# ORDINANCE NO. 2020-02

**AMENDING ORDINANCE NUMBER 2018-02 AS REQUIRED BY TX HB3167, 86TH LEGISLATURE, BEING THE SUBDIVISION REGULATIONS AND DEVELOPMENT ORDINANCE FOR THE TOWN OF CROSS TIMBER, TEXAS, AND REPLACING WITH EXHIBIT "A" BEING THE SUBDIVISION REGULATIONS FOR THE TOWN OF CROSS TIMBER AND WITH EXHIBIT "B" BEING DESIGN AND CONSTRUCTION STANDARDS FOR THE TOWN OF CROSS TIMBER; PROVIDES FOR AN EXHIBIT "A" SUBDIVISION REGULATIONS; PROVIDING FOR AN EXHIBIT "B" DESIGN AND CONSTRUCTION STANDARDS; PROVIDING FOR AN EXHIBIT "C" SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STREETS; PROVIDING FOR AN EXHIBIT "D" SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STORM SEWERS; GOVERNING AND REGULATING THE PLATTING AND SUBDIVISION OF LAND WITHIN THE CORPORATE LIMITS AND EXTRATERRITORIAL JURISDICTION (ETJ) OF THE TOWN OF CROSS TIMBER AS PROVIDED IN EXHIBIT "A"; PROVIDING A SAVINGS CLAUSE; PROVIDING A PENALTV CLAUSE; PROVIDING A SEVERABILITY CLAUSE;AND PROVIDING AN EFFECTIVE DATE.**

**WHEREAS**, the Town of Cross Timber, Texas is authorized by Chapter 212 of the Texas Local Government Code to adopt rules governing plats and subdivisions of land in order to promote the health, safety, morals, and general welfare of the municipality and the safe, orderly, and healthful development of the municipality; and

**WHEREAS**, the Board of Aldermen of the Town of Cross Timber, Texas, being so empowered by law, does hereby establish such a subdivision plan for the Town of Cross Timber, Texas; this ordinance shall hereinafter be known as the Subdivision Regulations of the Town of Cross Timber, Texas; and

**WHEREAS**, the Board of Aldermen deems it necessary to adopt the regulations contained in Exhibit "A", Exhibit "B, Exhibit "C", and Exhibit "D"; and

**WHEREAS**, the Board of Aldermen has given published notice and held public hearings with respect to the adoption of this Subdivision Regulations Ordinance, as required by law.

**NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE TOWN OF CROSS TIMBER, TEXAS:**

## SECTION 1

The above and foregoing preamble is incorporated and adopted herein as if copied herein in its entirety.

## SECTION 2

The rules, regulations, and procedures as attached in Exhibit "A" are hereby adopted by the Board of Aldermen as the Subdivision Regulations of the Town of Cross Timber and are made a part of this ordinance as if copied herein in their entirety. All development within the Town from and after the date of approval of this ordinance shall comply with these regulations.

The rules, regulations, and procedures as attached in Exhibit "B" are hereby adopted by the Board of Aldermen as the Design and Construction Standards of the Town of Cross Timber and are made a part of this ordinance as if copied herein in their entirety. All development within the Town from and after the date of approval of this ordinance shall comply with these regulations.

The rules, regulations, and procedures as attached in Exhibit "C" are hereby adopted by the Board of Aldermen as the Specifications for the Design and Constructions of Streets of the Town of Cross Timber and are made a part of this ordinance as if copied herein in their entirety. All development within the Town from and after the date of approval of this ordinance shall comply with these regulations.

The rules, regulations, and procedures as attached in Exhibit "D" are hereby adopted by the Board of Aldermen as the Specifications for the Design and Construction of Storm Sewers of the Town of Cross Timber and are made a part of this ordinance as if copied herein in their entirety. All development within the Town from and after the date of approval of this ordinance shall comply with these regulations.

## SECTION 3

This Ordinance shall be and is hereby declared to be cumulative of all other ordinances of the Town of Cross Timber, and this ordinance shall not operate to repeal or affect any other ordinances of the Town of Cross Timber except insofar as the provisions thereof might be inconsistent or in conflict with the provisions of this ordinance, in which event such conflicting provisions, if any, in such other ordinances are hereby repealed.

## SECTION 4

Any person, firm, association of persons, corporation, or other organization violating the provisions of this ordinance shall be deemed to be guilty of a misdemeanor and, upon conviction, shall be fined an amount not to exceed $2,000.00. Each day that a violation continues shall be deemed a separate offense.

## SECTION 5

The sections, paragraphs, sentences, clauses, and phrases of this ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this ordinance shall be declared unconstitutional, such unconstitutionality or invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs, or sections of this ordinance, since the same would have been enacted by the Board of Aldermen without the incorporation in this ordinance of any such unconstitutional or invalid phrase, clause, sentence, paragraph, or section.

## SECTION 6

This Ordinance shall take effect immediately from and after its passage and publication in accordance with the law of the State of Texas.

**PASSED AND APPROVED** on this 8th day of January 2020 at a regular meeting of the Board of Aldermen of the Cross Timber, Texas.

Patti Miller

Mayor, Town of Cross Timber, Texas

ATTEST:

Denise M Griffin

Town Secretary, Town of Cross Timber, Texas

APPROVED AS TO FORM AND LEGALITY:

Town Attorney

DATE: 1/8/2020

ADOPTED: 1/8/2020

EFFECTIVE: 1/8/2020

**EXHIBIT "A"**

**SUBDIVISION REGULATIONS**

**TABLE OF CONTENTS**

DESCRIPTION Page

## ARTICLE IV - ADMINISTRATION AND AMENDMENTS

# SUBDIVISION REGULATIONS
# TOWN OF CROSS TIMBER, TEXAS

## ARTICLE I - GENERAL PROVISIONS

### Section 1-1 Purpose and Intent

It is the purpose of the Subdivision Regulations Ordinance of the Town of Cross Timber to:

1. Provide for the orderly, safe, and healthful development of the area within the Town and the extraterritorial jurisdiction of the Town in accordance with the Town of Cross Timber Comprehensive Land Use Plan;

2. Promote and protect the health, safety, morals, and general welfare of the community by requiring that adequate streets, drainage facilities, and other public/private improvements are provided in all subdivisions;

3. Provide for adequate light, air, and privacy, to secure from fire, flood, and other danger, and to prevent overcrowding of the land and undue congestion of population;

4. Protect the character and the social and economic stability of all parts of the Town and the extraterritorial jurisdiction of the Town, and to encourage the orderly and beneficial development of all parts of the Town and the extraterritorial jurisdiction of the Town;

5. Protect and conserve the value of land throughout the Town and extraterritorial jurisdiction of the Town and the value of buildings and improvements upon the land, and to minimize the conflicts among the uses of land and buildings;

6. Guide public and private policy and action in order to provide adequate and efficient transportation, water, sewer, drainage, schools, parks, and other public requirements and facilities;

7. Insure that public facilities are available and will have a sufficient capacity to serve the proposed subdivision;

8. Prevent the pollution of air, streams, and ponds, to assure the adequacy of drainage facilities, to safeguard the water table, and to encourage the wise use and management of natural resources throughout the Town and extraterritorial jurisdiction of the Town in order to preserve the integrity, stability, and beauty of the community and the value of the land;

9. Preserve the natural beauty and topography of the Town and extraterritorial jurisdiction of the Town, and to insure appropriate development with regard to these natural features;

10. Provide for open spaces through the most efficient design and layout of the land, including the use of average density in providing for minimum width and area of lots, while preserving the density of land as established in the Zoning Ordinance of the Town of Cross Timber;

11. Provide facilities which can be maintained without imposing a burden to the taxpayers; and

12. Provide accurate and complete plat records for the property within the Town and extraterritorial jurisdiction of the Town, all in accordance with a comprehensive plan.

**Section 1-2 Short Title**

This ordinance shall be known and may be cited as "The Town of Cross Timber Subdivision Regulations Ordinance."

**Section 1-3 Authority**

This ordinance is adopted under the authority of the constitution and laws of the State of Texas, including, particularly, Chapters 43 and 212 of the Texas Local Government Code. This ordinance takes precedence over the county subdivision ordinance.

**Section 1-4 Jurisdiction**

On any land within the Town and extraterritorial jurisdiction of the Town, a plat for land is required for approval before a person may:

1. Divide the land into two or more parts for the purpose of sale of one or more lots or for the development of lots and streets, alleys, squares, parks, or other parts intended to be dedicated to public use or for the use of the purchasers of lots; or

2. Obtain a permit for construction of a building or other development of the land.

**Section 1-5 Definitions**

The following words and phrases, as used in this ordinance, shall have the meanings respectively ascribed to them herein. Definitions not expressly prescribed herein are to be construed in accordance with customary usage in municipal planning and engineering practices:

**Town.** The Town of Cross Timber, Texas, including all its governing and operating bodies.

**Board of Aldermen.** The governing and legislative body of the Town of Cross Timber.

**Town engineer.** That person or group of persons appointed as Town engineer.

**Town Manager or Administrator.** That person appointed as Town Manager or Administrator by the Board of Aldermen, or his/her designee.

**Town planner.** That person or group of persons appointed as Town planner.

**Town secretary.** That person appointed by the Board of Aldermen, including any deputies appointed by the Board of Aldermen.

**Commission.** The Town of Cross Timber Planning and Zoning Commission.

**Comprehensive plan.** The Comprehensive Land Use Plan of the Town recommended by the Planning and Zoning Commission and adopted by the Board of Aldermen, including all revisions.

**Concept plan.** A sketch or rough layout of the proposed development plans for use in the pre-application conference to be submitted by the developer or subdivider at a size and at a scale not less than 1 " = 400'.

**Development review committee.** A committee of key staff members that provides a centralized, technical review of development plans.

**Director of public works.** The person under the supervision of the Town Manager or Administrator, who is appointed as the Director of public works.

**Dwelling unit.** That area of a structure set aside for single-family living; a single-family residence is one dwelling unit, a duplex is two dwelling units and each apartment of an apartment complex is a separate dwelling unit.

**Engineer.** A person authorized under the provisions of the Texas Engineering Registration Act to practice the profession of engineering.

**Filed.** The day the administrative review process is finished and the plan or plat is placed on the planning and zoning commission agenda.

**Floodplain easement.** An easement provided along all natural or man-made drainageways of a width that will contain the100-year flood.

**Floodplain.** The land adjacent to a river, stream, or watercourse that would be inundated by a 100-year (one percent chance) flood.

**Floodplain restrictions.** Restrictions that apply only to developments within floodplain areas, including, but not limited to, the requirement of a floodplain development permit and a finished floor elevation of at least two foot above the 100-year flood elevation.

**Floodway.** The channel, river or watercourse and the adjacent land areas that must be reserved in order to discharge the 100-year flood under fully developed (ultimate) watershed conditions without cumulatively increasing the water surface elevation more than one (1) foot above the 100-year flood, fully developed watershed, water surface elevation. The floodway limits shall be defined in accordance with standards defined by the Federal Emergency Management Agency.

**Lot.** A parcel of land which is designated as a separate lot; identified by a lot number or symbol in an approved subdivision plat which has been properly filed of record in Johnson County.

**Organized Sewage disposal system.** Privately owned systems and methods designed to serve more than one household. There shall be no privately owned organized sewage disposal systems located in the Town of Cross Timber.

**Planning administrator**. That employee or representative of the Town in charge of the planning function for the Town and charged with the implementation and enforcement of the subdivision, zoning, and other growth-related ordinances.

**Plat, final**. The final approved plat of any lot or lots to be recorded in the records of Johnson County.

**Plat, preliminary**. The plat of any lot or lots of record that is not to be recorded of record but is only a proposed division of land for review and study by the Town.

**Plat, short-form**. A subdivision of not more than three lots or exceeding five (5) acres in size, which does not require the dedication or improvement of any street or the provision of easements for drainage or utilities or the extension or installation of new utilities which allows a short form process.

**Public Access Easement**. A designated parcel of land which has been established as a means of ingress and egress out of privately owned land onto which the public has been granted a right to use.

**Regulatory (100-year) flood**. A flood having a one percent chance of occurrence in any given year. It is based on statistical analyses of stream flow records available for the watershed and analyses of rainfall and runoff characteristics in the general region of the watershed.

**Replatting**. The rearrangement of any part or all of any lot or lots, of a previously platted subdivision.

**Shall, may**. The word Shall," wherever used in this ordinance, will be interpreted in its mandatory sense; the word "may" shall be interpreted as permissive.

**Street**. A public way for vehicular traffic, whether designated as a street, highway, thoroughfare, parkway, throughway, road, avenue, boulevard, lane, private place, or however otherwise designated.

**Types of Streets:**

**a. Access or frontage road**. A street or road that provides access to adjacent properties along a freeway or expressway.

b. **Approach street**. A new or existing street not adjacent to a subdivision being developed but which provides access or improved access to such subdivision.

c. **Collector street**. A street that may be continuous through several neighborhoods, distributing traffic from the arterial street system. A collector street provides both land access and local traffic movements within neighborhoods.

d. **Cul-de-sac**. A short street terminating in a turnaround.

e. **Freeway or expressway**. A highway intended to move large volumes of traffic around and across the Town without direct access to adjacent land.

f. **Local or residential street**. A street that provides direct access to abutting properties and connects to the collector street system. Residential streets should be short and discontinuous to discourage through traffic.

g. **Minor arterial**. A street that interconnects and augments the principal arterial system with more land access at a lower level of traffic mobility.

h. **Principal arterial**. A street that serves the major center of metropolitan activity, among the highest traffic volume corridors of trips into and out of the Town. Due to the high traffic volume, direct access is controlled.

i. **Thoroughfare (major street)**. Designates principal traffic thoroughfares more or less continuous across the Town, which are intended to connect remote parts of the Town or areas adjacent thereto and act as principal connecting streets with state and federal highways. Major streets are designated on the Comprehensive Land Use Plan of the Town of Cross Timber.

j. **Private street**. A private vehicular access way shared by and serving two or more lots, which is not dedicated to the public and is not publicly maintained. Private streets and alleys may be established only under the terms of the Subdivision Ordinance. The term "private street" shall be inclusive of alleys. Providing direct access to abutting properties which connect to the Town's street system and which is not owned, improved, or maintained by a governmental entity.

k. **Private place**. A ·cul-de-sac providing direct access to abutting properties which connect to the Town's street system and which is not owned, improved, or maintained by a governmental entity.

**Subdivider**. A person, firm, association, corporation, syndicate, trust, or any other legal entity who subdivides or seeks to subdivide land into two or more lots.

**Subdivision**. The development of a lot, tract, or parcel of land, or a division of a lot, tract, or parcel of land into two or more parts, lots, or sites for the purpose, whether immediate or future, of sale, division of ownership, building, or other development. Subdivision includes re-subdivision of land or lots which are part of a previously recorded subdivision.

**Tract**. An unplatted parcel of land described by metes and bounds and typically recorded in the county deed records.

**Surveyor**. A registered public surveyor licensed by the State of Texas to practice the profession of surveying.

**Utility easement**. An interest in land granted to the Town, to the public in general, and/or to a private utility corporation for installing or maintaining utilities across, over, or under private land, together with the right to enter thereon with machinery and vehicles necessary for the maintenance of the utilities.

## ARTICLE II - PROCEDURES

### Section 2-1 Platting Procedures

1. Every application for approval of any type of plat for the development shall be subject to a determination of completeness by the Town Secretary for the purpose of determining whether an application is entitled to one or more vested rights. No application shall be deemed complete and accepted for review unless it is accompanied by all the documents required by and prepared in accordance with this Ordinance.

### Section 2-2 Procedure for Preliminary Plat Approval

1. The subdivider shall prepare a preliminary plat of the proposed subdivision for submission to the Town. A Preliminary Plat is required on all unplatted tracts:

   a. That are larger than five (5) acres, or

   b. That do not conform with tract dimensions shown on Central Appraisal District of Johnson County Maps, or

   c. That the development of which involves dedication or construction of streets, drainage ways, or utilities.

2. Copies of the preliminary plat (in the amount stipulated by the development review checklist provided with the application for a preliminary plat) shall be submitted to the Town through the Town Secretary or designee. Preliminary drainage plans shall also be submitted to the Town at this time for review.

3. A filing fee is required and to be paid to the Town at the time of the submittal, as stipulated in the Town of Cross Timber Fee Schedule.

4. The preliminary plat shall be distributed for staff review immediately upon submission in accordance with the development review checklist provided with the application for a preliminary plat. Comments will be written and made available to the subdivider to be addressed in a resubmission. This process shall continue until the preliminary plat application is found to be in compliance with the general provisions of these regulations.

5. The preliminary plat shall be, for the purposes of this section, considered filed with the Town after it is found to be in compliance with the provisions of this ordinance by the development review committee; and the date of such findings shall be considered the official filing date with the Town.

6. When the preliminary plat is officially filed with the Town, the following notice shall be stamped on the face of each preliminary plat: "Preliminary Plat-For review purposes only."

7. The preliminary plat and a report from the staff containing the results of the subdivision review shall be presented to the Planning and Zoning Commission within thirty days of

the officially filing date. The report should include documents relative to the proposed subdivision's compliance, as available, which may include these regulations, the Comprehensive Land Use Plan, the zoning ordinance, or other plans, such as utility plans. The report may include comments from municipal departments or other agencies concerned with urban development.

8. Following review of the preliminary plat and other materials submitted in accordance with these regulations, the Planning and Zoning Commission shall approve, conditionally approve, or disapprove the proposed preliminary plat.

