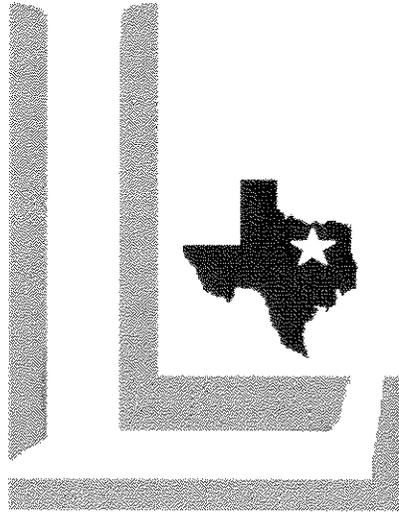


CITY OF LANCASTER, TEXAS



Lancaster

GENERAL DESIGN MANUAL AND SUBDIVISION REGULATIONS

Second Addition
As adopted on December 13, 1999

Addendum No. 1, April 2001

Addendum No. 2,

City of Lancaster
Community Development
700 E. Main Street
P.O. Box 940
Lancaster, Texas 75146-0940
Phone (972) 227-6075
Fax (972) 227-7220

Procedure Checklist for the Planning, Public Works, and Building Inspection Departments

Proponents of new projects in the City of Lancaster are encouraged to contact the Development Coordinator. These individuals will assist applicants through the City development process in the most expeditious manner possible.

I. Planning Department

Preliminary Plat Requirements (Subdivision, Commercial, and Industrial Property)

- Propose name of subdivision.
- Proximity of subdivision to other locations in the area.
- Contours at two-footed intervals if the slope is less than ten per cent (10%) (spot elevations may be required if land is too flat for contours) and five (5) feet where the slope is greater than ten per cent (10%).
- Date of preparation, scale, and north sign (designated as true north).
- Name, address, and telephone number of owner and licensed surveyor, licensed engineer, or designer of the plat.
- Total acreage involved.
- Location and dimensions of all existing physical features including streets alleys, easements, building, drainage areas, timbered areas, wells, tanks, septic systems, cisterns, and other significant features within or adjacent to the tract to be subdivided.
- Approximate location and dimension of all proposed streets, alleys, easements, lot lines, front setback lines, parks, screening wall easements and other easements and other areas to be dedicated for public use.
- Geological stability information shall be furnished upon request of the city, which request shall be made only when current knowledge indicated building or other problems may arise from construction in the area proposed for development.
- Zoning on and adjacent to the tract.

Procedure Checklist

- Designation of areas at fifty (50) and one hundred (100) year flood measurements. This will include the rate of flow of water during such floods. When available, this information shall be furnished to the Public Works Director. When not available, the floodplain will be defined by mutual agreement between the city and the subdivider's engineer according to standards, practices and procedures established by the City of Lancaster and the North Central Texas Council of Governments (NCTCOG).
- Site date, including the number of residential lots and typical lot sizes.
- Density of development; in non-residential areas lot coverage should be stated.
- Proposed uses other than single-family residential.
- The location and size of existing utilities within or adjacent to the tract including water, sewer, electricity, and gas (may be placed on a separate plat).
- Any existing or proposed subdivisions or streets within four hundred (400) feet of the proposed subdivision.
- Proposed street names.

Additional Information

- Such preliminary information as may be required by the planning and zoning commission in order to projects contemplated within the area to be subdivided in order to assure that the subdivision is capable of being constructed without an adverse effect upon the surrounding area.
- Application form for rezoning if required.
- The surveyor must establish a Bench-Mark traversed off of an existing FEMA or USGS monument.
- Refer to the City of Lancaster Thoroughfare Plan for future road-way alignments and improvements.

Procedure Checklist

Required Easements

- Front Entry
Seven Foot (7') Right-of-Way (ROW) for utility easements
Current Right-of-Way 50 foot for roadway
27' curb to curb for pavement
11.5' each side for sidewalk, back of curb, and additional 1' ROW
- Corner Lot
All corner lots must have additional 7' setback beyond ROW.

Final Plat Requirements (Subdivision, Commercial, and Industrial Property) and Construction Plans

- The title under which the subdivision is to be recorded.
- Accurate dimensions for all lines, angles, curves used to describe boundaries, streets, alleys circular arcs and shall be defined by the radius, central angle, tangent, arc, and chord distances and chord bearings. All dimensions, both linear and angular, are to be determined by an accurate control survey in the field which must balance and close within a limit of one/ten-thousands (1/10,000). No final plat showing plus or minus dimensions will be approved.
- Names of all adjoining subdivisions with dotted lines of abutting lots. If the adjoining land is unplatted, it should be shown as such.
- Identify a system for all lots and blocks and names for streets.
- Identify a system for the streets, alleys, easements, parks, other public facilities as shown on the plat, and a dedication thereof to the public use.
- Total acreage and surveyed description of the area.
- A description of all monuments, both found and set, which mark the boundaries of the property and a description of all control monuments used in conducting the survey.

Procedure Checklist

- A statement by the land surveyor that the survey was performed by him, or under his direct responsibility, supervision and checking.
- Signature and seal of the registered land surveyor.
- A delineation of the extent of the one hundred (100) year floodplain, the effective date thereof, and that the same is subject to change.
- Signature for the appropriate approving authority.
- Submit preliminary and final plats to all utility franchises (TXU, SWB, ATT).

Other Documents

- Final Public Works engineering and drawings and outline specifications for all public facilities to be installed, i.e., water and sewer utilities, streets, and related improvements, bridges, and storm drainage (refer to the Lancaster General Design Manual).
- Refer to the City of Lancaster Drainage Master Plan for on and off site requirements.
- Traffic Control Plan.
- If necessary a Traffic Impact Study will be required when volume, safety, environment, or roadway exposure is endangering the driving public. This will be determined by the Public Works Director.
- Guarantee(s) for public improvements as required under the zoning ordinance found as Exhibit "A" to Chapter 12 of this code.
- Bond / Letter of Credit for public improvements.

II. PUBLIC WORKS

- Submit five (5) full sets of architectural, construction and/or civil plans to the Public Works or Building Inspection Departments.
- Within ten (10) business days each city department will comment to the submittal. City will notify the developer or engineer of record to pick up plans. It is required to return the marked-up copy within fourteen (14) days or sooner after review.

Procedure Checklist for Right-of-Way Excavation Permit

Procedures for Right-of-Way Excavation Permit

Excavation/Grading Permit Fee:

Utilities (SWBT, TXU, AT&T) are EXEMP from the permit fee.

All other excavation permit fees = \$50.00 each or 2.5% of Construction Cost.

All contractors must complete the **Utility / Excavation Permit Application Form**.

(2) Two sets of plans must be submitted showing extent of proposed work.

This application must also be filled out for telephone calls requesting "Line Locates".

The completed Utility / Excavation Permit Application Form will be reviewed by the R-O-W Permit Coordinator.

Upon approval by the R-O-W Permit Coordinator the approved Excavation / Utility Permit will be issued.

The approved Excavation / Utility Permit will be issued and the Contractor will be contacted to pick-up the original approved permit.

The original Excavation / Utility Permit must be with Contractor at work site.

The Contractor is instructed (if noted on Permit to the R-O-W coordinator to finalize when work is complete at 972-227-6075.

Procedure Checklist

- When resubmitting comments, if necessary, within seven (7) days each city department will comment to the subsequent submittal. The city will notify the developer or engineer of record to pick-up plans. It is required to return the marked-up copy within fourteen (14) days or sooner after review.
- When resubmitting comments for the third and subsequent times, within five (5) days each department will comment to the submittal. We will notify the developer or engineer of record to pick up plans. If required to return the marked-up copy within fourteen (14) days or sooner after review.
- Once the final plans are reviewed, accepted and all fees are paid, a pre-construction meeting will be scheduled. Two (2) sets of full-size drawings and two (2) sets of reproduced 11"X 17" drawings are required before the meeting. (If other plans are required for city approval and utility company review, more sets will be needed).
- Before acceptance to start construction, a final plat approval, and bonding agreement or letter of credit must be issued.
- After the appropriate governing body approves the final plat, development contracts are executed and approved (if applicable), a recording package must be submitted for staff to record the plat. An execution package must consist of two (2) reproducible i.e. mylar and three (3) paper copies of the approved plat with all required original signatures; a copy of the approved plat on a computer disk in the "dwg" or "dwn" format; and a filing fee (made payable to Dallas County) for \$26.00 per page. If the final plat consists of two pages, the filing fee is \$52.00. After a final review by staff, the plat will be recorded. All final plats must be recorded within two years from the date of approval or they become null and void.
- Once utilities are approved by city council, as built drawings are required on 24"X36" or 22" X 34" mylar, one (1) blue line, two (2) 11" X 17" reproduced copy and an electronic drawing in .DWN or .DWG, and .DGN format is required.

Drainage Study Submittal

- The delineation of the major contributing watersheds for stormwater that crosses or is proposed to cross any property within or on the boundary of the development.
- All areas outside of existing or proposed drainage easements or street right-of-ways serving the development that will be inundated by the 100 year flood.

Procedure Checklist

- A summary of the drainage calculations used to determine the proposed stormwater drainage system that will be necessary to serve the development. The calculations shall be prepared and submitted in accordance with the Lancaster Drainage Design Manual in order to review and assess the adequacy of the proposed drainage system.
- Expected impacts on off-site properties and proposed measures for remedying impacts.
- If construction activities are more than five (5) acres, a Storm Water Pollution Prevention Plan (SWPPP) is required and a Notice of Intent (NOI) to Environmental Protection Agency submitted and a copy provided to the city.

Storm Drainage Design Requirements

- One-hundred (100) year storm frequency design.
- Drainage Area map (onsite).
- Drainage Area map (offsite).
- Determination of one-hundred (100) year water surface from FEMA water surface.
- Inlet calculations in plans.
- Storm sewer calculations in plans.
- Culvert calculations in plans.
- Open channel calculations in plans.
- Proposed grading plan of development.
- 404 or 4F Permit.
- Paved positive overflow channels.

Procedure Checklist

- Maximum discharge velocity eight (8) fps.
- Storm sewer pipe below hydraulic gradient.
- Elevations tied to USGC or city benchmark.
- One-hundred (100) year flood plain shown.

The Construction Plan Shall Show:

- Site features including, existing site and drainage structures such as storm drains, surface water bodies, creek, and wells.
- Anticipated storm water discharge points and outline of drainage areas for each discharge point.
- Existing/planned paved areas and buildings.
- Limits of disturbed area and construction phasing.
- Erosion and sediment control structure.
- Soils and waste storage areas.
- Vehicle storage and service areas.
- Areas of soil disturbance including areas of cut and fill.
- Drainage patterns and slopes following grading.
- Locations of past construction controls.
- Measures necessary to protect listed endangered or threatened species, or critical habitat.

Procedure Checklist

Identify Potential Sources and Estimate Potential Source Areas

- Equipment storage/maintenance/cleaning areas.
- Construction materials storage and disposal areas.
- Spill locations.
- Concrete and asphalt plants (will require a Special Use Permit).
- Construction materials loading and access areas.
- Impervious area before and after construction.

Inspection

- Housekeeping practices.
- Equipment and construction staging areas
- Areas with construction activities.
- Materials storage and handling sites.
- Storm water BMP'S.
- Inspection records for follow up actions.

Spill Prevention and Response

- Keep absorbents and spill cleanup material readily available for control of small leaks and spills.
- Use dry cleanup methods, materials, and devices when spills occur.

Procedure Checklist

Material Storage and Handling

- Store materials on pallets and racks.
- Store materials in appropriately designated areas.
- Store materials under roof or if stored outdoors, provide covers and waterproof, leak proof closed containers.
- Materials should be properly marked.

Water and Waste Management and Disposal

- Plan for removing and disposing of all construction wastes; no waste may be buried, dumped, or discharged at the construction site.
- Set up suitable waste collection containers, such as dumpsters for typical solid waste (paper, cans and bottles), and demolition waste (broken and concrete).
- Service and maintain portable toilets.
- Washouts from concrete trucks should be disposed of into an area where the concrete wash can harden, be broken up and then be placed in a dumpster. It should be placed in a location subject to surface waters, or into a drainage leading to surface waters.
- The plan and profile of streets, drawn with a horizontal scale of 1" = 40' or larger, and appropriate corresponding vertical scale, showing the top-of-curb grades at 100 foot intervals for straight grades and 25 foot intervals for vertical curves. Typical right-of-way cross sections of streets, sidewalks, and alleys showing the width and type of pavement, base, and subgrade, the location within the right-of-way, and specific street crown information, including the pavement transition to split curbs, valley gutters and stormwater inlets.
- Plan and profile for each sanitary sewer line showing existing ground level elevation at center line of pipe, pipe size, flow line elevation at all drops, and turns, and station numbers at fifty (50) foot intervals, with a section showing embedment, unless specified or permitted otherwise by the committee.

Procedure Checklist

- Plan and profile, when required, of the water distribution system showing pipe sizes and the location of valves, fire hydrants, fittings and other appurtenances, with a section showing embedment.
- Plan and profiles of all proposed channels, ditches, underground systems, detention areas, any other stormwater improvements, modifications, or facilities proposed to serve the development. The plans shall specify in detail the materials and sizing for all channels or ditches, stormwater pipes, pipe connections, inlets, outlets, manholes, culverts, bridges, and any other drainage structures and improvements. Each improvement shall show the hydraulic data on which the design of the improvement was based.
- A grading plan showing the existing and proposed topography in two-foot contours, proposed or minimum finished floor elevations, and the 100-year flood limits, if any. The grading plan shall consist of contours and spot elevations with water directional arrows to define the flow patterns.
- The location, size and character of all temporary and permanent erosion and sediment control facilities with specifications detailing all on-site erosion control measures which will be established and maintained during all periods of development and construction.
- After submittal of final plat, a pre-construction meeting will be held on a Thursday at 9 a.m. Notification of the meeting will be sent no later than the Friday prior to the following week's meeting.
- As project goes to construction, Inspector, and/or a city designee will act as point-of-contact(s) on construction issues related to the City of Lancaster.
- 6' manhole is required at all connections to existing system with transit time meter.
6' manhole at the waterline when connecting to the existing system shall be installed with subdivision of 100-homes above and all commercial and industrial sites.

Procedure Checklist

III. BUILDING INSPECTION

Appropriate Manuals Used by City Ordinance

- 1997 Uniform Building Code
- 1997 Uniform Fire Code
- 1997 Uniform Mechanical Code
- 1997 Uniform Plumbing Code
- 1999 National Electric Code

Plans should be complete with:

- (A) Building Foundation and piers, do not use typical drawings
Soil analysis is necessary to determine foundation types and piers (due to Lancaster's expansive soils)
elevations, masonry requirements
- (B) Mechanical drawings with cfm requirements
- (C) Plumbing diagrams including riser diagrams
- (D) Electrical with electrical loads
- (E) Fire Protection

(1) Fire hydrants will be determined due to types of construction and type of occupancy

* Fire flow requirements

* Flow duration (hours) - depending on flow test made in field

* Number of hydrants determined on fire flows in field

* Number of hydrants

* Spacing of hydrants

(2) Fire sprinklers and stand-pipes
(depending on type of occupancy, construction and square footage)

(3) Fire alarm system (types of occupancy)

(4) Other types of fire protection (types of occupancy, square footage)

Additional Information / Contacts

Fire Marshal / Building Official is the point of contact for all fencing related issues.

(A) Developer shall provide one (1) fire hydrant pressure recorder as manufactured by Telog or approved equal.

PLATTING PROCEDURES

(Chapter 9, Article 9.200)

Preapplication Conference; Vicinity Sketch Plan

Prior to preparing a preliminary plat for presentation to the city planning and zoning commission, the subdivider shall make known his intentions to the city manager to discuss informally any city plans or standards that may affect the proposed development. A vicinity sketch plan shall be prepared at a scale of one (1) inch equals one thousand (1,000) feet (1" = 1,000') on a base map provided by the city. The subdivider shall include, on the sketch plan for his proposed development, existing and proposed major use areas for residential, commercial, industrial, and public purposes, and arterial and collector streets.

Preliminary Plat

- a) After the subdivider has reached preliminary conclusions concerning the feasibility and design of his proposed subdivision, he shall prepare a preliminary plat and required supplemental material for presentation to and approval of the planning and zoning commission or director of planning and development. In the case of minor plats, the director may, upon application, waive the requirement for preparation and filing of a preliminary plat as a prerequisite to the filing of a final plat.
- b) Processing of the preliminary plat:
 - 1) A minimum of ten (10) copies of the preliminary plat and required supplemental material shall be presented by the subdivider to the director at least fifteen (15) days prior to a regular planning and zoning commission meeting. If the plat is in acceptable condition according to these regulations, the director shall receive the plat as filed, mark a copy of the plat "filed" with the date on which the plat is considered filed in acceptable condition, and furnish the appropriate agencies of the city with copies for their review and comments. The agencies shall have ten (10) days from the date they receive the plat to review and return it to the director's office. Failure to return the plat or otherwise notify the director shall constitute approval by the agency.
 - 2) Within thirty (30) days following the date of filing of the plat, it shall be submitted to the planning and zoning commission for review and approval or disapproval, or approval with modifications.
 - 3) Within thirty (30) days of approval of a preliminary plat with a variance by the planning and zoning commission, the city council shall approve, disapprove, or approve the preliminary plat with modifications.
 - 4) Approval of the preliminary plat shall be valid for one (1) year. An extension of approval time may be granted for a period not to exceed one

- (1) year by the planning and zoning commission upon application in writing.
- 5) All or any portion of an approved preliminary plat may be submitted for final plat purposes. In the case of partial submission, the approval of the remaining portion of the preliminary plat shall automatically gain an extension of one (1) year before another phase of the plat must be submitted in final form.
 - 6) If the responsible authority fails to approve a preliminary plat or disapproves a preliminary plat it shall, upon request, issue a certificate stating the date the plat was filed and that it failed to act on the plat or disapproved the plat within the period. The applicant may re-file the preliminary plat after correction of any omissions or satisfaction of any conditions requested by the approving authority.
- c) Form of the preliminary plat: The drawing shall be made at a scale of one (1) inch equals two hundred (200) feet (1" = 200') or larger. The size of the sheets shall be twenty-four (24) inches by thirty-six (36) inches. If it is necessary to place the plat on more than one (1) sheet, an index map shall be included on the first sheet. A vicinity sketch plan showing the location of the area being platted as it relates to the rest of the community showing major streets in the area shall be included.

Final Plat

- a) After the subdivider has received approval of the preliminary plat, the final plat may be prepared. Only that part of the preliminary plat which is proposed by the subdivider for recording at any one time must be submitted in its final form. The final plat may reflect the entire preliminary plat or any logical part thereof. The submission to the director's office of the final plat or plats of the entire area included within the preliminary plat shall take place not more than twelve (12) months after approval of the preliminary plat, unless an extension of time has been granted by the planning and zoning commission. If lot changes have occurred from the original proposal, the applicant must refer the plat back to the private utility companies.
- b) Processing of the final plat:
 - 1) Not more than twelve (12) months after approval of the preliminary plat, unless an extension is granted as provided in this chapter, the original and ten (10) copies of the final plat and the required supplemental material shall be presented by the subdivider to the director's office. The final plat shall be presented at least fifteen (15) days prior to a regular planning and

zoning commission meeting.

- 2) The final plat shall substantially conform to the approved preliminary plat and shall include all changes specified thereon.
- 3) After reviewing the final plat to assure its acceptability, the director shall mark the plat "filed" and annotate the date thereon.
- 4) The planning and zoning commission shall approve, disapprove, or approve the final plat with modifications. If a variance is requested and the commission recommends its approval, it shall forward the final plat with such recommendation to the city council.
- 5) In the case of a plate with a variance recommended for approval by the commission, the city council shall act on the plat within thirty (30) days after the date the plat is approved by the commission. The council shall approve, disapprove, or approve the final plat with modifications.
- 6) Following approval of the final plat by the appropriate authority, the plat shall be signed by the chairman of the commission, the director, or the mayor, as the case may be, and attested by the city secretary. The director shall then record the plat in the office of the Dallas County Clerk as required by law. The subdivider shall furnish to the director the recording fee required by the Dallas County Clerk prior to the recording of the plat.

c) **Form of the final plat:**

- 1) A map of the plat shall be drawn at a scale of one (1) inch equals one hundred (100) feet (1" = 100') or larger with the use of permanent lines or ink, and the outer dimensions of the map shall be twenty-four (24) inches by thirty-six (36) inches. The drawing shall be made on a reproducible linen or mylar. A photographic copy on matt film equal in quality to ink lines on mylar will be considered as an original. Maps of two (2) or more sheets shall be referenced to an index map placed on the first sheet.
- 2) An original, a sepia, a linen print, and ten (10) paper copies of the Final Plat shall be prepared and submitted. Also, a reproducible reduction at eight and one-half (8 ½) inches by fourteen (14) inches of the final plat shall be submitted.

d) **Contents of the final plat:** The final plat shall include, in addition to all information required for the preliminary plat and that required by Chapter 212 of the Local Government Code, refer to checklist section.

- e) Other documents required at the time of submission of the final plat, see checklist section.
- f) Prior to approval of the final plat by the appropriate authority, one of the following forms of guarantee must be furnished by the subdivider to assure the installation of all required public improvements in an approved manner and in a reasonable period of time:
 - 1) Performance bond: A bond executed by a surety company holding a license to do business in the State of Texas, and acceptable to the city council on the form provided by the city, in an amount equal to the cost of the improvements required by this article and within the time for completion of the improvements as estimated by the city council. The performance bond shall be approved as to form and legality by the city attorney.
 - 2) Trust agreement: A deposit in a bank or trust company in the name of the city, and approved by the city council in a trust account a sum of money equal to the estimated cost of all site improvements required by this article, the cost and time of completion as estimated by the city council. Selection of the trustee shall be subject to approval by the city council, and the trust agreement shall be executed on the form provided by the city and approved as to form and legality by the city attorney. Periodic withdrawals may be made from the trust account for a progressive payment of installation costs. The amounts of such withdrawals shall be based upon progress work estimates approved by the city council. All such withdrawals shall be approved by the trustee.
 - 3) Unconditional guarantee from local bank or local federally insured savings and loan association or other financial institution as approved by the City of Lancaster, Texas: A letter on the form provided by the city, signed by a principal officer of a local bank or local federally insured savings and loan association or other financial institution, acceptable to the city agreeing to pay to the City of Lancaster, on demand, a stipulated sum of money to apply to the estimated costs of installation of all improvements for which the subdivider or developer is responsible under this article. The guaranteed payment sum shall be the estimated costs and scheduling as prepared by the city council. The letter shall state the name of the subdivision and shall list the improvements for which the subdivider is required to provide.

