or concrete culverts were more effective, and the maintenance required.

Vice Chairman Keer discussed funding some drainage improvements through an assessed fee for residential and commercial properties, and how that would be addressed in an ordinance based on size and impervious lot coverage.

4. **Executive Session.**

There was no Executive Session held at this meeting.

5. Adjournment.

MOTION: A motion was made by Commissioner Sussman, seconded by Commissioner Guillemaud to adjourn the meeting at 7:45pm. The motion passed unanimously by a 5 to 0 vote.

Chairman Rusterholtz, Chairman

Stacy Henderson, City Secretary



City of Lucas

Planning and Zoning Request

November 14, 2019

Requester: Development Services Director Joe Hilbourn

Agenda Item Request

Consider the request by OW Homes, LLC for final plat approval for Farmstead Estates, a tract of land being 11.941 acres situated in the James Grayum Survey, Abstract Number 354 otherwise known as 1890 Estates Parkway.

Background Information

The proposed subdivision is currently zoned R-2, has five lots all over two acres, and conforms to the City's requirements. The subdivision was formerly known as Lee Estates. This subdivision has a private road and the water main is looped through Ella Brook Estates. The property has two retention ponds.

Attachments/Supporting Documentation

1. Final Plat

Budget/Financial Impact

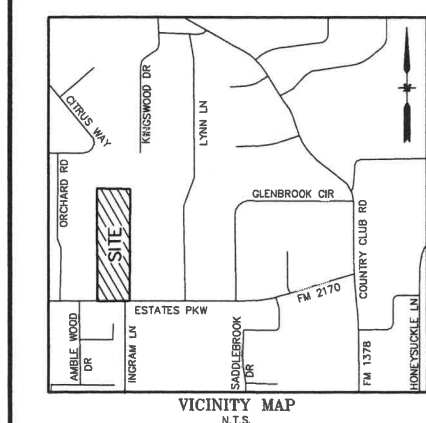
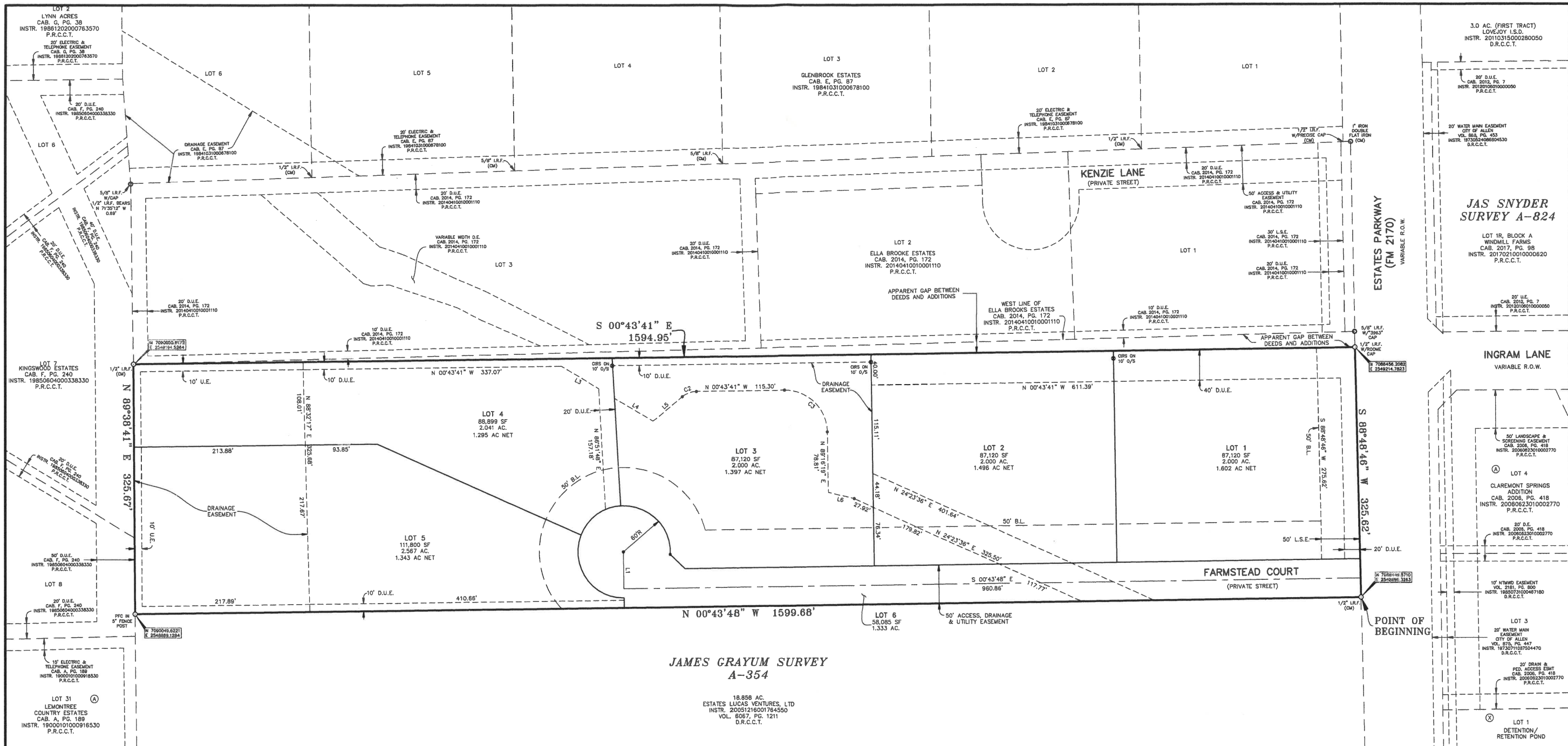
NA

Recommendation

Staff recommends approval of the final plat as presented.

Motion

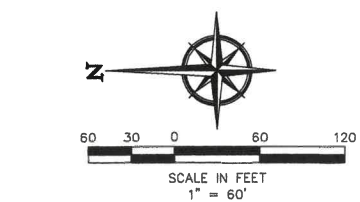
I make a motion to approve/deny the request by OW Homes, LLC for final plat approval for Farmstead Estates, a tract of land being 11.941 acres situated in the James Grayum Survey, Abstract Number 354 otherwise known as 1890 Estates Parkway.



LEGEND	
CIRS ON 10' O/S	IRON ROD WITH YELLOW CAP STAMPED RPLS 3963 SET ON A 10' OFFSET TO LOT CORNER
I.R.F.	IRON ROD FOUND
B.L.	BUILDING SETBACK LINE
D.U.E.	DRAINAGE & UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
L.S.E.	LANDSCAPE EASEMENT
U.E.	UTILITY EASEMENT
(CM)	CONTROLLING MONUMENT
D.R.C.C.T.	DEEDS RECORDS COLLIN COUNTY TEXAS
P.R.C.C.T.	PLAT RECORDS COLLIN COUNTY TEXAS
SPC	STATE PLANE COORDINATES

- NOTES:
- According to my interpretation of the Collin County, Texas and Incorporated Areas, Flood Insurance Rate Map, Map Number 4808500405, dated June 02, 2009, the subject property lies within flood zone "X" and is not shown to be within a Special Flood Hazard Area. This statement does not imply that the property and/or structures thereon will be free from flooding or flood damage. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes. This statement shall not create liability on the part of the surveyor.
 - 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.
 - A 5/8" iron rod with a yellow cap stamped "RPLS 3963" was set at all lot corners and/or at reference points to lot corners as shown.
 - Basis of Bearings = State Plane Coordinate System, Texas North Central Zone 4202, North American Datum of 1983, Adjustment Realization (CORS 2011).
 - The Private Road Lot (Lot 6) is dedicated to and will be maintained by the Homeowners Association.

LINE TABLE		
NO.	DIRECTION	DISTANCE
L1	S 89°16'12" W	48.00'
L2	S 89°16'43" W	13.00'
L3	N 30°55'13" E	57.02'
L4	N 30°55'13" E	57.23'
L5	N 39°23'56" W	49.88'
L6	N 13°30'41" E	35.05'
L7	S 44°04'07" W	28.86'



CURVE TABLE					
CURVE	DELTA	RADIUS	TANGENT	LENGTH	CHORD BEARING
C1	27°34'25"	60.00'	56.12'	286.75'	N 43°49'06" W 81.97'
C2	038°40'15"	30.00'	10.53'	20.25'	N 20°03'49" W 19.87'
C3	090°00'00"	55.00'	55.00'	86.39'	N 44°16'19" E 77.78'

EXISTING ZONING: R-2
PROPOSED ZONING: R-2
5 RESIDENTIAL LOTS
1 HOMEOWNERS ASSOCIATION LOT
DENSITY: 0.419 LOTS/ACRE
AVG. LOT SIZE: 2.126 ACRE
MIN. LOT SIZE: 2.00 ACRE

OWNER/DEVELOPER
OW HOMES, LLC
890 W FOREST GROVE ROAD
LUCAS, TX 75002-8446
214.801.9193

PROPERTY ADDRESS
1890 ESTATES PARKWAY
LUCAS, TX 75002

LAND SURVEYOR
R.C. MYERS SURVEYING, LLC
488 ARROYO COURT
SUNNYVALE, TX 75152
(214) 532-0636
FAX (972) 412-4875
EMAIL: rcmysurveying@gmail.com
FIRM NO. 10192300 JOB NO. 442

FINAL PLAT
THE FARMSTEAD
LOTS 1-5, BLOCK A
5 RESIDENTIAL LOTS
BEING 11.941 ACRES
SITUATED IN THE
JAMES GRAYUM SURVEY, ABSTRACT NO. 354
CITY OF LUCAS, COLLIN COUNTY, TEXAS

ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
801 WINDCO CIRCLE, SUITE 200, WYLLIE TEXAS 75098
(972) 841-8400 FAX (972) 841-8401