9. The Planning and Zoning Commission shall, in its action on the preliminary plat, consider the physical arrangement of the subdivision and determine the adequacy of street and thoroughfare rights-of-way and alignment and the compliance of the streets and thoroughfares with the Comprehensive Land Use Plan, the existing street pattern in the area, and with any other applicable provisions of the Comprehensive Land Use Plan. The Planning and Zoning Commission shall also ascertain that adequate easements for proposed or future utility service and surface drainage are provided, and that the plat complies with the provisions of the zoning ordinance.

10. If the Planning and Zoning Commission conditionally approves or disapproves the preliminary plat, the planning administrator shall provide the subdivider a written statement of the conditions for the conditional approval or reasons for disapproval, including a citation to the law that is the basis for the conditional approval, or disapproval, if applicable.

11. If the Planning and Zoning Commission conditionally approves or disapproves a preliminary plat, the subdivider may submit to the Town, a written response that satisfies each condition for the conditional approval or remedies each reason for disapproval provided to the subdivider. There is no deadline for when the subdivider may submit the response. If the subdivider submits a response under this section, the response shall be reviewed by the planning administrator and forwarded to the Planning and Zoning Commission for action within fifteen (15) days of the date the response is submitted. The Planning and Zoning Commission shall approve the preliminary plat if the subdivider's response adequately addresses each condition of the conditional approval or each reason for disapproval. The Planning and Zoning Commission shall disapprove the preliminary plat if the subdivider's response fails to adequately address each condition of the conditional approval or each reason for the disapproval. The Planning and Zoning Commission may only disapprove the preliminary plat for a specific condition or reason previously provided the subdivider. If the Planning and Zoning Commission disapproves the preliminary plat, the Town shall provide the subdivider a written statement of the reasons for disapproval that clearly articulates each specific reason for disapproval, including a citation to the law that is the basis for the disapproval, if applicable. If the preliminary plat is disapproved after the subdivider files a response under the section, the disapproval is final.

12. Approval of a preliminary plat shall not constitute approval of the final plat. Rather it shall be deemed an expression of approval to the layout submitted on the preliminary plat as a guide to the preparation of the final plat. Approval of the preliminary plat shall be valid for a period of twelve (12) months from the date of approval, and the general terms and conditions under which the approval was granted will not be changed. The Town shall withdraw its approval of a preliminary plat, unless a final plat is submitted

within the 12-month period. The validity of the preliminary plat is extended for 12 months from the approval date of a partial final plat of any portion of the preliminary plat, and/or the acceptance of any community facilities installed by the subdivider in the subdivision. The 12-month period may be extended by the Town, based upon the written request of the subdivider and his explanation of mitigating circumstances, and the Town shall not unduly withhold approval of the request.

13. Action on a preliminary plat by the Planning and Zoning Commission shall also be action on any preliminary plans or other information submitted along with the preliminary plat.

14. The owner or subdivider may choose to final plat portions of the preliminary plat in phases. If the owner or subdivider chooses to final plat phases of the preliminary plat, the owner or subdivider must provide a phase schedule at the time of preliminary plat submission indicating the schedule of final platting of each phase. Phases may be revised by submitting or revised preliminary plat to the Planning and Zoning Commission for approval.

**Section 2-3 Data Requirement for Preliminary Plat Submission**

Filing shall be limited to Monday-Friday from 10 am to 4 pm. The sub divider or developer shall submit copies of the preliminary plat as set forth in the development review checklist (provided with the application for a preliminary plat), and such plat shall be accompanied by or show the following information:

1. An accurate boundary survey, including a metes and bounds description prepared by a registered public surveyor, of the property with bearings and distances referenced to survey lines and established subdivisions, at a scale of one inch to 100 feet, unless prior approval for a variation in scale is obtained from the planning administrator.

2. The name and location of a portion of adjoining subdivisions shall be drawn to the same scale and shown in dotted lines adjacent to the tract proposed for subdivision in sufficient detail to show the actual existing streets and alleys and other features that may influence the layout and development of the proposed subdivision. Where adjacent land is not subdivided, the owner's name of the adjacent tract shall be shown.

3. The angle of intersection of the centerlines of all intersecting streets which are intended to be less than 90 degrees.

4. The location and widths of all streets, alleys, and easements proposed for the subdivision and all know rights-of-way and/or easements within or affecting the area to be subdivided.

5. All proposed streets, alleys, easements, blocks, lots, building lines, parks, etc., with principal dimensions.

6. Proposed names of subdivisions and streets shall not have the same spelling or be similarly pronounced to that of any other subdivision or street located within the Town.

7. Contours at five-foot intervals and except on terrain with less than a two percent grade, in which event, contours at two-foot intervals are required. The source of contour information will be placed on the plat. Contours are to be based on the National

Geodetic Vertical Datum of 1929 (NGVD 1929). All easements or rights-of-way necessary for drainage within or without the boundaries of the subdivision shall be reflected upon the preliminary drainage plan.

8. The title under which the proposed subdivision is to be recorded, and the name of the individual who prepared the plat.

9. A vicinity map, showing the location of the tract by reference to existing streets or highways.

10. Sites proposed to be reserved or dedicated for parks, schools, playgrounds, or other public uses.

11. The scale, north arrow, and date of preparation.

12. Each lot or block should be identified by a number or letter.

13. The property owner's name, address, and telephone number.

14. A designation of the existing zoning of land within the subdivision and any zoning conflicts with proposed uses noted.

15. The location of the Town limits line and zoning district boundaries if they traverse the subdivision, form part of the boundary of the subdivision, or are contiguous to such boundary.

16. If the proposed subdivision is a portion of a tract which is later to be subdivided in its entirety, then a preliminary plat of the entire tract shall be submitted.

17. Tax certificates indicating that all taxes on the land being subdivided by the subdivider have been paid to the current year.

18. Preliminary drainage study with water and sewer layouts on a separate sheet for Town engineer to review.

## Section 2-4 Procedure for Short Form Plat Approval

In instances where the highly formalized final plat approval procedure is obviously not necessary, the short form platting procedure may be used. The short form platting process may be used when an understanding of a development process and its effect on surrounding development may be gauged without the formal platting procedure, and when the protection and guidance of community development as a whole may be maintained without the use of the formal platting procedure.

All short-form plat submittals shall show the existing property being subdivided or re-subdivided in relation to the original tract or subdivision. In order to use the short form plat approval procedure in lieu of the final plat approval procedure, the following conditions must be met:

1. Any parcel of land which may be determined to meet the following criteria may be submitted as a short-form plat and may be approved following the abbreviated procedures described below:

   a. The subdivision does not exceed five (5) acres in size or include more than three (3) lots.

   b. The subdivision or use of the land subdivided does not require any alteration of utility installations, streets, alleys, or building setback lines.

   c. The area to be subdivided conforms in size and shape to lots in the vicinity.

2. The short-form plat and supporting instruments are respectively drawn and compiled in compliance with the final plat specifications.

3. Each lot fronts upon dedicated public right-of-way or public access easements of appropriate width, or an additional width of right-of-way is indicated on the plat in order to meet Town standards.

4. All easements to each lot have been previously granted or are shown on the plat.

5. The proposed development neither contains nor creates a significant drainage problem, nor is topography a salient development consideration.

6. All utilities required to serve each lot are in place, or arrangements to provide them have been made with the appropriate agency.

7. If the planning administrator finds that the short-form meets all of the provisions of this ordinance, he or she may approve the final plat. The plat will be forwarded to the Planning and Zoning Commission if variances are requested.

## Section 2-5 Procedure for Final Plat Approval

1. Within 12 months of the date of approval of the preliminary plat by the Planning and Zoning Commission, unless extended by action of the Town, the subdivider may submit a final plat for approval. Copies of the final plat, as noted in the development review checklist provided with the application for a final plat, together with three reproducible transparent drawings, shall be submitted to the Town. Plans for streets, water, and sewer service shall be submitted for review with the final plat in accordance with engineering requirements of the Town.

2. No final plat shall be accepted for processing until three copies of the corrected revised preliminary plat have been submitted to the Town that reflect the Planning and Zoning Commission's approval.

3. The final plat shall conform substantially to the preliminary plat as approved, and it may constitute only that portion of the approved preliminary plat which is to be developed at the time; provided, however, that such portion conforms to all requirements of these regulations.

4. The final plat and all plans submitted therewith shall be distributed for staff review immediately upon submission in accordance with the development review checklist provided with the application for a final plat. Comments will be written and made available to the subdivider to be addressed in a resubmission. This process shall continue until the final plat application and all plans submitted therewith are found to be in compliance with this ordinance

5. The official filing date with the Town of the final plat and all plans submitted therewith shall be the date upon which the plat is found to be in compliance with the provisions of this ordinance by the planning administrator.

6. The final plat and a report from the staff containing the results of the subdivision review shall be presented to the Planning and Zoning Commission within thirty (30) days of the official filing date. The report should include documents relative to the proposed subdivision's compliance with the general provisions of these regulations, as available, which may include these regulations, the Comprehensive Land Use Plan, the zoning ordinance, or other plans, such as utility plans. The report may include comments from municipal departments or other agencies concerned with urban development.

7. The Planning and Zoning Commission shall review the final plat application and determine that:

   a. That the plat and all documents submitted with the plat are in proper form,

   b. That the arrangement of the development proposed for the property being subdivided is in general conformance with the Comprehensive Land Use Plan,

   c. That the development is consistent with zoning regulations in effect at the time of platting,

   d. That the subdivision complies with all the provisions of this ordinance, and that the final plans for streets, drainage, water, and sewer have been approved by the Town, and

   e. An executed Developers Agreement has been submitted to the Town, if applicable.

8. Following review of the final plat and other materials submitted in accordance with these regulations, the Planning and Zoning Commission shall approve, conditionally approve, or disapprove of the proposed final plat within 30 days after the official filing date with the Town. If the final plat is not acted on within 30 days after the official filing date with the Town, the final plat shall be deemed approved. A certificate showing the official filing date with the Town and failure to disapprove the plat within 30 days of that filing date shall be issued on demand, and this certificate shall be sufficient in lieu of a written endorsement or other evidence of approval.

9. If the Planning and Zoning Commission conditionally approves or disapproves the final plat, the planning administrator shall provide the subdivider a written statement of the conditions for the conditional approval or reasons for disapproval that clearly articulates each specific condition for the conditional approval or, disapproval, including a citation to the law that is the basis for the conditional approval, or

disapproval, if applicable.

10. If the Planning and Zoning Commission conditionally approves or disapproves a final plat, the subdivider may submit to the Town a written response that satisfies each condition for the conditional approval or remedies each reason for disapproval provided to the subdivider. There is no deadline for when the subdivider may submit the response. If the subdivider submits a response under this section, the response shall be reviewed by the planning administrator and forwarded to the Planning and Zoning Commission for action within fifteen (15) days of the date the response is submitted. The Planning and Zoning Commission shall approve the final plat if the subdivider's response adequately addresses each condition of the conditional approval or each reason for disapproval. The Planning and Zoning Commission shall disapprove the final plat if the subdivider's response fails to adequately address each condition of the conditional approval or each reason for the disapproval. The Planning and Zoning Commission may only disapprove the final plat for a specific condition or reason previously provided to the subdivider. If the Planning and Zoning Commission disapproves the final plat, the Town shall provide the subdivider a written statement of the reasons for disapproval that clearly articulates each specific reason for disapproval, including a citation to the law that is the basis for the disapproval, if applicable. If the final plat is disapproved after the subdivider files a response under the section, the disapproval is final.

11. Action on a final plat by the Planning and Zoning Commission shall also be deemed to be action on any engineering plans or other information submitted along with the final plat.

12. The Planning and Zoning Commission's approval of the final plat shall authorize the Mayor and Town secretary to execute the certificate of approval on the three (3) reproducible transparencies of the final plat.

13. The final plat shall then be filed of record by the Town in the plat records of Johnson County, but only after the mayor has officially signed the community facility agreements with reference to public improvements, dedications, and utilities. Approval of the final plat does not constitute acceptance of the final public improvements of the subdivision.

14. An owner or subdivider, at his option, may obtain approval of a portion of a subdivision, provided that it meets the requirements of Section 2-2, Procedure for Preliminary Plat Approval, item 13, and all the requirements of this ordinance with reference to such portion in the same manner as is required for a complete subdivision. If a subdivision and final plat thereof are approved by the Town in portions, each final plat of each portion is to carry the name of the entire subdivision and shall also bear a distinguishing letter, number, or subtitle. Block numbers shall run consecutively throughout the entire subdivision.

## Section 2-6 Data and Agreements Required for Final Plat Action

The subdivider of land on which approval has been obtained on a preliminary plat shall prepare and submit a final plat to the Town. The final plat submission shall consist of three (3) reproducible transparent drawings at a scale of one inch to 100 feet, unless prior approval for a variation in scale is obtained from the planning administrator. Copies of the

reproducible transparency are not to exceed 24" by 36". The reproducible copies shall be prepared on mylar or equal stable base clear transparency material and be suitable for reproduction and for recording purposes. When necessary, the final plat may be on several sheets accompanied by an index sheet, showing the entire subdivision. For large subdivisions, the final plat may be submitted for approval progressively in sections satisfactory to the Town. The final plat shall show the following:

1. A written legal description of the entire property by metes and bounds on the face of the plat, with bearings and distances referenced to survey lines and established subdivisions. The primary control points or monuments with descriptions and "ties" to such controls to which all dimensions, angles, bearings, and similar data on the plat shall be referred.

2. Tract boundary lines sufficient to locate the exact area proposed for subdivision, right-of-way lines of streets, easements, and other rights-of-way and property lines of all lots and other sites, with accurate dimensions, bearings or deflection angles and radii, arcs and central angles of all curves. The location of the Town limits line shall also be indicated, if applicable.

3. The name and right-of-way width of each street or other right-of-way.

4. The location and dimensions of all easements.

5. Where building sites are located in the floodplain, the minimum finished floor elevation of one foot above the 100-year flood elevation shall be written on the face of the plat for every lot or building site. Also, this note shall be affixed to the face of the plat:

   *"The Town of Cross Timber reserves the right to require additional minimum finished floor elevations on any lot contained within this subdivision. The minimum elevations shown are based on the* most *current information available at the time the plat* is *filed and may be subject to change."*

6. A number to identify each lot or site and each block.

7. Purposes for which sites, other than residential lots, are dedicated or reserved.

8. Minimum building setback lines.

9. Reference to recorded subdivision plats or adjoining land by record name, i.e., tract number, volume, and page.

10. The original survey title and abstract number.

11. The subdivision title, graphic scale, and north arrow.

12. The location of the point of intersection and points of tangency of street intersections, other than right-angle intersections.

13. A title, positive reference and identification of the plat, and general location sketch map and date of plat.

14. Owner's certificate or deed of dedication. The owner's certificate or deed of dedication shall be executed by all persons, firms, or corporations owning an interest in the property subdivided or platted and shall be acknowledged in the manner prescribed by the laws for the State of Texas for conveyances of real property. The owner's certificate or deed of dedication shall, in addition to the above requirements, contain the following:
    a. An accurate description of the tract of land subdivided;

    b. A statement and express representation that the parties joining in such dedication are the sole owners of such tract of land; and

    c. An express dedication without reservation to the public for public use; the streets, alleys, rights-of-way, parks, school sites, and any other public areas shown on the plat.
15. Tax certificates, indicating that all taxes on the land being subdivided have been paid to the current year.

16. Final plans for required improvements.

17. Final plats circulated for review purposes shall bear the surveyor's name, registration number, and the registered surveyor designation.

18. The surveyor's certificate and seal with signature shall be placed on the mylar copies of the final plat, similar to the one shown below:

    *"I,_____do hereby certify that I prepared this plat from an actual and accurate survey of the land, and that the corner monuments shown thereon were properly placed under my supervision."*

    _____
    *Signature*

    _____
    *Date*

19. A certificate of approval by the Planning and Zoning Commission including the date of approval, similar to the one shown below:

*APPROVED BY THE PLANNING AND ZONING COMMISSION OF CROSS TIMBER, TEXAS, on this _____day of _____*

_____
*Mayor*

*ATTEST:*

_____
*Town Secretary*

## Section 2-7 Replat

1. A replat of a subdivision or part of a subdivision must be recorded and is controlling over the preceding plat without vacation of that plat if the replat:

a. Is signed and acknowledged by only the owners of the property being replatted:

b. Is submitted following the same procedures and requirements for a plat approval in Sections 2-2, 2-3, 2-5, and 2-6 of this Article;

c. Does not attempt to amend or remove any covenants or restrictions; and

d. Is in compliance, when applicable, with paragraphs *"(1)"* and *"(2)"* below.

(1). The following additional requirements for approval shall apply in the replat of a plat, without vacating the immediate previous plat, if any of the proposed area to be resubdivided or replatted was, within the immediate preceding five years, limited by any interim or permanent zoning classification to residential use for not more than two residential units per lot, or if any lot in the immediate previous subdivision was limited by deed restriction to residential use for not more than two residential units per lot:

(i). Notice of the public hearing shall be given in advance in the following manner: A public notice shall be published in the official newspaper or a newspaper of general circulation in the county in which the Town is located and a written notice, with a copy of paragraph (ii) attached thereto, of the public hearing forwarded to the owners (as the ownerships appear on the last approved ad valorem tax roll) of all lots in the immediate preceding plat no less than 15 days prior to the day of the hearing. The notice may be served by depositing it properly addressed and postage paid in a post office, provided, however, that if the immediate preceding plat contains more than 100 lots, the notice shall be mailed only to those owners of lots within the plat which are located within 200 feet of the lot or lots which are sought to be replatted.