Replats

- a) Any person wishing to revise a subdivision plat which has been previously filed for record may vacate the plat at any time before any lot in the plat is sold. A replat of a subdivision or part of a subdivision may be approved if the replat is signed and acknowledged by only the owners of the property being replatted and is approved, after a public hearing on the matter at which parties in interest and citizens have an opportunity to be heard by the planning and zoning commission and by the city council if a variance is requested, and the replat does not attempt to amend or remove any covenants or restrictions.
- b) In the event the proposed replat involves property which, during the preceding five (5) years, was limited by an interim or a permanent zoning classification to residential use for not more than two (2) residential units per lot or if any lot in the preceding plat was limited by deed restrictions to residential use for not more than two (2) residential units per lot, the following shall be required:
 - 1) Notice of the required hearing shall be given before the 15th day before the date of the hearing by publication in the official newspaper of the city and by written notice to the owners of lots that are in the original subdivision and that are within two hundred feet (200') of the lots to be replatted, as indicated on the most recently approved municipal tax roll or in the case of a subdivision within the extraterritorial jurisdiction, the most recently approved county tax roll of the property upon which the replat is requested. Written notice may be delivered by depositing the notice, properly addressed with postage prepaid, in a post office or postal depository within the boundaries of the city.
 - 2) If the proposed replat requires a variance and is protested in accordance with this subsection, the proposed replat must receive, in order to be approved, the affirmative vote of at least $\frac{3}{4}$ of the members present of the planning and zoning commission and city council. For a legal protest, written instruments signed by the owners of at least twenty percent (20%) of the area of the lots or land immediately adjoining the area covered by the proposed replat and extending two hundred feet (200') from that area, but within the original subdivision, must be filed with the planning and zoning commission or city council, prior to the close of the public hearing.

SECTION 1-02 STANDARD CONSTRUCTION PLANS

Chapter 9, Article 9.300

A. Construction Plan Requirements

All construction plans for proposed public water, sanitary sewer, street, drainage and traffic improvements shall adhere to the City of Lancaster's standards and specifications and the following requirements:

1. Plans shall be clear, legible, and neatly drawn on bordered sheets, size 22" x 34" or 24" x 36". Each sheet shall clearly display the seal of the Texas Professional Engineer licensed by the State of Texas, under whose direction the plans were designed. A title block in the lower right-hand corner shall be filled in to include: project name; Engineer's name, address, and telephone number, and furnished in the following format:
 - a. Cover Sheet containing:
 - Project title
 - Legal property description
 - City name
 - Vicinity map
 - Owner, Engineer, and Surveyor's name, address and telephone number
 - Project title in small print placed vertical along the right border
 - Sheet index
 - Public Work's signature block
 - b. Copy of current plat bound with *final* plans. The signed plat shall be bound with five (5) copies of the proposed construction plans including the Engineer's signature and seal.
 - c. Drainage area map and storm drainage calculations with all existing contours, existing and proposed storm drains, and/or other drainage facilities.
 - d. Site plan indicating the location and width of all proposed and existing street and driveway approaches noting the back-of-curb radii. All easements delineated.
 - e. Utility plan indicating the location and size of all existing and proposed water and sanitary sewer lines with adjacent existing or proposed top of curb grades. Also, the location of all existing and proposed fire hydrants adjacent to the site shall be shown, including the maximum coverage radius of each as outlined in later sections of this manual.

- f. Plan and Profile Sheets for roadways, sewer lines, storm drains, flumes, water lines and channels. Stationing shall be generally left to right and with stationing beginning at the downstream end of all sewers, storm drains, and channels.
- g. Stationing shall be included on the plan view as well as the profile for all roads, water, sewer, storm drain, and channel sheets. Elevations shall be calculated and provided in all profiles as indicated below.
 - 1. Straight grade – provide elevations at a maximum interval of 100' feet.
 - 2. Vertical curve – provide elevations at the beginning and ending points at a maximum interval of 25' feet in between.
 - 3. State design speed for all horizontal curves.
- h. Details for improvement which are to become public
 - 1. Horizontal scale shall be on 1" equals fifty (50') feet or larger, i.e. 1" = 40'. Vertical scale shall be one (1") inch equals five (5') *feet* or larger.
 - 2. Hydraulic grade line or water surface profile based on FEMA 100 year water surface shall be plotted with all drainage design. Capacity, design discharge, velocity, and velocity head losses shall be noted on each segment of drainage facility in the profile and all drainage calculations shown in accordance with the City's storm drainage manual *with* one or more of these parameters changes.
 - 3. Construction plans will be reviewed by *the City of Lancaster Staff Public-Works* and signed after all comments have been resolved. Construction must start within two (2) years following the *final acceptance of plans Public-Works signature*. Plans for projects, which have not started construction within this time, must be submitted to Public Works for a new review.

B. Other Utilities

The developer shall furnish all easements and right-of-way (onsite and off site) necessary for construction of water, sanitary sewer, storm drainage, and electrical, gas, cable TV, and telephone service to the proposed subdivision. All on and off site utilities must be included. *Additional easements will be required with no alley. Easements will be seven (7') feet on streets, five (5') on alley.*

1. Upon completion of construction and prior to acceptance of that construction by the City, one set of mylars, one set of prints and an electronic file of the record drawings must be submitted to the City.
2. Specifications are the Standard Specifications for Public Work Construction, North Central Texas latest addition as prepared by the North Central Texas Council of Governments.
3. *Special Provisions to the Specifications must be addressed during preliminary platting unless otherwise directed. are City of Lancaster Special Provisions to the Specifications.*
4. Standard Details are as prepared by the City of Lancaster.

j. Notification

Utility contractor and street contractor are to notify the City's construction inspector at least 48 hours prior to beginning construction.

k. Record Drawings (As-Built)

The developer shall furnish record drawings and the accepted final plat completed with engineer signature and seal. The developer shall furnish one (1) set mylar completed 22" x 34" or 24" x 36" and, one (1) set reduced in 11" x 17" completed with engineer signature and seal. In addition, electronic files of the record drawings shall be submitted *in .dwg or .dwn format*. Record drawings shall include all changes made by change order, field change, or on-site changes. Record drawings shall be provided to the City prior to final acceptance of the project.

1. Form of Plans

The plan sheet should be drawn so that the north arrow points to the top or to the left side of the sheet. The plan must show sufficient surrounding streets, lots, and property lines so the existing water and sewer may be adequately shown and so that proper consideration may be given to future extensions. The City will determine if sufficient data is shown. Proposed water and sewer lines shall be stubbed out to the addition extremities in order that future extensions may be made. Unless it would make the plan very difficult to read, both water and sewer lines should be shown on the same sheet. The lines on the profile sheet shall be drawn in the same direction as on the plan. Lettering shall be oriented to be read upward or to the left.

On large additions or layouts requiring the use of more than six sheets (total of plan & profile), key sheets may be required on a scale of 1" = 400' or 1" = 1000', as designated by the Director of Public Works. They shall show the overall layout with the specific project clearly indicated with reference to individual sheets.

The use of "off-standard" scales will not be permitted. A plan shall be drawn to a horizontal scales of 1" = 20', or 1" = 40'. Plans for water and sewer that do not involve great detail should be drawn on a scale of 1" = 50'. Plans in and along creeks, heavily wooded sections, streets with numerous utilities, or as may be required to produce a clean and legible drawing, shall be drawn on plan-profile sheets or separate plan and profile sheets on a scale 1" = 40'. If the plan is in an extremely congested area, a scale of 1" = 10' may be necessary. All profiles shall be drawn on a vertical scale (1" = 5') as required for clarity, and the horizontal scale shall be the same as for the plan unless otherwise directed by the Director of Public Works.

m. Data to be included in Plans

Sewer Data to be Included on Plan Sheet: The plan shall show the existing and proposed water and sewer lines and all appurtenances thereto. The plan should also have the storm sewer system dashed in. All lines shall be numbered, lettered or otherwise designated on both plan and profile sheets. All lines shall show sizes and direction of flow on both plan and profile sheets. Stationing shall be shown to the nearest 0.1' foot and each new line shall begin at 0+00 at the outlet and increase up the sewer. Station pluses at all junctions of sewers, horizontal P.C.'s, and P.T.'s, bends, angle points, wyes, cleanouts, manholes, the centerlines of all cross streets and railroads, and all crossing utilities, etc., shall be shown on both plan and profile. The degree of angles and horizontal curve data shall be shown on the plan only. Radius for specific pipe size and material shall be determined by the Engineer of record and approved by the Director of Public Works. Sanitary sewer pipe radius shall be used as last resort. Sewer laterals shall be shown at a location most convenient to serve the property.

Sewer laterals will usually be near the center of the lot, either at the street or alley. If the lateral is to be adjacent to the water service, then show the lateral 10' feet downstream. The location shall be designated on the plans.

n. Sewer Data to be Included on the Profile Sheet

The data for the profile sheet shall be obtained by running a line of levels along the actual route and by taking any other necessary observations. Profiles shall show the elevations to the nearest 0.1' foot of the ground at the centerline of the sewer, and to the right and left of the centerline of the sewer at the location of the approximate center of the proposed houses or buildings to be served, and the approved street or alley grade. Profiles shall also show the sewer pipe, manholes, cleanouts, etc. The size of the sewer, the direction of the flow, and the grade to the nearest 0.01' foot shall be indicated just over the "pipe" and the total linear footage of line, size, kind of pipe, and type of embedment or encasement shown below the "pipe". The design flow, pipe capacity and velocity must be shown in the profile. All of the information pertaining to the horizontal data, station pluses, appurtenances to be built, etc., is usually shown just above the ground line, whereas, the flow line (invert) elevations are shown

below the pipe. Elevations of crossing and parallel utilities shall be shown. All invert elevations shall be shown to the nearest 0.01' foot. Invert elevations shall be recorded at all junctions (all lines-in and out), at grade breaks, the ends of lines, or other points as requested by the Director of Public Works. Benchmarks used shall also be clearly shown, giving the descriptive locations and elevations. Elevations must be from sea level datum, not assumed. Bench level circuits should begin at a USGS monument and benchmark of second order accuracy established at least every one-half mile through the project. The City has established benchmarks and must be adhered to. All existing water, sewer, gas, storm sewer, telephone, power, and other utilities parallel to or crossing the proposed sewer or water line shall be adequately designated as to size, type, and location. All Texas Natural Resource Conservation Commission (TNRCC) requirements shall be covered in the design and in the plans.

o. Data to be Included for Water Plan and Profile

Indicate the location of any existing valves required for shutdown purposes and of any tees, ends, etc., to be tied into horizontal distances. Shut down of existing lines shall be approved by the Director of Public Works. Otherwise wet taps will be required. Indicate clearly the sizes of the lines to be installed, and all proposed valves, fire hydrants, tees, crosses, bends, reducers, plugs, sleeves, wet connections, tap connections, creek, railroad or highway crossings, tunnels, meter boxes, valve vaults, and other appurtenances at each intersection or as required. Where the pipe is to be laid around a curve, the curve data must be provided. The size and type of services and the material, type of joint, and class of pipe shall be indicated by adequate notation in the lower left or right hand corners of the plan sheet. Water services and meter boxes shall be indicated and shall be located at or near the center of the front of each lot. Waterline profiles are required on lines 8-inches and larger, follow the general procedures as outlined for sewers, except that the grades and elevations of the proposed water line usually need not be shown closer than the nearest 0.1' foot. All TNRCC requirements shall be included in the plans.

Note: Should have data on electric and gas and other utilities on separate profile.

SECTION 1-03 WATER SYSTEM

Chapter 9, Article 9.3

This manual is intended to aid and assist engineers in the layout and design of sanitary sewers and water lines to definite standards and to obtain uniformity in the plans. It is recognized that each addition has its individual challenges and that no fixed rules will apply to all cases; therefore, final acceptance of all or any part of any plans rests with the Director of Public Works subject to sound and acceptable engineering practices.

A. Review Process

1. Submittal

On completion of the plan and preliminary engineering of a subdivision, submit five (5) copies along with a contour map and preliminary water and sewer layout to the City, whereby a check can be made as to the general layout and availability of water and sewer. If problems arise as to the availability of water and sewer, it may be necessary to meet with the developer and discuss and resolve those issues prior to further review and acceptance.

2. Preliminary Check

When the engineering plans are complete, submit five (5) sets of legible prints. Every attempt will be made to review plans within two weeks. Review time is typically governed by the completeness of the plans being reviewed.

3. Final Check

The following items shall be reviewed prior to submittal of final plans. The transmittal letter shall include certification that those items have been completed.

4. Final Approval of Plans

Before you request approval of the plans, check the following:

- (a) The plans must be complete and correct.
- (b) The approved preliminary plat must have been submitted.

- (c) The street grades and storm sewer plans must have been submitted and approved by Director of Public Works.
- (d) The plans must be signed and sealed by the Professional Engineer licensed in the State of Texas, who is responsible for the design.
- (e) All fees and other monies due must be paid in full.

A. Water System Extensions

1. Water systems shall be of sufficient size to furnish adequate domestic service, to provide adequate fire protection to all lots, and to conform to the City's current Master Water Distribution System Plan. Public water mains adjacent to federal, state, or county roadways shall be constructed outside the rights-of-way in a separate easement dedicated by separate instrument, and shown on plat. Fire flow calculations for non master plan network lines must be submitted for review.
2. All tee intersections of public water mains shall include at least two (2) gate valves. All cross intersections of public water mains shall include at least four (4) gate vales.
3. The minimum size water main in conventional single-family residential areas shall be eight (8") inches in diameter, unless a larger line is shown on the master plan. *Smaller lines may be utilized in some areas. The Director of Public Works or the Water/Wastewater Superintendent shall approve their use.*
4. The minimum size water main in all other areas shall be eight (8") inches in diameter. Larger diameter mains will be necessary if fire flow requirements so dictate or the master plan shows a large line. A fire flow analysis is required to determine adequate proposed water main sizes.
5. Minimum depth of cover over all water mains shall be 48" inches.
6. Where water mains are to be installed in rights-of-way having roads constructed without curb and gutter, a plan and profile sheet shall be submitted with the construction plans showing the proposed water main profile, the existing street grades, and the preliminary future top-of-curb grades for at least 300' feet either side of the boundary of the proposed subdivision. The preliminary grade shall be set by the submitting design engineer.
7. The minimum horizontal and vertical separation between water and sewer lines shall be in accordance with TNRCC requirements.

8. The minimum easement width for a water line shall be seven point five 7.5' feet on each side of the pipe for a total of 15' feet.
9. Residential water services shall not normally be directly connected to water mains 16" inches in diameter or greater. Smaller, parallel water mains are required for water service connections.
10. All water services shall be placed at the lot line, between lots, where possible and all water meters shall be located in City rights-of-way or inside a waterline easement, unless approved otherwise by the Public Works Department.

B. Fire Hydrants

1. In all conventional single-family subdivisions, fire hydrant spacing shall not allow the fire hose lay distance to any point on the building to exceed five-hundred (500') feet as measured along public ROW and/or emergency access easements. All lots within the proposed subdivision shall be within five hundred (500') feet radial distance of a fire hydrant.
2. In all other subdivisions, fire hydrant spacing shall not allow the fire hose lay distance to any point on the building to exceed five hundred (500') feet as measured along public ROW and/or emergency access easements. The entire subdivision shall be within three hundred (300') feet radial distance of a fire hydrant.
3. Fire hydrants located on the opposite side of a major collector or arterial street, (i.e., roadway width greater than forty (40') feet), from a development shall not be considered when determining adequate fire hydrant coverage for a development.
4. All fire hydrants shall be installed at property lines.
5. All fire hydrants for commercial development must be approved by the City of Lancaster Fire Marshal.
 - (a) Number and Locations - A sufficient number of fire hydrants shall be installed to provide hose stream protection for every point on the exterior wall of the building with the lengths of hose normally attached to the hydrants. There shall be sufficient hydrants to concentrate the required fire flow, as recommended by the publication "GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW" published by the Insurance Service Office, around any building with no hose line exceeding the distances hereinafter established and with an adequate flow available from the water system to meet this required flow. In addition, the following guidelines shall be met or exceeded:

- (b) **SINGLE FAMILY AND DUPLEX RESIDENTIAL** - As the property is developed, fire hydrants shall be located at all intersecting streets and at intermediate locations between intersections at a maximum spacing of 500' feet between fire hydrants as measured along the route that fire hose is laid by a fire vehicle.
- (c) **MULTIFAMILY RESIDENTIAL** - As the property is developed, fire hydrants shall be located at all intersecting streets and at intermediate locations between intersections at a maximum spacing of 400' feet as measured along the length of the centerline of the roadway, and the front of any structure at grade shall be no further than 500' feet from a minimum of two fire hydrants as measured along the route that a fire hose is laid by a fire vehicle.
- (d) **OTHER DISTRICTS** - As the property is developed, fire hydrants shall be located at all intersecting streets and at intermediate locations between intersections at a maximum spacing of 300' feet as measured along the length of the centerline of the roadway, and the front of any building at grade shall be no farther than 300' feet from a minimum of two fire hydrants as measured along the route that the fire hose is laid by a fire vehicle.
- (e) **PROTECTED PROPERTIES** - Fire hydrants required to provide a supplemental water supply for automatic fire protection systems shall be within 100 feet of the Fire Department connection for such system.
- (f) **BUILDINGS FIRE SPRINKLED** - An eight (8") inch fire line stub-out with valve shall be provided for all buildings to be sprinkled. A smaller stub-out can only be used with Fire Marshal's approval.
- (g) Fire hydrants shall be installed along all fire lane areas as follows:
1. Non-Residential Property or Use
 - (aa) Within 150' feet of the main entrance.
 - (bb) Within 100' feet of any Fire Department connection.
 - (cc) At a maximum intermediate spacing of 500' feet as measured along the length of the fire lane.

2. Apartment Townhouse' or Cluster Residential Property or Use
 - (aa) Within 100' feet of any Fire Department connection.
 - (bb) At maximum intermediate spacing of 400' feet as measured along the length of the fire lane.
6. Generally, no fire hydrant shall be located closer than 50' feet to a non-residential building or structure unless approved by the Engineering and Fire Departments.
7. In instances where access between the fire hydrant and the building that it is intended to serve may be blocked, extra fire hydrants shall be provided to improve the fire protection. Railroads, divided thoroughfares, expressways, blocks which are subject to buildings restricting movement, and other man-made or natural obstacles are considered as barriers.
8. Restrictions
 - (a) All required fire hydrants shall be of the national standard three (3) way breakaway type no less than five and one-quarter (5¼") inches in size and shall conform to the provisions of the latest AWWA Standard C502 and shall be placed upon water mains of no less than eight (8") inches in size. Fire hydrants shall have a bury depth of five (5') feet.
 - (b) Valves shall be placed on all fire hydrants leads. Valves shall be flanged by mechanical joint.
 - (c) Required fire hydrants shall be installed so the breakaway point will be no less than two (2") inches, and no greater than six (6") inches above the grade surface.
 - (d) Fire hydrants shall be located a minimum of two (2') feet and a maximum of six (6') feet behind the curb line, based on the location of the sidewalk. The fire hydrant shall not be in the sidewalk.
 - (e) All required fire hydrants placed on private property shall be adequately protected by either curb stops or concrete posts or other methods as approved by the Director of Public Works and Fire Marshal and shall be in easements. Such stops or posts to be the responsibility of the landowner on which the said fire hydrant is placed.

- (f) All required fire hydrants shall be installed so that the steamer connection will face the fire lane or street, or as directed by the Fire Marshal.
- (g) Fire hydrants, when placed at intersections or access drives to parking lots, when practical, shall be placed so that no part of the fire truck will block the intersection or parking lot access when connections to the fire hydrant are made.
- (h) Fire hydrants, required by this article, and located on private property, shall be accessible to the Fire Department at all times.
- (i) Fire hydrants shall be located at street or fire lane intersections, when feasible.
- (j) A Blue Stimsonite, Fire-Lite reflector (or approved equal) shall be placed in the center of the drive lane on the side of the fire hydrant. *When a hydrant is located at an intersection a marker will be placed on both sides of the hydrant, in the center of the drive lane of both intersecting streets.*
- (k) In non-residential developments a eight (8") inch lead will be required on all fire hydrants that are located more than 50' feet from the looped main.
- (l) Fire hydrant bonnet shall be painted according to the capacity of the main to which it is attached. As herein provided below. The remainder of the hydrant above ground shall be painted aluminum.

<u>Water Main</u>	<u>Size</u>	<u>Capacity (GPM)</u>	<u>Color</u>
<i>i</i>	Less than 500	(8" main)	Red
<i>ii</i>	500 to 999	(12" main)	Orange
<i>iii</i>	1,000 to 1999	(16" main)	Green
<i>iv</i>	1,500 and Greater	(20" main)	Blue

- (m) Developer shall provide one fire hydrant pressure recorder as manufactured by Telog *or approved equal.*
- (n) Eight (8") inch mains used for hydrant supply shall be *looped* **replaced** and dead-ends eliminated where practical. Eight (8") inch lines shall be connected so that *only* one hydrant will be between intersecting lines *where practical*

with not more than two hydrants on an eight (8") inch main between intersecting lines.

- (o) The minimum cover to the top of the pipe is 48". In general, the minimum cover below the top of the street sub-grade should be as follows: six (6") inch and smaller, four (4.0') feet; eight (8") inch, four (4.0') feet; 12" inch, four point five (4.5') feet to five (5') feet; 16" inch, five (5.0') feet to five point five (5.5') feet. Lines larger than 16" inch shall have a minimum of six (6') feet of cover, which is sufficient to allow water and sewer and other utilities to go over the large main. For water lines to be constructed along county-type roads commonly built with a high crown about the surrounding property, increase the cover as required to allow for future paving grade changes.