REV DATE: 10/31/2019
DATE: 10/16/2019

OWNER'S CERTIFICATE & DEDICATION

STATE OF TEXAS
COUNTY OF COLLIN

WHEREAS, OW HOMES, LLC BEING the owner of 11.941 acre tract of land situated in the James Grayum Survey, Abstract No. 354, City of Lucas, Collin County, Texas, and being all of that certain 11.941 acre tract of land described in deed to OW Homes, LLC, recorded as Instrument 20180327000370870, Deed Records, Collin County, Texas, said 11.941 acre tract being more particularly described by metes and bounds as follows:

BEGINNING at a 1/2-inch iron rod found for the southwest corner of said 11.941 acre tract and the southeast corner of a called 18.858 acre tract of land described in deed to Estates Lucas Ventures, Ltd, as recorded in Volume 6067, Page 1211 of said Deed Records, said corner being in the north right-of-way line of Farm to Market Road 2170 (Estates Parkway), a variable width right-of-way;

THENCE North 00 degrees 43 minutes 48 seconds West, with the common boundary line of said 11.941 acre tract and said 18.858 acre tract, a distance of 1599.68 feet to a point for corner in a 5"wood fence post at the common north corner thereof, said corner being in the southerly boundary line of Lot 8, Kingwood Estates, an addition to the City of Lucas, as recorded in Cabinet F, Page 240, Plat Records, Collin County, Texas;

North 89 degrees 38 minutes 41 seconds East, with the common boundary line of said 11.941 acre tract and said Kingwood Estates, a distance of 325.67 feet to a 1/2-inch iron rod found for the common north corner of said 11.941 acre tract and Ella Brooke Estates, an addition to the City of Lucas, recorded in Cabinet 2014, Page 172, Plat Records, Collin County, Texas;

THENCE South 00 degrees 43 minutes 41 seconds East, with the east line of said 11.941 acre tract, a distance of 1594.95 feet to a 1/2-inch iron rod with cap stamped "ROOMIE"found for at the southeast corner of said 11.941 acre tract, said corner being in the north right-of-way line of said Estates Parkway;

THENCE South 88 degrees 48 minutes 46 seconds West, with the south boundary line of said 11.941 acre tract and the north right-of-way line of said Estates Parkway, a distance of 325.62 feet to the POINT OF BEGINNING AND CONTAINING 520,144 square feet or 11.941 acres of land.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS:

That OW Homes, LLC, does hereby bind themselves and their heirs, assignees and successors of title this plat designating the hereinabove described property as *THE FARMSTEAD*, an addition to the City of Lucas, and does hereby dedicate to the public use forever the streets, alleys, and right-of-way easements shown thereon, and does hereby reserve the easement strips shown on this plat for the mutual use and accommodation of garbage collection agencies and all public utilities desiring to use or using same. Any public utility shall have the right to remove and keep removed all or part of any buildings, fences, trees, shrubs, or other improvements or growths that in any way endanger or interfere with the construction, maintenance or efficiency of its respective systems on any of these easements strips, and any public utility shall at all times have the right of ingress and egress to and from and upon the said easement strips for the purpose of constructing, reconstructing, inspecting, patrolling, without the necessity at any time of procuring the permission of anyone. Additionally, OW Homes, LLC certifies that it is the sole owner of the dedicated property and that no other's interest is attached to this property unless otherwise indicated on the required Mortgage Holder Certification that is included on this plat. Furthermore, as the owner of the property described herein, and in consideration of establishing the subdivision described herein, it agrees to the following:

- Every owner of fee simple title to every individual lot within the subdivision shall be a member of the homeowners' association;
- The homeowners' association shall have the authority to collect membership fees;
- As applicable as it pertains to conditions shown herein, the homeowners' association shall be responsible for the maintenance of all common areas, screening walls, landscaped areas, private streets and alleys.
- The homeowners' association shall grant the City the right of access to any areas to abate any nuisances on such areas and attach a lien upon each individual lot for the prorated costs of abatement.
- The homeowners' association shall indemnify and hold the City harmless from any and all costs, expenses, suits, demands, liabilities, damages, or otherwise, including attorney fees and costs of suit, in connection with the City's maintenance in common areas.
- The homeowners' association shall, where additional rights-of-way has been dedicated for the purpose of providing landscaping, additional areas for sidewalks, walls or other amenities, enter into a license agreement with the City and shall be responsible for the installation and maintenance of all landscape areas in the public rights-of-way.

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

FOR: OW Homes, LLC

BY: _____
Signature
Name:
Title:

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 _____, 2019.

Notary Public in and for the State of Texas

CITY APPROVAL CERTIFICATE

This plat is hereby approved by the Development Services Director of the City of Lucas, Texas, in accordance with the Lucas Code of Ordinances, review and approval procedures.

Development Services Director _____ Date _____

ATTEST:

Signature _____ Date _____

Name & Title _____ Date _____

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 Lucas Code of Ordinances and with engineering construction standards and processes adopted by the City of Lucas, Texas as to which his approval is required.

Director of Public Works/City Engineer _____ Date _____

ATTEST:

Signature _____ Date _____

Name & Title _____ 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

Preliminary, this document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document. This final plat etc is released on 9/27/2019 for review by the City of Lucas and other parties for comments and progression to an approved final plat.

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 _____, 2019.

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

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

On-Site Sewage Facilities (OSSF) Notes:

1. All lots must utilize alternative type On-Site Sewage Facilities.
2. There is an existing Conventional OSSF on Lot 2. The existing OSSF may NOT be used for a new structure and the entire system must be replaced with an approved alternative system (after review and permitting through CCDS). The existing system must be legally abandoned per Texas Administrative Code Chapter 30, Section §285.36 (Abandoned Tanks, Boreholes, Cesspools, and Seepage Pits) prior to any new construction on Lot 2.
3. 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/rivers/ponds, etc. (Per State regulations).
 - Lots 2-4: Due to the presence of a large, bisecting drainage easement, no surface improvements, impervious cover, outbuildings, swimming pools, etc. on Lots 2-4 without pre-construction planning meeting with Collin County Development Services.
4. 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.

OWNER/DEVELOPER
OW HOMES, LLC
890 W FOREST GROVE ROAD
LUCAS, TX 75002-8446
214.801.9193

PROPERTY ADDRESS
1890 ESTATES PARKWAY
LUCAS, TX 75002

LAND SURVEYOR
R.C. MYERS SURVEYING, LLC
488 ARROYO COURT
SUNNYVALE, TX 75182
(214) 532-0636
FAX (972) 412-4875
EMAIL: rcmsurveying@gmail.com
FIRM NO. 10192300 JOB NO. 442

FINAL PLAT
THE FARMSTEAD
LOTS 1-5, BLOCK A
5 RESIDENTIAL LOTS
BEING 11.941 ACRES
SITUATED IN THE
JAMES GRAYUM SURVEY, ABSTRACT NO. 354
CITY OF LUCAS, COLLIN COUNTY, TEXAS
ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
TEXAS FIRM REG. NO. 001146
201 WINDCO CIRCLE, SUITE 200, WILLOW TEXAS 76098
(972) 841-8400 FAX (972) 841-8401
REV DATE: 10/31/2019
DATE: 10/16/2019



City of Lucas

Planning and Zoning Agenda Request

November 14, 2019

Requester: Planning and Zoning Commission, City Engineer Stanton Foerster, Development Services Director Joe Hilbourn

Agenda Item Request

Discuss stormwater ordinance regulations regarding drainage challenges in the City of Lucas and provide direction to staff on any recommended amendments to install, maintain, and promote drainage on private and public property and rights-of-way, and provide direction to staff on amendments to consider for the January 9, 2020 Planning and Zoning Commission meeting.

Background Information

On September 12, 2019, the Planning and Zoning Commission and City Council held a joint drainage workshop to discuss challenges throughout the City regarding drainage and consider possible solutions. At the budget workshop, the City Council and Commission discussed current City ordinances to enforce or update, floodplain development and maintenance, and budgeting options. On October 10, 2019, the Planning and Zoning Commission discussed drainage during a regularly scheduled meeting including discussions of Fairview's drainage ordinance.

All cities adopt codes that are either prescriptive, meaning a step by step guide on how to conform to the City's requirements, or a design-based method, a licensed design professional, in this case an engineer, designs a subdivisions drainage by using generally accepted engineering principles. The concern with a prescriptive method is that it requires a designer to make every situation fit a certain design, the design for a subdivision at the top of a hill should be very different from the subdivision design at the bottom of the hill. At the top of the hill the desire is to slow down the flow of water, at the bottom of the hill the goal is to get the water away as quickly as possible.

The City's current design manual gives engineers a choice between prescriptive or design based. Under the prescriptive category, the rational method calls for 200 acres of drainage area, and 50 acres of retention, with more than 50 acres the required method is to have retention with soil conservation hydrologic methods in TR-20, HEC-1 more commonly known as a HEC Res. Design-based engineers can propose a drainage system design to the City Engineer prior to the start of design for approval.

Attachments/Supporting Documentation

1. City of Lucas Drainage Ordinance (Ordinance 2009-04-00645)
2. City of Lucas Drainage Manual (Ordinance 2009-04-00644)
3. City of Lucas Drainage requirements prior to 2009
4. City of Lucas Culvert requirements (Section 14.04.038 Driveways)
5. Flood Damage Prevention Ordinance (Ordinance 2009-04-00646)
6. Fee schedules for the Town of Fairview, Prosper, and City of Allen



City of Lucas

Planning and Zoning Agenda Request

November 14, 2019

Budget/Financial Impact

NA

Recommendation

Staff has identified five areas that are not addressed or improperly addressed in our drainage ordinance. There is also the question of a stormwater runoff fee assessed to every property owner in the City.