(ii) If the proposed replat requires a waiver and is protested in accordance with this subsection, the proposed replat must receive the affirmative vote of at least three fourths of the members present of the Planning and Zoning Commission in order to be approved. For a legal protest, written instruments signed by the owners of at least 20 percent of the area of the lots or land immediately adjoining the area covered by the proposed replat and extending two hundred (200) feet from that area, but within the original subdivision, must be filed with the Town four (4) days prior to the closing of the public hearing. In computing the percentage of land area, the area of streets and alleys shall be included.

(iii) Compliance with paragraph (i) or (ii) is not required for approval of a replatting of a portion of a prior plat if the area to be replatted was designated or reserved for other than single or duplex-family residential use by notation on the last legally recorded plat or in the legally recorded restrictions applicable to the plat.

(2). Plats submitted under this section shall be subject to a filing fee as approved on the Town of Cross Timber Fee Schedule and shall be accompanied by certified copies of the entire subdivision plat and the deed restrictions.

## Section 2-8 Amending Plats

1. Notwithstanding any other provision of the above Section 2-7, the Town is authorized to approve and issue an amending plat which is signed by the applicants only, and which is for one or more of the purposes set forth in the following subparagraphs (a) through (k), and such approval and issuance shall not require notice, hearing or approval of other lot owners. Amending plats in accordance with the provisions of this section may be approved by the planning administrator if the sole purpose of the amending plat is to:

   a. Correct an error in any course or distance shown on the prior plat;

   b. Add any course or distance that was omitted on the prior plat;

   c. Correct an error in the description of the real property shown on the prior plat;

   d. Indicate monuments set after death, disability, or retirement from practice of the surveyor charged with the responsibilities for setting monuments;

   e. Show proper location or character of any monument which has been changed in location or character or which originally was shown at the wrong location or incorrectly as to its character on the prior plat;

   f. Correct any other type of scrivener or clerical error or omission as previously approved by the Town; such errors and omissions may include, but are not limited to, lot numbers, acreage, street names, and identification of adjacent recorded plats;

   g. Correct an error in courses and distances of lot lines between two adjacent lots where both lot owners join in the application for plat amendment, and neither lot is abolished; provided that such amendment does not attempt to remove recorded covenants or restrictions and does not have a material adverse effect on the property rights of the other owners in the plat;

   h. Relocate a line in order to cure an inadvertent encroachment of a building or improvement on a lot line or on an easement;

   i. Relocate one or more lot lines between one or more adjacent lots where the owner or owners of all such lots join in the application for the plat amendment, provided that such amendment does not:

      (1) Attempt to remove recorded covenants or restrictions; or

      (2) Increase the number of lots; or

      (3) Remove or otherwise abandon any easement or right-of-way.

j. To make necessary changes to the preceding plat to create six or fewer lots in the subdivision or part of the subdivision covered by the preceding plat if:

(1) The changes do not affect applicable zoning and other regulations of the municipality;

(2) The changes do not attempt to amend or remove any covenants or restrictions; and

(3) The area covered any the changes is located in an area that the Planning and Zoning Commission or other appropriate governing body of the municipality has approved, after a public hearing, as a residential improvement area; or

k. To replat one or more lots fronting on an existing street if:

(1) The owners of those lots join in the application for amending the plat;

(2) The amendment does not remove recorded covenants or restrictions;

(3) The amendment does not increase the number of lots; and

(4) The amendment does not create or require creation of a new street or make necessary the extension of future municipal facilities.

2. Plats submitted under this section shall be subject to filing fee as approved on the Town of Cross Timber Fee Schedule and shall be accompanied by certified copies of the entire subdivision plat and the deed restrictions.

3. The planning administrator shall approve an amending plat with the time period specified in 212.009 of the Texas Local Government Code. The planning administrator may , for any reason, elect to present the amending plat to the Planning and Zoning Commission for consideration in accordance with Section 2-5 and 2-6 of this article.

4. The planning administrator shall not disapprove an amending plat, and shall be required to refer any amending plat which he refuses to approve to the Planning and Zoning Commission for consideration within the time period specified in 212.009 of the Texas Local Government Code.

5. If an amending plat is referred, for any reason, to the Planning and Zoning Commission for consideration, the amending plat shall be processed in the same manner provided by this Article for a final plat.

## Section 2-9 Vacation of Plats

1. A plat may be vacated by the owners of the land covered by the plat at any time before a lot in the plat is sold. If lots have been sold, the plat, or any part of the plat, may be vacated upon the application of all the owners of lots in the plat and obtained in the manner prescribed for the original plat.

2. Plats submitted under this section shall be subject to a filing fee as approved on the

Town of Cross Timber Fee Schedule and shall be accompanied by certified copies of the entire subdivision plat and the deed restrictions.

## Section 2-10 Plat Filing Fees

1. Preliminary plat. A filing fee, as approved by the Board of Aldermen, shall be paid at the time of submission of the preliminary plat for review by the Planning and Zoning Commission.

2. Final Plat. A filing fee, as approved by the Board of Aldermen, shall be paid at the time of submission of the final plat for review and approval by the Planning and Zoning Commission.

3. Short-form, amending plat. A filing fee, as approved by the Board of Aldermen, shall be paid at the time of submission of the short-form or amending plat for review and approval by the Planning and Zoning Commission.

## ARTICLE III - SUBDIVISION DESIGN STANDARDS

### Section 3-1 Minimum Subdivision Design Standards

The physical design of the proposed subdivision shall conform to the planning policies of the Town and the following minimum standards:

1. **Street Standards.**

   a. Unless otherwise approved by the Town, provisions shall be made for the extension of arterial streets in accordance with the thoroughfare plan of the Town. Collector streets shall be provided for the circulation of traffic through the subdivision and the connection thereof to the major streets. Adequate local streets shall be provided to accommodate the subdivision.

   b. Where they are not shown in the thoroughfare plan, the streets in the subdivision shall:

      (1) Provide for the continuation or appropriate projection of existing principal streets in surrounding areas;

      (2) Conform to a plan approved or adopted by the Town to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical; or

      (3) Conform to a plan for street location or extension approved by the Board of Aldermen after review by the Planning and Zoning Commission.

   c. Local streets shall be designed so that their use by through traffic will be discouraged.

   d. Where a subdivision abuts or contains an existing or proposed street, the Town may require the design and/or re-design and construction of proposed streets, or reconstruction or existing streets, whether on-site or off-site, as may be necessary for adequate protection of residential properties, to afford the separation of through and local traffic, and to ensure safe and convenient access and traffic flow.

   e. Where a subdivision borders on or contains a railroad right-of-way or freeway, the Town may require a parallel street along each side of such right-of-way at a street from a railroad or freeway shall recognize the problem of approach grades and future grade separations.

   f. Street intersection: The intersection of more than two streets at a point shall be avoided. No street intersecting an arterial street should vary from a 90-degree angle of intersection by more than five degrees. Streets intersecting collector streets should not vary from a 90-degree angle of intersection by more than ten degrees. All other street intersections should not vary from a 90-degree angle of intersection by more than 15 degrees.

   g. Cul-de-sacs, dead ends, or courts: Streets designated to be permanent dead ends shall be platted and constructed with a paved turnaround and shall not exceed 1,200 feet in length nor service more than 20 dwelling units. A turn around shall be provided with a minimum right-of-way radius of 60 feet and a paved roadway diameter of at least 100

feet, unless otherwise approved by the Town. Any dead-end street of a temporary nature that exceeds 150 feet in length and services a depth of more than two lots shall be provided with a temporary turn around with a 50-foot radius, unless otherwise approved by the Town.

h. All streets should be designed to be in line with existing streets. When conditions require the centerlines to be offset, a minimum of 135 feet offset distance is required. Greater centerline offsets may be required where necessary for traffic safety.

i. Street right-of-way width shall not be less than as follows:

| Street Type | Right-of-Way Width |
|---|---|
| Freeway or expressway | 300 feet or more |
| Major thoroughfare | 80 to 120 feet |
| Collector, industrial or commercial street | 60 to 80 feet |
| Local | 50 to 60 feet |

j. Half-streets shall be prohibited, except where essential to the reasonable development of the subdivision in conformity with the other requirements of these regulations, and where the Town finds it will be practicable to require the dedication of the other half when the adjoining land is subdivided. The other half of the street shall be dedicated at the time it is platted.

2. **Alley Standards.**

a. Alleys serving residential areas shall have a minimum right-of-way width of 20 feet and a paving width of 15 feet. All other alleys shall have a minimum right-of-way and paving width of 20 feet.

b. Alleys shall intersect a street at right angles, or radially to curved streets.

c. Where two alleys intersect or tum at a sharp angle, an additional triangular area of 20 feet by 20 feet or greater shall be dedicated so as to provide a minimum turning radius of 30 feet.

d. Alley paving should have a minimum grade of 0.4 percent and a maximum grade of 10 percent.

e. Dead-end alleys shall be prohibited.

f. Alleys shall be limited to 2,000 feet in length.

3. **Block Standards.**

a. The lengths, widths and shapes of blocks shall be determined with due regard to the following:

(1) Provisions of adequate building sites suitable to the special needs of the type of use contemplated;

(2) Zoning requirements as to lot size and dimensions;

(3) Need for convenient access, circulation control, and safety of traffic; and

(4) Limitations and opportunities of topography.

b. Block lengths shall not exceed 2,000 feet, except under unusual conditions approved by the Town.

4. **Lot Standards.**

a. The dimensions of a lot shall be appropriate for the location of the subdivision and for the type of development and use contemplated and shall not be less than those specified as minimum standards by the zoning ordinance.

b. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.

c. Each lot shall front upon a public or private street or public access easement.

d. Residential lots shall not have direct access onto arterial streets, and direct access from residential lots shall be permitted on collector streets only where design conditions do not permit any other possibility.

e. Double frontage and reverse frontage lots shall be avoided, except where essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation.

f. Side lot lines shall be substantially at right angles or radial to street lines, unless other arrangements are approved by the Town.

g. Where the area is divided into larger lots than for normal urban building sites, and, in the opinion of the Town, any or all of the tracts are susceptible of being re-subdivided, the original subdivision shall be such that the alignment of future street dedications may conform to the general street layout in the surrounding area, and so that the larger tracts may be later subdivided in conformance with the requirements of this ordinance and the minimum standards specified by the zoning ordinance.

h. The shorter dimension across a residential lot, adjacent to a street, shall designate the front yard orientation of the lot, unless otherwise specified on the face of the plat.

5. **Easement Standards.**

a. Utility easements shall be provided as may be necessary to assure the proper design installation, and maintenance of either underground or aerial utilities.

b. Easement widths shall be determined by the type of utility; however, an easement shall not normally be required along the rear of lots served by a dedicated alley; however in no case shall an easement be less than 10 feet.

c. Any public utility, including the Town, shall have the right to move and keep moved all or part of any building, fences, trees, shrubs, other growths, or improvements which in any way endanger or interfere with the construction, maintenance, or efficiency of its respective system or any of the easements shown on the plat; and any public utility, including the Town, shall have the right at all times, of ingress and egress upon easements for the purpose of construction, reconstruction, inspection, patrolling, maintaining, and adding to or removing all or part of its respective systems, without the necessity of procuring the permission of anyone.

d. Emergency access and fire lane easements shall be provided where deemed appropriate by the Town. These easements shall be paved in conformance with Town standard specifications.

e. Where a subdivision is traversed by a watercourse, stream, drainageway, or channel, there shall be provided a drainage easement or right-of-way, conforming substantially with the lines of such watercourse or improved channel that is to be provided at the time of development.

f. Whenever land which is covered by a floodway designation, a drainage easement or right-of-way shall be placed on the plat covering the floodway area; and the easement or right-of-way shall allow for access, maintenance or alteration of the floodplain area by the Town.

g. When the Town engineer finds that easements or rights-of-way in areas adjoining proposed subdivisions are necessary to provide adequate drainage or to serve the subdivisions with utilities, the subdivider shall have the responsibility for obtaining the easements or rights-of-way.

6. **Industrial Subdivision Standards.**

The minimum right-of-way width of a minor street in an industrial or commercial subdivision shall be 60 feet or as required by the Town, and all other streets shall conform to the standards for major and secondary streets prescribed by the thoroughfare plan as indicated in the Comprehensive Land Use Plan.

7. **Modification or Exception from Platting Standards.**

a. Where existing conditions require a modification of the standards and regulations of this ordinance because of a distinct and unusual condition that does not prevail on other undeveloped land generally in the Town, the Town may approve an exception from specific standards to permit the equitable treatment of the land or tract in light of the unusual conditions.

b. In granting an exception, the Town may require such conditions as will, in its judgment, secure substantially the objectives of the standards that are so varied and that will maintain the spirit and intent of the standards.

8. **Engineering Standards.**

Except where otherwise indicated by this document, the engineering standards for all streets, water, wastewater, and storm sewer improvements shall be governed by the standards for these facilities as adopted by the Town's Design and Construction Standards Ordinance and applied by the Town Engineer.

9. **Drainage and Storm Sewer Standards.**

a. General Requirements: All plats shall conform to the Design Construction Standards of the Town.

b. Design of Facilities: Design of storm sewer systems shall be in accordance with the Design and Construction Standards of the Town.

(1) Materials and construction shall conform to the Standard Specifications.

(2) Blocking the flow of water or constructing improvements in the drainage easements, and filling or obstruction of the floodway is prohibited.

(3) The existing creeks or drainage channels traversing along or across this subdivision will remain as open channels and will be maintained by the individual owners of the lot or lots that are traversed by or adjacent to drainage courses along or across the lots.

(4) The Town of Cross Timber will not be responsible for the maintenance and operations of said drainage ways or for the control of erosion.

(5) The Town of Cross Timber will not be responsible for any damage, personal injury or loss of life or property occasioned by the flooding or flood conditions.

(6) It shall be the responsibility of the owner or developer to prevent any flooding on adjacent property and the owner or developer shall not increase or decrease the amount of water leaving or entering the subdivision. It is the responsibility of the owner or developer to make any and all engineering and drainage studies necessary to prevent any such flooding. All such engineering and drainage studies must be done before the Preliminary Plat approval is granted. Preliminary Plat approval shall be denied if development of the proposed subdivision would create flooding or drainage problems for the adjacent landowners.

(7) An owner or developer and/or their engineer shall not place a statement on the Final Plat limiting or denying any liability or denying any liability they may have for flooding or drainage problems.

(8) Lots located in depressions and in or adjacent to the 100-year flood plain shall show on each lot the minimum recommended finished floor elevation which shall not be less than two (2) feet above the 100-year flood plain elevation.

(9) After completion of all roads and signs, they shall be maintained by the owner or developer for a period of twenty-four (24) months. Road maintenance is the responsibility of the individual property owners or homeowners association.

(10) Access to all new subdivisions shall be from a town or county maintained street (road), state or federally maintained road or street.

(11) All private access easements, as defined herein, shall be contained within a common area having a lot and block designation and being maintained by a homeowner's association or other private entity as appointed by the Board of Aldermen.

(12) The Town of Cross Timber will require the developer to plat a separate section of land for roads and bar ditches to be deeded to a homeowner's association and not included in the size of the individual lots.

(13) Subdivisions consisting of less than two-acre lots must have concrete streets, concrete curb and gutters, storm drains and sidewalks, with a street width of thirty-one (31) feet back-of-curb to back-of-curb and a right-of-way of 60 feet. The construction must consist of Portland Concrete Paving- 8" P.C.C.

(14) Subdivisions with lots over two acres must have Full Depth Asphalt Paving- 11" H.M.A.C., concrete lay down curbs and bar ditches, with a street width of thirty-one (31) feet and a right-of-way width of 60 feet.

(15) The Town of Cross Timber requires that underground utilities to be installed from the street to the house.

**Section 3-2 Developers Agreement**

1. Before construction starts on any private or public improvements in a subdivision, the developer shall execute a contract with the Town providing for the installation of public improvements required by the subdivision regulations of the Town. This agreement, entitled "Developers Agreement," shall constitute a covenant which will run with the land and will be binding upon any assignee or owner in the chain of title.

2. After execution of the Developers Agreement by the developer and the Town, any changes in the contract or the plans or specifications that alter the scope of the project must be recommended by the Town engineer and approved by the Town attorney and the Board of Aldermen. Upon approval, an addendum to the Developers Agreement shall be executed by the developer and the Town.

3. The improvements, whether on-site or off-site, including streets, water lines, sanitary sewer lines, drainage, sidewalks, traffic signals (if warranted by a developer funded traffic engineering study), street lighting (arranged by the developer with the electric company), street signs (by payment to the Town for installation costs), and all other required improvements for the subdivision, shall be installed by the developer at no cost to the Town, unless otherwise provided in the Developers Agreement.

4. (Example of Developers Agreement attached as Appendix "A").



e. Private streets and alleys must be constructed within a separate lot owned by the property owners association. This lot must conform to property owners association and to the Town's standards for public streets and alley right-of- way.

B. Petition to Convert to Private Streets:

Property owners in Cross Timber may petition to the Town to convert to private streets. The petition will be accepted for consideration if it contains the signatures of the owners of 100% of the affected lots on the street.

1. The conversion to private streets requires a public hearing and recommendation by the Planning and Zoning Commission and public hearing and approval by the Board of Aldermen.

2. Upon the approval by the Board of Aldermen, petitioners become responsible to maintain the transferred infrastructure to town standards thereafter. For the purposes of this section "streets" includes alleys.

(1) Provisions of adequate building sites suitable to the special needs of the type of use contemplated;

(2) Zoning requirements as to lot size and dimensions;

(3) Need for convenient access, circulation control, and safety of traffic; and

(4) Limitations and opportunities of topography.

b. Block lengths shall not exceed 2,000 feet, except under unusual conditions approved by the Town.