- (p) A service with a meter box is constructed from the main to a point just behind the curb line, usually in advance of paving. The location of the meter box is at or near the center of the front of the lot to be served. On multiple apartments and business properties, the desired size and location is usually specified by the Owner or Architect. Minimum requirements for water service sizes are:
 - 1. One (1") inch copper services are required to serve all residential lots including townhouse lots and patio homes. Separate services shall be provided for each of the family units.
 - 2. The size of apartment, condominium, or multi-family services will depend on the number of units served with a minimum of one (1) meter per building.
 - 3. Fittings shall include megalugs. A domestic service connection shall not be allowed on fire hydrant leads.

- (q) *Route water lines around storm drain inlets with a minimum of 12" clearance out-to-out.*

D. Required Water Main Extensions

All water mains constructed within a proposed subdivision shall be extended to the perimeter (*stubbed out*) of the proposed subdivision to allow for future extension of the water system into adjacent properties. All stubbed out lines and (dead end lines) *within the project boundaries* shall include a **method for bleeding**—a post type hydrant for the purpose of bleeding the system.

Post hydrants can be either an above ground type or below ground installed in a meter box, (Examples of both are given in the Standard Construction Details sheet Water-01) as manufactured by Gil Industries, Inc., John C. Kupferle Foundry or equal approved by the Public Works Director or the Water/Wastewater Superintendent. Post Hydrants will be equipped with weep holes to prohibit freezing. Hydrant will be tied to main by means of a two (2") inch double strap bronze tapping saddle with cc threads and a two (2") inch compression by cc corporation stop. Either two (2") inch copper or polybutylene tubing may be utilized to run the lateral for post hydrant. Set back from curb will be the same as for fire hydrants, two (2') to six (6') foot behind curb line, based on location of sidewalk. The post hydrant will not be allowed in the sidewalk.

E. Material and Workmanship

All materials and workmanship incorporated in water system extensions shall be in accordance with the currently adopted City Construction Specifications.

WATER SYSTEM IMPROVEMENTS

(Chapter 9, Article 9.300)

All work and materials shall be in accordance with City Standard Specifications and General Design Standards.

1. Fire Hydrants to be Mueller. ~~or Waterous.~~ *M&H, or approved equal with standard three-way connections, one (1) four and one-half (4 1/2") inch and two (2) two and one-half (2 1/2") inch, with **standard NST thread.***
2. Valves to be Mueller. Waterous. *or M&H.*
3. PVC and DIP water lines to be tested to 150 p.s.i. pressure for a three (3) hour continuous period. Leakage rate shall not exceed 25 gallons per inch of **normal nominal pipe** diameter per mile ~~of pipe~~ over a 24-hour period. Contractor shall flush and sterilize lines and prove lines to be free of chloroform organisms by obtaining samples from laboratory tests for contamination. The Contractor shall *continue to* reflush and resterilize *pipe at their own expense* until water samples are free from contamination. Laboratory results shall be provided to the City in writing. All ditches and trenches shall be mechanically tamped and compacted to 95% Proctor Density. Maximum lift is eight (8") inches loose material.
4. All residential water service shall be as follows:
 - (a) A water meter box No. 34A with lock lid to be installed two (2') feet back to curb line.
 - (b) See details for sizes and types of materials to be used on all services. (Per City of Lancaster General Design Standards).
 - (c) The water service shall be 1" diameter type "K" soft copper pipe, unless otherwise shown on the plans.
 - (d) Contractor shall tie a one (1") inch wide piece of blue plastic flagging to the water service meter setter and shall leave a minimum of 36" inch of flagging exposed above final grade after backfill.
 - (e) The utility Contractor shall install the water services to a point seven (7') feet from property line, at a depth of 12" inches. The meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the final grading in back of the curb. Each service location will be marked on the curb by etching the letter "W" by the Utility Contractor and tied to property lines on the "Record" drawings.

5. Polytube Wrapping

The Contractor shall furnish and install polyethylene wrap around the ductile iron pipe and related fittings and valves. This wrap shall be an eight (8) mil. thickness polytube. Seams and overlaps shall be wrapped and held in place by two (2") inch wide plastic backed adhesive tape, Polyken No. 900 or Scotchrap No. 50 or an equal with approximately two (2') foot laps on the polytube. The wrap on the barrel of the pipe shall be loose enough to allow the film to shift with the soil. The wrap shall be installed without breaks, tears, or holes in the film. The cost of the polyethylene tube wrap and complete installation shall be included in the unit price bid for the furnishing and installation of ductile iron pipe and related fittings and valves.

6. The Contractor shall install fire hydrants at the locations shown on the plans.
7. All bolts and nuts used with mechanical joint fittings shall be "Cor-Ten" steel, or Cadium plated steel.
8. Valve boxes shall be furnished and set on each gate valve. After the final clean up and alignment has been completed, the Contractor (Utility) shall pour a concrete block 24" x 24" x 6" around all valve boxes tops so the finished grade is level with the finished parkway.
9. The Contractor shall furnish a maintenance bond to the City to run two (2) years from the date of final acceptance of the improvement by the City.
10. The Contractor shall be responsible for providing "Record Drawings" to the Engineer showing the location of water services and valves by distance to both lot lines. This information shall be placed and marked "Record Drawings" by the engineer of record. Copies of these "Record Drawings" plans shall be furnished to the City.
11. The installation of a Blue Stemsonite (or equal) Model 88-SSA Fire Hydrant Marker will be made by ~~the City. The cost of this will be passed on to the Developer or Contractor at their own cost, by the City.~~
12. All fire hydrants are to be painted with two coats of aluminum paint. When a color code other than aluminum is required, the top bonnet, ~~including the tip and all nozzle caps~~ shall be painted the appropriate color.
13. P.V.C. pipe will be in accordance with AWWA C-900 Class 150 (DR-18) unless indicated otherwise on plans. All water pipe shall be installed with a "Tracer Tape" ~~four (4") to six (6")~~ over the top of the pipe ("water" laid above the pipe to identify it). This tape shall be installed in the backfill material over the top of the water main. ~~Additionally, we will require #14 gage solid or stranded wire placed on top of the pipe.~~

14. For embedment details on all water conduits *refer to Standard Construction Details.*
15. Double strap brass saddle to be used on three-fourths (¾") *through and one (1") inch services. For one and one-half (1½") inch and two (2") inch services. Refer to Standard Construction Details, sheet Water-01. use tap tees on all type of pipe.*

WATER MAINS

In general, water mains are placed on the north and west sides of a street, at a distance of ten feet from the centerline of the street, or otherwise as directed by the City. Where applicable, line sizes will comply with the Water Distribution System Master Plan and be adequate to convey a fire flow. Fire flow analysis will be required on lines that are questionable. Starting pressures shall be obtained from the nearest junction node as stated in the City's Water Distribution Master Plan computer printouts.

1. Minimum eight (8") inch pipe. *(other sizes approved by the Director of Public Works or the Water/Wastewater Superintendent)* required in residential areas.
2. Minimum twelve (12") inch pipe required on commercial, retail and industrial areas.
3. Dead-end mains shall not exceed 600' feet in length. *A blow-off post hydrant & water meter service in a double lock meter box* will be required at the end of the main.
4. *No water main shall be located closer than five (5') feet from any tree or structure without permission of the Public Works Director.*
5. Water Main Specifications: City mains shall have a minimum diameter of eight (8") inches, unless a larger line size is required by the Comprehensive Plan, Water Master Plan or to meet fire protection needs as determined by analysis. All water lines shall meet the requirements of AWWA and NCTCOG under the following specifications:

Line Size	NCTCOG Item	AWWA Standard		Description
8" thru 12"	2.12.20	C900	DR18	PVC
	2.12.26	C151	CC50	Ductile Iron Pipe
Greater than 12" Pipe	2.12.5	C301 & C303		Reinforced Concrete Cylinder Pipe
	2.12.26	C906	DR9	High Density Polyethylene DIP Pipe O.D.
	2.12.8	C151	Class 50	

All mains supplying fire sprinkler systems outside of utility easements shall be minimum 200 PSI working pressure and U.L. listed.

Valves 12" inch and under shall be placed on or near street property lines not over 800' feet apart in residential, duplex and apartment districts and not over 500' feet apart in all other districts: and in such a manner as to require preferably two, but not more than three valves to shut down each City block, or as may be required to prevent shutting off more than one fire hydrant. On cross-feed mains without services, a maximum of four valves shall be used to shut down each block. Also, valves shall be placed at or near the ends of mains in such manner that a shut down can be made for a future main extension without causing loss of service on the existing main. The location of valves larger than 12" inch will be as approved by the *Director of Public Works*. Valves 12" inch and under will be Gate Valves meeting requirements of AWWA C500 or AWWA C509 (NCTCOG Item 2.13.1) with non-rising stems. Valves over 12" inch will be Butterfly Valves meeting requirements of AWWA C504 (NCTCOG Item 2.13.4). All actuators shall be for direct bury service.

SECTION 1-04 SEWERAGE SYSTEM
SANITARY SEWER SYSTEM IMPROVEMENTS

(Chapter 9, Article 9.300)

All work and materials shall be in accordance with the City standard Specifications and General Design standards.

1. All P.V.C. sewer pipe shall be minimum S.D.R. 35, as per City Specifications and shall be laid on a minimum of Class "B" Embedment or as specified by the City.
2. Any other pipe to be used for sanitary sewer main other than P.V.C. must be approved by the Director of Public Works.
3. All residential sewer tap service shall be a minimum four (4") inch diameter.
4. All sewer mains shall be a minimum diameter of eight (8") inches and shall maintain a minimum flow velocity of two (2') feet per second and a maximum velocity of six (6') feet per second. Exceeding maximum velocity shall be as approved by the Director of Public Works.
5. All ditches shall be mechanically tampered and compacted to 95%. Where ditches cross existing or proposed street or alley sections the ditch shall be mechanically tamped and compacted to 95% Proctor Density or back filled with a free flowing sand, unless otherwise approved by the Director of Public Works.
6. Contractor shall tie a one (1") wide piece of green plastic flagging to the end of sewer service and shall leave a minimum of 36" of flagging exposed after backfill. After curb and paving is completed, Contractor shall etch a "s" size two (2") inch, on the curb or alley at location of the sewer service. All P.V.C. sewer pipe shall be installed with green metallic tape "Tracer Tape" over the top of the embedment pipe. Tracer tape over the top of the P.V.C. pipe similar to "Blue Terra Tape D" Detectable, installed in accordance with manufacturer's recommendation. All P.V.C. sewer pipe that is not green in color shall also be installed with a green plastic identification tape marked "sewer" laid above the pipe to identify it.
7. The Contractor shall furnish a maintenance bond to the City to run two (2) years from the date of final acceptance of the system by the City.
8. The Contractor shall be responsible for providing "Record Drawings" to the City showing the location of sewer service by distance to both lot lines. This information shall be placed on the Engineering Plans and marked "Record Drawings" by the Design Engineer. Copies of these "Record Drawings" plans shall be furnished to the City prior to final acceptance of project. Ties shall be made by distance measurements from both lot lines or from building corners for all manholes, clean-outs and services.

9. All sanitary sewer line shall be tested for infiltration and by the Low Pressure Air Test Method in accordance with the standard specifications and as shown on the plans. Low Pressure Air Test is to be performed on all completed sections of sewer mains. Successful air tests shall be mandatory to prove acceptability of the sewer lines. Lines shall be mandreled in accordance with TNRCC requirements. Completed lines shall be inspected by color video camera. The camera shall have pan and tilt capabilities. All services and manholes shall be taped (measured). Original color videotape shall be provided to the City.
10. Radius in pipe is not acceptable; all changes in horizontal and vertical direction shall be at manholes.
11. General Sewerage System Extensions
 - a. All subdivisions developed must be served by community sanitary sewer collection, treatment and disposal systems approved by the City. Each lot must be provided with an individual service
 - b. Sanitary sewer facilities shall be provided to adequately service each lot or tract of the subdivision, and shall conform to the City's current master Sanitary Sewer System Plan.
 - c. No sanitary sewer main to shall be less than eight (8") inches in diameter. All sewers shall be designed with consideration for serving the natural drainage basin at full develop cut conditions. Drainage area main and calculations are required. Exceptions to this requirement may be made only at the direction of the Public Works Director.
 - d. All laterals and sewer mains installed within subdivision must extend to the borders of the subdivision as required for future extensions of the collection system regardless of whether or not such extensions are required for service within the subdivision. Manholes are required at the end of lines with 101 stubout capped.
 - e. The minimum easement width for a sanitary sewer main shall be seven point five (7.5') feet on each side of the pipe for a total of 15' feet.
 - f. The population density shall be based on three (3) persons per single family unit, but shall not be less than nine point five (9.5) persons per acre. The contributing sewage flow shall be determined on the basis of an average flow of 140 gallons per person per day which includes provisions for minimal I & I. A peaking factor shall be applied to the flow. Peaking factor shall be determined from curve A in ASCE Manual of Practice No. 60 "Gravity Sanitary Sewer Design and Construction" or a factor of five (5) times may be used.

12. Sanitary Sewer Improvements Design Criteria

- a. All services shall be placed at the center of each lot *and maintain a 10' separation from water and sewer lines* unless instructed otherwise by the Director of Public Works.
- b. Vertical and horizontal curves in the sanitary sewer mains will not be allowed. All changes in direction require a manhole.
- c. Manhole spacing shall not exceed five hundred (500') feet.
- d. Sewer mains, which require more than an (18") inch difference in flow lines, must be accommodated with a five (5') foot diameter manhole with connection drop.
- e. All sanitary sewer mains shall end at a manhole. Cleanouts will not be allowed unless approved by the Director of Public Works.
- f. Four (4') feet diameter manholes will be required as sampling ports on business that are required to pre-treat their sewer discharge. The manhole must be located between the public sewer main and the grease trap.
- g. If a new sewer line is to be constructed adjacent to an existing street, the profile will need to include the existing top of curb grades.
- h. All sanitary sewers constructed adjacent to federal, state or county roadways shall be constructed outside the ROW in a separate easement dedicated by separate instrument, not by plat or as directed by the City.
- i. The minimum horizontal separation between any sanitary sewer main and a storm drain facility shall be equal to two point five (2.5') feet or half the depth of the sanitary sewer, whichever is greater.

13. Lift Stations or Separate Treatment Facilities

The provisions for lift stations or separate treatment facilities will not be permitted unless, in the opinion of the Public Works Director and Engineer, there is no feasible alternative, which can provide the necessary service to the proposed subdivision. *Property deeds, easements to the City may be required.*

14. Connections

No connection shall be made to any sanitary sewer within the City which will permit the entrance of surface water or waste which has other than domestic sewage characteristics without the specific authorization of the City.

15. Alternate Sewage Systems

Where public sanitary sewerage systems are not within 500' feet of the plat, alternate sewerage systems may be approved only if all of the following conditions are met:

- a. The proposed subdivision consists of three (3) lots or less.
- b. The existing City sewer system is not and cannot feasibly, in the opinion of the Public Works Department be made available to the area of development.
- c. Percolation tests run by an independent testing laboratory are submitted to both the City and the County Health Department with results showing that a septic tank and absorption field can be developed in accordance with state and county criteria to provide adequate disposal of the sewage. Where septic tank installations are permitted in lieu of a sanitary sewerage system, the plat must include dedicated sanitary sewer easements not less than 20' feet in width adjacent to all lots to facilitate the future installation of a sewerage system. Dedication of such easement shall prohibit fencing or other obstructions that would interfere with the future installation of the sewers.
- d. Installation of individual septic tanks shall be according to rules and regulations issued by the State of Texas and minimum standards and approval of Dallas County Health Department.
- e. Such designs shall include provisions to tie the system into the gravity system when it becomes available.
- f. Sizes and grades for sanitary sewer lines shall be based on serving the proposed development and all upstream areas in the drainage basin at full development. Design calculations for sizing lines shall be included in the plans, along with drainage area map. If feasible, sewers shall be placed in streets. Sewers are usually located in the center of the street. Each addition has its challenges; therefore, no fixed rules will apply to all cases.
- g. Minimum cover shall be three point five (3.5') feet; exceptions authorized by the Director of Public Works shall have concrete protection. In general, the minimum depth for sewer to serve given property with a four (4") inch lateral shall be three (3') feet plus two (2') feet times the length of the house lateral

(the distance from the sewer to the center of the house). Thus, for a house 135' feet from the sewer, the depth would be three (3') feet plus two (2') x 135' feet = three (3.0') plus two point seven (2.7') = five point seven (5.7') feet. The depth of the flow line of the sewer should then be at least five point seven (5.7') feet below the elevation of the ground at the point where the service enters the house. Profiles of the ground line 20' feet past the building line will be required to verify that this criteria is met. On lines deeper than 12' feet, a parallel sewer line will be required when laterals are to be attached. This requirement should be discussed with the City Engineer.

- h. Pipes should be placed on such a grade that the velocity when flowing full is not less than two feet or more than 6-feet per second. Minimum grades shall be as follows: *

6" - 0.54%;	8" - 0.35%;	10" - 0.26%;	12" - 0.22%;
15" - 0.16%;	18" - 0.12%	21" - 0.095%	27" - 0.065%

* *Accordance with TNRCC Requirement*

- i. All grades shall be shown to the nearest 0.01-foot. Grades shall be evenly divisible by four (4), and if practical, they should be even, such as: 0.20%, 0.40%, 0.60%, and 1.00%, etc., in order to facilitate field computations. When the slope of a sewer changes, a manhole will be required. No vertical curves will be allowed.
- j. The sizes and locations of manholes, wyes, bends, tap connections, cleanouts, etc., shall be approved by the Director of Public Works. In general, manholes shall be placed at all four-way connections and three-way connections. The diameter of a manhole constructed over the center of a sewer should vary with the size of the sewer. For six (6"), eight (8"), and ten (10") sewers, the manhole shall be four (4.0') feet minimum diameter; for 12", 15", 18", 21", 24", and 27" – five (5.0') feet minimum diameter; 30", and 36" – six (6') feet minimum diameter. In Flood Plains, sealed manholes are to be used to prevent the entrance of storm water. Manholes in flood plains shall be vented as required by TNRCC. No main line clean-outs will be allowed on the ends of lines. Drop manholes shall be required when the inflow elevation is more than 18" inches about the outflow elevation. Construct manholes at each end of lines that are installed by other than open cut and at each end of aerial crossing lines. Sewer mains and water mains separation shall be in accordance with TNRCC requirements.
- k. **LATERALS:** The sizes and locations of laterals shall be as approved by the *Director of Public Works*. In general, for single family dwellings, the lateral size shall be ~~three (3")~~ four (4") inch minimum; for multiple units, apartments, local retail and commercial – six (6") inch minimum; for

manufacturing and industrial, the size should be eight (8") inch or larger as required. House laterals *usually shall* come out ten (10') feet downstream from the center of the lot and shall have a *ten* (10') feet lateral separation from the water service. Manholes will be required on six (6") inch and larger laterals where they connect to the main line. Laterals will not be attached to sewer mains that are deeper than 12' feet. A minimum of one lateral per building shall be required. Also, a minimum of one lateral per residential lot shall be required. Duplexes shall have two laterals.

- l. Railroad, State Highway and creek crossings, etc., shall be as approved by the Director of Public Works. The developer is responsible for obtaining permits from the Railroad Company and from the Texas Department of Transportation. Such approved permits shall be provided to the City prior to construction.
- m. Line and grade stakes for construction shall be furnished by the developer's engineer. All property lines and corners must be properly staked with iron rods to insure correct alignment. The Director of Public Works will not be liable for improper alignment or delay of any kind caused by improper or inadequate surveys by the developer or by interference of other utilities.
- n. In order to provide access for sewer lines for cleaning, manholes and/or cleanouts shall be so located that 250' feet of sewer rod can reach any point in the line. This means that manhole spacing shall be a maximum of 500' feet: that spacing between a manhole and an upstream cleanout, if allowed, shall be limited to 400' feet.
- o. No sewer line shall be located nearer than five feet from any tree or structure. No sewer lateral line shall cross property lines without a minimum of five (5') feet easement recorded in county records.
- p. No sanitary sewer in alleys unless approved by the Director of Public Works.

q. Main Sewer Lines Specifications

All main sewer lines shall be PVC and meet the requirement of ASTM and NCTCOG under the following specifications:

Pipe Diameter	NCTCOG Item	ASTM Standard
6" thru 15"	2.12.14	D3034/SDR 35 D3350/PE 345434C
Lines Greater Than 12" thru 48"	2.12.13	F679 F794 F949 D3350/PE 345434C

Sewer pipe shall conform to the Specifications and/or Special Provisions.

r. Lift Stations

Lift station design shall be in full conformance to TNRCC Regulations, latest revision. Letter approval from the TNRCC must be provided at time of Preliminary Engineering plan submittal. Flows shall be as calculated in accordance with this manual.

s. Material disposal for developer projects

The contractor shall notify the Director of Public Works in writing of proposed material disposal sites to be utilized outside of the project limits and inside of the City of Lancaster. Project limits shall include legal lot/block, addition description and address of the proposed site. The Director of Public Works shall be notified two (2) weeks in advance of any material being deposited.

- t. All storm sewer R.C.P. shall have a bitamous sealer at all joints and non-shrink grout shall be placed around outside of R.C.P. at all joints. This is for control of invasion into R.C.P. for environmental purposes and erosion due to leakage.

- u. Current Texas Natural Resource Conservation Commission rules can be obtained at: www.tnrcc.state.tx.us/oprd

SECTION 1-05 STREET SYSTEM

(Chapter 3, Article 3.100)

CONSTRUCTION AND REPAIR OF SIDEWALKS, DRIVEWAYS, CURBS AND GUTTERS, SETBACKS, DRAINAGE FACILITIES, STREET PAVEMENT

1. Intent and Purposes

It is the intent and purpose of this article to protect the public safety and general welfare by setting and providing minimum standards, provisions, and requirements for the construction and repair of sidewalks, driveways, curbs and gutters, setbacks, drainage facilities, pavement of public streets, highways, alleys, or other public places, and appurtenances and structures thereto, water and sanitary sewer lines and appurtenances and structures thereto; and to provide for suitable materials and methods of construction of sidewalks, driveways, curbs and gutters, setbacks, drainage facilities, pavement of public streets, highways, alleys, or other public places, and appurtenances and structures thereto, and water and sanitary sewer lines and appurtenances and structures thereto on public property which are constructed, surfaced, paved, changed, altered, repaired, replaced, removed, or eliminated or changed in use, and to sidewalks, garage floors, and driveways on private property when poured in conjunction with the construction of new houses, apartments, or commercial buildings. This article shall be deemed to be remedial, and is enacted for the beneficial interests of the public. Free and unhampered passage on the streets and sidewalks shall be held paramount to other interests. (1976 Code of Ordinances, Section 16-1)

2. Definitions

For the purpose of construing and enforcing this article, certain abbreviations, words, terms, phrases, and their derivatives shall be construed as set out herein unless the context indicates otherwise. Words used in the singular include the plural, and the plural include the singular. Words used in the masculine gender include the feminine, and words in the feminine gender include the masculine. Words relating to buildings and structures on private property and their use shall be construed to conform to the meanings set out in the building code and the zoning ordinance of the city. All other words shall have their usual meanings. When a public official is referred to by the title of his office, such reference shall be construed as if followed by the words "of the City of Lancaster or his authorized deputy" unless the context indicates otherwise.