1. Remove/adjust Section 10.04.005 (1) and (2) as these sections currently exempt single-family subdivisions with five or less lots, or commercial development that does not increase stormwater runoff rates by more than 10% predevelopment rate and no more than five cubic feet per second.
2. The design manual currently requires HOA's to maintain ponds in its original design condition, and Section 10.04.024 lays out that HOA's must initiate maintenance of ponds within 14 days of notice, and complete required maintenance within 45 days. However, the code does not address maintenance if there is no HOA, or the HOA has failed.
3. Currently the Code of Ordinances does not address ditch maintenance in any form. Currently there is no designation as to who is required to maintain drainage ditches adjacent to roads or on property lines.
4. Enforcement, penalties, fines, assessments, and required notice and time frames for compliance needs to be addressed.
5. The ordinance does not properly address illicit discharges.
6. The development of a fee schedule is needed to fund work associated with maintenance of drainage within easements dedicated to the City and/or the public. Staff would recommend a flat fee for residential, between \$5.00 per month and \$10.00 per month. Non-residential fees should be based on percent of impervious cover at \$1.10 per thousand square feet.

Motion

There is no motion necessary, this is a discussion item only.

<input type="checkbox"/>	Annexation
<input type="checkbox"/>	Disannexation
<input checked="" type="checkbox"/>	Code of Ordinances
<input type="checkbox"/>	Other

ORDINANCE # 2009-04-00645 [STORMWATER RUN-OFF REGULATIONS]

AN ORDINANCE OF THE CITY OF LUCAS, TEXAS AMENDING THE CODE OF ORDINANCES OF THE CITY OF LUCAS BY AMENDING CHAPTER 10, "SUBDIVISIONS" BY ADDING A NEW ARTICLE 10.04 TITLED "STORMWATER RUNOFF REGULATIONS AND CONTROL"; PROVIDING A REPEALING CLAUSE; PROVIDING A SAVINGS CLAUSE; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A PENALTY CLAUSE AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the after discussing and consideration, the City Council of the City of Lucas, Texas, finds that it is in the best interest of the City and its citizens to amend Chapter 10, "Subdivisions" by adding Article 10.04 "Stormwater Runoff Regulations."

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LUCAS, TEXAS:

SECTION 1. That Chapter 10 "Subdivision" of the City of Lucas Code of Ordinances be, and the same is hereby amended by adding a new Article 10.04 titled "Stormwater Runoff Regulations and Control" to read as follows:

"ARTICLE 10.04 STORMWATER RUNOFF REGULATIONS AND CONTROL

Sec. 10.04.001 Purpose

The purpose of this Article is to diminish threats to the public health and safety caused by the runoff of excess stormwater, to minimize movement of soils resulting from development, to reduce the possibilities of hydraulic overloading of the storm sewer drainage system, to reduce economic losses to individuals and the community at large as a result of erosion and the runoff of excess stormwater, and to protect and conserve land and water resources, while at the same time ensuring orderly development. The provisions of this Article are specifically intended to supplement existing ordinances regulating the following:

- (1) The subdivision, layout, and improvement of lands located within the City of Lucas;
- (2) The excavating, filling, and grading of lots and other parcels or areas;

- (3) The construction of buildings, including related parking and other paved areas, and the drainage of the sites on which those structures and their related parking and other paved areas are located; and
- (4) The design, construction, and maintenance of erosion control and stormwater drainage facilities and systems.

Sec. 10.04.002 Definitions

For the purposes of this Article, the following definitions are adopted:

Base flood elevation. The elevation delineating the flood level having a one-percent probability of being equaled or exceeded in any given year (also known as the 100-year flood elevation), as determined from Flood Insurance Rate Maps (FIRMS) or the best available information.

Channel. A natural or man-made open watercourse with definite bed and banks which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water.

City. The City of Lucas.

City engineer. The City Engineer or his designee.

City manager. The City Manager or his designee.

Conduit. Any channel, pipe, sewer, or culvert used for the conveyance of movement of water, whether open or closed.

Control elevation. Contour lines and points of predetermined elevation used to denote a detention storage area on a plat or site drawing.

Design standards for public improvements. Standards on file in the city's offices to which all designs and the resulting public improvements, must conform.

Detention facility. A facility constructed or modified to restrict the flow of stormwater to a prescribed maximum rate, and to concurrently detain the excess waters that accumulated behind the outlet.

Detention storage. The temporary detaining or storage of stormwater in storage basins, on rooftops, in streets, parking lots, school yards, parks, open space, or other areas under predetermined and controlled conditions, with the rate of drainage there from regulated by appropriately installed devices.

Discharge. The rate of outflow of water from any source.

Drainage area. The area from which water is carried off by a drainage system, i.e., a watershed or catchment area.

Excess stormwater runoff. The rate of flow of stormwater discharged from an urbanized drainage area which is or will be in excess of that volume and rate which represented or represents the runoff from the property prior to the date of this Article.

Floodplain. The special flood hazard lands adjoining a watercourse, the surface elevation of which is lower than the Base Flood Elevation and is subject to periodic inundation.

Hydrograph. A graph showing, for a given point on a stream or conduit, the runoff flow rate with respect to time.

Land disturbance. Any man-made change to improve or unimprove real estate including but not limited to building structures, filling, grading, excavation, clearing, or removal of vegetation.

One-hundred year storm. A precipitation event of 24-hours' duration, having a one percent chance of occurring in any one year.

Peak flow. The maximum rate of flow of stormwater at a given point or in a channel or conduit resulting from a predetermined storm or flood.

Sediment. Any particulate matter that can be transported by fluid flow, and which eventually is deposited.

Stormwater drainage system. All means, natural or manmade, used for conducting stormwater to, through, or from a drainage area to the point of final outlet including, but not limited to, any of the following: open and closed conduits and appurtenant features, canals, channels, ditches, streams, swales, culverts, streets, and pumping stations.

Stormwater drainage facility. Any element in a stormwater drainage system which is made or improved by man.

Stormwater runoff. The waters derived from precipitation within a tributary drainage area flowing over the surface of the ground or collected in channels or conduits.

Time of concentration. The elapsed time for stormwater to flow from the most distant point in a drainage area to the outlet or other predetermined point.

Two-year storm. A precipitation event having a fifty percent chance of occurring in any one year.

Two-year storm runoff. The stormwater runoff having a fifty percent probability of occurring in any one year.

Unprotected channel. A channel which receives stormwater discharge and which is not paved, rip-rapped, or otherwise improved by addition of man-made materials so as to reduce the potential for erosion.

Upland area. Any land whose surface drainage flows toward the area being considered for development.

Urbanization. The development, change, or improvement of any parcel of land consisting of one or more lots for residential, commercial, industrial, institutional, recreational, or public utility purposes.

Waterbody. Any natural or artificial pond, lake, reservoir, or other area which ordinarily or intermittently contains water and which has a discernable shoreline.

Watercourse. Any natural or artificial stream, river, creek, channel, ditch, canal, conduit, culvert, drain, waterway, gully, ravine, street, roadway, swale, or wash in which water flows in a definite direction, either continuously or intermittently, and which has a definite channel, bed, or banks.

Wet bottom detention basin. A basin designed to retain a permanent pool of stormwater after having provided its planned detention of runoff during a storm event.

Sec. 10.04.003 Permit

Before initiating any activity regulated by this Article, an applicant shall be required to obtain a permit from the city which indicated that the requirements of this Article have been met. Permit fees shall be located in the city fee schedule for permits.

Sec. 10.04.004 Other requirements

In addition to meeting the requirements of 10.04.003 and the more specific requirements of 10.04.005 – 10.04.029 of this Article and before starting any activity regulated by this Article, an applicant shall comply with the requirements set forth in all other related ordinances and state statutes and regulations.

Sec. 10.04.005 Specific requirements; general

Sediment shall be maintained on site and excess stormwater runoff shall be detained in connection with any new construction, development, redevelopment, or land use change occurring within the city in accordance with the requirements set forth in this Article. Notwithstanding the foregoing, exceptions to this requirement are as follows:

- (1) For stormwater detention, the development of any subdivision of five or less single-family lots.

- (2) For stormwater detention, the development of commercial or industrial property in which the increase in run-off is less than ten percent (10%) of the pre-development runoff rate and less than five (5) cubic feet per second.
- (3) A determination by the city that the excess runoff from the proposed construction, development, redevelopment, or land use change will be insufficient to adversely effect the carrying capacity of the receiving body or watercourse. In this connection and should the city's determination of insufficient adverse effect be sought, the developer shall make available to the city such hydraulic or hydrologic computations as will support the requested exception.
- (4) In the event it is determined to the city manager's satisfaction, after consultation with appropriate engineering consultants, that the goals of this Article will be better met by the owner or developer of the site paying to the city an amount equal to the cost of the detention pond(s) required herein. Such cost shall be determined by the actual construction cost amount, if known, or as estimated by the design engineer and approved by the city. This agreement and payment will be completed before the city's approval of the development's construction plans.

Sec. 10.04.006 Discharge rate

The peak discharge rate after full development resulting from the proposed development shall not exceed the corresponding peak discharge rate prior to development during storms of 2-year, 5-year, 10-year, and 25 year return frequencies.

Sec. 10.04.007 Flood elevation

There shall be no detrimental effect on the floodway or the flood elevation during a 100 year storm upstream or downstream of the proposed development area as a result of the proposed development.

Sec. 10.04.008 Allowable detention facilities

The increased stormwater runoff resulting from proposed development shall be detained by providing for appropriate detention storage as required by this Article. Where streets or parking areas are used for temporary storage of stormwater runoff all manholes for sanitary sewers shall be of a type which prevent the infiltration of the ponded water. Where streets are used for the temporary storage of stormwater runoff, in no case shall the maximum design depth exceed six (6) inches.