4. **Lot Standards.**

a. The dimensions of a lot shall be appropriate for the location of the subdivision and for the type of development and use contemplated and shall not be less than those specified as minimum standards by the zoning ordinance.

b. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.

c. Each lot shall front upon a public or private street or public access easement.

d. Residential lots shall not have direct access onto arterial streets, and direct access from residential lots shall be permitted on collector streets only where design conditions do not permit any other possibility.

e. Double frontage and reverse frontage lots shall be avoided, except where essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation.

f. Side lot lines shall be substantially at right angles or radial to street lines, unless other arrangements are approved by the Town.

g. Where the area is divided into larger lots than for normal urban building sites, and, in the opinion of the Town, any or all of the tracts are susceptible of being re-subdivided, the original subdivision shall be such that the alignment of future street dedications may conform to the general street layout in the surrounding area, and so that the larger tracts may be later subdivided in conformance with the requirements of this ordinance and the minimum standards specified by the zoning ordinance.

h. The shorter dimension across a residential lot, adjacent to a street, shall designate the front yard orientation of the lot, unless otherwise specified on the face of the plat.

5. **Easement Standards.**

a. Utility easements shall be provided as may be necessary to assure the proper design installation, and maintenance of either underground or aerial utilities.

b. Easement widths shall be determined by the type of utility; however, an easement shall not normally be required along the rear of lots served by a dedicated alley; however in no case shall an easement be less than 10 feet.

c. Any public utility, including the Town, shall have the right to move and keep moved all or part of any building, fences, trees, shrubs, other growths, or improvements which in any way endanger or interfere with the construction, maintenance, or efficiency of its respective system or any of the easements shown on the plat; and any public utility, including the Town, shall have the right at all times, of ingress and egress upon easements for the purpose of construction, reconstruction, inspection, patrolling, maintaining, and adding to or removing all or part of its respective systems, without the necessity of procuring the permission of anyone.

d. Emergency access and fire lane easements shall be provided where deemed appropriate by the Town. These easements shall be paved in conformance with Town standard specifications.

e. Where a subdivision is traversed by a watercourse, stream, drainageway, or channel, there shall be provided a drainage easement or right-of-way, conforming substantially with the lines of such watercourse or improved channel that is to be provided at the time of development.

f. Whenever land which is covered by a floodway designation, a drainage easement or right-of-way shall be placed on the plat covering the floodway area; and the easement or right-of-way shall allow for access, maintenance or alteration of the floodplain area by the Town.

g. When the Town engineer finds that easements or rights-of-way in areas adjoining proposed subdivisions are necessary to provide adequate drainage or to serve the subdivisions with utilities, the subdivider shall have the responsibility for obtaining the easements or rights-of-way.

6. **Industrial Subdivision Standards.**

The minimum right-of-way width of a minor street in an industrial or commercial subdivision shall be 60 feet or as required by the Town, and all other streets shall conform to the standards for major and secondary streets prescribed by the thoroughfare plan as indicated in the Comprehensive Land Use Plan.

7. **Modification or Exception from Platting Standards.**

a. Where existing conditions require a modification of the standards and regulations of this ordinance because of a distinct and unusual condition that does not prevail on other undeveloped land generally in the Town, the Town may approve an exception from specific standards to permit the equitable treatment of the land or tract in light of the unusual conditions.

b. In granting an exception, the Town may require such conditions as will, in its judgment, secure substantially the objectives of the standards that are so varied and that will maintain the spirit and intent of the standards.

8. **Engineering Standards.**

Except where otherwise indicated by this document, the engineering standards for all streets, water, wastewater, and storm sewer improvements shall be governed by the standards for these facilities as adopted by the Town's Design and Construction Standards Ordinance and applied by the Town Engineer.

9. **Drainage and Storm Sewer Standards.**

a. General Requirements: All plats shall conform to the Design Construction Standards of the Town.

b. Design of Facilities: Design of storm sewer systems shall be in accordance with the Design and Construction Standards of the Town.

(1) Materials and construction shall conform to the Standard Specifications.

(2) Blocking the flow of water or constructing improvements in the drainage easements, and filling or obstruction of the floodway is prohibited.

(3) The existing creeks or drainage channels traversing along or across this subdivision will remain as open channels and will be maintained by the individual owners of the lot or lots that are traversed by or adjacent to drainage courses along or across the lots.

(4) The Town of Cross Timber will not be responsible for the maintenance and operations of said drainage ways or for the control of erosion.

(5) The Town of Cross Timber will not be responsible for any damage, personal injury or loss of life or property occasioned by the flooding or flood conditions.

(6) It shall be the responsibility of the owner or developer to prevent any flooding on adjacent property and the owner or developer shall not increase or decrease the amount of water leaving or entering the subdivision. It is the responsibility of the owner or developer to make any and all engineering and drainage studies necessary to prevent any such flooding. All such engineering and drainage studies must be done before the Preliminary Plat approval is granted. Preliminary Plat approval shall be denied if development of the proposed subdivision would create flooding or drainage problems for the adjacent landowners.

(7) An owner or developer and/or their engineer shall not place a statement on the Final Plat limiting or denying any liability or denying any liability they may have for flooding or drainage problems.

(8) Lots located in depressions and in or adjacent to the 100-year flood plain shall show on each lot the minimum recommended finished floor elevation which shall not be less than two (2) feet above the 100-year flood plain elevation.

(9) After completion of all roads and signs, they shall be maintained by the owner or developer for a period of twenty-four (24) months. Road maintenance is the responsibility of the individual property owners or homeowners association.

(10) Access to all new subdivisions shall be from a town or county maintained street (road), state or federally maintained road or street.

(11) All private access easements, as defined herein, shall be contained within a common area having a lot and block designation and being maintained by a homeowner's association or other private entity as appointed by the Board of Aldermen.

(12) The Town of Cross Timber will require the developer to plat a separate section of land for roads and bar ditches to be deeded to a homeowner's association and not included in the size of the individual lots.

(13) Subdivisions consisting of less than two-acre lots must have concrete streets, concrete curb and gutters, storm drains and sidewalks, with a street width of thirty-one (31) feet back-of-curb to back-of-curb and a right-of-way of 60 feet. The construction must consist of Portland Concrete Paving- 8" P.C.C.

(14) Subdivisions with lots over two acres must have Full Depth Asphalt Paving- 11" H.M.A.C., concrete lay down curbs and bar ditches, with a street width of thirty-one (31) feet and a right-of-way width of 60 feet.

(15) The Town of Cross Timber requires that underground utilities to be installed from the street to the house.

**Section 3-2 Developers Agreement**

1. Before construction starts on any private or public improvements in a subdivision, the developer shall execute a contract with the Town providing for the installation of public improvements required by the subdivision regulations of the Town. This agreement, entitled "Developers Agreement," shall constitute a covenant which will run with the land and will be binding upon any assignee or owner in the chain of title.

2. After execution of the Developers Agreement by the developer and the Town, any changes in the contract or the plans or specifications that alter the scope of the project must be recommended by the Town engineer and approved by the Town attorney and the Board of Aldermen. Upon approval, an addendum to the Developers Agreement shall be executed by the developer and the Town.

3. The improvements, whether on-site or off-site, including streets, water lines, sanitary sewer lines, drainage, sidewalks, traffic signals (if warranted by a developer funded traffic engineering study), street lighting (arranged by the developer with the electric company), street signs (by payment to the Town for installation costs), and all other required improvements for the subdivision, shall be installed by the developer at no cost to the Town, unless otherwise provided in the Developers Agreement.

4. (Example of Developers Agreement attached as Appendix "A").

## Section 3-3 Building Setback Lines

Building setback lines which vary from the requirements of the zoning ordinance shall be shown on all lots intended for residential, institutional, commercial, or industrial use. Plats where the building setback line conforms to the zoning ordinance of the Town of Cross Timber shall state such conformance on the face of the plat.

## Section 3-4 Private Streets, Gated Neighborhood Regulations

A. Conversion to Private Street

1. An existing subdivision zoned for residential use may be converted to a subdivision with private streets in place of public streets in compliance with this section. For purposes, of this section, "existing subdivision" means a platted subdivision in which 100% or more of the lots contain homeowner occupied structures.

2. The general provisions of the Subdivision Regulations Ordinance of the Town of Cross Timber shall meet the following requirements as they relate to development, streets, and utilities applying to all such development:

    a. A vehicular turn around shall be provided at entry gates to allow vehicles that have been denied entry the ability to exit without having to backup.

    b. All plans concerning private subdivisions are subject to review and approval by the local fire department.

    c. The definition of a "subdivision" and "street", as contained in the Subdivision Ordinance, will apply to all subdivisions or streets, whether public or private.

    d. Private streets shall conform to the same standards regulating design and construction of public streets as required by the Design and Construction Standards Ordinance of the Town of Cross Timber.

    e. Private streets and alleys must be constructed within a separate lot owned by the property owners association. This lot must conform to property owners association and to the Town's standards for public streets and alley right-of- way.

B. Petition to Convert to Private Streets:

Property owners in Cross Timber may petition to the Town to convert to private streets. The petition will be accepted for consideration if it contains the signatures of the owners of 100% of the affected lots on the street.

1. The conversion to private streets requires a public hearing and recommendation by the Planning and Zoning Commission and public hearing and approval by the Board of Aldermen.

2. Upon the approval by the Board of Aldermen, petitioners become responsible to maintain the transferred infrastructure to town standards thereafter. For the purposes of this section "streets" includes alleys.

C. Considerations for Decision:

The Board of Aldermen has discretion in its consideration of private streets and is not required to approve a petition to become a subdivision with private streets. In deciding whether to approve or deny a petition, the Board of Aldermen may, after receiving a recommendation from the Town, review the petition to determine whether private streets would:

1. Negatively affect traffic circulation on public streets;

2. Impair access to or from properties of future developments either on-site to the subdivision;

3. Impair access to or from public facilities including schools or parks;

4. Delay the response time of emergency vehicles;

5. Replace streets shown on the adopted Design and Construction Standards of the Town of Cross Timber;

6. Impede or cross an existing or proposed street as shown on the Town's Thoroughfare Plan or any approved Preliminary of Final Plats;

7. Disrupt an existing or proposed Town public pedestrian pathway, hike and bike trail, equestrian trail, or park as shown on the Town's most recent Design and Construction Standards Plan; or

8. Negatively impact the community or sense of community in the Town as a whole.

D. Homeowner's Association Requirements:

A request for approval of the conversion of streets in subdivision to private streets, shall be accompanied by a petition signed by all property owners in the subdivision and shall include all documents legally necessary to:

1. Create enforceable restrictive covenants that run with the land providing for assessments by a homeowner's association for the maintenance of the streets;

2. Require membership in the homeowner's association for the owners of all properties served by private streets;

3. Provide for the maintenance of the private streets and appurtenances after transfer of ownership from the developer to the homeowner's association;

4. Demonstrate that homeowner's association is financially able to purchase the streets from the developer;

5. Assure that the homeowner's association shall not be dissolved without the written consent of the Town.

E. Indemnity:

The homeowner's association shall indemnify the Town as provided in Paragraph C (3) (d) (iv) of this Section, 3, Homeowner's Association Documents.

F. Homeowner's Association Documents:

1. For purposes of this ordinance, "homeowner's association" documents means the association articles of incorporation and bylaws and all other association documents affecting the activity and rights of property owners in the subdivision.

2. The homeowner's association articles of incorporation, bylaws, and declaration of restrictive covenants must be approved by the Board of Alderman before the final plat approval. After which approval, they must be filed of record with the county.

3. The declaration of restrictive covenants shall require the owners of all lots in the subdivision to be members of the homeowner's association and shall require the payment of dues and assessments imposed by the association.

4. The homeowner's association documents shall include:

   a. That the streets within the subdivision are private, and maintained by the homeowner's association, and that the Town has no obligation to maintain private streets;

   b. Which Town services will not be provided on the private streets;

   c. Provisions describing the requirements of this section and Paragraph D and E of Section 5.05; and

   d. A provision that the homeowner's association, as owners of the private streets and appurtenances, agrees to release, indemnify, defend and hold harmless the Town, any governmental entity and public utility for damages to the private street occasioned by the reasonable use of the private street by the Town, governmental entity or public utility; for damages and injury (including death) arising out of the use by the Town, governmental entity of public utility of any restricted access gate of entrance; and for damages and injury (including death) arising out of the use of the subdivision by the Town, government entity or public utility. Further, such language shall provide that all lot owners shall release the Town, governmental entities and public utilities for such damages and injury (including death) are caused by the negligent act or omission of the Town, governmental entity or public utility, or their representative officers, employees or agent. Those portions of the homeowner's association's document pertaining to the subject matter contained in this paragraph shall not be amended without the prior written consent of the Town.

   e. The portion of the homeowner's association pertaining to maintenance of the private streets, assessments, and the petition for conversion to public streets shall conform to the requirements of this section and shall not be amended without the written consent of the Town.

f. All homeowner's association documents shall be reviewed and approved by the Town's Attorney to ensure that they are legally sufficient to accomplish their intended purpose and that they conform to the requirements of this section and other applicable Town ordinances prior to being filed of record at the county or counties.

g. The right of access for any purposes related to the exercise of a governmental service of function, including but not limited to fire and police protection, inspection code enforcement, and permitting the Town to remove any vehicle or obstacle within the private street lot that impairs emergency access.

G. Property Owners Association Required.

Subdivisions developed with private streets and alleys must have a mandatory property owners association which includes all property served by private streets. The association shall own and be responsible for the maintenance of private streets and appurtenances. The association documents must establish a reserve fund for the maintenance of streets and other improvements. The association documents shall be reviewed and approved by the Town's Attorney to ensure that they conform to this and other applicable Town ordinances. The documents shall be filed of record prior to the approval of the final plat. Lot deeds must convey membership in the association and provide for the payment of dues and assessments required by the association. The association may not be dissolved without the prior written consent of the Town. No portion of the association documents pertaining to the maintenance of the private streets and alleys and assessments therefore may be amended without the written consent of the Town.

H. Private Street Standards in Residential Subdivisions:

1. Maintenance Cost.

   A homeowners association is responsible for the cost of maintenance of private streets. The Town shall have no responsibility for and shall not pay for any portion of the cost of maintaining a private street.

2. Town Services.

   The Town has no obligation to maintain private streets. Depending on the characteristic of the proposed private street subdivision, the Town may provide certain other services. Among the services which may not be provided are: routine police patrols, enforcement of traffic and parking ordinances, and preparation of accident reports.

3. Maintenance Standards.

   Maintenance, amenities, and landscaping of private streets shall conform to the standards regulating the maintenance, amenities, and landscaping of public streets.

4. Retention of Easements.

   A utility, drainage, and emergency access easement shall be retained in private streets by the Town and other utility companies:

(a) Providing unrestricted use of the property for utilities and their maintenance;

(b) Extending easement rights to all utility providers including telecable companies operating within the Town;

(c) Providing the town with the right of access for providing the Town with an easement covering the street lot shall be granted to the Town providing unrestricted use of the property for utilities and the maintenance of the same.

(d) The easement shall also provide the Town with the right of access for any purpose related to the exercise of governmental service or function, including but not limited to fire and police protection, inspection and code enforcement.

(e) The easement shall permit the Town to remove any vehicle or obstacle within the street lot that impairs emergency access.

5. Town Assumption of Maintenance:

The Board of Aldermen shall be the sole judge of whether repairs to a private street are needed. If a homeowner's association, its successors or assigns fail or refuse to adequately maintain private streets and related appurtenances, the Town shall have the right, but not the obligation, to assume the temporary duty of performing the association's maintenance obligations at any time after the expiration of sixty (60) days after receipt by the association, its successors or assigns of written notice from the Board of Aldermen specifying the nature and extent of the failure to maintain.

(a) Upon assuming such maintenance obligations, the Town shall have the right to collect, when they become due, the assessments levied by the homeowner's association for the purposes of repairing and maintaining the private streets and related appurtenances, and if necessary, the Town shall have the right to enforce the payment of delinquent assessments in the manner set forth in the association's documents.

(b) The Town shall also have the right to levy an assessment upon each lot on pro rata basis for the cost of such maintenance, which assessment shall constitute an assessment lien upon the lot against which each assessment is made.

(c) Under no circumstances, shall the Town be liable to the association or any lot owner or their respective heirs, successors or assigns for negligent acts or omissions relating in any manner to maintaining, improving and preserving the private streets and related appurtenances.

6. Access Restrictions:

The entrances to all private streets shall be marked with a sign stating that it is a private street. Either a guard house or an access control device such as a gate or cross arm shall be constructed at each entrance. All restricted access entrances shall be manned 24 hours every day, or an alternative means shall be provided of every day, or an alternative means shall be provided of ensuring access to the subdivision by the Town and other utility service providers with appropriate identification. If the association fails to

maintain reliable access required to provide Town services, the Town shall have the right to enter the subdivision and remove any gate or device which is barrier to access at the sole expense of the association.

7. Restricted Access Entrance Design Standards:

   Private streets which have access controlled by a gate, cross arm, or other access control device shall conform to the following requirements:

   (a) The street must have a minimum uninterrupted pavement width of 24 feet at the location of the access control device.

   (b) If an overhead barrier is used, it shall have minimum height above the road surface as required by the local fire department for fire lanes.

   (c) The design of all gates, cross arms and access control devices, including automatic opening systems and manual backup systems, shall be approved by the local fire department before installation.

   (d) The gates, cross arms, and access control devices shall be tested and accepted by the local fire department before being put into operation.

   (e) Gated signs may incorporate one or two gate sections to meet the required minimum width of 24 feet.

   (f) If the entrance incorporates a median, guard shack, or similar structure that necessitates a divided gate arrangement, the gate and street pavement widths may be reduced if approved by the local fire department. This approval shall be contingent upon the subdivision with private streets having a second approved means of access, but in no case shall a single gate or street pavement have a clear opening of less than 18 feet.