3. The following words, when used in this article, are defined as follows:

City. The City of Lancaster, Texas

City manager. The city manager of the City of Lancaster, Texas, or his authorized representative.

Contractor. Any person, firm, or corporation engaged in the business of installing or altering walks, drives, curbs, gutters, pavements, or appurtenances on public property. This term shall also include those who represent themselves to be engaged in the business, whether actually doing the work or not and includes any person who subcontracts to do such work.

Council. The city council of the City of Lancaster, Texas.

Curb. A vertical or sloping member along the edge of a pavement forming part of a gutter, strengthening or protecting the pavement edge, and clearly defining the pavement edge to vehicle operators. The surface at the curb facing the general direction of the pavement is called the "face".

Driveway approach. An area, construction, or facility between the roadway of a public street and private property intended to provide access for vehicles from the roadway of a public street to private property.

Gutter. The artificially surfaced and generally shallow waterway provided usually at the side of the street adjacent to, and part of, the curb for the drainage of surface water.

Intersection.

(1) The area embraced within the prolongation or connection of the edge of the roadway of two (2) or more streets which join at an angle, whether or not one such street crosses the other.

(2) Where a street includes two (2) roadways thirty (30) feet or more apart, then each crossing of each divided street by an intersecting street shall be regarded as a separate intersection.

Off-street parking. A type of parking wherein the maneuvering of the vehicle while parking and unparking, as well as the actual parking itself, is done entirely on private property.

Person. A human being, his heirs, executors, administrators, or assigns; and where the context permits, it also includes a firm, partnership, association, or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

Roadway. That portion of a highway, street, or road improved, designed, or ordinarily used for vehicular travel. In the event a street includes two (2) or

more separate roadways, the term “roadway” as used herein shall refer to any such roadway separately, but not to all such roadways collectively.

Sidewalk or walk. That portion of a street between the curblines or the lateral lines of a roadway and the adjacent property lines, for the use of pedestrians.

Street. A term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way. This term shall also be used in urban areas to denote a highway or street.

Traffic island or median strip. A barrier within a roadway to exclude vehicles, designed for the purpose of separating or directing streams of vehicular traffic.

(1976 Code of Ordinances, Section 16-2)

4. Liability

(a) Abutting owner’s liability. The abutting property owner or persons, firm, or corporation enjoying the use of any property abutting on a sidewalk or curb that has become defective and has resulted in causing damage or injury as a result of such defective condition, shall be primarily liable in damages for any loss or damage sustained as a result of such defective condition. The city shall not be held as assuming any such liability by reason of inspection or reinspection authorized herein or by reason of the approval or disapproval of any access, facilities, surfacing, or appurtenance not made in accordance with standards or specifications of this article.

(b) Special user’s liability. It shall be the duty of any property owner, landlord, tenant, lessee, sublessee, person, firm, or corporation making special use of any sidewalk or curb for the purpose of ingress or egress, for loading elevators, downspout drains, or any other special use of whatsoever kind of character, whether recited herein or not, to keep said sidewalk, parkway, curb, and driveway abutting said property in a good and safe condition and free from any defects and hazards of whatsoever kind and character. Such special user shall be liable in damages for any loss or damage sustained as a result of any defective condition of the sidewalk, driveway, curb, loading elevator, downspout drain, or any other special use or facility of whatsoever kind of character.

(1976 Code of Ordinances, Section 16-3)

5. Administration Enforcement

(a) Building Official to enforce. The provisions of this article shall be

administered and enforced by the building official of the city or such other person as may be designated by the city manager, and for this purpose he shall have police power.

(b) Responsibility of Building Official. When action is taken by the building official or his authorized representatives to enforce the provisions of this article, such action shall be in the name of and on behalf of the City of Lancaster; and the building official or his representatives so acting for the city shall not render themselves personally liable for any damage which may accrue to persons or property as a result of any action committed in good faith in the discharge of their duties; and any suite brought against the building official or his representative by reason thereof shall be defended by the city attorney throughout the proceedings.

(c) Authority of Building Official.

(1) The building official shall have authority to take the legal steps necessary to secure compliance with the provisions of this article.

(2) The building official or his authorized agent shall have the right to enter any premises in the discharge of his official duties or for the purpose of making any inspection, re-inspection, or test, or otherwise to ensure compliance with this article.

(3) The building official shall have the power to inspect or re-inspect surfacing and the laying of surfacing materials, and to issue notices or affix them to premises, or to reject surfacing materials not meeting the standards provided herein, and shall have such other powers as are provided in this article. The building official shall have the power to control and regulate improvements and facilities placed upon public property and the power to cause to be removed all obstructions and encroachments not in conformance with a valid permit and the requirements herein.

(d) Bond Required. No person, firm, or corporation, or any of their agents, servants, or employees, shall construct, reconstruct, or repair any public sidewalk, curb, gutter, or driveway approach in the city without executing and delivering to the city a bond in the sum of one thousand dollars (\$1,000.00), payable to the City of Lancaster, Dallas County, Texas, with a good and sufficient corporate surety thereon, authorized to do business in the State of Texas, which bond shall be conditioned as follows:

Said bond shall be conditioned that all work shall be done in a good and workmanlike manner, and that such person, firm or corporation shall faithfully and strictly comply with the specifications and with the terms of such ordinances, resolutions, or regulations that may be passed by the governing

body, governing and relating to the construction, reconstruction, or repair of sidewalks, curbs, gutters, or driveway approaches; and that the city shall be fully indemnified and be held whole and harmless from any and all costs, expenses, or damage, whether real or asserted, on account of any injury done to any person or property in the prosecution of said work, or that any arise out of or be occasioned by the performance of said work. Said bond shall be conditioned further that the same person, firm, or corporation shall, without additional cost to the person for whom the work was done, maintain all such construction for a period of two (2) years from the date of such construction, reconstruction, or repair, to the satisfaction of the city manager at any time within two (2) years after the construction, reconstruction, or repair of such facility, and after ten (10) days' notice from the city manager to reconstruct or repair the same, and the opinion of the city manager as to the necessity of such reconstruction or repair shall be binding on the parties thereto; which bond shall for such purpose be in force for two (2) years after the construction, reconstruction, or repair of such facility, and one recovery shall not exhaust said bond, but such bond shall be a continuing obligation against the sureties thereon until the entire amount therein provided for shall have been exhausted. That in case the bond herein provided for shall be decreased on account of any recovery which may be obtained, arising out of the violation of any condition of the same, the governing body shall require, upon notice to it of such fact, an additional bond to be given by any person, firm, or corporation in accordance with this article in an amount sufficient, when added to the un-exhausted amount of the original bond, to be at all times equal to the sum of one thousand dollars (\$1,000.00). The city may, for itself or for the use and benefit of any person injured or damaged by reason of any defective construction, reconstruction, or repair of any sidewalk, curb, gutter, or driveway approach, by any person, firm, or corporation, maintain suit on said bond in any court having jurisdiction thereof; or suit may be maintained thereon by any person injured or damaged by reason of the failure of any person, firm, or corporation who shall construct, reconstruct, or repair any sidewalk, curb, gutter, or driveway approach in the city, to observe the conditions of said bond; provided, however, that nothing in this article shall affect the bond of any person, firm, or corporation now engaged in constructing, reconstructing, or repairing such facilities which have already been executed in accordance with the terms of the existing city ordinance, nor shall this be construed to in any manner diminish the liability of any surety or principal on said bond. No person, firm, or corporation having a bond to construct, reconstruct, alter, repair, remove or replace sidewalks, curbs, gutters, or driveways on public property within the city shall be permitted to take out a permit for the reconstruction, alteration, or repair of any such facility on any public property within the city and allow any person other than a bona fide holder of such bond to do any work. No permit for the reconstruction, alteration, or repair of any sidewalk, curb, gutter, or driveway on any public property within the city shall be granted unless the one-year

maintenance bond provided for herein shall be in full force and effect at the time of request for such permit and the doing of the work.

It shall be an affirmative defense to the aforementioned bond requirement for a homeowner who resides at his property as his homestead to file an affidavit with the building official, stating that he is the owner of the property, that he resides there as his homestead and that he is performing the work himself.

(e) Liability. This article shall not be construed to relieve from or to lessen the responsibility or liability for damages of any person owning, controlling, or installing any surfaces to persons or property caused by defect therein.

(f) Permits required. No person, firm, or corporation shall construct, reconstruct, alter, repair, remove, replace, pave, repave, surface, or resurface any walk, drive, curb, gutter, paved area, or appurtenance on public property in the city without first obtaining from the building official a permit to do so.

(g) Permits. To obtain a permit as required by this article, the bonded contractor or his authorized representative shall file with the building official an application in writing therefore on a form to be furnished for that purpose. Such bonded contractor shall be registered with the building official, and the contractor shall furnish a list of the authorized representatives who are to secure permits for him. Each application for a permit shall describe the abutting property adjacent to which the proposed work on public property is to be done, either by lot, block, or tract and house number, location on the street, or similar description which will readily identify and definitely locate the site of the proposed work. Each applicant shall give such other pertinent information as shall be required by the building official. Where the contractor is required by regulations adopted under City of Lancaster Council Resolution No. 14-82 to furnish a performance bond, then the requirement for a permit under this clause will be waived.

(h) Plans required. When required by the building official, an applicant for a permit shall file a lot or plot plan showing the following:

- (1) The exact location of the proposed building or structure;
- (2) Every existing building or structure on abutting property;
- (3) Every existing facility on public property adjacent thereto, to the centerline of the street right-of-way.
- (4) All proposed walks, drives, curbs, gutters, pavements public utility poles, fire hydrants, gas meters, water meters, storm sewer inlets, manholes, or any other appurtenances.

Such plan shall be drawn to scale upon substantial paper and shall be of sufficient clarity to indicate the nature, character, and extent of the work proposed, and shall show in detail that the works will conform to this article and to all related ordinances, rules, and regulations including the subdivision regulations and City of Lancaster Council Resolution No. 14-83. Plans submitted at the time an application is made as provided in the building code of the city, for construction on abutting property, may be used to meet this requirement.

(i) Limitations. Each permit shall expire and become null and void if the work authorized therein is not commenced within six (6) months of the date of permit or if the work authorized by the permit is suspended or abandoned after the expiration of the initial six-month period. Before the work may be recommenced, a new permit shall be obtained. No permit issued in violation of this article shall operate as granting any vested right, and such permit shall be deemed to be null and void and confer no right whatsoever under it.

(1976 Code of Ordinances, Section 16-4)

6. Materials, Design, Construction, Reconstruction, and Repairs

(a) Materials. Materials used in sidewalks, driveways, curbs and gutters, setbacks, drainage facilities, pavement of public streets, highways, alleys, or other public places, and appurtenances and structures thereto, shall be in accordance with the provisions of the construction specifications, design criteria standards and specifications provided by City of Lancaster Resolution No. -99.

(b) Sidewalks. Sidewalks shall comply with provisions of general design standards adopted by City of Lancaster Council Resolution No. -99. Sidewalks shall be furnished by floating with a wooden float until a slight excess of sand appears on the surface. In no case shall a surface be left with a slick or glossy finish.

(c) Driveway approaches. Driveway approaches shall comply with provisions of general design standards adopted by the City of Lancaster Council Resolution No. -99. The surface of driveways and driveways and driveway approaches shall be finished as specified for finish of sidewalks. Driveways shall be protected from vehicular traffic for not less than six (6) days.

(d) Curbs and gutters. Curbs, curbs and gutters, and separate gutters shall comply with all applicable standards, details, and specifications adopted by City of Lancaster Council Resolution No. -99.

(e) General. The installation of walks, drives, curbs, gutters, drainage facilities, pavements and appurtenances, and water and sewer lines and appurtenances, shall comply with the following requirements:

(1) Material Approval: No materials of any kind shall be used until they have been examined and approved by the city manager or his authorized representative. The contractor shall furnish the required samples for the making of tests and other required examinations prior to the use of same.

(2) Alignment: The work authorized by such permits shall be aligned with the stakes and set to the grade as approved by the city manager.

(3) Protection of States: Stakes approved by the city manager shall be protected by the contractor.

(4) Lights and Guards: The contractor shall provide necessary red lanterns and flares and safeguards so placed that pedestrians will not be injured and vehicular traffic shall not be unnecessarily impeded and be protected from injury. Provisions shall be made for the passage of water in the street gutter.

(5) Clean-Ups: Immediately upon completion of the work, the contractor shall remove from the area all unused material, dirt, debris, and loose concrete. He shall see that the entire area is broom-clean and usable.

(6) Retaining walls: No buttresses, steps, projections, retaining walls, or fences shall be constructed on any public property unless such construction is approved by the city.

(7) Nameplate: Sidewalks, curbs, and gutters shall be marked by means of a suitable stamp or die of a design approved by the building official, making an impression in the finish with the contractor's name and the month and the year the work is done. No lettering or signs shall be imprinted in the surfacing material except as above mentioned.

(f) Access to abutting property. Walks, curbs, gutters, pavements, and appurtenances on public property, and other facilities to provide access to abutting property shall be constructed, provided, or repaired in accordance with the following standards:

(1) Residential Driveway Approaches: Residential driveway approaches shall comply with the following standards:

(A) Width of driveway approach. Residential driveway approaches shall not be less than ten (10) feet nor more than thirty (30) feet in

width measured at the property line.

(B) Radius. Residential driveway approaches shall be constructed with the return curbs having a rolled face disappearing at the sidewalk and joining the street curb with a five-foot minimum radius, except that on major thoroughfares the minimum radius shall be ten (10) feet.

(C) Sidewalk to be removed. Where the residential driveway approach is designed to cross an existing sidewalk, the sidewalk included in the driveway approach area shall be removed and reconstructed as a driveway approach.

(D) Curb and gutter to be removed. Where a driveway approach is to be constructed at a location where there exists a curb and gutter, the curb and gutter shall be removed to the nearest construction joint, the steel exposed and tied into the new steel. The driveway approach shall extend to the back side of the existing or future sidewalk.

(2) Commercial driveway approaches: Walks, drives, curbs, gutters, pavements, and appurtenances on public property, and other facilities to provide access to premises used for other than residential purposes, shall be constructed, provided, or repaired in accordance with the following standards and requirements, except on state or federal highways, freeways or interstate routes, and city major thoroughfares of right-of-way width of eighty (80) feet or more:

(A) Width of driveway approach. The width of any commercial driveway approach shall be not less than twelve (12) feet or more than forty (40) feet measured along the property line, except that driveway approaches for motor vehicle docks within a building shall not exceed sixty (60) feet in width at the property line. Where more dock space is required, the driveway approaches shall be separated by a traffic island meeting the standards set out in subsection (f)(2)d., below. On state and federal highways, freeways or interstate routes, and city major thoroughfares of right-of-way width of eighty (80) feet or more, driveway approaches shall be according to the current Texas Department of Transportation Standard Regulations for access driveways to state highways as to design only. All materials and methods of construction shall conform to this article.

(B) Maximum space to be occupied by driveway approaches. Driveway approaches shall not occupy more than seventy (70) percent of the frontage abutting the roadway of the tract of ground devoted to one use which abuts the roadway.

(C) Number of driveway approaches allowed. Not more than

two (2) driveway approaches shall be permitted on any parcel of property with a frontage of one hundred fifty (150) feet or less. Additional openings for parcels of property having a frontage of one hundred fifty (150) feet or less may be permitted after proof to the city manager of necessity and convenience to the public.

(D) Separation between driveway approaches. When more than one (1) driveway approach is required to serve a parcel of property, a traffic island shall separate the driveway approaches. The width of the traffic island at the property line shall be a minimum, of twenty (20) feet. Where the grade at the property line is the same as the sidewalk, a six-inch raised curb shall be constructed at the back of the traffic island along the property line, and on private property. The raised curb shall be constructed so as to end twenty-four (24) inches from the intersection of the driveway approach with the property line.

(E) Provision for joint approaches. Driveway approaches shall be located entirely within the frontage of the premises abutting the work and shall be located not less than five (5) feet from each side of the property line, except that joint driveway approaches with adjoining property holders may be permitted provided joint application is made by all interested parties, and the width set out in subsection (f)(1) in this section is not exceeded

(F) Angle of driveway approach. The angle of the driveway approach with the curb line shall not be less than forty-five (45) degrees.

(G) Radius. Commercial driveway approaches shall be constructed with the return curbs having a roll face disappearing at the sidewalk and joining the street curb with a twenty-foot minimum radius.

(H) Sidewalk to be removed. Where a commercial driveway approach is to be built, the sidewalk shall be removed and the entire area replaced as a driveway. The driveway approach shall extend to the back side of the existing or future sidewalk.

(I) Curb and gutter to be removed. Where a driveway approach is to be constructed at a location where there exists a curb and gutter, said curb and gutter shall be removed to the nearest construction joint. The driveway approach shall extend to the back side of the existing or future sidewalk.

(J) Driveway approaches at intersections. Where existing right-of-way permits, driveway approaches nearest an intersection of two (2) streets shall meet the following minimum requirements: The corner rounding shall have curbs constructed with a minimum radius of twenty (20) feet

continuously between the points of tangency of the curblines of both streets. The first driveway may start from the point of tangency of the curbline and corner radius and be cut in with a five-foot minimum radius.

(K) Driveway approaches at roadway facilities. Driveway approaches at or near streets and traffic interchanges, grade separations, and traffic circles, shall be so located that traffic entering or leaving the street will not impede, confuse, imperil, or otherwise interfere with vehicular traffic.

(L) Driveway approaches at pedestrian crossings. Driveway approaches shall not be located at street intersections or at established pedestrian crossings.

(M) Driveway approach in angle-parking area. Driveway approaches shall not be constructed in existing angle-parking areas, except when the curb is restored to its normal location along the roadway in front of the premise.

(N) Driveway approach not to be obstructed. Driveway approaches shall not be constructed or designed for use for standing or parking of vehicles or for use as angle parking.

(O) Premises used as motor vehicle service stations or parking lots. Premises used as motor-vehicle service stations or parking lots shall have a six-inch raised curb or other approved traffic barrier along the entire street frontage except at the driveway approaches and access walks. The curb shall be placed so that automobile bumpers shall not extend over the sidewalk or public property.

(P) Pavement of public streets, highways, alleys, or other public places, and appurtenances and structures thereto; drainage facilities construction; water and sewer lines and appurtenances and structures thereto, construction. The pavement of public streets, highways, alleys, or other public places, and appurtenances and structures thereto; construction of drainage facilities; construction of water and sewer lines and appurtenances and structures thereto shall be in accord with applicable sections of the City of Lancaster Subdivision Regulations and/or City of Lancaster Council Resolution No. -99 for construction specification, design criteria and general design standards.

(1976 Code of Ordinances, Section 16-5)

7. Repair and Abandonment

(a) When a sidewalk, driveway, curb, gutter, or appurtenance becomes defective, unsafe, or hazardous, it shall be the duty of the owner of the abutting property to reconstruct or repair same, and the expense of such work shall be borne by the abutting property owner. When a sidewalk, driveway, curb, gutter, or appurtenance is found to be defective, unsafe, or hazardous, the building official shall notify the owner of the abutting property to reconstruct or repair same. Any owner who fails to reconstruct or repair such defective, unsafe, or hazardous condition within thirty (30) days from the date of the written notice from the building official to do so shall be guilty of a misdemeanor.

(b) Whenever the use of any driveway approach is abandoned and no longer used for vehicular access to the abutting property, it shall be the duty of the abutting property owner to restore the curb according to the standards provided in this article.

(c) It shall be unlawful for any person to mix concrete or mortar or any mixture or substance containing cement on any existing pavement on public property or to leave or cause to be left any excess concrete or mortar or any mixture or substance containing cement on any existing pavement on public property, or to allow same to leak or fall from any container or receptacle onto pavement on public property. If any concrete, mortar, or any mixture or substance containing cement is accidentally dropped or placed upon any pavement on public property within the City of Lancaster, the person responsible shall immediately remove same before said substance hardens or sets on the pavement.

(d) Whenever water from roofs of adjacent buildings is drained or conducted under sidewalks from downspout drains to the street gutters through aqueducts or concrete troughs, these openings in the sidewalk shall be fitted with strong metal covers, which shall be securely held in place with screws or other fasteners which will not rust or corrode. Such cover shall be set flush with the surface of the sidewalk and securely bolted, fastened, or so constructed that it cannot slip, shift, or become out of alignment with the surface of the sidewalk.