Sec. 10.04.009 Detention storage

Designs for detention storage and related appurtenances shall be submitted to the city for approval. Upon submittal of designs of detention storage the city shall make a determination as to whether any or all of the facilities proposed are to become part of the public drainage system. The city shall, at the same time, in the case of a proposed subdivision make a determination as to

those control elevations that shall be entered on the final plat or make a determination as to the necessity for deed restrictions on any particular lot in said subdivision requiring the preservation of mandatory drainage facilities. Where a non-subdivided parcel of land is proposed for development, the city shall make a determination as to the need for covenants to maintain responsibility for mandatory drainage facilities. All of said facilities shall be designed and constructed in accordance with the city specifications, and shall be subject to continuing inspection during the construction period in the same manner as any other improvement regulated under this Article. Detention facilities associated with residential subdivisions shall be in a separate lot that shall be deeded to the HOA after 75% of the lots in the subdivision are occupied and the lot soil stabilized. Prior to acceptance of the detention facility the city and the developer will inspect the facility to assure it meets all of the requirements of this Article. If any deficiencies are found, the developer will be responsible to make the necessary changes at his expense. Wet bottom detention basin, shall be aerated or designed to drain within 60 hours.

Sec. 10.04.010 Sizing of detention storage and outlet

Detention storage shall meet the requirements of this Article and the City of Lucas drainage manual.

Sec. 10.04.011 Discharge velocity

The discharge velocity from detention facilities shall not exceed three feet per second unless it is determined by the city that greater velocities will not be harmful to the receiving channel. Where the city's determination is requested, the developer shall make available such hydraulic or hydrologic computations as will adequately support the course of action being requested.

Sec. 10.04.012 Emergency spillway

Emergency spillways shall be provided to permit the safe passage of runoff generated from rainfall events in excess of the 100-year rainfall event.

Sec. 10.04.013 Freeboard

Detention storage areas shall have adequate capacity to contain the storage volume of tributary stormwater runoff with at least one foot of freeboard above the water surface during the 100-year rainfall event.

Sec. 10.04.014 Joint development of control system

Stormwater control systems may be planned in coordination by two or more property owners as long as the potential for damage from stormwater is not increased at intervening locations.

Sec. 10.04.015 Early installation of control systems

Stormwater control measures shall be installed prior to undertaking other grading of site and a schedule of construction for this purpose shall be submitted by the owner(s)/developer(s) prior to construction in the city.

Sec. 10.04.016 Flows from upland areas

The total drainage area must be used in calculating the allowable release rate. The required storage volume will be based on the project area only, with extraneous flows from upland areas being bypassed or discharged via overflow spillways or other devices. Where storm sewers are required they shall be of such size as will provide sufficient capacity to receive the flow generated by five-year storm from upland areas. As to the latter and regardless of whether it has occurred in fact, such upland area shall be deemed to have been fully developed for all purposes of this requirement.

Sec. 10.04.017 Land disturbance of five acres or more

The developer shall comply with the State of Texas Commission on Environmental Quality or TPDES and federal NPDES permit for Storm water Discharges Associated with Construction Activity and provide a copy to the city prior to starting construction.

Sec. 10.04.018 Land disturbance of more than two acres and less than five acres

The developer shall submit to the city a sediment and erosion control plan that meets the requirements of the State of Texas Commission on environmental quality or cpdes and federal NPDES Permit for Storm water Discharges Associated with construction Activity prior to starting construction.

Sec. 10.04.019 All land disturbances

Land disturbances associated with any new construction, development, redevelopment, or land use change on any site of 2,500 square foot or larger or requiring a building permit shall incorporate into the development plan the following elements as minimum:

- (1) Stone construction entrance.
- (2) Silt fence or other sediment retaining device on the low side of the site.
- (3) Temporary seeding of disturbed areas remaining open more than three weeks.
- (4) Immediate removal of soil tracked into the public right-of-way.
- (5) Permanent turf established. A copy of the development plan shall be submitted to the city prior to starting construction.

Sec. 10.04.020 Preliminary plats

Information indicating the manner in which the provisions of this Article are to be met shall be submitted with the preliminary plats.

Sec. 10.04.021 Requirements for construction plans

Information indicating the manner in which the provisions of this Article are to be met shall be submitted with all construction plan submissions or any other plan for improvements which falls under the requirements of 10.04.005 of this Article. All computations, plans, and specifications shall be prepared and sealed by a professional engineer registered in the State of Texas.

Sec. 10.04.022 Requirements for final plats

The easements or separate lots required for detention facilities shall be shown on the final plat. The control elevation for each detention facility shall be shown on the plat near the detention facility.

Sec. 10.04.023 Drainage and detention design requirements

All subdivisions and other proposed improvements which are subject to the provisions of 10.04.005 of this Article shall incorporate such design features as are required in this Article. Variation from these requirements shall require the approval of the city planning commission whose action shall be conditioned upon the following:

- (1) That a petition be submitted describing in detail the rationale for the proposed design change.
- (2) That there are special circumstances or conditions affecting the property under consideration such that strict compliance with the provisions of this Article would deprive the applicant of the reasonable use of his land.
- (3) That the variance is necessary for the preservation and enjoyment of a substantial property right of the proprietor.
- (4) That the granting of the variance will not be detrimental to the public health, safety, or welfare or injurious to other property in the territory in which said property is located.

Sec. 10.04.024 Maintenance

Designs of detention facilities will incorporate features which facilitate their inspection and maintenance. The designer shall submit an operation and maintenance (O&M) plan for any detention facility prior to its approval by the city. All privately owned detention facilities may be inspected by representatives of the city at such times as they deem necessary. If deficiencies, or conditions creating nuisances, are found, the owner or Home owners association shall be required to initiate the necessary corrections within fourteen (14) days, and all deficiencies shall corrected within forty-five (45) days.

Sec. 10.04.025 Safety features

Designs of detention facilities shall incorporate safety features, particularly at inlets, outlets, on steep slopes, and at any attractive nuisances. These features shall include, but not be limited to, fencing, hand rails, lighting, steps, grills, signs, and other protective or warning devices so as to restrict access.

Sec. 10.04.026 Responsibility

The administration of this Article shall be the responsibility of the city.

Sec. 10.04.027 Interpretation

In the interpretation and application of this Article, the provisions expressed herein shall be held to be the minimum requirements and shall be liberally construed in favor of the City of Lucas.

Sec. 10.04.028 Appeals

The City of Lucas City council is hereby designated as the appeals board for disputes arising from the application of this Article. The council's responsibility shall be to hear appeals where it is alleged by an appellant that there is error in any order, requirement, decision, grant or refusal made by the city in the enforcement of the provisions of this Article.

Sec. 10.04.029 Penalties

- (1) General. Any person, firm, organization, association, or corporation violating any of the provisions of this Article , including violation of any variances granted under the authority of this Article , shall be deemed guilty of a violation of a municipal ordinance and each such person or other entity shall be deemed guilty of a separate offense for each and every day or portion thereof that any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of such violation, such person or other entity may be punished by a fine of not less than two hundred and fifty dollars (\$250.00) and not more than two thousand dollars (\$2,000.00).
- (2) Additional corrective actions. Any building or structure constructed in violation of the provisions of this Article or any use carried on in violation of this Article is hereby declared to be a nuisance per se, with any court of competent jurisdiction having the authority to determine that the owner or developer is guilty of maintaining a nuisance per se and to order such nuisance abated. In this connection, the city is hereby authorized to institute any appropriate action or proceeding in any appropriate court to prevent, restrain, correct, or abate any violations of this Article."

SECTION 2. That all provisions of the ordinances of the City of Lucas, Texas, in conflict with the provisions of this ordinance be, and the same are hereby, repealed, and all other provisions of the ordinances of the City not in conflict with the provisions of this ordinance shall remain in full force and effect.

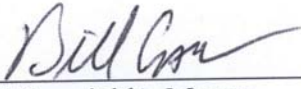
SECTION 3. That an offense committed before the effective date of this ordinance is governed by the prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed and the former law is continued in effect for this purpose.

SECTION 4. That should any sentence, paragraph, subdivision, clause, phrase or section of this ordinance be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this ordinance as a whole, or any part or provision thereof other than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the Code of Ordinances as a whole.

SECTION 5. Any person, firm or corporation violating any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances, as amended, and upon conviction in the municipal court shall be punished by a fine not to exceed the sum of Two Thousand Dollars (\$2,000) for each offense, and each and every day such violation shall continue shall be deemed to constitute a separate offense.

SECTION 6. This ordinance shall take effect immediately from and after its passage and the publication of the caption, as the law in such cases provides.

PASSED AND APPROVED by the City Council of the City of Lucas, Texas, on the 2nd
day of April, 2009.



Bill Carmickle, Mayor


ATTEST:



Kathy Wingo, TRMC, City Secretary



APPROVED AS TO FORM:



JOSEPH J. GORFIDA, JR., CITY ATTORNEY
(JJG/cgo/33783)

- | | |
|-------------------------------------|--------------------|
| <input type="checkbox"/> | Annexation |
| <input type="checkbox"/> | Disannexation |
| <input checked="" type="checkbox"/> | Code of Ordinances |
| <input type="checkbox"/> | Other |

ORDINANCE # 2009-04-00644
[PLANNING & DESIGN CRITERIA FOR
STORMWATER RUN-OFF]

THE CITY COUNCIL OF LUCAS, TEXAS APPROVES THE ADOPTION OF A PLANNING AND DESIGN DRAINAGE CRITERIA FOR STORM WATER RUN-OFF TO BE MAINTAINED ON FILE IN THE OFFICE OF THE CITY SECRETARY; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A REPEALING CLAUSE; PROVIDING FOR A PENALTY OR FINE NOT TO EXCEED THE SUM OF TWO THOUSAND DOLLARS (\$2,000) FOR OFFENSES; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City Council has determined an urgent need for the adoption of guidelines for storm water run-off;

WHEREAS, the City Council desires to adopt the Planning and Design Drainage Criteria for storm water run-off attached hereto as Exhibit "A."