8. Visitors Entrance Design Standards:

   At least one entrance to a subdivision with private streets shall be equipped for visitor access. In addition to the above Restricted Access Entrance Design Standards, the visitor entrance shall be equipped with a call or code box located at least 50 feet from the boundary of the subdivision to provide for visitors calling in an automobile queuing. A turn- around space with a minimum outside radius of 30 feet shall be located between any call or code box and the access control device to allow vehicles denied access to safely exit onto public streets in a "head out" position. A sign shall be erected next to the edge or such tum around space to prohibit vehicle parking in such space. A resident's entrance used in combination with a visitor entrance shall comply with the requirements of this paragraph.

9. Resident Only Entrance Design Standards:

   (a) In addition to the above Restricted Access Entrance Design Standards, an access control device that requires residents to use a key, card, or code to gain access shall setback internally a minimum of 50 feet from the boundary of the subdivision to provide for automobile queuing, except, that resident entrances equipped with an

electronic opener that allows residents to remotely open the access control device and enter the subdivision without having to stop are exempted from this requirement.

(b) A sign shall be erected next to any resident entrance that does not meet the 50 foot setback requirement of this paragraph and does not provide a tum-around space with a minimum outside radius of 30 feet to indicate that it is for resident use only and not for visitors.

10. Cost of Design Standards:

The homeowner's association shall pay the cost of complying with required design standards.

I. Any gate installation must conform to the following provisions:

1. All gate installations must be approved by the local fire department prior to installation.

2. The installation must be completed and tested prior to the Town's acceptance of the subdivision.

3. A vehicular turn around shall be provided at entry gates to allow vehicles that have been denied entry the ability to exit without having to backup.

4. Gate designs may incorporate one or two gate sections to meet the required minimum gate width of twenty-four feet. If the entrance will incorporate a median, guard shack, or similar structure that necessitates a divided gate arrangement, the widths may be reduced if approved by the local fire department, but in no case, shall any single gate or street pavement have a clear opening of less than eighteen feet.

5. If a gate design incorporates any overhead obstruction the obstruction must be a minimum of fourteen feet (14') above the finished surface.

6. Approach and departure areas on both sides of a gated entrance must provide adequate setbacks and proper alignment to allow free and unimpeded passage of emergency vehicles through the entrance area.

7. Automatic gate installations must conform to the design and performance guidelines established by the local fire department.

8. All components of the gate system must be maintained in an approved operating condition, with all components serviced and maintained on a regular basis as needed to insure proper gate operation. A proper power supply shall be maintained to all electrical and electronic components at all times.

9. Each security gate regulated under this section will be subject to a performance test on a regular basis as determined by the local fire department. Upon failure of performance test, the security gate system shall be disabled and maintained in the open position until repaired, and shall not be placed back in service until tested and authorized by the local fire department.

10. All streets, gates, and other fire protection features, signage, and equipment are subject to periodic inspection by the Town and must be repaired immediately if found to be in a condition of disrepair. The Town shall have the right to enter the subdivision and disable, open, or remove any gate, device, or other feature that impedes or controls vehicle access at the sole expense of the Homeowner's Association.

11. The person or corporation in control of the property is responsible for, and liable for, any violations of this section. This includes, but it not limited to, the developer, property owner, the Homeowner's Association and its officers, if applicable, or others who may own or exercise control over the property.

J. Hold Harmless:

On the subdivision final plat shall be language where by the Homeowner's Association, as owner of the private streets and appurtenances, agrees to release, indemnify, defend and hold harmless the Town, any governmental entity and public utility for damages to the private street occasioned by the reasonable use of the private street by the Town, governmental entity of public utility; for damages and injury (including death) arising from the condition of said private street; for damages and injury (including death) arising out of the use by the Town, governmental entity or public utility of any restricted access gate or entrance; and for damages and injury (including death) arising out of any use of the subdivision by the Town, government entity or public utility. Further, such language shall provide that all owners shall release the Town, governmental entities and public utilities for such damages and injuries. The indemnification's contained in this paragraph apply regardless of whether or not such damages and injury (including death) are caused by the negligent act or omission of the Town, governmental entity or public utility, or their representative officers, employees or agents.

K. Construction and Maintenance Cost:

The Town shall not pay for any portion of the cost of constructing or maintaining a private street.

L. Utilities:

Water, sewer, drainage facilities, street lights and signs placed within the private street and alley lot shall be installed to town standards prior to approval of the final plat. All town regulations relating to infrastructure financing, developer cost participation and capital cost recovery shall apply to developments with private streets with the exception of those applying to street construction.

M. Plans & Inspections:

Developments proposed with private streets must submit to the Town the same plans and engineering information required to construct public streets and utilities. Requirements pertaining to inspection and approval of improvements prior to final plat approval shall apply. Fees charged for the services shall also apply. The Town may periodically inspect private streets and require repairs necessary to insure emergency access.

N. Waiver of Services:

The subdivision final plat, property deeds and property owner association documents shall note that certain Town services shall not be provided on private streets. Among the services which

will not be provided are: routine police patrols, enforcement of traffic and parking ordinances and preparation of accident reports. All private traffic regulatory signs shall conform to the Texas Manual of Uniform Traffic Control Devices. Depending on the characteristics of the proposed development other services may not be provided.

O. Petition to Convert to Public Streets Within Cross Timber:

The Homeowner's Association documents shall allow the association to request the Town to accept private streets and alleys and the associated property as public streets and right-of-way upon written notice to all association members and the favorable vote of the membership. However, the Town shall not be obligated to accept the streets and alleys as public. Should the Town elect to accept the streets and alleys as public, the Town shall have the right to inspect the private streets and levy an assessment upon each lot on a pro rata basis for the expense of needed repairs, which assessment shall constitute an assessment lien upon the lot against which each assessment is made. The Town shall be sole judge of whether repairs are needed. The Town shall also have the right to require, at the association's expense, the removal of guard houses, access control devices, landscaping or other aesthetic amenities located within the streets.

Those portions of the association documents pertaining to the subject matter contained in this paragraph shall not be amended without the written consent of the Town.

P. General Provisions for Sidewalks, Hike and Bikeways:

The purpose of this section is to provide the orderly, safe and healthful construction of sidewalks within the Town and to promote the health, safety and general welfare of the community. In order to carry out these purposes, it is hereby declared to be the policy of the Town of Cross Timber to guide and regulate sidewalk construction within the Town.

1. General Requirements:

   Any new development in the Town shall provide for the location and construction of sidewalks as provided in this section. This shall include the dedication of necessary right-of-way or public access easement and the construction of sidewalks according to the specifications provided herein.

2. Residential Requirements:

   a. Applicability.

      (1) Sidewalks shall be required in all residential subdivisions with average lot sizes of two acres or less.

      (2) Sidewalks shall be constructed in accordance with the Design and Construction Standards of the Town of Cross Timber for all lots adjoining dedicated streets, along major thoroughfares where lots do not adjoin the street, along power line easement and in other areas where pedestrian walkways are necessary. Sidewalk construction may be delayed until development of lots, but in locations not adjacent to lots and across bridges and culverts, the sidewalk shall be constructed with the other improvements to the subdivision or addition.

b. Pedestrian Access.

(1) The Town may require, in order to facilitate pedestrian access from the streets to schools, parks, playgrounds, or other nearby streets, perpetual unobstructed easements at least fifteen (15) feet in width. Easements shall be indicated on the plat.

c. Hike and Bikeways.

(1) Hike and bike sidewalks, designed and located according to the Town of Cross Timber's Design and Construction Standards, shall be constructed along streets designated for hike and bike trails. Such sidewalks shall be built by the owner at the time of site development, or, the owner may petition for the Town to construct such facilities, subject to escrow policies stated in Article VI of these regulations.

## ARTICLE IV- ADMINISTRATION AND AMENDMENTS

### Section 4-1 Building Permits

1. The Town shall withhold all Town improvements and services, including the furnishing of sewerage facilities and water service, and all franchise service under control of the Town, from subdivisions which have not been approved in accordance with this ordinance and other Town ordinances as applicable.

2. A building permit may be issued after completion of water and sewer improvements, and installation of curb and gutter, when the developer elects to provide cash or an irrevocable letter of credit to cover the remaining cost of the community facilities not completed at the time building permits are issued. Should a developer not provide this security, they will be issue building permits only upon final completion and acceptance of all community facilities by the Town.

3. In any non-residentially zoned district, a building permit may be issued after the engineering plans have been approved by the Town Engineer, and the community facilities contract has been executed and upon the posting of security. This provision applies only when there is to be no street construction or street improvements. (Street construction or street improvements fall under the provisions of paragraph 2 above.

4. No occupancy permits shall be issued for any structure or building or any lot, tract or parcel and no structure or building shall be occupied, unless and until the required public improvements are installed, connected, and are functioning properly and have been accepted by the Town.

### Section 4-2 Conveyance of Property by Metes and Bounds Description

1. If a lot has been legally platted according to the rules and regulations in force in the Town at the time of platting and all required community facility agreements have been executed, then subsequently if a portion of the lot is sold or conveyed to another individual or entity by a metes and bounds description and the sale has been duly registered at the county courthouse, the Town shall issue a building permit or certificate of occupancy under the following conditions:

    a. The property described in the metes and bounds description has been platted or replatted in accordance with all rules and regulations in effect in the Town at the time of platting or replatting;

    b. The plat or replat describing the property which was conveyed by metes and bounds description, also includes the larger tract of land from which the conveyance occurred. The property conveyed shall be identified by a newly assigned lot identification number as determined by the Town. The remaining out parcel from which the conveyance occurred shall be assigned a new lot number with the suffix "-remainder" applied. This number shall also be assigned by the Town; and

    c. A standard note to be added to the replat which states: "No construction permits of any kind shall be issued on lots with a "-remainder" designation."

2. Before a building permit or certificate of occupancy shall be issued on a site identified with the suffix "-remainder", the property shall be replatted in accordance with the codes and ordinances in effect in the Town at the time such action is to occur.

## Section 4-3 Waivers and Exceptions to Subdivision Regulations

1. The Board of Aldermen of the Town of Cross Timber, shall have the ultimate power to grant or reject waivers to the subdivision regulations. The Board or Aldermen may authorize a waiver from these Regulations when, in its opinion, undue hardship will result from requiring strict compliance. In granting a waiver, the Board of Aldermen shall prescribe only conditions that it deems necessary to or desirable in the public interest. In making the findings herein below required, the Board of Aldermen shall take into account the nature or the proposed use of the land involved, existing uses of land in the vicinity, the number of persons who will reside or work in the proposed subdivision, and the probable effect of such waiver upon traffic conditions and upon the public, health, safety, convenience, and welfare in the vicinity. No waiver shall be granted unless the Board of Aldermen finds:

    a. That there are special circumstances or conditions affecting the land involved such that the strict application of the provisions of these Regulations would deprive the applicant of the reasonable use of the land; and

    b. That the waiver is necessary for the preservation and enjoyment of a substantial property right of the applicant; and

    c. That the granting of the waiver will not be detrimental to the public health, safety, or welfare, or injurious to other property in the area; and

    d. That the granting of the waiver will not have the effect of preventing the orderly subdivision of other land in the area in accordance with the adopted Comprehensive Land Use Plan and the provisions of these Regulations.

2. Such findings, together with the specific facts upon which such findings are based, shall be incorporated into the official minutes of the Board of Aldermen meeting at which such waiver is granted or denied. Waivers may be granted only when in harmony with the general purpose and intent of the adopted Comprehensive Lane Use Plan and these Regulations so that the public health, safety and welfare may be secured and substantial justice done. Pecuniary hardship standing alone shall not be deemed to constitute undue hardship.

## Section 4-4 Repealer

This Ordinance shall be and is hereby declared to be cumulative of all other ordinances of the Town of Cross Timber, and this ordinance shall not operate to repeal or affect the Code of Ordinances of the Town of Cross Timber or any other ordinances except insofar as the provisions thereof might be inconsistent or in conflict with the provisions of this ordinance, in which event such conflicting provisions, if any, in such Code of Ordinances or any other ordinances are hereby repealed.

## Section 4-5 Penalty

Any person, firm, association of persons, corporation, or other organization violating the provisions of this ordinance shall be deemed to be guilty of a misdemeanor and, upon conviction, shall be fined an amount not to exceed $2,000.00. Each day that a violation continues shall be deemed a separate offense.

## Section 4-6 Severability

The sections, paragraphs, sentences, clauses, and phrases of this ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this ordinance shall be declared unconstitutional, such unconstitutionality or invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs, or sections of this ordinance, since the same would have been enacted by the Board of Aldermen without the incorporation in this ordinance of any such unconstitutional or invalid phrase, clause, sentence, paragraph, or section.

## Appendix "A"

## TOWN OF CROSS TIMBER, TEXAS

## DEVELOPERS AGREEMENT

## FOR_____ADDITION

## DEVELOPERS AGREEMENT NO._____

This Contract is entered into on the _____day of _____, _, by and between the TOWN OF CROSS TIMBER, TEXAS, (hereafter known as the "Town"), and _____, a

_____corporation, (hereafter known as the "Developer").

**WHEREAS**, the Developer is the owner of land which has been platted as _____Addition to the Town of Cross Timber, Johnson County, Texas, (hereafter referred to as the "Subdivision"); and

**WHEREAS**, the Developer is required to install certain public and private improvements and amenities as required in this Contract (hereinafter referred to as the "Improvements") in order to serve the lots within the Subdivision; and

**WHEREAS**, this Contract shall operate as a covenant running with the land and shall be binding upon the Developer and its successors, heirs, representatives, grantees, trustees, officers, agents, servants, employees, and assigns.

**NOW, THEREFORE**, the Town and the Developer, in consideration of the mutual covenants and agreements contained herein, do mutually agree as follows:

### I. GENERAL REQUIREMENTS

### A. PUBLIC IMPROVEMENTS:

**1. Constructed by developer; Plans.**

The improvements, whether on-site or off-site, including streets, water lines, sanitary sewer lines, drainage, sidewalks, traffic signals (if warranted by a developer funded traffic engineering study), street lighting (by arrangement by the developer with the electric company), street signs (by payment to the Town for installation cost), and all other required improvements for the subdivision, shall be installed by the developer at no cost to the Town, unless otherwise provided herein, and shall be in accordance with the subdivision regulations and all specifications and regulations of the Town, and the engineering plans as approved by the Town engineer or his agent The developer shall submit three sets of final-approved engineering plans to the Town at the time of execution of this contract. The final-approved engineering plans shall become a part of this contract. The plans shall have a cover sheet with this Developers Agreement number and a signature block for the mayor and the Town engineer.

2. **Construction Contractor.**

The developer shall employ a construction contractor that meets Town and statutory requirements for being bonded and insured; has acceptable prior work experience approved by the Town engineer; has financial resources which would enable the contractor to be capable of performing the work; and is qualified in all respects to bid on public projects and do work on public streets. The developer shall notify the Town engineer of the contractor selected and provide a copy of the signed contract bid, along with all supporting documents. The improvements shall be installed within all applicable time frames in accordance with the subdivision regulations unless otherwise approved herein.

3. **Civil Engineer.**

The developer shall employ a civil engineer licensed to practice in the State of Texas for the design and preparation of the plans and specifications (hereinafter referred to as the "engineering plans") for the construction of the improvements. The engineering plans shall include any engineering studies, plan/profile sheets, and other construction documents for the improvements.

4. **Preconstruction Conference.**

Construction of the improvements shall not be initiated until a pre-construction conference has been conducted regarding the proposed construction. Further, the developer will give a minimum of 48 hours written notice to the Town engineer, indicating the time and date that construction will commence.

5. **Inspection by the Town.**

The developer shall not backfill or cover any sanitary sewer, storm drain, or water pipes unless a Town inspector is present and gives his consent to proceed. Further, no service lines of water or sewer mains shall be connected to any building until the water and sewer mains have been completed, inspected, and accepted by the Town. The developer will reimburse the Town for overtime worked by Town personnel in performing project inspection.

6. **Review by Town Engineer.**

Construction of all public improvements shall be subject to routine review by the Town engineer or his agent to evaluate conformance with the engineering plans, project specifications, and Town standards. However, such review and evaluation shall not relieve the developer, its engineer, and/or agent of responsibility for the design, construction, and maintenance of the improvements.

7. **As-Built Plans or Record Drawings.**

Upon completion of construction of the improvements that are required by this contract and the subdivision regulations, the developer shall deliver to the Town the following items of as-built construction plans for the improvements constructed or engineered by the developer.

a. One set of as-built plans; and

b. One set of as-built reproducible plans.

## B. CONSTRUCTION BONDS.

Prior to initiating any construction of the improvements, the developer's contractors shall provide the Town with one original and one quality copy of the following construction bonds, which shall name the Town (or developer as noted) as beneficiary:

1. **Performance Bond (Developer Beneficiary).** A good and sufficient performance bond in amount equal to one hundred percent of the total contract price (between the developer and the prime contractor), guaranteeing the full and faithful execution of the work and performance of this Contract and for the protection of the Town against any improper execution of the work or the use of inferior materials. The performance bond shall guarantee completion of the improvements within two years of execution of this contract.

2. **Payment Bond (Developer Beneficiary).** A good and sufficient payment bond in an amount equal to one hundred percent of the total contract price (between the developer and prime contractor), guaranteeing payment for all labor, materials, and equipment used in the construction of the improvements.

3. **Maintenance Bond (Town Beneficiary).** A good and sufficient maintenance bond in an amount equal to one hundred percent (100%) of the total cost of the improvements, including all change orders, guaranteeing the maintenance in good condition of the improvements for a period of two (2) years from and after the date that a letter of acceptance is issued by the Town indicating that the improvements have been completed by the developer and accepted by the Town.