(1976 Code of Ordinances, Section 16-6)

8. Alternate Materials and Methods

The provisions of this article shall not prevent the use of types of construction or materials or methods of construction offered as an alternate for the types of construction or materials or methods of construction specifically required by this article; but such alternate types of construction or materials or methods of construction to be given consideration shall be offered for approval as being sufficient, safe, and equal to the standards set out in this article. When specifically authorized by the building official, upon review of the access facilities by the city manager and of the types of construction or materials or methods of construction by the city manager, materials and construction which have been approved shall be used and installed in accordance with the terms of approval. Such approvals and conditions upon which they are issued shall be specific,

shall be reasonable when considered in the light of convenience and safety to the general public, shall not create an injustice, and shall be made a matter of public record. (1976 Code of Ordinances, Section 16-7)

9. Fees

There shall be a fee assessed for each permit for the repair or new construction of sidewalks, driveways, curbs and/or gutters. The fee shall be assessed in accordance with the fee schedule found in the appendix of this code. The permits for such work shall not be valid until the fee has been paid. Where such concrete construction is covered by a building permit, this fee shall not be required. (1976 Code of Ordinances, Section 16-8)

10. Variance by Resolution

In unusual circumstances, the terms and provisions of this article may be varied by resolution of the city council. (1976 Code of Ordinances, Section 16-9)

11. Penalty

Any person, firm, or corporation or others violating any provisions of this article shall be guilty of a misdemeanor and, upon conviction, shall be fined in accordance with the general penalty provision found in Section 1.106 of this code. Every day that the violation continues shall constitute a separate offense. This penalty shall be in addition to and cumulative of the primary liability for any loss or damage resulting from defective and unsafe condition of sidewalks or curbs imposed by this article upon the abutting property owner of said defective and unsafe sidewalks, curbs, gutters, or driveways. (1976 Code of Ordinances, Section 16-10)

CONSTRUCTION AND MAINTENANCE OF BRIDGES, CULVERTS AND CROSSWAYS

(Chapter 3, Article 3.1100)

In order to establish, erect, construct, regulate, and keep in good repair, bridges, culverts and/or crossways used by each property owner as a means of ingress and egress, by and between his property and the public thoroughfare, of any nature, and to regulate the construction and use of the same, it is hereby directed that the cost of such construction, repair, and upkeep shall be defrayed by the owners of the lot or part of lot or block fronting on the public thoroughfare. The cost of bridges, culverts, and/or crossways constructed by the city shall be collected, if necessary by the sale of the lot or part of lot or block on which it fronts, together with the cost of collection, in the same manner as is provided for construction and/or maintenance of sidewalks in the city. Said construction shall conform to specifications set out by the Director of Public Works, the purpose of which shall be to allow the free and unhindered movement of surface water in the drainage areas of the city. (1976 Code of Ordinances, Section 16-21)

IMPROVEMENTS OF STREETS AND HIGHWAYS: PAYMENT OF COSTS

(Chapter 3, article 3.120)

1. Petition for Improvement

Upon receipt by the city of a petition signed by at least seventy-five (75) percent of the property owners and owners of seventy-five (75) percent of the total front footage of property abutting upon the streets and highways or portions thereof requested to be improved, the city will consider instituting the required procedures under the city charter and state statutes for the construction of such improvements and the levying of paying assessments against the abutting property for a portion of the cost of construction of such improvements. (1976 Code of Ordinances, Section 16-31)

2. City to Pay One-Third of Cost

In the event that it is determined by the city to construct the requested improvements, it is hereby declared to be a policy of the city to pay for one-third (1/3) of the total cost of construction of such improvements and to levy paving assessments for the remaining construction of such improvements and to levy paving assessments for the remaining two-thirds (2/3) of the cost of such improvements against the owners of property abutting upon the streets and highways, or portions thereof, proposed to be improved, so that the property abutting upon each side of the street or highway shall be assessed one-third (1/3) of the total cost of the construction of such improvements. (1976 Code of Ordinances, Section 16-32)

3. Council to Determine Method of Paying and Levy Assessments

The city council shall determine the method of paying for such paving assessments and will levy such paving assessments under the provisions of the city charter and article 1105b of the Revised Civil Statutes of Texas. (1976 Code of Ordinances, Section 16-33)

A. Streets Required

All streets constructed within the City shall be required to be constructed with curbs and gutters. The required widths of all streets within the City shall be determined by the "Functional Classification" of the streets as contained in the most current revision of the Master Thoroughfare Plan.

B. Paving Improvements

All work and materials shall be in accordance with the City Standard Specifications and General Design Standards.

1. The street and alley right-of way width shall be excavated full width in accordance with the street and sidewalk section to be constructed.
2. The sub-grade for all street and alley paving shall be stabilized with HYDRATED LIME material. The optimum lime content shall be achieved. All lime stabilization shall include in the Field Lime Series Testing to determine optimum lime content. Frequency shall be at change in material with a minimum frequency at one every 100' feet. All test reports shall be furnished to the City prior to lime stabilization.
3. All concrete paving for street compressive construction shall have a minimum of five (5) sack per cubic yard and develop a strength of 3,000 pounds per square inch (*psi*) in 28 days (NCTCOG Class "A"). Fly Ash concrete batch maximum 12% ~~15%~~ design may be submitted for City approval on a specific job basis. All concrete paving for alley construction shall develop a compressive strength of 3,600 (*psi*) ~~pounds per square inch~~ in 28 days (NCTCOG Class "C"). The submitted design for City consideration must be submitted by a certified laboratory.
4. All roadway embankments with PI (Plastic Index) above 20 shall be compacted to a density of 98 – 102% percent AASHO Standard Proctor at Optimum Moisture Content unless otherwise shown on the construction plans and approved by the Director of Public Works. Maximum loose lifts eight (8") inches. Compaction shall be by mechanical methods, unless otherwise shown on the construction plans and approved by the Director of Public Works.
5. Testing of materials required for the construction of the specified street and alley improvements **shall be performed by a City approved independent testing*

laboratory. The cost for such testing services shall be borne by the Contractor. The City shall approve the laboratory to do the testing of materials, 72 hours prior to construction commencing. It shall be the Contractor's responsibility to show by standard testing procedures that the work constructed does meet the requirements of the specifications.

6. The Contractor shall furnish a maintenance bond to the City to run two (2) years from the date of acceptance of the improvements by the City.
7. A twenty-four (24) foot wide lane shall be paved in all apartment and commercial areas, within a minimum of six (6") inches of reinforced concrete pavement on a six (6") inch lime stabilized sub-grade. The remaining area, parking area, shall consist of 6-inch reinforced class "A" concrete or a minimum of three (3") inches of Type "D" H.M.A.C. on a six (6") inch lime stabilized sub-grade or a pavement design approved by the Director of Public Works.
8. *Maximum number of passing field density tests on lime stabilized sub-grade equal to the ratio of 1 per 100 linear feet of street and all failing density tests and required moisture-density curves.*
9. All dumpster sites shall have a paved lane up to the site that shall consist of a minimum of six (6") inches of 3000 *psi* reinforced concrete on a six (6") inch lime stabilized sub-grade.
10. *All fill shall be mechanically compacted to 95% of the maximum dry density as determined by the standard proctor method (ASTM D-698).*
11. *All construction barricading to be in accordance with current "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" guidelines Part IV.*

C. Street Design Criteria

1. All streets within or abutting the proposed subdivision shall be paved, with curbs and gutters installed, in accordance with the City's Standards and Specifications. All paving shall be to the width specified on the Master Thoroughfare Plan and shall be constructed under the inspection of the Public Works Department. The construction costs of all street improvements shall be borne by the developer unless participation by the City has been approved.
2. All underground utilities required in the subdivision shall be placed under or across all streets after the rough grades are made, but prior to lime stabilization. Paving operations will not be allowed to start until the utility work is complete.

3. Street grades shall be designed such that excessive sand deposition from too low a water velocity or pavement scouring from too high a velocity is avoided. The minimum street grade permitted shall be 0.50%. The maximum street grade shall not exceed 8.0%. Any deviation from this range of permissible grades shall require written approval of the Director of Public Works.
4. Standard roadway widths from face-of-curb to face-of-curb shall be according to the following table:

STANDARD PAVEMENT WIDTHS				
Street Type	Number of Traffic Lanes	Lane Width (feet)	Median Width (feet)	R.O.W. Width (feet)
<i>TYPE F</i>	2	<i>12</i>	-	<i>60</i>
<i>TYPE E</i>	2	12	-	<i>50</i>
<i>TYPE D</i>	2	<i>12</i>	-	<i>65</i>
<i>TYPE C</i>	4	12	-	<i>85</i>
<i>TYPE B</i>	4	12	-	<i>100</i>
<i>TYPE B Major</i>	4	12	<i>14</i>	<i>100</i>
<i>MGD</i>	6	<i>12</i>	<i>18</i>	<i>110</i>
<i>TYPE A</i>	6	12	18	110

5. The minimum classified width of a proposed street shall be enlarged under the following conditions.
 - a. Adjacent to commercial or multi-family land uses where, in the opinion of the Public Works Department, additional width is necessary for proper access and circulation.
 - b. Where, in the opinion of the City or in the opinion of the Developer, with the concurrence of the City, the aesthetic value achieved from extra width is dictated by special conditions.
6. The proposed streets shall be located in the center of the right-of-way to allow both parkways to be the same width. The final grade of all parkways, existing and proposed, shall be one-half (1/2") inch per foot from the top of curb to the property line. All parkways shall drain to the street.
7. ***All cul-de-sacs shall be installed with a ~~fifty (50')~~ forty (40') foot radius to the face of curb in a ~~sixty (60')~~ fifty (50') foot radius ROW. Smaller shall be approved by the Public Works Director.***

8. Standard reinforced concrete curb height and width is six (6") inches with a twenty-four (24") inch integral gutter section measured from the face of the curb. Any deviation from this section will require the approval of the Public Works Director.
9. The minimum pavement and sub-grade thickness for the various street widths shall be as indicated in the standard details.
10. *All construction barricading to be in accordance with current "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" guidelines Part IV.*
11. Minimum horizontal curvature radii for design of street centerlines shall be as follows:

Arterial	800 feet
Collector	400 feet
Residential	200 feet

All street intersections shall be constructed to form a ninety (90) degree angle.

12. In order to maintain minimum sight distance, the minimum "K" values for the computation of vertical curves in the formula $L=KA$, where L is the length of the vertical curve in feet, and A is the algebraic difference of the street grades in percent (%) are listed below:

Design Speed MPH	Crest Vertical Curve "K" Value	Sag Vertical Curve "K" Value
30	28	35
40	60	60
50	110	90

13. The minimum radius for curb returns at intersections shall ***be twenty (20') to thirty (30') feet to the face of curb.***
14. A tangent of at least one hundred (100') feet long shall be introduced between reverse curves on arterial and collector streets.
15. At all street intersections, there shall be provided a minimum twenty-five (25') foot by twenty-five (25') foot corner clip sidewalk and utility easement. *Minimum thickness eight (8") inches.*

16. Reinforced concrete valley gutters are required at all asphalt street intersections where gutter flowlines cross another street or at low points where water flow crosses the street. Minimum width ten (10') feet. Minimum thickness circles.
17. Median openings shall be spaced a minimum of six hundred (600') feet center-to-center or five hundred (500') feet curb-to-curb, whichever is greater.

D. Sidewalks and Leadwalks

1. *Sidewalks and leadwalks shall be constructed with a minimum thickness of four (4") inches. They shall utilize NCTOG Class "A" concrete with 3000 psi and #3 steel bar reinforcement laid on a spacing of eighteen (18") inch centers each direction, with a minimum of three (3) longitude bars 6" apart.*
2.
 - a. *Sidewalks and leadwalks shall be constructed with a minimum of four (4') feet in width and five (5') foot at curb line. The sidewalk shall be located on the City parkway adjacent to the private property line. Sidewalks shall be graded at one-quarter (1/4") inch per foot such that the sidewalk at the property line shall be no greater than two and one-half (2-1/2 ") inches higher than the top of curb on a typical ten (10') foot parkway.*
 - b. *Sidewalks shall be a minimum of five (5') feet in width adjacent to curb and shall be dowel into street, not curb. Sidewalks in City parkway adjacent to the private property line shall be four (4') feet in width. Leadwalks shall be three (3') feet in width and dowel into front porch and public walks, and expansion joint at both locations.*
 - c. *Public sidewalks shall be graded at one-quarter (1/4") inch per foot, such that the sidewalk at the property line shall be no greater than two and one-half (2 1/2") inches higher than the top of curb on a typical ten (10') foot parkway*
3. All fire hydrants, street lights and, utility pole that conflict with sidewalks or Barrier Free Ramps shall be relocated at the Utility Contractor's expense.
4. Entrances to sidewalks, *alleys, and streets or approaches shall meet the current American Disabilities Act (ADA) standards. Transitions from sidewalks to alleys shall have smooth transitions without a drop off.*

E. Driveway Standards

1. Residential Driveways ~~and~~ shall be dowel into *the foundation and* alley or street Approaches
 - a. All approaches shall be constructed of six (6") inch thick NCTCOG class "A" reinforced concrete pavement with number three (#3) steel bars on eighteen (18") inch centers each way. The driveway approach shall begin at the street curb and extend to the property line or to a point ten (10') feet from the face of the curb whichever is greater. The driveway approach shall be constructed such that the height of the drive approach at the property ROW, with a normal ten (10') feet parkway, shall be two and one-half (2-1/2") inches higher than the top of the curb. Two-foot asphalt transition shall be required on asphalt streets.
 - b. Width of Driveway Approaches: Residential driveway approaches shall not be less than ~~twelve (12')~~ sixteen (16') feet in width nor more than twenty (20') feet wide measured at the property line. Specific variance to this criteria may be requested by the property owner. Any variance granted based on a specific design submittal must have the approval of the Public Works Department.

Width of driveway approaches: (Residential Development)
residential driveways; two car garage shall be a minimum of seventeen (17') feet in width, from garage door to property line, and twenty-seven (27') feet maximum width at alley or street, having a five (5') feet radius. Specific variance to this criteria may be requested by property owner. Any variance granted based on a specific design submittal must have the approval of the Public Works Department.

- c. Radius: Residential driveways shall be constructed with the return curbs having a rolled face disappearing at the sidewalk and joining the street curb with a minimum five (5') foot radius with a typical ten (10') foot radius requirement.
 - d. *Residential driveway, front entry, shall be constructed with the return curbs having a rolled face disappearing at the sidewalk and joining the street curb with a minimum five (5') feet radius.*
 - e. Provision for Joint Approaches: Driveway approaches shall be located entirely within the frontage of the premises they serve except that joint, or cooperative, driveways with adjoining property

holders may be permitted and may be required by the Public Works Director. When the joint drive approach is proposed by the developer, the request must be made by all the interested parties and all property owners involved. The design of the joint driveway facilities must be submitted with the request to be approved by the Public Works Director.

- f. Residential Driveway Approaches at Street Intersections: The drive approach on corner lots must be located to approximately line up with the side of the house or garage that is farthest from the intersection. ~~The drive approach edge furthest from the street intersection must be within three (3') feet of the far side of the house or garage. (Okay with other cities on distance)~~

Only drive approaches in accordance with the above criteria will be allowed onto residential streets or the minor street at a street intersection. If both streets are residentially classified, a circular drive will be allowed on a corner lot if one of its two approaches meets the above location criteria. The other drive approach can have its near side no closer than 25' feet to the property corner closest to the intersection. If both streets have the same classification, other than residential per the currently adopted City Thoroughfare Plan, the Public Works Director shall make the determination as to which street access will be allowed.

2. Commercial/Industrial Driveway Approaches

- a. Commercial and Industrial driveway approaches shall be constructed of six (6") inch thick NCTCOG Class "A" concrete with #4 steel bars on eighteen (18") inch centers each way. The driveway shall begin at the curb of the street and extend to the property line or to a point ten (10') feet from the face of the curb, whichever is greater. The drive approach shall be constructed such that the height of the drive approach at the property line shall be two and one-half (2-1/2") inches higher than the top of curb at the street.
- b. Width of driveway Approach: The width of any commercial or industrial driveway approach shall not be less **than** ~~twenty-five (25') feet nor more than thirty-five (35') feet~~ **thirty (30') feet** measured along the property line. Specific variance to this criteria may be requested by the Developer. Any variance granted based upon a specific design submittal must have the approval of the Public Works Director.

- c. Radius: Commercial and Industrial driveways shall be constructed with the return curbs having a rolled face disappearing at the sidewalk and joining the street curb with a minimum ~~ten (10') foot radius and a maximum~~ **of thirty (30') foot radius. All fire lanes shall have a turning radius of thirty (30') feet.**
- d. Allowable Spacing for Driveway Approaches: On streets classified as Collector Streets, the minimum centerline spacing between driveways shall be at least three hundred (300') feet. On streets classified as Arterials, minimum spacing shall be at least five hundred (500') feet. This spacing criteria shall be applied irrespective of the number of individual properties located within the intervening distance. Deviation from this criteria may be requested by the Developer. Any deviation granted will be based on a specific design submittal and must have the approval of the Public Works Director.
- e. Provision for Joint Approaches: Driveway approaches shall be located entirely within the frontage of the premises and shall be located no closer than ten (10') feet from each side property line except that joint, or cooperative, drive approaches with adjoining property holders may be permitted in order to conform with the provisions of paragraph (d) above. Any request for joint drive access must be by agreement of all parties involved and a specific plan submittal must be included for approval of the Public Works Director. Both properties will be required to dedicate public ingress and egress easements to cover the approach and joint access area and must be filed on the plat and filed with the Dallas County Court of Records and one copy of this record must be submitted to the City.
- f. Approaches on Properties other than Residential: The driveway for the corner lot, if allowed, must be located a minimum of one hundred (100') feet from the point of intersection of the curb lines of both streets.
- g. Angle of Driveway Approach: The angle of the driveway approach with the curb line shall be ninety (90) degrees.
- h. Sidewalk to be Removed: ~~Where~~ *When* a driveway approach is to be built, the sidewalk shall be removed and the entire area replaced as a driveway. The drive approach shall extend to the property line. The sidewalk removed shall be tied back into the approach **by dowels and shall meet the American Disabilities Act (ADA)**

~~requirements to be barrier free. 18" inches on center, and shall be deleted to meet American Disabilities Act (ADA) requirements to be barrier free. Refer to ADA Construction Plans.~~

3. Driveways Crossing Bar Ditches:

- a. The minimum ~~twelve~~ **eighteen-inch (18") (12") culvert pipe size of (inside diameter) 3:1 slope**, will be determined based upon the drainage area that it serves. The ends of all culvert pipe shall be cut at a 6:1 slope.
- b. Radius: Driveways shall be constructed with the return curbs joining the edge of pavement at the street with a minimum five (5') foot radius, ~~with a typical ten (10') foot radius requirement.~~
- c. The maximum slope from the edge of driveway to the top of the culvert pipe shall be 3:1. The sloped area around the end of the culvert pipe shall be sodded or hydromulched to resist erosion. Safety devices shall be installed as required by the Design Engineer.
- d. The minimum cross slope on the drive shall be 1/8" inch per foot. The minimum longitudinal slope between the edge of pavement at the street and the valley over the culvert pipe shall be 1/4" inch per foot.
- e. ~~All future maintenance of the drive approach, curb, sidewalk, and culvert pipe is the responsibility of the property owner. Future maintenance of the drive approach, sidewalks, and culvert pipe is the responsibility of the property owner.~~
- f. During the drive approach installation, all ditch grading upstream and downstream of the proposed driveway culvert is the responsibility of the property owner, ~~and shall be approved by the City of Lancaster.~~

4. General - A.D.A. Guidelines – Per Guidelines State and Federal
 - a. Driveway Approaches at Pedestrian Crossings: Driveway approaches shall not be located in street intersections or at established pedestrian crossings.
 - b. Driveway Approaches at Obstructions: Driveways shall be kept at a minimum of five (5') feet away from obstructions such as street light posts, fire hydrants, traffic signals, etc.
 - c. Driveway Approach not to be Obstructed: Driveway approaches shall not be constructed or designed for parking of vehicles or for use as angle parking.
 - d. Accumulative Width of Approaches: Driveway approaches shall not occupy more than forty (40%) percent of the frontage of a lot or tract, unless approved by the City.
 - e. *Curb Ramps are to be constructed on all permanent curb returns at intersections of all streets or as directed by the Public Works Department.*

SECTION 1-06 STORM DRAINAGE IMPROVEMENTS

(Chapter 3, Article 3.1400)

1. Purpose and Scope

The purpose of policies and design standards set forth herein is to insure adequate storm water drainage and flood control within the city. The policies and standards herein are intended to protect public health and safety, to prevent property damage due to flooding, to equitably distribute the cost of necessary drainage improvements, and to minimize the maintenance cost of drainage facilities constructed. Any development or improvement of property affecting storm drainage and flood control in the city is subject to the provisions of this division. (1976 Code of Ordinances, Section 14-282)

2. Responsibility of Owner or Developer for Storm Drainage

(a) The owner or developer of property to be developed or used shall be responsible for all storm drainage flowing through or abutting such property. This responsibility includes the drainage directed to that property by prior development as well as the drainage naturally flowing through the property by reason of topography. It is the intent of this division that provision be made for storm drainage in accordance with Section 3.1403 above, at such time as any property affected is proposed for development or use.

(b) Where the improvement or construction of a storm drainage facility is required along a property line common to two (2) or more owners, the owner hereafter proposing development or use of his property shall be responsible for the required improvements at the time of development, including the dedication of all necessary rights-of-way or easements, to accommodate the improvements.

(c) Where a property owner proposes development or use of only a portion of his property, provision for storm drainage in accordance with Section 3.1403 above shall only be required in that portion of the property proposed for immediate development or use, except as construction or improvements of a drainage facility outside that designated portion of the property is deemed essential to the development or use of that designated portion.

(d) The owner or owners shall dedicate to the city the required drainage easements. Determination of minimum easement required shall be made by the city engineer.

(e) In the event that an owner or developer desires to impound storm water by excavation, filling, or construction of a dam within a property, thereby creating a lake, pond, or lagoon as a part of the planned development of that property, the standard provisions for storm drainage as established in Section 3.1403 of this division shall not be applicable, provided:

(1) That an engineering plan for such construction, accompanied by complete

drainage design information, prepared by a registered professional engineer, shall have been approved by the city.

(2) That the owner or developer shall have agreed to retain under private ownership the lake, pond, or lagoon constructed, and to assume full responsibility for the protection of the general public from any health or safety hazards related to the lake, pond, or lagoon constructed.

(3) That the owner or developer shall have agreed to assume full responsibility for the maintenance of the lake, pond, or lagoon constructed.

(4) That the obligations herein shall run with the land and shall be a continuing obligation of the owner or owners of such land.

(1976 Code of ordinances, Section 14-284)

3. Responsibility and Participation of the City in Drainage Improvements

(a) The city may, in its sound discretion, participate in the cost of such improvements as are required by this division in an amount not to exceed twenty (20) percent.

(b) The city may, in its sound discretion, participate in any project of improvements by the levy of a special assessment against the lands to be enhanced in value by such improvements.

(c) The city may acquire drainage easements necessary for such improvements by acceptance of dedication, purchase, or condemnation.

(d) The city shall, upon acquisition of the drainage easement and the completion of improvements as hereinabove provided, assume full responsibility for the maintenance of such drainage facilities.