NOW, THEREFORE, BE IT ORDAINED THAT THE CITY COUNCIL OF THE CITY OF LUCAS THAT:

SECTION 1. The City Council hereby approves and adopts the Planning and Design Drainage Criteria ("Criteria") attached as Exhibit "A." The City commits to the implementation of the requirements and guidelines set forth in the adopted Criteria. A copy of the Criteria will be maintained on file in the office of the City Secretary.

SECTION 2. If any section, paragraph, subdivision, clause, phrase or provision of this ordinance shall be judged invalid or unconstitutional, the same shall not affect the validity of this ordinance as a whole or any portion thereof other than that portion so decided to be invalid or unconstitutional.

SECTION 3. That all provisions of the Ordinances of the City of Lucas in conflict with the provisions of this Ordinance be, and the same are hereby repealed and all other provisions of the Ordinances of the City of Lucas not in conflict with the provisions of this Ordinance shall remain in full force and effect.

SECTION 4. That an offense committed before the effective date of this ordinance is governed by the prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed and the former law is continued in effect for this purpose.

SECTION 5. Any person, firm or corporation violating any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances, as


amended, and upon conviction in the municipal court shall be punished by a fine not to exceed the sum of Two Thousand Dollars (\$2,000) for each offense, and each and every day such violation shall continue shall be deemed to constitute a separate offense.

SECTION 6. This ordinance shall take effect immediately from and after its passage as the law in such case provides.


DULY PASSED BY THE CITY COUNCIL OF THE CITY OF LUCAS, COLLIN COUNTY, TEXAS ON THIS THE 2nd DAY OF APRIL, 2009.

DULY PASSED BY THE CITY COUNCIL OF THE CITY OF LUCAS, COLLIN

APPROVED:

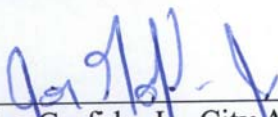

Bill Carmickle, Mayor

ATTEST:


Kathy Wingo, IRMC, City Secretary



APPROVED AS TO FORM:


Joe Gorfida, Jr., City Attorney
(JJG/ego/35057)

WATER RUN-OFF MANUAL

PLANNING AND DESIGN DRAINAGE CRITERIA

A. General

The Drainage Criteria included in this section are for the purpose of providing a set of guidelines for planning and designing storm drainage facilities in the City of Lucas, Texas and within its extraterritorial jurisdiction. These criteria will be used by the Department of Public Works, other City Departments, consulting engineers employed by the City, and engineers for private developments in the City.

B. Rational Method for Peak Storm Flows

The formula to be used for calculating peak storm flows for drainage areas less than 200 acres shall be the Rational Method, in which:

$Q = CIA$, where

Q - is the peak storm flow at a given point in cubic feet per second (cfs)

C - is the runoff coefficient that is equal to the ratio that the peak rate of runoff bears to the average rate (intensity) of rainfall;

I - is the average intensity of rainfall in inches per hour for a storm duration equal to the time of travel for run off to flow from the farthest point of the drainage area to the design point in question;

A - is the drainage area tributary to the design point, in acres.

Note: For drainage areas greater than 200 acres, peak storm flows shall be determined based on a flow routing analysis using detailed hydrographs such as the Soil Conservation Service hydrologic methods that are available in such computer programs as TR-20, HEC-1, etc.

C. Runoff Coefficient

The runoff coefficient (C) shall consider the slope of the terrain, the character of the land use, the length of overland flow and the imperviousness of the drainage area and shall be determined based on ultimate land development. The run-off coefficient for the appropriate land used shall be as follows:

Commercial 0.90

Industrial 0.70

Single Family Residential 0.55

Multi-Family 0.75

Parks and Open Space 0.35

Schools, Churches, etc. 0.75

D. Rainfall Intensity-Frequency

The rainfall intensity-frequency curves should be plotted from data from TXDOT or other government sources in our area. The intensity (I) in the formula $Q = CIA$, is determined from the curves by arriving at a time of concentration for the subject drainage area and adapting a storm frequency upon which to base the design of drainage improvements.

1. Time of Concentration The time of concentration, which is the longest time of travel for runoff to flow from any point of the subject drainage area to the design point, consists of the time required for runoff to flow overland plus the time required to flow in a street gutter, storm drain, open channel or other conveyance facility. A minimum time of concentration of fifteen (15) minutes shall be used for Single Family Residential, Parks and Open Space areas and a minimum time of concentration of ten (10) minutes shall be used for Commercial, Industrial, Multi-Family Residential, School and Church areas. A nomograph, is attached for estimating the time of concentration.

2. Storm Frequency

Required design storm frequencies for storm drainage improvements in the City of Lucas are shown in the following table.

Type of Design Frequency
Facility (years)

*Storm Sewer Systems 25

*Culverts, Bridges, 100

* The drainage system shall be designed to carry those flows greater than the 25-year frequency up to and including a 100-year frequency within defined rights-of-way or drainage easements.

E. Area

The drainage area used in determining peak storm flows shall be calculated by subdividing a map into the watersheds within the basin contributing storm water runoff to the system. Areas shall be determined by planimetry or digitizing.

F. Spread of Water

During the design storm, the quantity of storm water that is allowed to collect in the streets before being intercepted by a storm drainage system is referred to as the "spread of water". In determining the limitations for carrying storm water in the street, the ultimate development of the street shall be considered. The use of the street for carrying storm water shall be limited to the following:

SPREAD OF WATER

Major thoroughfares (divided) - One traffic lane on each side to remain clear.
Thoroughfares (not divided) - Two traffic lanes to remain clear.

Collector streets - One traffic lane to remain clear.

Residential streets - Six-inch depth of flow at curb and One traffic lane to remain clear.

G. Storm Sewer Design

Storm water in excess of that allowed to collect in the streets shall be intercepted in inlets and conveyed in a storm sewer system. Storm sewer capacity shall be calculated by the Mannings-formula --

$Q = AV$, and

$Q = 1.486 AR^{2/3} S^{1/2} n$

where

Q is the discharge in cubic feet per second;

A is the cross-sectional area of the conduit in square feet;

V is the velocity of flow in the conduit in feet per second;

R is the hydraulic radius in feet, which is the area of flow divided by the wetted Perimeter.

S is the slope of the hydraulic gradient in feet per foot;

n is the coefficient of roughness.

The recommended roughness coefficients to use in the design of a storm sewer system are as follows:

Type of Storm Drain Manning's Coefficient

Concrete Box Culvert 0.015

New Concrete Pipe 0.013

Standard, unpaved, with or without
bituminous coating corrugated
metal pipe 0.024

Paved invert, 25% of periphery paved
corrugated metal pipe 0.021

Paved invert, 50% of periphery paved
corrugated metal pipe 0.018

100% paved and bituminous coated
corrugated metal pipe 0.013

In the design of the storm sewer system, the elevation of the hydraulic gradient of the storm sewer shall be a minimum of 0.5 feet below the elevation of the adjacent street gutter. Storm sewer pipe sizes shall be so selected that the average velocity in the pipe will not exceed 15 feet per second nor less than 3 feet per second. The minimum grade recommended for storm sewer pipe is 0.30%. Closed storm sewer systems shall be installed in all areas where the quantity of storm runoff is 300 cubic feet per second, or less at the discretion of the city. A closed storm sewer system may be constructed when the quantity exceeds 300 cfs, at the discretion of the City. Hydraulic gradients shall be calculated and lines drawn for each storm sewer.

H. Intentionally left blank for future use

I. Open Channel Design

Storm water runoff in excess of that allowed to collect and be conveyed in the streets in developed areas and runoff in undeveloped areas may be carried in grass lined, concrete lined or weathered rock open channels. Earthen, non-vegetated or unlined open channels are not acceptable. Open channel capacity shall be calculated by the Manning's Formula, and roughness coefficients shall be as follows:

Maximum Permissible

Type of Lining Roughness Coefficient "n" Mean Velocity

Earth (Bermuda grass) 0.035 6 ft. per sec.

Concrete Lined 0.015 15 ft. per sec.

Weathered Rock 0.030 10 ft. per sec.

Open channels shall be constructed with a trapezoidal cross-section and shall have side slopes no steeper than 3:1 when grass lined and 1.5:1 when lined with concrete. A right-of-way for all channels of sufficient width shall be dedicated to provide for excavation of the open channel of proper width, plus ten feet on each side to permit ingress and egress for maintenance. Additional width may be considered if sanitary sewer mains are proposed to follow the channel alignment.

J. Culvert Design

At locations of stream or open channel crossings with proposed roadway improvements, it is sometimes necessary to receive and transport storm water under the roadway in culverts. The quantity of flow shall be determined by the appropriate method, and the friction loss through of the culvert shall be calculated by Manning's Formula.

Design of culverts shall include the determination of upstream backwater conditions as well as downstream velocities and flooding conditions. Consideration shall be given to the discharge velocity from culverts, and the limitations specified culverts shall not be less than 18". A headwall is required at exposed ends. Under private drives concrete or steel culverts, under public road concrete culverts are required.

K. Stormwater Detention Pond Design

The basic concept underlying the use of stormwater detention ponds (SDP) involves providing temporary storage of stormwater runoff so that peak rates of runoff can be reduced. Runoff is released from storage at a controlled rate which cannot exceed the capacities of the existing downstream drainage systems or the pre developed peak runoff rate of the site, whichever is less. Stormwater detention ponds may be of two (2) basic types: On-site and Regional. In general, on-site ponds are those which are located off-channel and provide stormwater detention for a particular project of development. Regional ponds are designed to provide stormwater detention in conjunction with other improvements on a watershed-wide basis. The performance and safety criteria in this section apply to all ponds which provide management of peak rates of stormwater runoff, regardless of type.