Each of the above bonds shall be in a form acceptable to the Town. Any surety company through which a bond is written shall be duly authorized to do business in the State of Texas, provided that the Town shall retain the right to reject any surety company for any work under this contract regardless of such company's authorization to do business in the State of Texas. Approval by the Town shall not be unreasonably withheld or delayed.

## C. DEVELOPER COSTS.

**The developer agrees to pay the following:**

1. Construction inspection and administration fees in the sum of $_____ (four percent of the cost of construction of the improvements) to be paid prior to construction of each phase and based on actual bid construction cost. The developer hereby agrees to provide the Town with a copy of each contract bid that the developer has awarded for the installation of the improvements;

2. Cost of portland cement concrete or hot mix asphaltic concrete mix design and batch plant control;

3. The additional charge for inspections on Saturdays, Sundays, holidays, and after normal working hours;

4. Any charges for re-testing as a result of failed tests;

5. Cost of testing related to water and sewer line pressure adequacy and waterline sterilization;

6. The required costs of main installation or adjustments for street lighting or other utilities or entities for the subdivision which are charged by public utility companies (TXU Gas Company, Southwestern Bell Telephone Company, TXU Electric Company, or other utilities or other entities which are affected by the subdivision or related work).

7. Cost of testing paid by Developer with Town Engineer present at testing:

   a. Initial soil density tests on trenches, roadway subgrade, fill areas, or other areas as required;

   b. Initial concrete cylinder or beam testing and concrete coring samples; and

   c. Technician's time for initial testing as noted above.

## II. FACILITIES TO BE INSTALLED

### A. ON-SITE WATER.

The developer agrees to install water facilities to service lots in the subdivision as shown on the final plat of the subdivision.

### B. DRAINAGE.

The developer hereby agrees to construct the necessary drainage facilities within the subdivision. The developer hereby agrees to fully comply with all EPA requirements relating to the planning, permitting, and management of storm water which may be in force at the time that development proposals are being presented for approval by the Town. The developer hereby agrees to comply with all provisions of the Texas Water Code. The developer hereby agrees to comply with all requests of the Town Engineer.

### C. STREETS.

1. Street construction in the subdivision shall conform to the requirements in the Subdivision Regulations of the Town of Cross Timber and the Design and Construction Standards Ordinance of the Town of Cross Timber.

2. The developer will be responsible for arranging with the electric company and paying any related costs for installation at locations approved by the Town engineer.

3. The Town will be responsible for installation of all regulatory signs recommended by the Manual on Uniform Traffic Control Devices and as directed by the Town engineer. It is understood that the developer with Town approval may put in signs having unique architectural features, however, should the signs be moved or destroyed by any means, the Town shall only be responsible for replacement of standard signs.

4. All water, sanitary sewer, and storm drainage utilities which are anticipated to be installed within the streets or within the street right-of-way will be completed prior to the commencement of street construction on the specific section of the street in which the utility improvements have been placed or for which they are programmed. It is understood that in every construction project a decision later may be made to realign a line or service which may occur after construction has commenced. The developer hereby agrees to advise the Town engineer as quickly as possible when such a need has been identified and to work cooperatively with the Town to make sure such utility changes in a manner that will be least disruptive to street construction or stability.

**D. ON-SITE SANITARY SEWER FACILITIES.**

The developer hereby agrees to install sanitary sewer collection facilities to service lots in the subdivision as shown on the final plat of the subdivision.

**E. AMENITIES.**

It is understood that the subdivision may incorporate a number of unique amenities and aesthetic improvements such as aesthetic ponds and lakes, unique landscaping, walls, street furniture, etc. and may incorporate specialty signs and accessory facilities. The developer agrees to accept responsibility for the construction and maintenance of all such amenities or specialty items until such responsibility is turned over to a homeowners association. It is further understood and agreed that only those amenities or specialty items listed in this section may be constructed within the public right-of-way. The developer also agrees to maintain these amenities until such responsibility is turned over to a homeowners association. The Town shall not be responsible for the replacement of these amenities under any circumstances. The developer, its successors, and assigns, agree to indemnify and hold harmless the Town from any and all damage, loss, or liability of any kind whatsoever by reason of injury to property or third persons occasioned by its use of the public right-of-way with regard to these amenities and the developer, its successors, and assigns shall, at its own cost and expense, defend and protect the Town against all such claims and demands.

For this subdivision, these items include:

(INSERT LIST HERE)

**F. STREET NAME SIGNS.**

The developer will purchase and install all street name signs in the subdivision. Street names shall have a maximum of twelve characters.

**G. SIDEWALKS.**

Sidewalks shall be installed in accordance with the provisions of the Town of Cross Timber subdivision regulations.

**H. SCREENING WALLS.**

Screening walls shall be installed in accordance with the provisions of the Town of Cross Timber Zoning Ordinance.

## I. LANDSCAPING.

Landscaping shall be installed in accordance with the provisions of the Town of Cross Timber Zoning Ordinance.

## III. DEVELOPMENT FEES.

### PARK FEES / LAND DEDICATION.

The developer agrees to dedicate land for parks or pay park dedication fees in conformance with the subdivision regulations of the Town. The subdivision consists lots for a total required park fee of $ , or the developer has dedicated _____acres of land.

## IV. MISCELLANEOUS PROVISIONS.

### A. PUBLIC FACILITIES TO BE PROVIDED BY THE TOWN.

None. Water is available through Bethesda Water Supply Corporation or private well. Waste water facilities shall follow guidelines established by the State of Texas and applied through the Texas Commission on Environmental Quality (TCEQ).

### B. INDEMNIFICATION.

#### 1. LIABILITY FOR DESIGN.

Approval by the Town engineer or other employee of any plans, designs, or specifications submitted by the developer pursuant to this contract shall not constitute or be deemed to be an assumption of responsibility and liability of the developer, its competency of their design and specifications for the improvements, it being the intent of the parties that approval by the Town engineer signifies the Town's approval of only the general design concept of the improvements to be constructed. In this connection, the developer shall for a period of two years after the acceptance by the Town of the completed improvements, indemnify and hold harmless the Town, its officers, agents, servants, and employees, from any loss, damage, liability, claim, obligation, penalty, charge, cost, or expense including property damage, personal injury, or death, to any and all persons, which may arise out of any defect, deficiency, or negligence of the engineer's design and specifications incorporated into any of the improvements constructed in accordance therewith, whether or not such loss, damage, liability, claim, obligation, penalty, charge, cost, or expense is caused in part by the Town, its officers, agents, servants, or employees, and the developer shall defend at its own expense any suits or other proceedings brought against the Town, its officers, agents, servants, or employees, or any of them on account thereof, and shall pay all expenses {including without limitation reasonable fees and expenses of attorney's expert witnesses and consultants), and satisfy all judgements which may be incurred by or rendered against them in connection herewith.

2. **LIABILITY FOR CONSTRUCTION.**

The developer, its successors, assigns, vendors, grantees, and/or trustees do hereby fully release and agree to indemnify, hold harmless, and defend the Town, its officers, agents, servants, and employees from all losses, damage, liabilities, claims, obligations, penalties, charges, costs, or expenses of any nature whatsoever, for property damage, personal injury, or death, resulting from or in any way connected with this contract or the construction of the improvements or the failure to safeguard construction work, or any other act or omission of the developer or its contractors or subcontractors, their officers, agents, servants, or employees related thereto, which accrue prior to acceptance of the improvements by the Town, whether or not such losses, damages, liabilities, claims, obligations, penalties, charges, costs, or expenses are caused in part by the Town, its officers, agents, servants, or employees.

**C. FINAL ACCEPTANCE OF INFRASTRUCTURE.**

The Town will not issue a letter of acceptance until the improvements are completely constructed (final completion) to the satisfaction of the Town engineer or his agent. However, upon substantial completion, a "punch list" of outstanding items shall be presented to the developer's contractors indicating those outstanding items and their deficiencies that need to be addressed for final completion of the improvements.

**D. EROSION CONTROL.**

During construction of the subdivision and after the streets have been installed, the developer agrees to keep the streets free from soil build-up. The developer agrees to use soil control measures such as hay bales, silt screening, hydromulch, etc., to prevent soil erosion. It will be the developer's responsibility to present to the Town engineer a soil control development plan that will be implemented for the subdivision. When, in the opinion of the Town engineer, there is sufficient soil build-up on the streets or other drainage areas and notification has been given to the developer, the developer will have seventy-two (72) hours to clear the soil from the streets or affected areas. If the developer does not remove the soil from the streets or other areas within seventy-two (72) hours, the Town may cause the soil to be removed either by contract or Town forces and place the soil within the subdivision at the developer's expense. All expenses must be paid to the Town prior to issuance of a letter of acceptance for the improvements.

**E. MOWING.**

The developer and any third party independent entity engaged in the construction of houses, (hereinafter referred to as the "builder"), will be responsible for mowing all grass and weeds and otherwise reasonably maintaining the aesthetics of all land and lots in the subdivision which have not been sold to third parties. After fifteen (15) days written notice, should the developer or the builder fail in this responsibility, the Town may contract for this service and bill the developer or the builder for reasonable costs. Should such cost remain unpaid for sixty (60) days after notice, the Town can file a lien on the property so maintained.

**F. COMPLIANCE WITH LAWS.**

The developer hereby agrees to comply with all federal, state, and local laws that are applicable to development of the subdivision.

**G. VENUE.**

Venue for any action brought hereunder shall be in Johnson County, Texas.

**H. ASSIGNMENT.**

This contract or any part hereof or any interest herein shall not be assigned by the developer without the express written consent of the mayor, which consent shall not be unreasonably withheld.

**I. WAIVER.**

The developer expressly acknowledges that by entering into this contract, the developer, its successors/heirs, assigns, vendors, grantees, trustees, and/or representatives, shall never construe this contract as waiving any of the requirements of the zoning ordinance, subdivision regulations, or any other ordinance of the Town.

**J. AMENDMENTS.**

This contract may be changed or modified only with the written consent of both the developer and the Board of Aldermen of Cross Timber.

**K. LIENS AND ASSESSMENTS.**

In the event the developer fails to comply with any of the provisions of this contract, the Town shall be authorized to cease issuance of any further certificates of occupancy or building permits on property owned by the developer. Should the developer fail to complete the construction of the improvements in addition to any other remedy authorized by this contract or law, the Town shall be authorized to complete such construction and file a mechanic's lien against the developer's property; or in the alternative, to levy an assessment against the developers property for public improvements, in accordance with applicable state law.

**L. CONTINUITY.**

This contract shall be a covenant running with the land and shall be binding upon the developer, its successors, heirs, assigns, grantees, trustees, and/or representatives.

**M. SEVERABILITY.**

The provisions of this contract are severable and in the event any word, phrase, sentence, paragraph, section or other provision of this contract, or the application thereof to any person or circumstance, shall ever be determined by a court of competent jurisdiction to be invalid, illegal, or unenforceable for any reason, the remainder of this contract shall remain in full force and effect and the application thereof to any other person or circumstance shall not be affected thereby. The invalid, illegal, or unenforceable provision shall be rewritten by the parties of this contract to accomplish the parties' original intent as nearly as possible.

**IN WITNESS WHEREOF**, each of the parties hereto has caused this contract to be executed by its undersigned duly authorized representative as of the date hereinabove first mentioned.

_____

A_____CORPORATION

By:

_____

_____
Name, Title

Date:

THE TOWN OF CROSS TIMBER

By:

_____
Mayor

Date: _____

ATTEST:
By:

_____
Town Secretary

## CORPORATION ACKNOWLEDGEMENT

**THE STATE OF TEXAS** §

§

**COUNTY OF JOHNSON** §

**BEFORE ME**, the undersigned authority in and for Johnson County, Texas, on this day personally appeared_____, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that he/she is the _____ of said

_____, a _____corporation, and that he/she is authorized by said corporation to execute the foregoing instrument as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

**GIVEN UNDER MY HAND AND SEAL OF OFFICE**, this_____ day of

_____ , _____.

(Notary Stamp)

_____.
Notary Public in and for the State of Texas

**EXHIBIT "B"**

**DESIGN AND CONSTRUCTION STANDARDS**

EXHIBIT "B"

DESIGN AND CONSTRUCTION STANDARDS

SECTION 1. ADOPTION AND COMPLIANCE WITH STREET, SIDEWALK, CURB, GUTTER, AND STORM SEWER STANDARDS

(a) The terms and provisions of "Exhibit A, Town of Cross Timber Specifications for the Design and Construction of Streets" attached hereto, made a part hereof by reference, and on file in the office of the Town Secretary of the Town of Cross Timber (hereinafter called the Town), and the standard details, made a part hereof by reference are hereby approved and adopted as the street, sidewalk, curb, and gutter design and construction standards of the Town for any lot, lots, and/or subdivision with lot sizes of less than two (2) acres. Developers may not build half streets, nor rebuild existing roads with half streets. If the property across the street develops within five years, the Town will collect one half of the street cost from the second developer and refund it to the first developer (this does not apply to the development of a single lot by owner).

(b) The terms and provisions of "Exhibit B, Town of Cross Timber Specifications for the Design and Construction of Storm Sewers" attached hereto, made a part hereof by reference and on file in the office of the Town Secretary, and the standard details, made a part hereof by reference are hereby approved and adopted as the storm sewer design and construction standards of the Town for any lot, lots, and/or subdivision with lot sizes of less than two (2) acres. Subdivisions with lots of more than two (2) acres may use standard Johnson County road section bar ditches. If the property across the street develops within five years, the Town will collect one half of the storm sewer cost from the second developer and refund it to the first developer (this does not apply to the development of a single lot by owner). All design and construction covered by the terms of the standards herein adopted shall conform to such standards.

SECTION 2. ACCEPTANCE OF WORK

Building permits and/or certificates of occupancy for development requiring public improvements by the terms of the standards adopted in this chapter may be withheld pending final acceptance of such required public improvements, or of design thereof, whichever may be appropriate. Final inspection and acceptance of construction shall be in conformance with Section 2.9 Final Inspection of Exhibit "A".

SECTION 3. PERMITS

No person shall construct, reconstruct, cut or repair any street, storm sewer, curb and gutter or sidewalk within the Town without first obtaining from the Town a permit to do so.

No such permit shall be granted unless the two (2) year maintenance bond provided for in Section 5(b) in full force and effect at the time of request for such permit and the doing of the work.

## SECTION 4. PERMIT FEES

No person shall be granted a permit to construct, reconstruct, alter, cut, repair, remove or replace any street, storm sewer, curb and gutter or sidewalk unless and until certain fees to the Town for inspection of such work are paid. Such fees are established within the Town of Cross Timber Fee Schedule.

## SECTION 5. BOND REQUIRED

No person shall construct, reconstruct, cut or repair any street, driveway approach, sidewalk, or storm sewer in the Town without executing and delivering to the Town a bond payable to the Town of Cross Timber, Johnson County, Texas,–from an approved surety company, and in certain sums as follows:

| | |
|---|---|
| (a) Street construction | $5,000 |
| (b) Street cuts | $2,500 |
| (c) Driveway approaches | $2,500 |
| (d) Sidewalks | $2,500 |
| (e) Storm sewer | $5,000 |

Such bond shall be conditioned that all work done in the construction, reconstruction, cut or repair of any street or storm sewer shall be done in a good and workmanlike manner, and that such person shall faithfully and strictly comply with the specifications and with the terms of the Town Code and such ordinances, resolutions or regulations that may be passed by the Board of Aldermen governing and relating to the construction, reconstruction, cut or repair of any street or storm sewers, and that the Town shall be fully indemnified and be held whole and harmless from any and all costs, expense or damage, whether real or asserted on account of any injury done to any person or property in the prosecution of such work, or that may arise out of or be occasioned by the performance of such work. Such bond shall be conditioned further that the principal shall, without additional cost to the person for whom the work was done, maintain all streets or storm sewers so constructed, reconstructed, cut or repaired by the principal for a period of two (2) years from the date of final acceptance of such construction, reconstruction, cut or repair to the satisfaction of the engineering department of the Town, and shall reconstruct or repair any street or storm sewer to the satisfaction of the engineering department of the Town at any time within two (2) years after the final acceptance of the construction, reconstruction, cut or repair of any street or storm sewer and after ten (10) days' notice from the engineering department to reconstruct or repair the same, and that the opinion of the engineering department as to the necessity of such reconstruction or repair shall be binding on the parties thereto.

Such bond shall, for the purposes mentioned above, be in force for two (2) years after the final acceptance of any street or storm sewer which is constructed, reconstructed, cut or repaired and one recovery shall not exhaust the bond, but such bond shall be a continuing obligation against the sureties thereon until the entire amount therein provided for shall have been exhausted. In case the bond shall be decreased on account of any recovery which may be obtained, arising out of the violation of any condition of the same, the Board of Aldermen shall require, upon notice to it of such fact, an additional bond to be given in accordance with this section in an amount sufficient, when added to the nonexhausted amount of the original bond, to be at all times equal to the sum of the original bond required.

The Town may, for itself or for the use and benefit of any person injured or damaged by-reason of any defective construction, reconstruction, cut or repair of any street or storm sewer by any person, maintain suit on such 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 who shall construct, reconstruct, cut or repair any street or storm sewer in the Town to observe the conditions of such bond.

## SECTION 6. PROHIBITING CUT OF IMPROVED STREETS

No underground utility installation shall be placed under a permanently improved street, except by boring or jacking such crossing from curb line to curb line.

An open cut shall be permitted only with the approval of the Town Engineer or his representative in such case as it is impractical to bore or jack under a permanently improved street due to the presence of rock or other obstruction, and the repair of such cut shall be in accordance with Exhibit "A".