(1976 Code of Ordinances, Section 14-285)

4. Construction in Areas Subject to Flooding

(a) No building or structure shall hereafter be erected or relocated within the one hundred year flood plans of Ten Mile Creek, Deep Branch, Halls Branch, Mill Branch, Keller Branch, Floyd Branch, and Newton Branch, unless the finished floor elevation of such building or structure is a minimum of two (2) feet above the high water elevation calculated for the run-off from a rainfall having a design frequency of one hundred (100) years. In all other areas subject to flooding, the finished floor elevation shall be a minimum of two (2) feet above the high water elevation calculated for the run-off from a rainfall, having a design frequency of fifty (50) years and shall not flood within the one hundred-year frequency. The owner or developer shall furnish, at his expense, to the city

engineer sufficient engineering design information to confirm that the minimum floor elevation proposed is as required by this subsection.

(b) No building or structure shall be erected or relocated within a floodplain or drainage channel which will obstruct the natural flow of water within that floodplain or channel.

(c) No excavation, filling, or construction of embankment, or landscaping shall be permitted within a floodplain or channel which will obstruct natural flow of water within that floodplain or channel, unless sufficient engineering-design information is furnished to the city engineer in order that he may determine that same will not adversely affect flow characteristics within that floodplain or channel, resulting in damage to that or any other property nearby.

(1976 Code of Ordinances, Section 14-287)

5. Building or Structure Setback Requirements

No building or structure shall hereafter be constructed, reconstructed, or relocated within ten (10) feet of any open drainage channel. It is the intent of this section to insure that an obstructed width of at least ten (10) feet is maintained between the top of the side slope of any such drainage channel and any building or structure. (1976 Code of Ordinances, Section 14-288)

6. Construction Over Drainage Facilities

No building or structure shall hereafter be constructed, reconstructed, or relocated over or across any storm drainage facility unless specifically approved by the city engineer pursuant to that criteria established in subparagraphs (1) and (2) of this section:

(1) Construction of buildings or structures may be permitted over or across closed drainage systems, to include concrete-box culverts or reinforced concrete pipe. Engineering plans and specification shall be prepared by a professional engineer registered in the State of Texas, and experienced in civil-engineering work. The total cost for such engineering plans and specifications shall be borne by the owner or the developer and shall be furnished to the city engineer for his review and approval.

(2) Construction of pedestrian bridges or small vehicular crossings may be permitted by the city engineer. Engineering plans and specifications shall be prepared by a professional engineer registered in the State of Texas, and experienced in civil engineering work. The total cost for such engineering plans and specifications shall be borne by the owner or the developer, and shall be furnished to the city engineer for his review and approval.

7. Duties of City Engineer: Appeal to City Council

The interpretation of the criteria hereinabove set forth in Sections 3.1403 to 3.1409 of this article shall be made by the city engineer. Any person adversely affected by the decision of the city engineer may, within ten (10) days from the date of such decision, file an appeal in writing to the city council. Such appeal shall be filed with the city engineer and the city secretary, and shall define the specific areas of controversy. It shall be the duty of the city council to hear any such appeal within thirty (30) days from the date it is received by the city engineer and city secretary. (1976 Code of Ordinances, Section 14-290)

8. Building Permits to be Withheld

No building permit shall be issued nor certificate of occupancy approved for any construction, reconstruction, or development upon any land where such construction, reconstruction, or development is not in conformity with the requirements and intent of this article. Any one who violates any of the terms and provisions of this article shall be denied a building permit until the violation is corrected. (1976 Code of Ordinances, Section 14-291)

9. Penalty

Any person who shall violate the provisions of this article shall be deemed guilty of a misdemeanor and, upon conviction therefore, shall be subject to a penalty as provided in Section 1.106 of this code. (1976 Code of Ordinances, Section 14-292)

FLOOD HAZARD PREVENTION

(Chapter 3, Article 3.1500)

1. Statutory Authorization

The legislature of the State of Texas has, in Article 8280-12, Water Auxiliary Laws Pamphlet, known as Flood Control Insurance Act, delegated the responsibility to local governmental units to adopt regulations designed to minimize flood losses. (1976 Code of Ordinances, Section 14-344.1)

2. Finds 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, flood-proofed, or otherwise protected from flood damage.

(1976 Code of Ordinances, Section 14-344.2)

3. Statement of Purpose

It is the purpose of this article 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 areas of special flood hazard;
- (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;
- (7) Insure the potential buyers are notified that property is in an area of special flood hazard; and
- (8) Insure that those who occupy the areas of special flood hazard assume responsibility for their actions.

4. Methods of Reducing Flood Losses

In order to accomplish its purposes, this article includes methods and provisions for:

- (1) Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increase in erosion or in flood heights or velocities;

- (2) Requiring that uses vulnerable to flood, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- (4) Controlling filling, grading, dredging, and other development which may increase flood damage; and
- (5) Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas

(1976 Code of Ordinances, Section 14-344.4)

5. Definitions

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

Appeal. Means a request for a review of the city manager's interpretation of any provisions of this article or a request for a variance.

Area of shallow flooding. Means a designated AO Zone on the flood insurance rate map (FIRM). The base flood depths range from one (1) to three (3) feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident.

Area of special flood hazard. Means the land in the floodplain within a community subject to a one (1) percent or greater chance of flooding in any given year.

Base flood. Means the flood having a one (1) percent chance of being equaled or exceeded in any given year.

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 or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations located within the area of special flood hazard.

Elevated building. Means a non-basement building (i) built in the case of a building in zones A1-30, AE, A, A99, AO, AH, B, C, X, and D, to have the top of the elevated floor,

or in the case of a building in zones V1-30, VE, or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers), or shear walls parallel to the floor of the water and (ii) adequately anchored so as to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of zones A1-30, AE, A, A99, AO, AH, B, C, X, D, “elevated building” also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of zones V1-30, VE, or V, “elevated building” also includes a building otherwise meeting the definition “elevated building”, even though the lower area is enclosed by means of breakaway walls if the breakaway walls meet the standards of Section 60.3(e)(5) of the National Flood Insurance Program regulations

Existing construction. Means for the purpose 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”.

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; and/or
- (2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood insurance rate map (FIRM). Means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood insurance study. Means the official report provided in which the Federal Insurance Administration has provided flood profiles, as well as the flood boundary-floodway map and the water surface elevation of the base flood.

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

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 areas 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.

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.

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

Levee. Means a manmade 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 of 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 designed requirement of Section 60.3 of the National Flood Insurance Program regulations.

Manufactured home. Means a structure transportable in one (1) 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. For floodplain management purposes, the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than one hundred eighty (180) consecutive days. For insurance purposes, the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

Mean sea level. Means, for purposes of the National Flood Insurance Program regulations, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's flood insurance rate map are referenced.

New construction. Means, for flood-plain management purposes, structures for which the "start of construction" commenced on or after the effective date of a flood-plain management regulation adopted by a community.

Start of construction. (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, placement, or other improvement was within one hundred eighty (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 state 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.

Structure. Means a walled and roofed building, a mobile home, or a gas or liquid storage tank that is principally above ground, as well as a manufactured home.

Substantial improvement. Means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure, either before the improvement or repair is started or, if the structure has been damaged and is being restored, before the damage occurred.

(1) For the purpose of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

(2) The term does not however, include either:

(A) Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions; or

(B) Any alteration of a structure listed on the National Register of Historic Places or a state inventory of historic places.

Variance. Is a grant of relief to a person from the requirements of this article when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner otherwise prohibited by this article. (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 National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

(1976 Code of Ordinances, Section 14-344.5)

6. Lands to Which This Article Applies

This article shall apply to all areas of special flood hazard within the jurisdiction of the City of Lancaster, Texas (1976 Code of Ordinances, Section 14-344.6)

7. Basis for Establishing Areas of Special Flood Hazard

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the City of Lancaster", dated May 13, 1980, with accompanying flood insurance rate maps and flood hazard boundary-floodway maps and any revisions thereto, and hereby adopted by reference and declared to be part of this article. The flood insurance study is on file in the city secretary's office. (1976 Code of Ordinances, Section 14-344.7)

8. Penalties for Noncompliance

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this article and other applicable regulations. Violation of the provisions of this article by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this article or fails to comply with any of its requirements shall, upon conviction thereof, be punished as provided in section 10-6 for each violation, and, in addition, shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the City of Lancaster from taking such other lawful action as is necessary to prevent or remedy any violation. (1976 Code of Ordinances, Section 14.344.8)

9. Abrogation and Greater Restrictions

This article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this article and other ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (1976 Code of Ordinances, Section 14.344.9)

10. Interpretation

In the interpretation and application of this article, all provision 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.

(1976 Code of Ordinances, Section 14.344.10)

11. Warning and Disclaimer of Liability

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This article does not imply that land outside the area of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This article shall not create liability on the part of the City of Lancaster, any officer or employee thereof or the Federal Insurance Administration, for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder (1976 Code of Ordinances, Section 14-344.11)

12. Establishment of Development Permit

(a) A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.1507. Application for a development permit shall be made on forms furnished by the city manager and may include, but not limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing.

(b) Specifically, the following information is required:

- (1) Elevation in relation to mean sea level, of the lowest flood (including basement) of all structures:
- (2) Elevation in relation to mean sea level to which any structure has been floodproofed;
- (3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in

Section 3.1518(2); and

(4) A description of the extent to which any watercourse will be altered or relocation as a result of proposed development.

(1976 Code of Ordinances, Section 14-344.12)

13. City Manager Designed Administrator

The city manager is hereby appointed to administer and implement this article by granting or denying development permit applications in accordance with its provisions. (1976 Code of Ordinances, Section 14-344.13).

14. Administrator Duties and Responsibilities

Duties of the city manager shall include, but not limited to:

(1) Permit review:

(A) Review all development permits to determine that the permit requirements of this article have been satisfied.

(B) Review all development permits to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required including the permit required under Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33, U.S.C. 1334.

(C) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 3.1520 are met.

(2) Use of other base flood data. When base flood elevation data has not been provided in accordance with Section 3.1507, basis for establishing the areas of special flood hazard, the city manager shall obtain, review and review, and reasonably utilize any base flood elevation data available from a federal, state or other source, in order to administer Section 3.1518(1), "specific standards, residential construction", and Section 3.1518(2), "specific standards, non-residential construction".

(3) Information to be obtained and maintained:

(A) Obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

(B) For all new substantially improved flood-proofed structures:

(i) Verify and record the actual elevation (in relation to mean sea level); and

(ii) Maintain the flood-proofing certifications required in Section 3.1512(b)(3).

(C) Maintain for public inspection all records pertaining to the provisions of this article.

(4) Alteration of watercourses:

(A) Notify adjacent communities and the Texas Water Commission prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

(B) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carry capacity is not diminished.

(5) Interpretation of FIRM boundaries. Make interpretations where 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 person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 3.1516.

(6) When a regulatory floodway has not been designated, the city manager must require that no new construction, substantial improvements, or other development, including fill, shall be permitted within zones A1-30 and AE on the city's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all of the existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the city.

(1976 Code of Ordinances, Section 14-344.14)

15. Approval of Development Permit

In passing upon such applications, the city council shall consider all technical evaluations, all relevant factors, standards specified in other sections of this article, and;

(1) The danger that materials may be swept onto other lands to the injury of others;

(2) The danger to life and property due to flooding or erosion damage;

- (3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- (4) The importance of the services provided by the proposed facility to the community;
- (5) The necessity to the facility of a waterfront location, where applicable;
- (6) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
- (7) The compatibility of the proposed use with existing and anticipated development;
- (8) The relationship of the proposed use to the comprehensive plan and floodplain management program of that area;
- (9) The safety of access to the property in times of flood or ordinary and emergency vehicles;
- (10) the expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and
- (11) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

(1976 Code of Ordinances, Section 14-344.14.1)

16. Variance Procedure

(a) Appeal board:

- (1) The city council as established by the City of Lancaster shall hear and decide appeals and requests for variances from the requirements of this article.
- (2) The city council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the city manager in the enforcement or administration of this article.
- (3) Those aggrieved by the decision of the city council or any taxpayer, may appeal such decision in the courts of competent jurisdiction.

(4) Reserved.

(5) Upon consideration of the factors of Section 3.1516(b)(4) and the purposes of this article, the city council may attach such conditions to the granting of variances as it deems necessary to further the purpose of this article.

(6) The city manager shall maintain the records of all appeal actions, including technical information, and report any variances to the Federal Insurance Administration upon request.

(b) Condition for variances:

(1) Generally, variances may be used for new construction and substantial improvements to be erected on a lot of one-half (1/2) acre or less in size, contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing terms in Section 3.1516(a)(4) have been fully considered. As the lot size increases beyond one-half (1/2) acre, the technical justification required for issuing the variance increases.

(2) 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 section.

(3) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(4) Variances shall only be issued upon a determination that the variance is the minimum necessary considering the flood hazard, to afford relief.

(5) Variance shall only be issued upon:

(A) A showing of good and sufficient cause;

(B) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

(C) 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 as identified in Section 3.1516(a)(4).

(6) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a 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.

(1976 Code of Ordinances, Section 14-344.15)

17. General Standards

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

(1) Anchoring:

(A) 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.

(B) All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors. Special requirements shall be that:

(i) Over-the-top ties be provided at each of the four (4) corners of the manufactured home, with two (2) additional ties per side at intermediate locations, with manufactured homes less than fifty (50) feet long requiring one (1) additional tie per side;

(ii) Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points, with manufactured homes less than fifty (50) feet long requiring four (4) additional ties per side;

(iii) All components of the anchoring system be capable of carrying a force of four thousand eight hundred (4,800) pounds; and

(iv) Any addition to the manufactured home to similarly anchored.

(2) Construction materials and methods:

(A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(B) All new construction and substantial improvements shall be

constructed using methods and practices that minimize flood damage.

(C) 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.

(3) Utilities:

(A) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(B) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters.

(C) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(4) Subdivision proposals:

(A) All subdivision proposals, including manufactured home parks and subdivisions, shall be consistent with the requirements of this article to minimize flood damage.

(B) All proposals for the development of subdivisions, including manufactured home parks and subdivisions, shall meet the development permit requirements of this article and comply with the provisions for hazard reduction contained herein.

(C) Base flood elevation data shall be generated for subdivision proposals and other proposed development, including manufactured home parks and subdivisions, which is greater than fifty (50) lots or five (5) acres, whichever is lesser, if not otherwise provided pursuant to this article.

(D) All subdivision proposals, including manufactured home parks and subdivisions, shall have adequate drainage provided to reduce exposure to flood hazards.

(E) All subdivision proposals, including 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.

(1976 Code of Ordinances, Section 14-344.16)

18. Specific Standards

In all areas of special flood hazards where base flood elevation data have been provided as set forth in Section 3.1507, "basis for establishing the areas of special flood hazard", or in Section 3.1514(2), "use of other base flood date", the following standard are required:

(1) Residential construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to or above the base flood elevation. Registered professional engineer, architect, or land surveyor shall submit a certification to the city manager that the standard of this subsection as proposed in this article is satisfied.

(2) Nonresidential construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

(A) Be flood-proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water.

(B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(C) 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 flood-proofed shall be maintained by the city manager.

(3) Manufactured homes:

(A) Require that all manufactured homes to be placed within zone A shall be installed using methods and practices, which minimize flood damage. For the purpose of this requirement, manufactured homes must be elevated and anchored to resist floatation, 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 requirements for resisting wind forces.

(B) All manufactured homes shall meet the specific standards of residential construction contained in subsection (1) of this section.

- (C) Require that all manufactured homes to be placed or substantially improved within zones A1-30, AH and AE on the city's FIRM be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation and be securely anchored to an adequately anchored foundation system in accordance with the provisions of this article.

- (4) Enclosures: New construction and substantial improvements, with fully enclosed areas below the lowest floor that are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. 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 (2) openings having a total net area of not less than one (2) 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 one (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 flood waters.

(1976 Code of Ordinances, Section 14-344.17)

19. Floodways

Located within the areas of special flood hazard established in Section 3.1507 are areas designed as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- (1) Encroachments are prohibited. Including fill, new construction, substantial improvements and other development, unless certification by a registered professional engineer or architect is provided demonstrating that encroachment shall not result in any increase of flood levels within the city during the occurrence of the base flood discharge.

- (2) If subsection (1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this subdivision.

- (3) Prohibit the placement of any manufactured homes>

(1976 Code of Ordinances, Section 14-344-18)

20. Standards for Areas of Shallow Flooding

Located within the areas of special flood hazard established by this article are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and 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 above the highest adjacent grade at least as high as the depth number specified in feet on the city's FIRM (at least two (2) feet if no depth number is specified).

- (2) All new construction and substantial improvements of nonresidential structures:

- (A) Shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on city's FIRM (at least two (2) feet if no depth number is specified); or

- (B) 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.

- (3) A registered professional engineer or architect shall submit a certification to the city manager that the standards of this section are satisfied.

- (4) Require that within zones AH or AO adequate drainage paths around structures on slopes are provided to guide flood waters around and away from proposed structures.

(1976 Code of Ordinances, Section 14-344-18.1)

21. Separability

If any article, paragraph or subdivision, clause, phrase or provision of this article shall be adjudged invalid or held unconstitutional the same shall not affect the validity of this article as a whole or any part or provision thereof, other than the part so decided to be invalid or unconstitutional

22. Penalty

Any person, firm or corporation violating any of the provisions of this article shall be deemed guilty of a misdemeanor and, upon conviction, shall be punished as provided in Section 1.106 of this code for each offense, and each and every day of such offense is continued shall constitute a new and separate offense. (1976 Code of Ordinances, Section 14-344.20)

A. General

The criteria herein provided shall govern the design of storm drainage improvements within the City of Lancaster. Improvements shall include streets, alleys, storm sewers, channels, culverts, bridges, swales, and any other facilities through which storm water flows. All drainage improvements shall be constructed in accordance with City specifications and be located entirely in dedicated right-of-ways (ROW) or drainage easements. The Developer shall provide all the necessary easements and ROWs, on-site and off-site, required for drainage structures, including storm sewers and open channels with access ramps. Easement width for storm sewer pipe shall not be less than fifteen (15') feet, and easement width for open channels shall be at least twenty-five (25') feet wider than the top of the channel with twenty (20') feet on one side to serve as an access way for maintenance purposes.

The Developer shall be required to install at his own expense all storm sewers and drainage structures, and appurtenances, designed to convey the 100 year design storm. This policy is applicable to all required drainage facilities including the channel improvements on the main channels and tributaries.

The Developer shall be responsible for excavation and channel liner improvements based on the fully urbanized one hundred (100) year frequency discharge for the channel and to process a U.S. Army Corps of Engineers Permit 404.

B. Basis of Design

All storm drainage design shall be in accordance with the City's manual for the design of storm drainage systems.

1. Open Channels: When the runoff exceeds the capacity of a seventy-two (72") inch diameter concrete pipe or equivalent cross sectional pipe area (i.e., 2-51 inch diameter concrete pipe), the discharge can be carried in an open channel. Open channels shall be designed to carry the one hundred (100) year frequency storm runoff from a fully urbanized watershed with two (2') foot of freeboard. Improvements to existing channel shall include all Corps of Engineers permitting (#404 permit), Federal Emergency Management Agency map amendments and Environmental Protection Agency.
 - a. All hydraulic studies shall be based on known FEMA 100-year water surfaces. The height of concrete channel liner shall be at least one (1') foot above the fully urbanized one hundred (100) year water surface profile. Such profile shall be determined by backwater calculations using the HEC-RAS, HEC-2 computer program or other approved modeling methods, which take into account backwater effects from downstream bridges, culverts, and other obstructions.

- a. Special considerations of levees will be considered in conjunction with the City and U.S. Army Corps of Engineers.

- b. Earthen Channels: Earthen channels shall meet the following requirements:
 1. The velocity of flow will not exceed eight (8') feet per second.
 2. That channel banks be reinforced, such reinforcing methods shall be approved by the City.
 3. That sufficient energy dissipation is designed and constructed at all locations where concrete lining meets earthen slopes and bottoms.
 4. That drainage easements are dedicated to encompass the area below the elevation of the water surface profile of a fully urbanized one hundred (100) year frequency storm, plus two foot of freeboard and any additional area necessary to provide access for maintenance, but not less than sixty (60') feet in width.
 5. That, arrangements have been made for perpetual maintenance of the channel by the adjacent property owners within the dedicated drainage easement or the channel has been dedicated and accepted for City Park purposes.
 6. That, in the judgement of the Public Works Director, the appropriate use of the neighboring property or the health and safety of persons affected will not be substantially injured.
 7. Earthen channels, when approved, shall be constructed with a trapezoidal shape and a minimum bottom width of twelve (12') feet and side slopes not steeper than four (4') feet horizontal to one (1') foot vertical (5 to 1 preferred). A reinforced concrete pilot channel not less than twelve (12') feet in width or, as determined by the Public Works director, shall be constructed. The side slopes shall be smooth, free of rocks, and contain a minimum of six (6") inches of top soil. Gabion, rock, rubble, riprap, or other such similar materials shall be placed a minimum of four (4') feet along both sides of the pilot channel to a depth of at least two (2') feet. Size and gradation of such material shall be determined based on peak discharge velocity requirements. The pilot channel shall be constructed as approved by the Public Works Department. The easement width for an earthen channel shall extend at least twenty (20') feet beyond the top of each

channel bank and shall not be cross-fenced. The top of bank areas shall remain open for maintenance purposes.

After proposed earthen side slopes are cut, slopes shall be established in accordance by the City's specifications with grass or other vegetation as directed by the City. The grass shall be planted to twenty (20') feet outside the top of banks, and no less than one (2) two-inch high spring per half square inch of slope and bottom.

The water surface profile (hydraulic grade line) for the one hundred (100) year frequency storm shall be shown on all sections and profiles. Maximum permissible velocities for the one hundred (100) year frequency flow shall be eight (8') feet per second in partially concrete lined channels while in fully lined channels, the maximum permissible velocities for one hundred (100) year frequency discharge shall be fifteen (15') feet per second.

Special consideration should be given to outlet structures on channels where concrete lining meets earthen banks.

One reinforced concrete access ramp shall be provided at all intersections of every open channel with a public street. Access ramps shall be a minimum of twelve (12') feet wide with a maximum slope of sixteen (16%) percent.