PERFORMANCE CRITERIA FOR ON-SITE SDP's

1. On-site SDP's are further classified as either small or large, as follows:

ON-SITE SDP

POND CLASS DRAINAGE AREA

Small <25 acres

Large 25-64 acres

For design purposes, any pond with a drainage area larger than 64 acres shall be classified as a regional pond.

2. On-site SDP ponds shall be designed to reduce post-development peak rate of discharge to existing pre-development peak rates of discharge for the 2-, 10-, 25- and 100-year storm events at each point of discharge from the project or development site. In addition, the capacity of the existing downstream systems must be considered in determining the need for managing the 100-year storm event. For the post-development hydrologic analysis, any offsite areas which drain to the pond shall be assumed to remain in the existing developed condition.
3. The Rational Method (RM) may be used for the design of small on-site ponds only. The maximum contributing drainage area to a pond designed with the RM is 50 acres when using this equation.
4. A design method approved by the City Engineer.

PERFORMANCE CRITERIA FOR REGIONAL SDP's

1. Regional SDP's are classified as small or large, based on the following criteria:

REGIONAL IMPOUNDED

POND CLASS VOLUME, AC-FT

Small 0-150

Large >150

Any regional pond with a height of dam over 15 feet shall be classified as a large regional pond.

2. Performance criteria for regional detention ponds shall be determined by the City on a project-by-project basis. The determination shall be based on a preliminary engineering study prepared by the project engineer.

SAFETY CRITERIA FOR SDP's

All ponds shall meet or exceed all specified safety criteria. Use of these criteria shall in no way relieve the engineer of the responsibility for the adequacy and safety of all aspects of the design of the SDP.

1. The spillway, embankment, and appurtenant structures shall be designed to safely pass the design storm hydrograph with the freeboard shown in the table below. All contributing drainage areas, including on-site and off-site area, shall be assumed to be fully developed. Any

orifice with a dimension smaller than or equal to twelve (12) inches shall be assumed to be fully blocked.

**DETENTION DESIGN STORM FREEBOARD TO TOP
POND CLASS EVENT OF EMBANKMENT, FT.**

On-site: Small 100 year 0

Large 100 year 1.0

Regional: Small 100 Year 2.0

Large 100 year *

*Design storm event and required freeboard for large regional ponds shall be determined in accordance with Chapter 299 of the Texas Administrative Code (Dam Safety Rules of the Texas Natural Resource Conservation Commission).

2. All SDP's (except small on-site ponds) shall be designed using a hydrograph routing methodology. The Rational Method (RM) may be used only for contributing drainage areas less than fifty (50) acres.

3. The minimum embankment top width of earthen embankments shall be as follows:

TOTAL HEIGHT OF MINIMUM TOP EMBANKMENT, FT. WIDTH, FT.

0-6, 4'

6-10, 6'

10-15, 8'

15-20, 10'

20-25, 12'

25-35, 15'

4. The constructed height of an earthen embankment shall be equal to the design height plus the amount necessary to ensure that the design height will be maintained once all settlement has taken place. This amount shall in no case be less than five (5%) percent of the total fill height. All earthen embankments shall be compacted to 95% of maximum density.

5. Earthen embankment side slopes shall be no steeper than three (3) horizontal to one (1) vertical. Slopes must be designed to resist erosion, to be stable in all conditions and to be easily maintained. Earthen side slopes for regional facilities shall be designed on the basis of appropriate geotechnical analyses.

6. Detailed hydraulic design calculation shall be provided for all SDP's. Stage-discharge rating data shall be presented in tabular form with all discharge components, such as orifice, weir, and outlet conduit flows, clearly indicated. A stage-storage table shall also be provided.

7. When designing SPD's in a series (i.e., when the discharge of one pond becomes the inflow to another), the engineer must submit a hydrologic analysis which demonstrates the system's adequacy. This analysis must incorporate the development of hydrographs for all inflow and outflow components.

8. No outlet structures from SDP's, parking detention, or other concentrating structures shall be designed to discharge concentrated flow directly onto arterial or collector streets. Such discharges shall be conveyed by a closed conduit to the nearest existing storm sewer. If there is no existing storm sewer within 300 feet, the outlet design shall provide for a change in the discharge pattern from concentrated flow back to sheet flow, following as near as possible the direction of the gutter.

9. Stormwater runoff may be detained within parking lots. However, the engineer should be aware of the inconvenience to both pedestrians and traffic. The location of ponding areas in a parking lot should be planned so that this condition is minimized. Stormwater ponding depths (for the 100-year storm) in parking lots are limited to an average of eight (8") inches with a maximum of twelve (12") inches.

10. All pipes discharging into a public storm sewer system shall have a minimum diameter of twelve (12"). In all cases, ease of maintenance and/or repair must be assured.

11. All concentrated flows into a SDP shall be collected and conveyed into the pond in such a way as to prevent erosion of the side slopes. All outfalls into the pond shall be designed to be stable and non-erosive.

OUTLET STRUCTURE DESIGN

There are two (2) basic types of outlet control structures: those incorporating orifice flow and those incorporating weir flow. Weir flow is additionally broken down into two (2) categories: rectangular and V-notch. In each type, the bottom edge of the weir over which the water flows is called the crest. Sharp-crested and broad-crested weirs are the most common types. Generally, if the crest thickness is more than 60% of the nappe thickness, the weir should be considered broad-crested. The coefficients for sharp-crested and broad-crested weirs vary. The respective weir and orifice flow equations are as follows:

1. Rectangular Weir Flow Equation

$$Q = CLH^{3/2}$$

where

Q = Weir discharge, cubic feet per second

C = Weir coefficient

L = Horizontal length, feet

H = Head on weir, feet

2. V-notch Weir Flow Equation \\

$$Q = C_v \tan(O/2) H^{2.5}$$

where

Q = Weir Flow, cubic feet per second

C_v = Weir Coefficient

O = Angle of the Weir notch at the apex (degrees)

H = Head on Weir, feet

3. Orifice Flow Equation

$$Q = C_o A (2gH)^{0.5}$$

Where

Q = Orifice Flow, cubic feet per second

C_o = Orifice Coefficient (use 0.6)

A = Orifice Area, square feet

g = Gravitation constant, 32.2 feet/sec²

H = Head on orifice measured from centerline, feet

Analytical methods and equations for other types of structures shall be approved by the City prior to use.

DETENTION POND STORAGE DETERMINATION

The method to be used for determining detention pond volume requirements is governed initially by the size of the total contributing drainage area to the pond.

For contributing areas up to fifty (50) acres, the Rational Method (RM) may be used.

For contributing areas greater than fifty (50) acres, a flow routing analysis using detailed hydrographs must be applied. The Soil Conservation Service hydrologic methods (available in TR-20, HEC-1) can be used. The engineer may use other methods but must have their acceptability approved by the City engineer. These methods may also be used for the smaller areas.

DETENTION POND MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS

1. Silt shall be removed and the pond returned to original lines and grades when standing water conditions occur or the pond storage volume is reduced by more than 10%.
2. To limit erosion, no unvegetated area shall exceed 10 sq. ft in extent.
3. Accumulated paper, trash and debris shall be removed every 4 weeks or as necessary to maintain proper operation.
4. Ponds shall be mowed monthly between the months of May and September.
5. Corrective maintenance is required any time a pond does not drain completely within 60 hours of cessation of inflow (i.e., no standing water is allowed).
6. Structural integrity of pond embankments shall be maintained at all times.
7. Upon completion of development the owners/Homeowners association shall be required to maintain the detention basin in its original designed and approved condition.

City of Lucas Drainage requirements prior to 2009

Storm sewers—Residential developments.

- (1) An adequate storm sewer system consisting of inlets, pipes, and/or excavated channels or natural creeks and other drainage structures shall be constructed with [within] the subdivision. The developer shall bear the cost of all channel excavation, inlets, laterals, headwalls, manholes, junction structures, and all other items required to complete the system.
- (2) The developer shall be responsible for all the costs of storm drainage systems where a pipe of seventy-two inches (72") in diameter, or less, is installed.
- (3) In cases where the storm drain is larger than seventy-two inches (72"), twenty-five percent (25%) of the cost of providing the additional pipe larger than seventy-two inches (72") may be borne by the city and reimbursed to the developer, if a part of the capital improvement plan for the city and if funds become available. In such event, the developer shall be responsible for the remaining seventy-five percent (75%) and the cost of constructing the seventy-two-inch diameter pipe.
- (4) In general, underground drainage shall be constructed in streets, alleys and drainage easements. As an alternate, and upon approval by the city engineer, the developer may construct, excavate, or reconstruct, at the developer's expense, an open channel. The proposed channel shall be constructed in accordance with the drainage and stormwater pollution prevention design manual.
- (5) All channels shall be provided with dedicated drainage easements covering the floodway areas as defined by the drainage and stormwater pollution prevention design manual. All lots platted adjacent to the channel shall include the required drainage easement. Where possible, the property line division between lots shall be the center of the constructed channel.
- (6) If a developer chooses to construct an open channel or maintain a channel in its existing condition, the following conditions shall be met:

(A) Creeks or excavated channels with side slopes of 4:1, or less, shall be maintained by the adjacent owner(s); and

(B) Creeks or channels with greater slopes shall be maintained by the adjacent owners through an organized entity, owner association, public improvement district, condominium agreement, or other means. The city shall, through written agreement with the operating entity, have access for emergency purposes.

(7) In street crossings over drainage systems with a cross-section exceeding the dimension of an opening larger than that of a two (2) seventy-two-inch culvert pipe culvert, the city may participate in such crossings in an amount not to exceed twenty-five percent (25%) of the construction costs if a part of the capital improvement plan and if funds become available.