## SECTION 7. SUPERVISION AND APPROVAL OF WORK

All work done in construction, reconstruction, cutting and repairing of streets, driveway approaches, sidewalks and storm sewer shall be done under the supervision and subject to the direction and approval of the Town Engineer, whose decision shall be final. All Town expenses incurred for engineering and testing will be prepaid. A deposit for these costs shall be made before permits will be issued any overage will be refunded upon completion of final inspection. In the event that the deposit is inadequate, the project shall be red tagged until additional funds are deposited with the Town.

## SECTION 8. WORKING HOURS

No person or construction company shall work on Saturdays, Sundays, or any official holiday observed by the Town without the expressed written permission of the Town Engineer or his representative. No person or construction company shall begin work before 7:00 A.M. or work after 5:00 P.M. on any workday without the expressed written permission of the Town Engineer or his representative.

## SECTION 9. AMENDMENTS TO CODE

The Town may from time to time determine that local modification to these codes are necessary and appropriate to meet the needs of the Town. To effectuate these local modifications, the Board of Aldermen shall enact individual ordinances amending this ordinance, fully setting forth the changes to be made in these listed codes.

## SECTION 10. BOOK OR PAMPHLET PUBLICATION

The Town Secretary is hereby authorized to publish this ordinance in book or pamphlet form for general distribution among the public, and the operative provisions of this ordinance as so

published shall be admissible in evidence in all courts without further proof than the production thereof as provided in Section 52.011of the Local Government Code.

SECTION 11. DEFINITIONS

In this ordinance the following terms will have these meanings as well as any common meaning:

a. Person - means any person, firm, association of persons, company, corporation, or their agents, servants, or employees;

b. Town Engineer - means the engineer hired by the Town to carry out any duty or responsibility created herein, who will be paid from funds deposited in advance with the Town by anyone wishing to develop a tract of land, a subdivision or a single lot.

**EXHIBIT "C"**

**TOWN OF CROSS TIMBER**

**SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STREETS**

EXHIBIT "C"

TOWN OF CROSS TIMBER
SPECIFICATIONS FOR THE DESIGN
AND CONSTRUCTION OF STREETS

## CHAPTER I - DESIGN STANDARDS

1.1 DESIGN OF PAVEMENT: The method of design for paving shall be in accordance with the latest design practices of the Asphalt Institute or the Portland Cement Association. Other methods of design may be used if approved by the Town Engineer.

1.2 COST ANALYSIS: If the Engineer feels that the cost of testing the soils and designing the pavement is prohibitive, he may submit an undesigned minimum pavement section to the Town Engineer for his approval. If, in his best judgment, the Town Engineer feels that the minimum pavement section is inadequate, he may require a thicker section. In no instances, however, will an undesigned pavement section be allowed which is less than the minimum standards for undesigned pavements as set forth in this chapter.

1.3 MINIMUM SECTIONS FOR STREETS: The minimum undesigned pavement thickness for streets shall be as follows:

1. Subdivisions consisting of less than two-acre lots must have concrete streets, concrete curb and gutters, storm drains and sidewalks, with a street width of 31 feet and a right-of-way of 60 feet. The construction must consist of Portland Concrete Paving- 8" P.C.C.

2. Subdivisions with lots over two acres must have the Full Depth Asphalt Paving-11" H.M.A.C., concrete lay down curbs and bar ditches, with a street width of 31 feet and a right-of-way width of 60 feet.

1.4 UNDERDRAINS: It may be necessary in certain instances to provide for the relief of subsurface water for the protection of the street. This relief will be accomplished by the use of underdrains. Such conditions requiring the use of underdrains would be the presence of an expansive clay, an area of high seepage, and areas of fluctuating water content. The use of underdrains may also be required by the Town Engineer if in his best professional judgment they are needed for the protection of the street.

## CHAPTER II - GENERAL CONSIDERATIONS

2.1 DEFINITION: The term "streets", as used herein, shall include but not be restricted to new streets, reworked streets, or street repair. These specifications shall apply to any street construction of any nature installed in or on any public property or easements within the Town.

2.2 PLANS: All plans and profiles for the construction of streets shall be reviewed and approved by the Town Engineer. After the approval of the Town Engineer has been obtained, and so noted on the original plans and profile sheets, five copies of the approved drawings, one of which shall be a reproducible on an approved material, must be furnished the Engineer prior to the commencement of any work. Plans and profile sheets for new streets and storm sewer construction shall be 24 inches by 36 inches, drawn by and bearing the seal of a Registered Professional Engineer.

2.3 WATER FOR CONSTRUCTION: The Owner will furnish, at the published charges, to the Contractor water for construction at a fire hydrant, designated by the Town Engineer. The Contractor, however, will have to furnish whatever hose, tank trucks, valves, wrenches, and whatever else is required for use of this water. The Contractor shall obtain a meter from the Town water supply for metering the water used.

2.4 SIGNS: The removal and replacement of Town street signposts and signs is the responsibility of the Contractor. The Contractor shall be responsible for all damage to street signposts and signs within the limits of his operations that remain in place or are removed and replaced. In the event street sign posts and signs are injured or destroyed by the Contractor's operations, they shall be replaced by the Contractor.

2.5 EXISTING UTILITIES AND SERVICE LINES: The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operations. Where existing utilities or service lines are cut, broken or damaged, the Contractor shall replace or repair the utilities or service lines with the same type of original material and construction, or better.

2.6 BARRICADES AND LIGHTS: Where the work is carried on in or adjacent to any street, alley or public place, the Contractor shall furnish and erect such barricades, fences, battery type flasher-markers and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of the work as necessary. From sunset to sunrise the Contractor shall furnish and maintain at least one battery type flasher-
marker at each barricade and sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction.

The Contractor will be held responsible for all damage to the work and the public due to failure of barricades, signs, lights and watchmen to protect it, and whenever evidence is found of such damage, the Town Engineer may order the damaged portion immediately removed and replaced by the Contractor. The Contractor's responsibility for the maintenance of barricades, signs, and lights and for providing watchmen, shall not cease until the project has been accepted by the Owner.

2.7 THE TOWN ENGINEER'S AUTHORITY AND DUTY: Unless otherwise specified, the Town Engineer or his representative shall inspect all work specified herein. The Town Engineer shall have the authority to stop the work whenever such stoppage may be necessary in his

opinion for the protection of the public. The Town Engineer may change any requirement hereunder if deemed necessary under good engineering practices; public safety, the safety of workers, improved construction practices· and reduced future maintenance.

2.8 FINAL CLEANING UP: Upon completion of the work, the Contractor shall clean, remove rubbish and restore in an acceptable manner all property which has been damaged in any way, and leave the site of work in a neat and presentable condition throughout. Upon completion of any structures, all excess material, cofferdams, temporary structures and debris resulting from construction shall be removed. Where work is in a stream, all debris shall be removed to the ground line of the stream bed, and channels shall be left unobstructed and in a neat and presentable condition as directed by the Engineer.

2.9 FINAL INSPECTION: Whenever the work has been satisfactorily completed and the final cleanup performed, the Contractor or Developer shall notify the Town for final inspection.

Upon final inspection of the construction, the Town Engineer will issue a letter of acceptance to the Contractor with a copy to the Developer if the streets have no defects. If not, a letter detailing what steps must be taken in order to correct the defects will be sent. The Contractor will be allowed fifteen (15) days to correct any defects from the date of rejection. Should the Contractor fail to remedy said defects, there shall be a penalty of $25.00 a day from the 16th day until the defects are repaired.

If the streets are not accepted by the Town Engineer, no building permits can be issued by the Town. Once streets have been accepted by the Town, up to 10% building permits may be released.

3.2 STRUCTURAL EXCAVATION: This item shall govern the excavation for the placing of structures; for the disposal of all material obtained from such excavation; and for the backfilling around completed structures to the level of the original ground. Unless otherwise provided, the work included hereunder shall provide for the removal of old structures or portions thereof (such as abutments, wing walls, and piers), trees, and all other obstructions necessary to the proposed construction.

For all single and multiple box culverts, pipe culverts, pipe arch culverts, and storm sewers of all types, where the soil encountered at established lowering grade is a quicksand, muck or similar unstable material, the following procedure shall be used unless other methods are called for on the plans or approved by the Town Engineer: all unstable soil shall be removed to a depth 2 feet below the bottom of culverts or storm sewers 2 feet or more in height and to a depth equal to the height of the culverts or storm sewers less than 2 feet in height. Such excavation shall be carried at least one foot beyond the horizontal limits of the structure on all sides. All unstable soil so removed shall be replaced with suitable stable material, approved by the Town Engineer, placed in uniform layers of suitable depth for compaction as directed by the Town Engineer and each layer shall be wetted, if necessary, and compacted by rolling or tamping as required to provide a stable foundation for the structure.

3.3 EMBANKMENT: Embankment shall consist of the placement and compaction of all materials obtained from street excavation, borrow or any other excavation in the construction of streets.

a. Construction Methods: Prior to placing any embankment, all clearing and grubbing and site preparation shall have been completed. Stump holes or other small excavations within the limits of the embankment shall have been backfilled with suitable materials and thoroughly tamped or compacted in an approved manner and inspected by the Town Engineer before commencing the embankment construction. The surface of the ground, including plowed or loosened ground or small ditches or washes, shall be restored approximately to its original slope by blading or other methods, and shall be compacted by sprinkling and rolling.

   The surface of hillsides shall be loosened by scarifying or plowing to a depth of not less than 4 inches or cut into steps before embankment materials are placed. The embankment shall then be placed in layers as hereinafter specified, by beginning at the low side in part width layers and increasing the widths as the embankment is raised. The material which has been loosened shall be recompacted simultaneously with the embankment material placed at the same elevation.

   Where embankment is to be placed over or adjacent to existing roadbeds, the slopes shall be plowed or scarified to a depth of not less than 4 inches and the embankment built up in successive layers, as hereinafter specified, to the level of old roadbed before its height is increased, then the old roadbed shall be scarified and recompacted with the next layer of embankment. The total depth of the scarified and added material shall not exceed the permissible depth of the layer.

   Trees, stumps, roots, vegetation, and other unsuitable materials shall not be placed in embankment.

All embankment shall be constructed in 8-inch layers approximately parallel to the finished grade of the street and shall be so constructed, as nearly as possible, to conform to cross-section of the subgrade section.

Embankment shall be constructed to the established grade and to the shape of the typical sections shown on the plans and each section shall conform to the detailed sections or slopes. After completion of the embankment, it shall be continuously maintained to its finished section and grade until the base or pavement is placed.

b. Classification: Earth embankment shall be composed principally of materials other than rock, and shall be composed of acceptable materials, and shall be constructed in successive layers for the full width of specified depths or cross- sections and in such lengths as are suitable for the sprinkling and compaction methods to be used. Prior to compaction, the layers shall not exceed 8 inches in depth for rolling with sheep-foot rollers. Layers of embankment may be formed by utilizing equipment which will spread the material as it is dumped or they may be formed by being spread by blading or other acceptable methods from piles or windrows dumped from excavation or hauling equipment in such amounts that the material is uniformly distributed.

Minor quantities of rock shall be incorporated in the specified earth embankment layers, or may be placed in accordance with the hereinafter specified requirements for the construction of rock embankments in the deeper fills, provided such placement of rock is not immediately adjacent to any pipe or structure. Rock may also be placed outside the limits of the completed roadbed width where the size of the rocks prohibits their incorporation in the normal earth embankment layers.

Each layer of earth embankment shall be uniform as to material, density and moisture content before beginning compaction. Where non-uniform layers abut each other, each layer shall be feather-edged or the materials shall be so mixed as to prevent abrupt changes in the materials.

No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or other acceptable methods. Clods or lumps of material shall be broken and mixed in the earth embankment material by blading, harrowing, or similar methods so that a uniform material of uniform density is secured in each layer. Water required for sprinkling to bring the material to the moisture content necessary for maximum compaction shall be uniformly applied, and it shall be the Contractor's responsibility to secure a uniform moisture content throughout each layer by such methods as may be necessary.

Earth embankment shall be compacted as hereinafter specified. Rolling shall commence immediately after the embankment layer has been brought to the uniform moisture content, and shall continue, with or without additional application of water, until each layer of earth embankment has been uniformly compacted to a standard proctor density of 95%.

All earth cuts, full or part widths in the side of a hill, which are not required to be excavated below subgrade elevation for base and back-filled, shall be scarified to a uniform depth of not less than 6 inches below grade and the material shall be mixed and reshaped by blading and then sprinkled and rolled in accordance with the herein above requirements for earth embankment and to the same density as that required for the adjacent earth embankments.

Earth embankment placed adjacent to and over pipes, culverts, arches, and bridges shall be of suitable soil, free of rocks or lumps, and shall be placed in successive layers approximately horizontal. Special care shall be taken to prevent wedging action against the structure, and shall be brought up uniformly on each side of the structure. For such distances along embankments adjacent to structures where it is impracticable to use compaction methods by rolling, the embankment material shall be placed in layers not exceeding 8 inches in depth of loose material thoroughly wet uniformly to the required moisture content by additional sprinkling, if necessary, until each layer has been uniformly compacted to a standard proctor density of 95% supplemented by such hand work as is necessary to secure a uniform and thoroughly compacted fill.

c. Material Selection: In addition to the foregoing selection of materials and utilization of the materials in the embankment, the embankment shall be constructed in proper sequence to receive select materials specified or shown on the plans, with such modifications as may be directed by the Town Engineer. The layer of embankment immediately preceding the first layer of base materials shall be constructed to the required cross-section and to the elevation within a tolerance of not more than 1/2 inch from the established cross-section or elevation after proper compaction and finish to receive the base material layer.

d. Density: For each layer of earth embankment and base material, it is the intention of this specification to secure an apparent dry density of the minus 1/4-inch material of not less than 95 percent of the maximum dry density of samples of the material as determined by the "Standard Proctor Density Compaction Test." After each section of earth embankment or select material is completed, such tests as are necessary, will be selected by the Town Engineer. If the material fails to meet the density specified, the last layer of material placed shall be scarified and compacted again and the compaction method will be altered on subsequent work as is necessary to obtain the specified density. All density tests will be paid for by the Contractor.

e. Rolling: The embankment or base material shall be as directed by the Town Engineer. Rolling shall start longitudinally at the sides and proceed toward the center, overlapping on successive trips at least 1/2 of the width of the tamping roller unit and 1/2 of the width of the pneumatic tire roller unit. Alternate trips of the roller unit shall begin at the low sides and progress toward the high sides.

The speed of the power roller and the tamping roller unit, unless otherwise directed by the Town Engineer, shall be between 2 and 3 miles per hour. The speed of the pneumatic tire unit, unless otherwise directed by the Town Engineer, shall be between 4 and 12 miles per hour for asphalt surfacing work and between 2 and 6 miles per hour for all other compaction work.

f. Sprinkling: Sprinkling shall be done when ordered by the Town Engineer. The Contractor shall furnish and operate approved sprinklers, equipped with valves to regulate the flow of water to the sprinkler bar so that water will be evenly distributed over the entire width

sprinkled. To provide even distribution for smaller applications of water, a spray bar with smaller openings may be provided or the number and size of openings reduced by plugs or bushings.

3.4 SUBGRADE: Subgrade is that top 6-inch portion of the roadbed upon which the base material is to be placed. Before commencing preparation of subgrade for placing of base material, all installations within the street to be paved must be completed.

a. Construction Methods: After the excavation or embankment has been substantially completed, the subgrade shall be brought to the correct alignment, cross-section, or elevation. All irregularities which develop during final compaction in excess of% inch in 16 ft. as shown by straight-edge or template shall immediately be corrected; the subgrade shall be prepared so that when completed, it will have as nearly as 9 practicable (and not less than 95%) a uniform density of 95% Standard Proctor Density with uniform moisture content greater than optimum. Densities will be taken every 300 feet, or as directed by the Town Engineer.

   The prepared subgrade shall be kept thoroughly wetted down sufficiently in advance of placing any base material to insure its being in a firm and moist condition for at least 2 inches below the finished subgrade surface.

   Only such subgrade as is necessary for the satisfactory prosecution of the work shall be completed ahead of placing the base material and curb and gutter.

   If the subgrade has a plastic index of 20 percent or more, the Contractor will be required to stabilize with lime, or other approved material, 6 inches of the subgrade to lower the plastic index below 20 percent. The rate of application will be done in accordance with the recommendation of a testing laboratory.

   The Atterburg Limits shall be determined at 500' intervals or as material changes in the subgrade.

3.5 LIME TREATMENT FOR SUBGRADE: This item shall consist of treating the subgrade by the pulverization, addition of lime, mixing and compacting the mixed materials to the required density. The lime treated subgrade shall be constructed as herein specified and in conformity with the typical cross-sections shown on the plans.

a. Materials: The subgrade to be stabilized shall consist of the material free from vegetation or other objectionable matter. It is the intention of this specification to utilize material existing on the excavated subgrade.

   Lime for stabilization shall be Type "A' hydrated lime.

   When sampled and tested according to prescribed Texas Highway Department procedures, hydrated lime shall conform to the following requirements as to chemical composition:

Hydrate Alkalinity, percent by weight CA(OH)2. Minimum 90.0%. Unhydrated Lime Content) percent by weight CAO Maximum 5.0%. "Free Water" Content, percent by weight H20 Maximum 4.0%.