2. Bridges and Culverts: All bridges and culverts shall be designed in accordance with the City's Drainage Manual. The fully urbanized one hundred (100) year frequency storm hydraulic grade line shall be plotted on all sections. All culverts shall have headwalls and wingwalls upstream and downstream. All culverts shall pass the fully urbanized one hundred (100) year frequency storm runoff without allowing runoff to pass over the road. All bridges shall have channel bottom and slopes concrete or gabion lined. The low point on the bridge structure shall be at least two (2') foot above the fully urbanized one hundred (100) year frequency storm water surface.
3. Lot Grading: existing and proposed grading plan of developments shall be provided. The contour interval shall be ~~0.2'~~ two (2') feet unless other interval is approved by the Director of Public Works.

Commercial lot grading will be conducted in a manner, which will take all runoff to the adjacent streets or drainage easements. No lot area will drain onto adjacent properties without approval of the Director of Public Works.

Finished floor elevations shall be set a minimum of one (1') foot above the top of curb at the centerline of the lot or one and two (2') feet above the one hundred (100) year frequency storm water surface elevation, whichever is higher.

4. Off-Site Drainage: In respect to offsite drainage, the following provisions shall apply:

- a. The Developer shall be responsible for all runoff from property upstream of his proposed development as though it were all fully developed. Runoff coefficients utilized to design drainage systems for the properties involved shall use the current zoning and/or the future use of the property as shown in the Future Land Use Plan, whichever is the most intensive use.
- b. Effect of the development's drainage design on downstream properties and adjacent properties shall be given proper consideration. Water concentrated in streets, pipes, drains, culverts, and channels will be moved to a recognized watercourse without damage to intervening structures or undue spreading across intervening land.

The Developer is responsible for constructing all offsite channelization or underground storm drain with overland relief required to discharge concentrated storm water from the low end of his development to the recognized watercourse, and also to obtain all the necessary easements from intervening land owners. Calculations will be required to show that connecting offsite drainage ways are capable to handling any increase in runoff due to development, concentration, or diversion for at least the ten (10) year storm frequency.

Any drainage easements necessary due to the Developer's alteration of existing concentrated discharge locations (i.e., existing creeks, channels, or storm sewers) shall be acquired by the Developer at no cost to the City.

- c. Where the preliminary drainage analysis by the Developer indicates that additional runoff from the developing property will overload downstream drainage facilities and result in hazardous conditions, the City may withhold approval of the development until appropriate provisions have been made.
- d. Developer and his Engineer shall furnish to the City, a "hold harmless agreement" and a "release of liability" indemnifying the City of Lancaster from any liabilities due to damages cause to the downstream property owner by the discharge of storm drainage water from the said development.

C. Preliminary Drainage Analysis Guidelines

The purpose of a Preliminary Drainage analysis is to determine the need for drainage facilities and drainage easements either within the proposed development or offsite. These guidelines shall be used as the minimum for a Preliminary Plat. When requested by the Public Works Department, a Preliminary Drainage Analysis shall be submitted with a Replat or Short form Plat. The Preliminary Drainage Analysis shall consist of the following items:

1. A topographical map drawn at a scale of 1" – 200' and depicting the entire natural watershed, which drains to and across the subdivision. Also a map, which includes the subdivision and an area extending for 200' in all directions from the proposed subdivision as a minimum. The map must also include contour lines at one-foot vertical intervals or less depending on terrain. Flat areas will require a contour interval at ~~0.2 two (2')~~ two (2') feet. Data from the City topo maps will be acceptable where available. Data from the USGS Quad sheets will be acceptable only where City topo maps are not available. Field surveys may be required to clearly depart the area.

The map shall indicate any offsite or adjoining areas outside the limits of the area being platted, which are relevant to onsite drainage. Show any proposed or existing drainage and utility easements, water bodies, streams, and railroads, parks, cemeteries, and drainage ditches. Show location of existing utilities including gas and petroleum lines, electric, telephone and TV cable. Also, the location of any existing structures located within the area being proposed for the subdivision.

The datum for all topography shall be that of the United States Coast Guard and Geodetic Survey. The Preliminary Analysis shall be sealed by a Professional Engineer licensed by the State of Texas.

2. Calculation of the drainage areas, time of concentration, and storm water runoff rate for the 100-year frequency storms shall be provided in accordance with City's Storm Drainage Manual.
3. Identification of special flood hazard areas as defined by the flood Damage Ordinance and as located by the current Flood Insurance Rate Map shall be shown and for FEMA panel number provided.

D. Drainage Study Guidelines

A Drainage Study is required when it has been determined that the area being developed will require storm water drainage facilities or drainage easements either within the development or offsite. The following criteria shall be used by the Design Engineer to prepare a Drainage Study.

1. The study shall analyze the effect of the subdivision on existing downstream drainage facilities. The study shall be sufficient to verify compliance with the City's criteria.
2. The study shall include a topographical map as defined above in Subsection C. "Preliminary Drainage Analysis Guidelines."
3. Delineation and calculation of drainage areas together with proposed flow arrows shall represent flow patterns from runoff after all proposed improvements have been installed. Surface water drainage patterns shall be shown for each and every lot in the proposed subdivision and for each lot adjacent to the proposed subdivision (proposed grading plan).
4. In addition to those calculations required by the preliminary Drainage Analysis, this study shall also include:
 - a. Hydraulic calculations to each lateral, manhole, inlet and outlet structure in the system. Such calculations shall be in tabular form as outlined in the City's Storm Drainage Manual and be made part of the construction plans.
 - b. Inlet calculations utilizing the minimum time of concentration for the zoning type which is contributing the largest "CA" to the inlet. Such calculation shall be in tabular form as outlined in the City's Storm Drainage Manual and made part of the construction plans.
5. If any portion of the proposed subdivision or its offsite improvements (including pipes or ditches) fall within the limits of a Federal Emergency Management Agency (FEMA) floodplain, additional backwater calculations may be required. Additional calculations in the form of a Conditional Letter of Map Revision will be required if:
 - a. Any portion of the proposed subdivision is determined to be located within a FEMA Zone "A" floodplain; or
 - b. Any portion of the proposed subdivision is determined to be located within a FEMA Zone "AE" floodplain and the overall subdivision (including all phases) is five (5) acres or larger; or

- c. Any portion of the proposed improvements from a subdivision include dredging or filling within a FEMA designated floodway.

Backwater calculations shall comply with normally accepted standards as required by FEMA for application of a Letter of Map Revision (LOMR). In addition, the calculations must begin with a previously defined Base Flood Elevation (BFE). The calculations shall continue upstream through the project until the proposed BFE is within .01' feet of the existing BFE or the limits of the existing Zone "A" have been reached.

A LOMR will be required prior to issuing building permits.

6. The Drainage Study shall be sealed by a Professional Engineer licensed by the State of Texas. The following certification shall be included on the study and signed and sealed.

I, _____, a Professional Engineer in the State of Texas, have prepared this drainage study based on good engineering practice and in compliance with the latest published requirements and criteria of the City of Lancaster, FEMA, and the Corp of Engineers, and have verified that the topographic information used in this study is in compliance with said requirements and is otherwise suitable for developing this workable Plan of Drainage which can be implemented through proper subsequent engineering design and preparation of workable construction plans.

DRAINAGE IMPROVEMENTS

All work and materials shall be in accordance with the City's General Design Standards, Storm Drainage Manual and Standard Construction Details.

1. Storm Sewer Pipe Embedment

- a. A compacted crushed stone six (6") inches thick shall be required under the bottom of the pipe
- b. The initial backfill of fine granular material shall be required to a minimum of twelve (12) inches over the top of the pipe.
- c. All ditches not under existing or proposed paving sections, where ditches cross existing or proposed street or alley sections the ditch shall be mechanically compacted to 95% Standard Proctor Density, unless otherwise approved by the Director of Public Works.

2. Pipe Joints

The joints shall be constructed and jointed together in such a manner that no spill through or backfill will occur. This includes the lift holes used in certain size, and types of pipe. The use of the following types of joint materials are acceptable.

- a. Cold applied, plastic asphalt joint compound
- b. Rubber gaskets
- c. Cold applied, performed plastic gasket

3. Storm Drainage Inlets

- a. The type of drainage inlet shall be as indicated on the construction plans. For secondary and major street sections, a recessed type inlet shall be required. For industrial and residential streets a curb line inlet will be acceptable unless otherwise shown on the construction plans.
- b. Pipe backfill on 10% grades or greater should be stabilized, minimum half way up the pipe.
- c. A round manhole cover with locking device shall be placed on all inlet tops.
- d. The inlet throat shall be constructed with a rounded section with a maximum depth of opening of a maximum six (6") inches unless otherwise shown on the construction plans.

SECTION 1-07 STREET LIGHTING (TXU)

(Chapter 9, Article 9.300)

A. Installation

Street light in all subdivisions shall be installed on approved metal (*galvanized steel*) poles.

1. Poles must be approved by Texas Utilities Electric and Gas (TXU) and the Public Works Director.
2. Poles shall be contracted and paid for by the Developer during the construction phase of a subdivision and before building permits are issued.
3. Requirement for fiber-class galvanized poles only. Poles not purchased through TXU, shall be certified in writing by a Professional Engineer licensed in the State of Texas to meet the specifications as required by TXU.

B. Location

The location of street lights shall be as follows:

1. At all intersections.
2. Where a new street intersects an existing street.
3. Where a block is three hundred (300') feet or longer, a street light shall be installed every four hundred (400') feet or mid-block, whichever is the shortest distance.
4. If more than one mid-block light is required, they shall be installed to create an equal balance of light throughout the entire length of the block.
5. If a cul-de-sac block is three hundred (300') feet or longer, a street light shall be installed in the end of the cul-de-sac.
6. Street light poles should be at a minimum of ten (10') away from any obstruction.
7. Street lights shall be installed at any other location as may be directed by TXU or the Director of Public Works for the welfare and safety of the community.

SECTION 1-08 MASONRY/CONCRETE SCREENING WALLS

(Chapter 9, Article 9.400)

A. Construction

Masonry or concrete screening walls shall be constructed according to the following specifications.

1. Concrete foundations shall have a minimum compressive strength of 3000 psi at 28 days meeting the requirements of NCTCOG Class "A" concrete. Compressive strength tests conducted by an independent testing laboratory shall be submitted to the City staff for confirmation. All testing costs shall be paid by the developer or his contractor.
2. Reinforcing steel shall be billet steel conforming to the requirements of ASTM A-615-GR.60.
3. Concrete for piers shall be placed within 8 hours of drilling pier holes, and protected, and poured dry immediately.
4. Material used for screening fence shall be approved by the City of Lancaster Standard Details.
5. Mortar shall be Type "S".
6. Construction shall be in accordance with the requirements of the City of Lancaster Design Manual.
7. The wall shall be a minimum of six (6') feet in height as measured from the nearest/adjacent sidewalk grade. No masonry or concrete screening wall or column shall exceed eight (8') feet in height unless the wall is functioning as a retaining wall and is designed as such. Note: Wood is prohibited.
8. Unless it has been determined by the Director of Public Works that no drainage problems are anticipated, openings designed to allow for storm water drainage shall be provided.
9. No prefabricated or simulated screening fence shall be allowed.
10. All screening walls i.e. masonry, concrete, rock, stone, decorative Concrete Masonry Unit (CMU) shall be designed by a Professional

Structural or Civil Engineer licensed in the State of Texas. Sealed plans shall be submitted to the City for review.

Location

1. No wall shall be located on public right-of-way.
2. Sight triangles shall be provided at street intersections according to the schedule contained in the Zoning Ordinance.
3. The location and placement of a wall shall be installed to avoid conflicts with utility and drainage easements.

B. Plan Approval

1. Plans are to be designed, signed, sealed and dated by a Professional Engineer licensed in the State of Texas and furnished with the following information:
 - a. The title shall include the legal name of the property owner's on which the wall is being constructed.
 - b. A plan view of the wall showing its location, limits, and stationing.
 - c. A profile of the wall including grades for the top of the concrete mow-strip, adjacent top of curb, sidewalk and finished floor of proposed and/or existing adjacent slabs.
 - d. Elevation view of a typical column.
 - e. Elevation view of the wall.
 - f. Mow-strip detail
 - g. Drainage clearance under wall (2" minimum).
 - h. Steel tensile strength.
 - i. Concrete compressive strength.
 - j. Wind load calculations.
 - k. Construction details of screening walls.
 - l. Pier design.

SECTION 1-09 EARTHWORK

(Chapter 3, Article 3.1300)

A. Definitions

1. Conceptual Grading Plan- A topographical map of the subdivision to provide a clear definition of the initial elevations, watercourses, and drainage patterns. The grading plan shall involve a minimum 50' feet beyond the subdivision limits to establish an overview of the area. In addition, a proposed grading plan shall be provided. The two plans must be sealed and signed by a Professional Engineer Licensed by the State of Texas.
2. Excavation- The removal of turf, soil, rock or weeds such that the surface is six (6") inches lower than the initial elevation.
3. Fill- The deposition of rock, concrete, soil or sod such that the cumulative thickness of all materials is equivalent to six (6") inches or greater.
4. Final Grading Plan-A topographical map of the subdivision with sufficient perimeter area to provide a clear definition of the initial elevations, watercourses and drainage patterns. In addition, the plan shall include ~~0.2'~~ *two (2')* feet contours, spot elevations and flow arrows. The plan is in sufficient detail and scale to determine limits and depths of excavation or fill. The plan must be signed and sealed by a Professional Engineer license in the State of Texas. All fill *and excavation* shall be mechanically compacted in eight (8") loose lifts and mechanically compacted to 95% standard proctor density at optimal moisture. All reports must be furnished to the City.
5. Grading-The movement of dirt, top soil, grass, native material, brush, trees, landscaping or other forms of surface material which will result in a long term difference of six (6") inches or greater from the initial elevation.
6. Initial Elevation-The mean sea level elevation as it existed five (5) years prior to the current date.
7. Multi-Lot Subdivision-A division of any tract of land into two or more parcels.

B. Unplatted Multi-Lot Subdivision

When multi-lot subdivision has been proposed for platting, but has not yet been approved by the City, the following provisions shall govern the excavation and fill process.

1. A conceptual grading plan shall be submitted to the Public Works Department. The plan will be reviewed for consistency with City ordinances and policies. If the concept is approved, a 30-day permit will be issued to allow grading to begin with are-qualify fee.
2. The process must be inspected by a Public Works Department representative and all lifts shall be tested for compaction in each 8" lift and approved by approved laboratory. Each lift is defined as a maximum 8" loose lift mechanically compacted to 95% prior to filling. The existing grade shall be scarifiered to a minimum depth of 6 inches. *All tests shall be done by an independent testing laboratory.*
3. Areas which fail the compaction tests shall be excavated, the material replaced (or new material imported, depending on moisture content) recompacted and retested.
4. Areas which have been filled without adequate compaction tests or without inspection by the City, shall be considered as areas which have failed the compaction tests and such fill removed and the fill section constructed with proper testing and observation.

C. Platted Multi-Lot Subdivision

When a multi-lot subdivision has been platted in accordance with the existing Subdivision Ordinance and the plat has been filed with the County, the following provisions shall apply.

1. A final grading plan shall be submitted to the Public Works Department. The plan will be reviewed for consistency with City ordinances and policies. If the plan is approved by the Public Works Department, the applicant will be allowed to begin the excavation and fill process.
2. The process must be inspected by a City Representative and all fill shall be tested for compaction. Tests results to be furnished to Public Works Director as they are completed.

3. Areas which fail the compaction tests shall be excavated, the material replaced (or new material imported, depending on moisture content) recompacted and retested.
4. Areas which have been filled without adequate compaction tests or without inspection by a City Representative shall be considered as areas which have failed the compaction tests and such fill removed.
5. Areas of a multi-lot subdivision which are not graded at the same time as the rest of the subdivision will be required to comply with the provisions of a single-lot subdivision.

D. Single-Lot Subdivision

All single lot subdivisions shall be required to obtain a Grading and Excavation Permit. Note that single-lot subdivision shall be considered multi-lot if the subject parcel and any adjacent parcels are filled.

E. Testing

All compaction shall be tested by an approved soil-testing laboratory approved by the City.

1. The testing facility must ~~maintain a current be registered with the City permit with the Public Works Department. A sample application is included in the Appendix.~~ The Public Works Department may disallow any and all firms which cannot or refuse to meet the minimum criteria **established** ~~in the applications ordinance.~~
2. All lots that are filled must be compacted to 95% Standard Proctor Dry Density and ~~P.I.-based~~ **Placity Index (P.I.) on** optimum moisture.
3. Tests shall be taken at eight (8") inch lifts on each lot.
4. Slopes created by excavation or fill shall not exceed nine (9) horizontal to one (1) vertical in residential areas and a minimum 3:1 in other locations approved by the City.
5. All select backfill shall not have rock or stone (debris) larger than four (4") inch in all directions.

SECTION 1-10 UTILITY CROSSINGS

(Chapter 3, Article 3.1300)

- A. Tunneling and boring ***under*** ~~city streets~~ *city streets, paved structuring, and tree lines* shall be accomplished by means of jacking, boring or tunneling, equipment, which is subject to the City approval prior to start of operation.
- B. The voids outside of the carrier pipe or casing pipe shall be backfilled by hydraulically placed material so that there are no open voids over the roof of the tunnel or bore. This shall be done without damage to the roadway surface.
Maximum, of one (1") inch of head space should be hydraulically placed. Shall maintain a minimum eighteen (18") inches from water- and wastewater utility lines.
- C. All bore pits, trenches, opencuts, and holes shall be ***backfilled inspected within 48 24*** ~~hours after installation~~ ***and inspection of utility lines. The method of compaction*** shall be in accordance with the earthwork section of this manual. Any excess or surplus material resulting due to displacement of utility lines and conduits shall be disposed of in an acceptable manner to the City.
- D. The street sections that are shown as typical sections shall apply to any alleys, driveways, roadways, etc., which will be within a City right-of-way or easement.
- E. The Contractor shall be required to install all necessary warning and safety devices in accordance with TXDOT Manual of Traffic Control Devices Part IV and or that addition required to protect the safety and health of the public until the work has been furnished and accepted by the City.
- F. Utility crossings of state and federal highways or railroads shall meet the requirements of that agency. Such approved permits from those agencies shall be provided to the City, prior to construction commencing.

The use of a casing pipe will be based upon the specific project location and soil conditions. The approved plans will show casing pipe if it is to be used on the specific bore in question.

**CITY OF LANCASTER, TEXAS
WIRELESS COMMUNICATION USE OF CITY WATER TANKS**

GENERAL REQUIREMENTS

SUBMITTAL PROCESS

1. Letter to City requesting consideration to use specifically identified site. Letter to include type of wireless communication and general equipment proposal. Include a statement that no expense will be borne by the City for submittal information. Statement to acknowledge public hearing and action by City Council required to accept or reject request to use a City owned site.
2. Approval and subsequent executed contract agreements will include full insurance coverage as outlined in Attachment A.
3. Detailed submittal of engineering drawings.
4. Letter from Tank Manufacturer.
5. Artist rendering of additions to the site.

COSTS/LEASE TERMS

1. The City desires a 5-year lease with two 5-year renewable lease options for each site.
2. All expenses required for additions to the site and telecommunications maintenance shall be at the expense of the telecommunications company.
3. All expenses required to make a complete submittal package shall be at the expense of the telecommunications company.
4. Telecommunications companies will be responsible for obtaining and paying for all required utilities.
5. Lease terms can be structured to provide monthly payments or in kind services or a combination of each. Lease terms should consider the renewable options and should include inflationary increases.

REQUIREMENTS

1. Public hearings will occur that will be hosted by the City Council or other Council appointed board. Final decisions of acceptance or rejection of each proposal will be made by the City Council.
2. Fully developed plans with complete details will be required as part of any submittal package for consideration. Artist rendering or illustration will be required to show the effects of telecommunication additions to the tank structure and affects on adjacent properties.
3. Telecommunication companies will be responsible for repairs and relocation's to existing irrigation and landscaping due to their activities.
4. All improvements to the site shall be permanent in nature and meet all building codes. Cabinets and structures shall be adequately landscaped. Improvements shall blend with the surrounding community.
5. No exterior lighting is expected. All lighting shall be internal to telecommunications equipment.
6. Telecommunications companies shall provide typical routine maintenance schedule and projected emergency access to the City sites.
7. No entry into the tank structure shall be permitted by telecommunications personnel, unless in the company of the City of Lancaster personnel.
8. All access to the site will be through the existing gate. Telecommunications companies will have access to the site 24-hours a day.
9. Telecommunication company shall have tank manufacturer review proposed attachments to water tank and provide a letter, sealed and signed by a Professional Engineer registered in the State of Texas, stating that the improvements have been reviewed and that no adverse affects will be placed on the structure due to live, dead and wind loads. Further, the tank manufacturer will need to state any reservations that may exist.
10. No penetrations shall be made to steel or concrete portions of any tank or tank structure without design calculations being provided as part of No. 9 above.

11. Any attachment made to a steel tank or steel tank structure interior or exterior shall be welded and all damage to existing coating system repaired and recoated to match the existing coating system. Attachments shall be coated in the same manner as the repair work. No welding or attachments will be allowed on the wet riser or on the wet compartment. No telecommunication equipment or appurtenances shall interfere with the City's existing electrical or telecommunication equipment or the alike.
12. Any bands or attachments made to concrete structures shall be stainless steel. Such devices shall not chip or spall the existing concrete.
13. All cable or conduit runs located on the exterior of the tank or tank structure shall be totally enclosed. Such enclosed cable or conduit trays on concrete structure shall be stainless steel, on steel tank structure the trays shall be steel and shall be coated to match the existing color of the tank and tank

structure. All conduit runs between tank and telecommunication's cabinets or buildings shall be underground.

14. Any cable or conduit runs located on the interior of the tank or tank structure shall be attached to existing ladders in a secure and rigid fashion. Such attachments or hangers shall be stainless steel. In addition, no cable or conduit shall be run and/or attached to the existing floor. Empty conduits in the floor may be made available for telecommunication companies use. Cable or conduit runs shall not interfere with ladders, safety devices or access routes.
15. Any secondary user or a site shall make improvements that are aesthetically compatible with the primary telecommunication user, buildings, cabinets, landscaping and antennas shall match.

ADDITION INFORMATION

16. The City will accept proposals from telecommunication companies any time until specified. At that point in time the City will review the submittals. It is also anticipated that a public hearing would be scheduled at this time.