(Ordinance 2006-07-00567, sec. 1, adopted 7/7/06)

(8) Drainage ditches located within the public right-of-way or drainage easements shall have a minimum of 2% slope, if a drainage ditch has less than 2% slope the drainage ditch shall be concrete lined. The concrete lining shall be a minimum of 2' wide but not less than the width of the base of the ditch, the concrete lining shall be 5 inches thick, have a minimum of 2500 psi compressive strength and have grid pattern of 12" with 3/8" rebar with a minimum of two bars in any direction. (Ordinance 2014-05-00780 adopted 5/1/14)

(f) Storm sewers–Nonresidential developments.

(1) An adequate storm drainage system consisting of inlets, pipes, underground structures, and/or channels or creeks shall be constructed by the developer in accordance with the drainage and stormwater pollution prevention design manual.

(2) The developer shall pay the total cost of all underground systems which are constructed where a double seventy-two-inch diameter or smaller pipe will carry the runoff. The city may participate to the extent of ten percent (10%) of the difference between two seventy-two-inch pipes and any larger diameter pipes, and reimburse the developer for such costs if a part of the capital improvement plan and if funds become available.

(3) In general, underground drainage shall be constructed in rights-of-way. As an alternate, if approved by the city engineer, the developer may construct,

excavate, or reconstruct, at the developer's expense, an open channel in accordance with the drainage and stormwater pollution prevention design manual.

(4) In street crossings over drainage systems with a cross-section exceeding the dimension of an opening larger than that of a two (2) seventy-two-inch culvert pipe culvert, the city may participate in such crossings in an amount not to exceed twenty-five percent (25%) of the construction costs if a part of the capital improvement plan and if funds become available.

(g) Lakes, detention ponds, and retention ponds may be constructed in all areas to be maintained by the owner, subject to approval by the city engineer. Dedication of an easement to the city is required to provide access for emergency purposes.

(h) Other innovative drainage concepts will be considered, subject to review and approval by the city engineer and city council.

(Ordinance 2006-07-00567, sec. 1, adopted 7/7/06)

↓ Sec. 14.04.038 Driveways

(a) The driveway entry radius must not overlap the common property lines as projected to the street.

(b) Driveway culverts must be sized for each specific application. For new development, **culvert** size and material will be specified on the final plat drawings for each lot. For all other applications, the **culvert** size will be specified by the city at the time of the building permit or at the time a drive entry is required by the property owner. **Culvert** material must be either of reinforced concrete or galvanized corrugated metal.

<u>Culvert Material</u>	<u>Minimum Inside Diameter</u>	<u>Minimum Extension*</u>	<u>Concrete Header Required</u>
Reinforced concrete	18"	36"	No
Galvanized/corrugated metal	18"	N/A	Yes

* Minimum extension beyond the edge of the driveway. If a header is used, no extension is required.

Corrugated metal culverts may be used only in conjunction with concrete headers.

(Ordinance 2011-09-00685, sec. 2, adopted 9/1/11)

<input type="checkbox"/>	Annexation
<input type="checkbox"/>	Disannexation
<input checked="" type="checkbox"/>	Code of Ordinances
<input type="checkbox"/>	Other

ORDINANCE # 2009-04-00646 [Flood Damage Prevention]

AN ORDINANCE OF THE CITY OF LUCAS, TEXAS, AMENDING THE CODE OF ORDINANCES BY AMENDING CHAPTER 3, "BUILDING REGULATIONS" BY AMENDING AND RESTATING ARTICLE 3.14 "FLOOD DAMAGE PREVENTION"; BY ADOPTING REGULATIONS DESIGNED TO MINIMIZE FLOOD LOSSES; PROVIDING A REPEALING CLAUSE; PROVIDING A SAVINGS CLAUSE; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A PENALTY CLAUSE OR FINE NOT TO EXCEED THE SUM OF TWO THOUSAND DOLLARS (\$2,000) FOR OFFENSES AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Legislature of the State of Texas has in the Flood Control Insurance Act, Texas Water Code, Section 16.315, delegated the responsibility of local governmental units to adopt regulations designed to minimize flood losses; and,

WHEREAS, the City Council of the City of Lucas has determined that it is in the best interest of the City and its citizens to amend Chapter 3, "Building Regulations" by amending Article 3.14 "Flood Damage Prevention" by adopting regulations designed to minimize flood losses.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LUCAS, TEXAS:

SECTION 1. That Chapter 3 "Building Regulations" of the City of Lucas Code of Ordinances be, and the same is hereby amended by amending and restating Article 3.14 "Flood Damage Prevention" to read as follows:

"ARTICLE 3.14 FLOOD DAMAGE PREVENTION

Division 1. Generally

Sec. 3.14.001 Statutory authorization

The Legislature of the State of Texas has in Section 16.315 of the Flood Control Insurance Act, Texas Water Code, delegated the responsibility of local governmental units to adopt regulations designed to minimize flood losses. Therefore, the city council of Lucas, Texas does ordain as follows:

Sec. 3.14.002**Findings of fact**

- (a) The flood hazard areas of the City are subject to periodic inundation, which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.
- (b) These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

Sec. 3.14.003**Statement of purpose**

The purpose of this Article is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
- (6) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- (7) Insure that potential buyers are notified that property is in a flood area.

Sec. 3.14.004**Methods of reducing flood losses**

In order to accomplish its purposes, this ordinance uses the following methods:

- (1) Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
- (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

- (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
- (4) Control filling, grading, dredging and other development which may increase flood damage; and
- (5) Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

Sec. 3.14.005 Definitions

Unless specifically defined below, words or phrases used in this Article shall be interpreted to give them the meaning they have in common usage and to give this Article its most reasonable application.

Alluvial fan flooding means flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

Apex means a point on an alluvial fan or similar landform below which the flow path of the major stream that formed the fan becomes unpredictable and alluvial fan flooding can occur.

Appeal board means the City of Lucas Zoning Board of Adjustments.

Appurtenant structure means a structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure

Area of future conditions flood hazard means the land area that would be inundated by the 1-percent-annual chance (100 year) flood based on future conditions hydrology.

Area of shallow flooding means a designated AO, AH, AR/AO, AR/AH, or VO zone on a community's Flood Insurance Rate Map (FIRM) with a 1 percent or greater annual chance of flooding to an average depth of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of special flood hazard is the land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. The area may be designated as Zone A on the Flood Hazard Boundary Map (FHBM). After detailed rate making has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE or V.

Base flood means the flood having a 1 percent chance of being equaled or exceeded in any given year.

Base Flood Elevation (BFE) means the elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-A30, AR, V1-V30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year - also called the Base Flood.

Basement means any area of the building having its floor subgrade (below ground level) on all sides.

Breakaway wall means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Critical feature means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

Development means any man-made change to improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

Elevated building means, for insurance purposes, a non-basement building, which has its lowest elevated floor, raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

Existing construction means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures."

Existing manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

Expansion to an existing manufactured home park or subdivision means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

Flood or flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) The overflow of inland or tidal waters.
- (2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood elevation study means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

Flood insurance rate map (FIRM) means an official map of a community, on which the Federal Emergency Management Agency has delineated both the special flood hazard areas and the risk premium zones applicable to the community.

Flood insurance study (FIS) - see *Flood Elevation Study*.

Floodplain or flood-prone area means any land area susceptible to being inundated by water from any source (see definition of flooding).

Floodplain administrator means the City Manager or his designee.

Floodplain management means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

Flood protection system means those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the area within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

Flood proofing means any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway - see *Regulatory Floodway*.

Functionally dependent use means a use, which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure means any structure that is:

- (1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- (3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
- (4) Individually listed on a local inventory or historic places in communities with historic preservation programs that have been certified either:
 - (a) By an approved state program as determined by the Secretary of the Interior or;
 - (b) Directly by the Secretary of the Interior in states without approved programs.

Levee means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

Levee system means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

Lowest floor means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; **provided** that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirement of Section 60.3 of the National Flood Insurance Program regulations.

Manufactured home means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

Manufactured home park or subdivision means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Mean sea level means, for purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction means, for the purpose of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

New manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

Recreational vehicle means a vehicle which is (i) built on a single chassis; (ii) 400 square feet or less when measured at the largest horizontal projections; (iii) designed to be self-propelled or permanently towable by a light duty truck; and (iv) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Riverine means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Special flood hazard area - see *Area of Special Flood Hazard*.

Start of construction means (for other than new construction or substantial improvements under the Coastal Barrier Resources Act (Pub. L. 97-348)), includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first

alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure means, for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either: (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or (2) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure."

Variance means a grant of relief by a community from the terms of a floodplain management regulation. (For full requirements see Section 60.6 of the National Flood Insurance Program regulations.)

Violation means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

Water surface elevation means the height, in relation to the North American Vertical Datum (NAVD) of 1988 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Sec. 3.14.006 Lands to which this article applies

The ordinance shall apply to all areas of special flood hazard with the jurisdiction of the City.

Sec. 3.14.007 Basis for establishing the areas of special flood hazard

The areas of special flood hazard identified by the Federal Emergency Management Agency in the current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Collin County, Texas And Incorporated Areas," dated June 2, 2009, with accompanying Flood Insurance Rate Maps dated June 2, 2009, and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance, with said copies on file and maintained by the City Secretary.

Sec. 3.14.008 Establishment of development permit

A Floodplain Development Permit shall be required to ensure conformance with the provisions of this ordinance.

Sec. 3.14.009 Compliance

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this ordinance and other applicable regulations.

Sec. 3.14.010 Abrogation and greater restrictions

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

Sec. 3.14.011 Interpretation

In the interpretation and application of this ordinance, all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under State statutes.

Sec. 3.14.012 Warning and disclaimer of liability

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur and flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

Secs. 3.14.013-3.14-030 Reserved

Division 2. Administration

Sec. 3.14.031 Designation of floodplain administrator

The City Manager or his designee is hereby appointed the Floodplain Administrator to administer and implement the provisions of this ordinance and other appropriate Sections of 44 CFR (Emergency Management and Assistance - National Flood Insurance Program Regulations) pertaining to floodplain management.

Sec. 3.14.032**Duties of floodplain administrator**

Duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

- (1) Maintain and hold open for public inspection all records pertaining to the provisions of this ordinance.
- (2) Review permit application to determine whether to ensure that the proposed building site project, including the placement of manufactured homes, will be reasonably safe from flooding.
- (3) Review, approve or deny all applications for development permits required by adoption of this ordinance.
- (4) Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.
- (5) Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation.
- (6) Notify, in riverine situations, adjacent communities and the State Coordinating Agency which is the Texas Water Development Board (TWDB) and also the Texas Commission on Environmental Quality (TCEQ), prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
- (7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.
- (8) When base flood elevation data has not been provided in accordance with Section 3.14.007, the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a Federal, State or other source, in order to administer the provisions of Article 3.14.
- (9) When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

- (10) Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program regulations, a community may approve certain development in Zones A1-30, AE, AH, on the community's FIRM which increases the water surface elevation of the base flood by more than 1 foot, provided that the community **first** completes all of the provisions required by Section 65.12.

Sec. 3.14.033

Permit procedure

- (1) Application for a Floodplain Development Permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:
- (a) Elevation (in relation to mean sea level), of the lowest floor (including basement) of all new and substantially improved structures;
 - (b) Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;
 - (c) A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Section 3.14.062(2);
 - (d) Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development; and
 - (e) Maintain a record of all such information in accordance with Section 3.14.032(1);
- (2) Approval or denial of a Floodplain Development Permit by the Floodplain Administrator shall be based on all of the provisions of this Article and the following relevant factors:
- (a) The danger to life and property due to flooding or erosion damage;
 - (b) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (c) The danger that materials may be swept onto other lands to the injury of others;
 - (d) The compatibility of the proposed use with existing and anticipated development;

- (e) The safety of access to the property in times of flood for ordinary and emergency vehicles;
- (f) The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
- (g) The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;
- (h) The necessity to the facility of a waterfront location, where applicable; and
- (i) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.

Sec. 3.14.034 Variances

- (1) The Zoning Board of Adjustment shall be the appeal board which shall hear and render judgment on requests for variances from the requirements of this Article.
- (2) The Appeal Board shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this Article.
- (3) Any person or persons aggrieved by the decision of the Appeal Board may appeal such decision in the courts of competent jurisdiction.
- (4) The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.
- (5) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this ordinance.
- (6) Variances may be issued for new construction and substantial improvements to be erected on a lot of 1/2 acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the relevant factors in Section 3.14.033(2) of this Article have been fully considered. As the lot size increases beyond the 1/2 acre, the technical justification required for issuing the variance increases.

- (7) Upon consideration of the factors noted above and the intent of this ordinance, the Appeal Board may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this ordinance (Section 3.14.003).
- (8) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- (9) Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
- (10) Prerequisites for granting variances:
 - (a) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 - (b) Variances shall only be issued upon: (i) showing a good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
 - (c) Any application to which a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
- (11) Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria outlined in Section 3.14.034, subsections (1)-(9) are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

Sec. 3.14.035-3.14.060 Reserved

Division 3. Provisions for Flood Hazard Reduction

Sec. 3.014.061**General standards**

In all areas of special flood hazards the following provisions are required for all new construction and substantial improvements:

- (1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
- (2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
- (3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;
- (4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
- (5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and,
- (7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Sec. 3.14.062**Specific standards**

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 3.14.007, Section 3.14.032(8), or Section 3.14.063(3), the following provisions are required:

- (1) Residential construction. New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to two (2) feet above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this subsection as proposed in Section 3.14.033 (1)(a) is satisfied.

- (2) Nonresidential construction. New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to two (2) feet above the base flood level or together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.
- (3) Enclosures. New construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
- (a) A minimum of two openings on separate walls having a total net area of not less than 1 square inch for every square foot of enclosed area subject to flooding shall be provided.
 - (b) The bottom of all openings shall be no higher than 1 foot above grade.
 - (c) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
- (4) Manufactured homes.
- (a) Require that all manufactured homes to be placed within Zone A on a community's FHBM or FIRM shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

- (b) Require that manufactured homes that are placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM on sites (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to two (2) feet above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
- (c) Require that manufactured homes be placed or substantially improved on sites in an existing manufactured home park or subdivision with Zones A1-30, AH and AE on the community's FIRM that are not subject to the provisions of paragraphs (4)(a) and (4)(b) of this Section be elevated so that either:
 - (i) the lowest floor of the manufactured home is at two (2) feet above the base flood elevation, or
 - (ii) the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
- (5) Recreational vehicles. Require that recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM either (i) be on the site for fewer than 180 consecutive days, or (ii) be fully licensed and ready for highway use, or (iii) meet the permit requirements of Section 3.14.033(1), and the elevation and anchoring requirements for "manufactured homes" in subsection (4) of this Section. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

Sec. 3.14.063

Standards for subdivision proposals

- (1) All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with Sections 3.14.002, 3.14.003, and 3.14.004 of this Article.
- (2) All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet Floodplain Development Permit requirements of Section 3.14.008 and Section 3.14.033 and the provisions of this Division.

- (3) Base flood elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than 50 lots or 5 acres, whichever is lesser, if not otherwise provided pursuant to Section 3.14.007 or Section 3.14.032(8) of this Article.
- (4) Base flood elevation data shall be generated by a detailed engineering study for all Zone A areas, within 100 feet of the contour lines of Zone A areas, and other streams not mapped by FEMA, as indicated on the community's FIRM.
- (5) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.
- (6) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

Sec. 3.14.064 Standards for areas of shallow flooding (AO/AH zones)

Located within the areas of special flood hazard established in Section 3.14.007, are areas designated as shallow flooding. These areas have special flood hazards associated with flood depths of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

- (1) All new construction and substantial improvements of **residential** structures have the lowest floor (including basement) elevated to two (2) feet above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least 2 feet if no depth number is specified).
- (2) All new construction and substantial improvements of **non-residential** structures:
 - (a) have the lowest floor (including basement) elevated to two (2) feet above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least 2 feet if no depth number is specified), or
 - (b) together with attendant utility and sanitary facilities be designed so that below the base specified flood depth in an AO Zone, or below the Base Flood Elevation in an AH Zone, level the structure is watertight with walls substantially impermeable to the passage of water and with

structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

- (3) A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section, as proposed in Section 3.14.033(1)(a) are satisfied.
- (4) Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

3.14.065 Floodways

Floodways located within areas of special flood hazard established in Section 3.14.007, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:

- (1) Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.
- (2) If Article 5, Section E (1) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 5.
- (3) Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community **first** completes all of the provisions required by Section 65.12."

SECTION 2. That all provisions of the ordinances of the City of Lucas, Texas, in conflict with the provisions of this ordinance be, and the same are hereby, repealed, and all other provisions of the ordinances of the City not in conflict with the provisions of this ordinance shall remain in full force and effect.

SECTION 3. That an offense committed before the effective date of this ordinance is governed by the prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed and the former law is continued in effect for this purpose.

SECTION 4. That should any sentence, paragraph, subdivision, clause, phrase or section of this ordinance be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this ordinance as a whole, or any part or provision thereof other

than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the Code of Ordinances as a whole.

SECTION 5. Any person, firm or corporation violating any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances, as amended, and upon conviction in the municipal court shall be punished by a fine not to exceed the sum of Two Thousand Dollars (\$2,000) for each offense, and each and every day such violation shall continue shall be deemed to constitute a separate offense.

SECTION 6. This ordinance shall take effect immediately from and after its passage and the publication of the caption, as the law in such cases provides.

PASSED AND APPROVED by the City Council of the City of Lucas, Texas, on the 16th day of April, 2009.

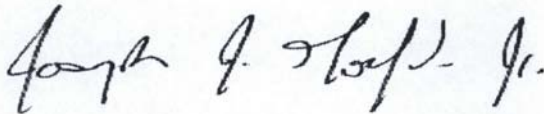



Bill Carmickle, Mayor

ATTEST:


Kathy Wingo, TRMC, City Secretary

APPROVED AS TO FORM:



Joe Gorfida, Jr., City Attorney
(JJG/cgo/35555)

Town of Fairview Drainage Fee

The following schedule of drainage charges is hereby levied against all real properties within the town subject to drainage charges under subchapter C of chapter 402 of the Texas Local Government Code:

Land Use Description	Monthly Charge
Single-family home	\$5.75 per dwelling unit
Duplex	\$5.75 per dwelling unit
Manufactured home, mobile homes, camper and/or recreational vehicle	\$5.75 per dwelling unit
Apartment and/or other MF residential	\$5.75 per dwelling unit
Retail/office/commercial	\$1.10/1,000 sq. ft. of impervious surface
Industrial	\$1.10/1,000 sq. ft. of impervious surface

Town of Prosper Drainage Fee

Fees shall be based on a property's impact on the town's drainage utility system. Impact shall be based on the parcel size for residential property and the impervious area for all other nonexempt property. Ten percent (10%) of the area of the public streets and sidewalks on a property shall count towards that property's impervious area. The drainage utility fees shall be established according to the following schedule on a monthly basis:

Property Type	Parcel Size (sq. ft.)	Fees/Rates
Single-family residential		
Tier 1	<10,000	\$3.00
Tier 2	≥ 10,000	\$5.15
All other nonexempt property:		\$1.00 per 1,000 square feet of impervious area; the minimum fee shall be \$2.75 per property

City of Allen Drainage Fee

Drainage Service Fees		
Property Classification	Base Rate	Alternate Rate
Single Family Residential Property	\$3.00 per dwelling located on the property	N/A
Multi-Family Residential Property	\$20.42	\$22.69
Commercial/Industrial Property	\$20.42	\$22.69
Day Care Facility	\$15.88	\$22.69
Religious Facility	\$15.88	\$22.69