17. Record drawings for the following tanks may be available from the tank manufacturer or are available from Shimek, Jacobs and Finklea for a cost of \$5.00 per sheet:

<u>Tank Name</u>	<u>Date</u>
1. Ames Road	1976
2. Pleasant Run	1960
3. Wintergreen Road	2000
4. Beltline Road	2000

Universal Tank Out of Business – Revived company that may have records:
Phoenix Fabricators, P.O. Box 34410, Indianapolis, IN, 46234-0410, (317)271-7002

CBI Na-Con, P.O. Box 41146, Houston, TX 7724101146, (713)466-1226

PDM Inc., 1150 Hammond Drive, Suite 1250 A, Atlanta, GA. 30328, (404)393-9560

18. The letter from the tank manufacturers needs to include the opinion of their professional engineer as to the effects of the telecommunications companies proposed modifications to their original design.

19. The Artist rendering should include the improvements being proposed by the telecommunications company, which will affect the site. This would include any attachment to the tank structure and any site improvements.

20. The telecommunications company will be responsible for equipment facilities. The City is only providing a potential facilitating equipment.

21. Additional questions concerning the requirements established by the City of Lancaster should be addressed to Shimek, Jacobs & Finklea.

TANK PREPARATION AND PAINTING

A. Surface Preparation

All steel surfaces shall be thoroughly cleaned of all existing paint and mill scale by abrasive blasting in the field after erection of all steel members. All interior surfaces shall be abrasive blasted to a near white metal blast in accordance with Steel Structures Painting Council Specification SSPC-SP10 after erection of all steel members. All exterior surfaces shall be abrasive blasted to a commercial finish in accordance with SSP-SP6. If blasting of any previously painted surfaces is required, the blast finish shall be feathered to provide a smooth uniform paint finish.

Final determination of blasting quality shall be determined by the Owner. All abrasive blasting shall be performed in full accordance with the latest regulations issued by the Texas Air Control Board.

The Contractor shall be in full conformance with the Texas Air Control Board's (TNRCC) General Rules for nuisance. If such a nuisance arises from the Contractor's work on this project, the Contractor shall immediately shutdown the work causing the nuisance and make the necessary changes in operation, including preventative shields and containment. Contractor shall provide whatever is necessary to resolve the nuisance caused by the Contractor's operation to the satisfaction of the State of Texas and the City. All cost of whatever the nature shall be included in the unit price bid for the project.

B. Standard of Comparison

The specific paint referred to in these specifications is manufactured by Valspar Chemical Company, or Carboline and is presented as a standard of comparison. Other paints may be acceptable if they are equal in quality as determined by the Owner. The Owner shall determine the acceptability of paints to be used. The Owner reserves the right to request the Contractor to supply a complete history of the paint system he proposes to use. This information would be used to determine acceptability of the system. All paints applied are to be by the same manufacturer. Any deviation of the specified paint systems must be presented at the Owner's Prebid Conference in writing for acceptance.

C. Paint System

All tank surfaces shall be coated after erection of all members as follows:

1. Interior Steel Painting

The interior paint system shall be certified by the national Sanitation Foundation – ANSI/NSF Standard 61 Drinking Water System Components for Potable Water Coatings.

After interior surfaces have been abrasive blasted they shall be painted by spraying with one coat of food grade Valspar 32-D-7 PWR High Build Epoxy, or Carboline 191 Epoxy Primer. Minimum dry film thickness shall be 5.0 mils throughout. All touch-up painting shall also be done with the approved prime paint. Prior to the first coat of paint, all welds shall be coated by brush with the approved prime paint thinned by 50% with the approved paint supplier's food grade thinner.

The second interior and final coat shall be applied by spraying one coat of white food grade Valspar 32-W-3 PWR Hi Build Epoxy, or Carboline 191 Epoxy Finish. The minimum dry film thickness of the second coat shall be 5.0 mils throughout.

Total dry film thickness of the interior paint after seven days (75°F Temperature) drying time shall not be less than 10.0 mils throughout. Contractor shall provide adequate forced ventilation during application and curing to achieve required results. Each coat of paint shall be applied in a uniform thickness and shall be feathered as necessary at its edges to prevent lap marks and provide a smooth paint finish. All interior paint shall comply to ANSI/NSF Standard 61.

2. Exterior Steel Painting

After exterior surfaces have been abrasive blasted they shall be painted by spraying or rolling, one coat of Valspar Val-Chem Hi Build Epoxy Primer. Minimum dry film thickness shall be 5.0 mils throughout.

The final exterior coat shall be applied by spraying or rolling one coat of Valspar, V 41 Series, Val-Chem Urethane Enamel, or Carboline 133 HB. The minimum dry film thickness shall be 5.0 mils throughout.

The minimum total dry film thickness of the exterior paint system shall be no less than 10.0 mils throughout. Each coat of paint shall be applied in a uniform thickness and shall be feathered as necessary at its edges to prevent lap marks and provide a smooth paint finish. The final coat may require placing this coating in more than one (1) coat to insure a uniform color. It shall be the Contractor's responsibility to produce the uniform cover on the exterior of this tank. If additional coats are used they shall be placed in thickness of 1.5 mils minimum.

Color of the exterior of steel shall be white. The column shall not be coated. Colors shall be reviewed and approved by the Owner. Colors for logos shall be selected and approved by the Owner. The logo shall consist of two coats of final coat 2.5 mils average, and shall include two coats of a clear coat compatible with the paint system. The logo will appear on four sides of the tank.

D. Application

Coatings shall be applied in accordance with paint manufacturer's recommendations found on the paint data sheets and are subject to inspection at all times by the on-site representative. Paint manufacturer's data sheets shall be submitted as part of the shop drawing submittal process. Contractor shall follow the Steel Structures Painting Council Good Painting Practice except where exceeded in these specifications.

No painting shall take place utilizing the interior paint system unless the atmospheric temperature is above 50°F and metal surface temperatures is about 50°F above the dew point. The relative humidity shall not be greater than 80%. Painting also shall not proceed if the temperature is expected to fall below 40°F before the paint has dried to the recoat window (24 hours) or if the surface temperature is at or above 110°F.

No painting shall take place utilizing the first coat of exterior paint system unless the atmospheric temperature is above 50°F and metal surface temperatures is above 50°F and a minimum of 5°F above the dew point. The relative humidity shall not be greater than 85%. No painting shall take place utilizing the several and final coat of the exterior paint system unless the atmospheric temperature is above 40°F above the dew point. The relative humidity shall not be greater than 89%. Painting utilizing the exterior system shall not proceed if the temperature is expected to fall below 40°F before the paint has dried to the recoat window (24 Hours) or if the surface temperature is at or above 110°F.

Contractor shall have sufficient number of compressors and adequate compressor output on site to complete the blasting and painting in a timely manner. Contractor shall have on site and utilize during the coating of the tank, two (2) 45:1 Ratio airless spray Graco Pumps or equal in working order.

All spray equipment shall be inspected and approved by Owner's representative before any application is begun. A moisture trap shall be placed in line from air supply to pressure pot and spray gun. This trap shall be opened slightly to provide a continuous bleed. Regulators and gauges shall be provided for air to both pressure pot and spray gun.

All abrasive and dust from blasting operations shall be removed from surfaces before paint application is begun. Blasted surfaces shall be coated with one coat of primer during the same day that blasting was done. Primer shall not be applied closer than six inches to non-blasted area. Any subsequent blasting operation shall not result in abrasive particles embedded in the paint film. The sequence to be followed in painting shall be such that a minimum of damage to finished coatings will result.

Spray guns must be held perpendicular to the surface being painted, handled and adjusted in such a manner so dry overspray is kept at a minimum.

The Contractor shall at all times protect the buildings, homes, automobiles and other items from blasting and paint that is being applied to the tank. Contractor shall be solely liable for all claims of damage of whatever nature which results from the blasting and/or painting operations on this project.

E. Inspection

All work shall be done in a workmanlike manner, so that the finished coating on the interior, exterior and all painted surfaces of the tank and structures shall be free from bubbles, runs, drips, ridges, waves and unnecessary brush marks and variations in color. In addition all surfaces that will be in contact with potable water shall be free of holidays and pinholes. With the roof structure being seal welded, the roof area (all surfaces above water level) shall be free of holidays and pinholes.

Inspection and acceptance of the abrasive blasting shall be achieved prior to application of the prim coat of paint on the tank. The Contractor shall schedule and coordinate his work with the Owner to allow for expeditious prosecution of the inspection and painting.

All paint film thickness shall be verified by the Contractor by measuring the wet film thickness of each coat as it is applied. The Contractor shall coordinate the use of the painting scaffolds and rigging with the Owner or his representative to provide regular access for the paint inspections. A wet film thickness measurements shall be made for each 100 square feet of surface painted.

All paint will be inspected for applied dry film thickness using a non-destructive magnetic gauge such as a Mikrotest Gauge or an Elkometer. Dry film thickness, pinholes and Holidays shall be inspected throughout the painted surface at locations determined by the Owner. Testing for dry film thickness will be done by the Owner or an independent testing laboratory which is chosen and paid by the Owner. General paint inspection will be done by the Owner. All work shall be done in a workmanlike manner, so that the finished coating on the interior and exterior of the tank shall be free from bubbles, runs, drips, ridges, waves, brush marks and variations in color.

The Contractor shall minimize lap marks created from the seal of the containment system. These areas shall be strategically located in welled seams.

F. Safety Precautions

The Contractor shall be fully responsible for the safety of the workmen on this project and public in the vicinity of this tank at all times during the removal of the rust and mill scale, painting and sterilization of the tank. The Contractor shall be responsible for meeting all OSHA Safety Standards and Regulations. Protective equipment, abrasive resistant clothing, safety shoes, leather gloves, ear protection and OSHA approved respirators shall be utilized as a minimum during blasting and painting on this tank. All respirators shall be air fed. Contractor shall provide all workers, Owner Personnel and all other persons on site the minimum described safety equipment as well as that required by OSHA.

G. Contractor Liability

Contractor shall be solely liable for all claims for personal and property damage, including death, which result from the blasting, painting and sterilization operations on this project. The Contractor shall take special precautions to control paint from damaging automobiles, homes and other facilities in the developed area around the tank. If complaints are received by the Contractor or the Owner, the Contractor shall investigate the complaint immediately and report in writing to the Owner corrective action he is taking. It shall be the Contractor's complete responsibility to correct or make whole any damage or injuries caused by his painting operations.

EXHIBIT A

INSURANCE REQUIREMENTS

Vendor shall procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property that may arise from or in connection with the performance of the work hereunder by the vendor, his agents, representative, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. ISO Form Number GL 0002 (Ed 1/72) covering Comprehensive General Liability and ISO Form Number GL 0404 covering Broad Form Comprehensive General Liability; or ISO Commercial General Liability coverage ("occurrence" Form CG 0001). "Claims made" form is unacceptable except for professional liability.
2. Automobile liability shall include all owned, hired and non-owned vehicles.
3. Worker's Compensation insurance as required by the Labor code of the State of Texas, including Employer's Liability Insurance.

B. Minimum Limits of Insurance

Vendor shall maintain limits not less than:

1. Commercial General Liability: \$5,000,000 per occurrence for bodily injury, personal injury and property damage. \$10,000,000 Aggregate Policy will include coverage for a) Premises – Operations; b) Broad Form Contractual Liability; c) Products and Completed Operations; d) Use of Contractors and Subcontractors; e) Personal Injury; f) Broad Form Property Damage; g) Explosion Collapse and Underground (XCU) Coverage, Fire Damage, Medical Expense. NOTE: The aggregate loss limit applies to each project.
2. Automobile liability: \$1,000,000 combined single limit per accident, for bodily injury and property damage.
3. Worker's Compensation and Employer's Liability: Worker's Compensation limits as required by the Labor Code of the State of Texas and Statutory Employer's Liability Limits.

C. Deductibles and Self-Insured Retentions

Any deductible or self-insured retentions must be declared to and approved by the City.

D. Other Insurance Provisions

The policies are to contain, or be endorsed to contain the following provisions:

1. General Liability and Automobile Liability Coverage
 - a. The City, its officers, officials, employees, Boards and volunteers are to be added as "Additional Insureds" as respects liability arising out of activities performed by or on behalf of the vendor, products and completed operations of the vendor, premises owned, occupied or used by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees or volunteers. It is understood that the business auto policy under "Who is an Insured" automatically provides liability coverage in favor of the City.
 - b. The vendor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees or volunteers shall be excess of the vendors insurance and shall not contribute with it.
 - c. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the City, its officers, officials, employees, Boards and Commissions or volunteers.
 - d. The vendor's insurance shall apply separately to each insured against who claim is made or suit is brought, except with respect to the limits of the insured's liability.
2. Worker's Compensation and Employer's Liability Coverage
The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, employees and volunteers for losses arising from work performed by the vendor for the City.
3. All Coverages
Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled or non-renewed by either party, reduced in coverage or in limits except after ten (10) ten days prior written notice by certified mail, return receipt requested, has been given to the City.

- E. **Acceptability of Insurers**
The City prefers that Insurance be placed with insurers with an A.M. Best's rating of no less than A-:VI, or, A or better by Standard & Poors. This requirement will be waived for worker's compensation coverage only for those vendors whose worker's compensation coverage is placed with companies who participate in the State of Texas Worker's Compensation Assigned Risk Pool. Professional Liability carriers will need to be approved by the Risk Manager.

- F. **Verification of Coverage**
Contractor shall furnish the City with certificates of insurance effecting coverage required. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates are to be on forms provided by the City and are to be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies, at any time.

Procedure Checklist for Right-of-Way Excavation Permit

Procedures for Right-of-Way Excavation Permit

All contractors must be registered with the City of Lancaster by completing the **Contractor Registration Form**.

Completion of the contractor registration form confirms that each contractor acknowledges receiving a copy of the City of Lancaster's Ordinances and Design Guidelines, and is registered with the City of Lancaster.

- Excavation/Grading Permit Fee:
- Proximity of subdivision to other locations in the area.
Utilities (SWBT, TXU, AT&T) are EXEMP from the permit fee.
All other excavation permit fees = \$50.00 each or 2.5% of Construction Cost.
- All contractors must complete the **Utility / Excavation Permit Application Form**.
(2) Two sets of plans must be submitted showing extent of proposed work.
This application must also be filled out for telephone calls requesting "Line Locates".
- The completed Utility / Excavation Permit Application Form will be reviewed by the R-O-W Permit Coordinator.
Upon approval by the R-O-W Permit Coordinator the approved Excavation / Utility Permit will be issued.
- The approved Excavation / Utility Permit will be issued and the Contractor will be contacted to pick-up the original approved permit.
The original Excavation / Utility Permit must be with Contractor at work site.
The Contractor is instructed (if noted on Permit) to call the R-O-W Coordinator to finalize when work is complete, call 972-227-6075.

Fee \$100.00 plus license as needed (utility exempt from fee)

Date: _____

Check One: Utility Contractor General Contractor

PRINT ALL INFORMATION

Company Information:

Name of Company:	Physical Address: City/State/Zip
Mailing Address: City/State/Zip	Phone:
Fax No.:	Mobile No.:
E-Mail Address	

Licensee Information: (Owner)

Name:	
Position with Company	
Personal Address	
City/State/Zip	Phone:

Print Names of Persons Allowed to Purchase Permits or Sign Validation Forms:

Prior to issuance of permits, the following must be submitted:

1. State License for the following trades: HVAC-PLUMBING-IRRIGATION – NA
2. Drivers License – NA
3. **\$100,000.00 Insurance with City of Lancaster as Co-Person – Excavation Permits-UTILITY CONTRACTORS EXEMPT FROM SUBMITTING COPY**
4. Paving contractors may obtain a \$1000 paving bond in lieu of insurance - NA

I, _____, so attest that I am the _____ of

(Name) (owner/employee)
(business name)

am authorized to correct errors, defects and deficiencies on work installed or performed by the business name.

I have received a copy of the City of Lancaster's Ordinances and Design Guidelines.

Date

Signature

**CITY OF LANCASTER
UTILITY/EXCAVATION PERMIT APPLICATION**

ALL CONTRACTORS SHALL BE REGISTERED WITH THE CITY OF LANCASTER

***REQUIRED 48 HOUR WAIT TO LOCATE LINES AFTER
PERMIT IS ISSUED***

Company Name:	Address:
Business Phone:	Business Fax:
Contact Name:	Contact Number:
Site Location:	
Scope of Work: <input type="checkbox"/> Street Bore <input type="checkbox"/> Ground Surface <input type="checkbox"/> Street Cut <input type="checkbox"/>	
Other/Explain	
Purpose of Work:	
Estimated Start Date:	
Completion Date:	
Applicant's Signature:	Date:
<i>I understand that all work shall be done in accordance with the City of Lancaster's Ordinances and Design Guidelines.</i>	
Application Fee: \$50.00 <input type="checkbox"/> Paid <input type="checkbox"/>	
Exempt(Utilities Only)	

(2) Sets of Plans must be submitted showing the extent of proposed work.

FOR QUESTIONS CALL, UTILITY CONSTRUCTION INSPECTOR AT 972-227-6075

This application must be filled out for calls requesting "Line Locates".

Section 1-12 - Storm Water Pollution Program

Insert Ordinance No. 42-00

An ordinance of the city of Lancaster, Texas, amending the code of ordinances of the city of Lancaster, Texas, as amended by adding article 9.900 establishing minimum performance standards to control erosion and sedimentation problems, providing definitions, providing for notice provisions, providing for a penalty of a fine not to exceed the sum of two thousand dollars (\$2,000.00) for each offense, providing a repealing clause, providing a severability clause, and providing for an effective date

Section 1-13 Fee Schedule/Prevailing Wage Rates

Insert Fees and User Charges

Insert Prevailing Wage Rates

Insert Resolution No. 37-99

A resolution of the city council of the city of Lancaster, Texas Dallas County, Texas determining the prevailing rate of per diem wages for Public Works construction in the city; and providing an effective date.

Section 1-14 - Benchmarks

Insert GPS Monument Control Sheets

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANCASTER, TEXAS, THAT:

WHEREAS, the City Council of the City of Lancaster and its staff desire to establish minimum design criteria for all public works and utility improvements proposed to be installed; and

WHEREAS, the City Council has a Subdivision Ordinance which references a "General Design Manual" for said public works and utility improvements; and

WHEREAS, revisions have been made to the Design Manual.

NOW, THEREFORE, be it resolved that the attached Public Works Design Manual shall be approved and shall take effect from and after its passage.

PASSED AND APPROVED, this the 13th day of December, 1999.

APPROVED:

Martha Wallace - Mayor

ATTEST:

Marian Barnett – City Secretary

APPROVED AS TO FORM AND LEGALITY:

Robert E. Hager – City Attorney - Nichols, Jackson, Dillard, Hager & Smith, L.L.P.

CITY OF LANCASTER, TEXAS

GENERAL CONSTRUCTION DESIGN MANUAL AND SUBDIVISION REGULATIONS

Purpose

This following document contains the various construction criteria, techniques, and details, which are the minimum requirements of the City of Lancaster for public facilities. This data is primarily intended for the use of the Developer and his Engineer to enable the applicant to provide the proper design for the public facilities associated with a proposed development or project. This criteria is not intended as an exhaustive list of the construction techniques available. In the event that specific circumstances dictate additional requirements, it shall be the responsibility of the Engineer of record to provide the necessary details for construction to be approved by the Public Works Department.

The review is only for general conformance with the design concept of the project and general compliance with the information given in the contract and construction documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction, coordination of there work with that of all other trades and performing there work in a safe and satisfactory manner.

This design criteria and details may be modified by administrative action of the City and subsequent Resolution by the City Council at such times as may be appropriate in keeping with the most up-to-date construction techniques and specifications of the North Central Texas Council of Government (NCTCOG).

Insert approved agenda item:

Ordinance No. _____

Consider approval of ordinance amending the city of Lancaster Ordinances Chapter 3, Section 3.1000 through Section 3.1500 and Chapter 9, Section 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7 on subdivisions and storm drainage systems.

TABLE OF CONTENTS

CONTENTS	
SECTION 1-01 PROCEDURE CHECKLIST/Chapter 9,Art.9.2.00	
SECTION 1-02 STANDARD CONSTRUCTION PLANS/Chapter 9,Art.9.300	
Construction Plans – Construction Plan Requirements	
Other Utilities	
SECTION 1-03 WATER SYSTEM/Chapter 9, Art. 9.300	
Review Process	
Water System Extensions	
Fire Hydrants	
Required Water Main Extension	
Materials and Workmanship	
Water Systems Improvements	
Water Mains	
SECTION 1-04 SEWERAGE SYSTEM/Chapter 9, Art. 9.300	
General Sewerage System Extensions	
Sanitary Sewer Improvements Design Criteria	
Lift Stations or Separate Treatment Facilities	
Connections	
Alternate Sewage Systems	
SECTION 1-05 STREET SYSTEM/Chapter 3, Art. 3.100	
Streets Required / Paving Improvements	
Street Design Criteria	
Sidewalks	
Driveway Standards	
SECTION 1-06 STORM DRAINAGE IMPROVEMENTS/Chapter 3, Art.3.1400	
General	
Basis of Design	
Preliminary Drainage Analysis Guidelines	
Drainage Study Guidelines	
Drainage Improvements/Chapter 9,Art. 9.300	
SECTION 1-07 STREET LIGHTING/Chapter 9, Art. 9.300	
Installation	
Location	

TABLE OF CONTENTS

CONTENTS	
SECTION 1-08 MASONRY/CONCRETE SCREENING WALLS/Chap.9,Art.9.400	
Construction	
Location	
Plan Approval	
SECTION 1-09 EARTHWORK/Chapter 3, Art. 3.1300	
Definitions	
Unplatted Multi-Lot Subdivision	
Platted Multi-Lot Subdivision	
Single-Lot Subdivision	
Testing	
SECTION 1-10 UTILITIES, R-O-W, TELECOMMUNICATION	
Utility Crossing	
Right-of-Way Ordinance	
Telecommunications of City Facilities	
Procedures Right-of-Way Excavation Permit	
SECTION 1-11 TREE ORDINANCE & PARK LAND ORDINANCE/Chapter 12, Art.12.700	
SECTION 1-12 STORM WATER POLLUTION PROGRAM/Chapter 9, Art. 9.900	
SECTION 1-13 FEE SCHEDULE/PREVALING WAGE RATES/Resolution 37-99	
SECTION 1-14 BENCHMARK	
STANDARD CONSTRUCTION DETAILS	