The percent by weight by residue retained shall conform to the following requirements:

Residue retained on a No. 6 sieve, Maximum 0.0%
Residue retained on a No. 10 sieve, Maximum 1.0%
Residue retained on a No. 30 sieve, Maximum 2.5%

Type "A" hydrated lime shall consist of a dry powder obtained by treating quick lime with enough water to satisfy its chemical affinity for water under the conditions of its hydration. This material shall consist of calcium hydroxide or a mixture of calcium hydroxide and a small percentage of calcium oxide, magnesium oxide and magnesium hydroxide.

b. Construction Methods: The subgrade shall be brought to line and grade and should be scarified to full, 6-inch depth and partly pulverized with a rooter, grader-scarifer, and/or disc harrow followed by a rotary speed mixer for pulverization. When the soil is unusually dry, water shall be added by sprinkling to aid pulverization. When the soil is wet the rotary mixer or disc harrow shall be used for aerating and drying out the soil.

Lime shall be spread only on that area where the first mixing operation can be completed during the same working day and shall be placed either dry or in slurry form as directed by the Town Engineer. The lime shall be spread by an approved screw type spreader box or by bag distribution at the rates shown on the plans or as directed by the Town Engineer.

The lime shall be distributed at a uniform rate and in such a manner as to reduce the scattering of lime by wind to a minimum. Lime shall not be applied when wind conditions, in the opinion of the Town Engineer, are such that blowing lime becomes objectionable to traffic and adjacent property owners. A motor grader shall not be used to spread the lime.

The material shall be sprinkled as directed by the Town Engineer until the proper moisture content has been secured.

The subgrade material and lime shall be thoroughly mixed by approved road mixers or other approved equipment, and the mixing continued until, in the opinion of the Town Engineer, a homogeneous, friable mixture of material and lime is obtained, free from all clods or lumps. Materials containing plastic clays or other material which will not readily mix with lime shall be mixed as thoroughly as possible at the time of the lime application, brought to the proper moisture content and left to cure 24-36 hours as directed by the Town Engineer. During the curing period, the material shall be kept moist as directed.

After the required curing time, the subgrade material shall be uniformly mixed by approved methods. If the soil binder lime mixture contains clods, they shall be reduced in size by raking, blading, disking, harrowing, scarifying, or by the use of other approved pulverization method so that when all non-flaking aggregates retained on a No.4 sieve are

removed, the remainder of the material shall meet the following requirements when tested dry by laboratory sieves:

Minimum, passing 1-3/4" sieve - 100%
Minimum, passing No. 4 sieve - 60%

Compaction to 95% density of the mixture shall begin immediately after final mixing and in no case later than three calendar days after final mixing, unless approval is obtained from the Town Engineer. The material shall be aerated or sprinkled as necessary to provide the optimum moisture. Compaction shall begin at the bottom and shall continue until the entire depth of mixture is uniformly compacted in accordance with AASHO, Standard Method,.T-99-57. A 2-5 day curing period shall follow compaction as directed by the Town Engineer.

c. Finishing: Curing and Preparation for Pavement: After the final layer or course of the lime treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The completed section shall then be finished by rolling, as directed, with a pneumatic or other suitable roller sufficiently light to prevent hair cracking. The completed section shall be moist cured for a minimum of two (2) days before the further courses are added or any traffic is permitted, unless otherwise directed by the Town Engineer.

d. Testing: All tests required for the completion of lime treatment for subgrade shall be made by a reputable commercial testing laboratory, which has been approved by the Town Engineer. The cost of the testing shall be borne by the Contractor. Additional tests resulting from the failure of mixed materials shall be paid for by the Contractor.

After final compaction, a field density test shall be made at intervals of 300 feet. Intermediate points may be tested if required by the Town Engineer and the cost of such intermediate tests shall be home by the Contractor. If any density test should indicate that the subgrade does not meet the compaction requirements, the subgrade shall be re-compacted until the required density is obtained. All testing required due to improper compaction shall be paid for by the Contractor.

3.6 CRUSHED STONE BASE: This item shall consist of a foundation course for surface course or for other base courses shall be composed of a crusher-run broken stone, and shall be constructed as herein specified in one or more courses in conformity with the typical sections shown on the plans.

a. Materials: The materials shall be crushed stone and shall consist of durable particles of stone mixed with approved binding material. The processed material shall be a Texas Highway Department Type *"A"*, Grade 1 material, and when properly slaked and tested, the flexible base material shall meet the following requirements:

| | | | |
|---|---|---|---|
| Retained on 1 3/4" sieve | | | 0% |
| Retained on 1" sieve | 5 | to | 25% |
| Retained on 112" sieve | 30 | to | 50% |
| Retained on No. 4 sieve | 45 | to | 65% |

| | | | |
|---|---|---|---|
| Retained on No. 40 sieve | 70 | to | 80% |

Material passing the No. 40 sieve shall be known as "Soil Binder" and shall meet the following requirements when prepared in accordance with THD test Method Tex-101-E procedure:

The liquid limit shall not exceed 40
The plasticity index shall not exceed 10

The material shall have a Wet Ball Mill Value not exceeding 40 when tested in accordance with Texas Highway Department Standard laboratory test Tex-116-E. Unless otherwise shown on plans the increase in soil binder resulting from this test shall not exceed 20.

The percent of wear, as determined by the LQs Angeles Abrasion Test of Coarse Aggregate, AASHO Designation T-96, with subsequent revisions, shall not exceed 40%.

b. Construction Methods: Immediately before placing the base coarse material, the subgrade shall be checked as to conformity with grade and section. The surface of the subgrade shall not show deviations in excess of 114 inch in 16 feet.

The material shall be delivered in approved vehicles of a uniform capacity and it shall be the charge of the Contractor that the required amount of specified material shall be delivered to secure the proper thickness of completed base course. Material deposited upon the subgrade shall be spread and shaped the same day unless otherwise directed by the Town Engineer in writing. In the event inclement weather or other unforeseen circumstances render impractical the spreading of the material during the first 24-hour period, the material shall be scarified and spread as directed by the Town Engineer. The material shall be sprinkled, if directed, and then bladed, dragged and shaped to conform to typical sections shown on the plans. All areas of segregated coarse or fine material shall be corrected or removed and replaced with well-graded material as directed by the Town Engineer. If additional binder is considered desirable or necessary after the material is spread and shaped, it shall be furnished and applied in the amount directed by the Town Engineer. Such binder material shall be carefully incorporated with the material in place by scarifying, harrowing, brooming or by other approved methods.

The course shall then be sprinkled as required and rolled as directed until a uniform compaction is secured. Through this entire operation the shape of the course shall be maintained by blading and the surface upon completion shall be smooth and in conformance with the typical sections shown on the plans and to the established lines and grades. The surface on which pavement is to be placed shall not show deviations in excess of one-fourth (1/4") inch in cross-sections within a length of five (5) feet, nor a deviation in excess of one-half (1/2) inch in sixteen (16) feet measured longitudinally. Such deviations shall be corrected by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling. All irregularities, depressions or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable material as required, reshaping and recompacting by sprinkling and rolling.

Compaction shall be obtained by blading and rolling with a pneumatic roller and finished with a flat wheel roller. Pneumatic tire rollers under working conditions shall have an effective rolling width of approximately sixty (60") inches and shall be so designated that

by ballast loading, the load may be varied uniformly from at least 100 pounds to 325 pounds per inch of width of tire tread. The three-wheel roller shall weigh at least ten (10) tons and shall provide a compression on the rear wheels of not less than 325 pounds per linear inch of tire width. The compaction of flexible base shall continue until the base has been compacted to 95 percent standard density in accordance with AASHO T-99-57.

c. Testing: After final compaction, a field density test shall be made at intervals of 300 feet. Intermediate points may be tested if required by the Town Engineer and the cost of intermediate tests shall be borne by the Contractor. If any density test should indicate that the base material does not meet the compaction requirements, the base material shall be recompacted until the required density is obtained. All testing required due to improper compaction shall be paid for by the Contractor.

   All tests required in these specifications for the completion of the flexible base shall be made by a reputable commercial testing laboratory, which has been approved by the Town Engineer.

3.7 CURB AND GUTTER: The term "curb and gutter", as used in this ordinance, shall include curbs, gutters, combination curb and gutter, concrete valley gutters, driveway approaches and sidewalks; providing, in such case, that the ordinance shall state the kind of curb and gutter, driveway approach, concrete valley gutter, or sidewalk to be constructed, reconstructed or repaired or may merely direct the construction, reconstruction or repair of a curb, or curb and gutter, or driveway approach or sidewalk alone.

These specifications shall govern improvements placed within or on any public property or public easement within the Town limits.

a. Materials: Curb and gutters shall be composed of concrete made from materials and constructed in accordance with these specifications and have a 28-day compressive strength of 3,000 PSI with a minimum of 5 sacks of cement per cubic yard.

b. Standard Details: Concrete curb and gutter shall be 24 inches wide, a minimum of 6 inches thick, and shall have a 6-inch standard curb section. The curb and gutter shall be reinforced with two 3/8-inch steel reinforcing bars throughout the entire length of gutter.

   Concrete gutter shall be a minimum of 24 inches wide, a minimum of6 inches thick, and shall be reinforced with two 3/8-inch steel reinforcing bars throughout the entire length of gutter.

   Concrete sidewalks shall be a minimum of 4 feet wide, a minimum of 4 inches thick, and shall be reinforced with 3/8-inch steel reinforcing bars on 24-inch centers. Welded wire mesh is not acceptable.

   Concrete valley gutters shall be a minimum of 8 feet wide, a minimum of 6 inches thick, and shall be reinforced with 3/8-inch steel reinforcing bars on 24-inch centers.

   Concrete driveway approaches shall be a minimum of 5 inches thick and shall be reinforced with 3/8-inch steel reinforcing bars on 24-inch centers. Welded wire mesh is not acceptable. Concrete driveway approaches shall have a rise of not less than 6" nor more than 9" from the gutter to a point 10' behind the gutter.

c. Forms: The forms shall be of wood or metal, straight and free from warp, and of sufficient strength to resist springing during the process of pouring concrete. Straight forms of wood shall be a 2-inch nominal thickness surfaced plank, or of metal of an approved section with a flat surface on top and bottom. Forms for use on radii may be of flexible wood or metal. The forms shall be of a depth equal to the depth of the concrete section with which they are in contact, and so designed to permit secure fastening together in correct position. Forms shall be securely staked, braced, and firmly held to the required line and grade. All forms shall be cleaned thoroughly, oiled and wetted before the concrete is placed against them.

d. Inspection: No concrete shall be placed unless the subgrade, forms, and reinforcement have been inspected and approved by the Town Engineer. Sufficient concrete to completely form the required section shall be deposited on the prepared, moistened subgrade. Use of topping mixes or other separate applications of materials will not be permitted. During placing, the concrete shall be thoroughly spaded next to the forms, and shall be carefully tamped, using an approved tamper, in uniform layers not exceeding 6 inches in depth, until a uniformly dense concrete is obtained. As soon as the concrete has set sufficiently to retain its shape without support of the forms, the clamps and spreaders may be removed. It shall be the responsibility of the Contractor to request inspection twenty-four (24) hours in advance to allow the Town Engineer a reasonable period of time in which to make the inspection.

e. Construction Methods: All honeycombed areas disclosed by removal of forms shall be immediately corrected by use of cement mortar.

Excess working of the surfaces shall be avoided; excess water, laitance, and inert materials shall be removed from the surfaces.

The top of all the work and the face of all curbs will be checked for irregularities as soon as the surface is finished, using a 10-foot straightedge; all variations greater than 1/4 inch in 10 feet shall be immediately corrected. The edges of the concrete, including edges at expansion joints, shall be neatly edged to the required radius with an edging tool.

Standard, special and rolled curb, with or without gutter, shall be poured in sections of the length indicated on the plans, in general, they shall be marked in 10-foot sections; every fourth joint shall be a 1/2-inch expansion joint filled with premolded bituminous fiberboard. The contraction joints, to be constructed every 10 feet, shall be constructed by cutting the moist concrete to the full depth and jointing with an approved grooving tool. All joints shall be perpendicular and at right angles to the face of the curb. If a curb and gutter machine is used, expansion joints may be placed at 200-foot intervals or further if required by the Town Engineer.

Separate gutter shall be poured in sections of the length indicated on the plans; in general, they shall be marked in 10-foot sections with expansion joints as located by the Town Engineer.

Sidewalks shall be poured in sections of the lengths indicated on the plans; in general, they shall be tooled in 5-foot sections. One-half inch expansion joint shall be placed on the property line between the approach and the driveway. The joints shall be filled with

premolded bituminous expansion joint filler and shall extend the entire depth and length of the concrete sections.

Driveways shall be poured in sections of the lengths indicated on the plans; in general, they shall have contraction joints not more than 15 feet apart, both transversely and longitudinally. One-half inch expansion joint shall be placed on the property line between the approach and the driveway. The joints shall be filled with premolded bituminous expansion joint filler and shall extend the entire depth and length of the concrete sections.

Residential driveways shall have a minimum five (5) foot radius and the width measured at the property line. Residential driveways shall not be less than twelve (12') feet in width nor more than twenty-five (25') feet in width unless specifically approved by the Town Engineer.

Commercial driveways shall have a minimum ten (10) foot radius and the width measured at the property line. Commercial driveways shall not be less than twenty-five (25) feet in width nor more than thirty-five (35) feet in width unless specifically approved by the Town Engineer. Each driveway approach will be separated with a minimum of twenty-five (25) feet upright curb and gutter to provide for a safety zone, traffic flow, and drainage design, unless specifically approved by the Town Engineer.

Industrial and manufacturing driveways shall have a minimum fifteen (15) foot radius and the width measured at the property line. Industrial and manufacturing driveways shall not be less than twenty-five (25) feet in width nor more than thirty-five (35) feet in width, unless specifically approved by the Town Engineer. Each driveway approach will be separated with a minimum of twenty-five (25) feet upright curb and gutter to provide for a safety zone, traffic flow and drainage design, unless specifically approved by the Town Engineer.

f. Finishing: The exposed surfaces of valley gutters and driveways shall have a monolithic finish by floating with a wooden float until a slight excess of sand appears on the surfaces. In no case shall the surface be left slick or with a glossy finish. Exposed surfaces of sidewalks shall have a monolithic finish by troweling with a steel trowel and brushed lightly with an approved broom. The edge of all concrete shall be neatly rounded to the required radii with an edging tool.

   The exposed surface of curbs and curbs with gutter shall be shaped with a "mechanical mule", and brushed with a wet brush at right angle to the line of the curb to produce a uniform textured surface. The edges shall be neatly rounded off to the required radii.

g. Curing: The curing of concrete shall continue for seventy-two (72) hours. Curing may be performed by one of the following methods:

   1. Burlap or cotton mats shall be kept completely saturated at all times for a period of at least seventy-two (72) hours after the concrete is placed. If burlap is used, three (3) layers will be required.

   2. Waterproofed paper of sufficient strength and of a type approved by the Town Engineer may be used for final curing. Waterproofed paper shall be prepared to form blankets of sufficient width to cover the entire surface and both edges of the concrete

section to be cured. Blankets shall be placed to secure an overall lap of twelve (12) inches, and this lap shall be securely weighed to form a closed joint. Paper blankets may be rejected by the Town Engineer at any time when, in his opinion, they do not provide an airtight covering. The paper blankets shall remain in place for a period of not less than seventy-two (72) hours.

3. Impervious membrane curing compound shall be applied uniformly to the pavement promptly after the surface water sheen has disappeared. The membrane curing compound shall be sprayed in one application at a rate of not less than the rate recommended by the manufacturer. The concrete surface to which membrane curing compound has been applied shall be protected from abrasion or damage which results in perforation of the membrane film during the first seventy-two (72) hours after application.

h. Testing: A recognized testing laboratory approved by the Town Engineer shall be selected by the Contractor for various tests to be made at the instructions of the Town Engineer.

The tests will be made at the expense of the Contractor and the reports will be mailed directly to the Town with copies being submitted to the Contractor.

The following tests will be made at locations that may be questionable and as located by the Town Engineer:

1. There will be a set of two (2) test cylinders or flexural beams made for each twenty-five (25) cubic yards, or more of continuous pouring of concrete.

2. There will be a set for every single pour of less than twenty-five (25) cubic yards continuous pouring.

i. Backfilling: Backfill shall be made of select materials as soon as forms have been removed and the required finishing operations completed. The backfill shall be thoroughly compacted in layers not exceeding 6 inches in depth, loose measurement, and shall be neatly graded to the top of the curb and gutters. Care shall be taken not to damage or injure the concrete in placing and compacting the backfill.

3.8 HOT MIX ASPHALTIC CONCRETE PAVEMENT: Hot mix asphaltic concrete pavement shall consist of a pavement as shown on the plans composed of a compacted mineral aggregate and asphaltic material conforming to the requirements as herein stated under "Materials". Hot mix asphaltic concrete shall be transported to and constructed on the completed base course or subbase in accordance with these specifications and in conformity with the lines, grades, and typical cross sections shown on the plans.

For residential streets the hot mix asphaltic concrete surface course shall be a minimum of two (2) inches compacted to 94% density and be Type D.

For thoroughfare streets the hot mix asphaltic concrete surface course shall be a minimum of two (2) inches compacted to 94% density and be Type C.

a. Materials: The mineral aggregate shall be composed of a coarse aggregate, a fine

aggregate, and, if required, a mineral filler. Samples of coarse aggregate, fine aggregate and mineral filler shall be submitted for tests in the quantities required by the Town Engineer. It shall contain not more than one (1) percent by weight of organic matter, clays, loam, or pebbles coated therewith. Mineral aggregate from each coarse shall meet the quality test specified herein.

The combined mineral aggregate, after final processing by the mixing plant, and prior to addition of asphalt and mineral filler, shall have a sand equivalent value of not less than 50, when subjected to the sand equivalent test as outlined in Texas Highway Department Bulletin C-14.

The fine aggregate shall be that part of the aggregate passing the No. 10 sieve and shall consist of sand or screenings or a combination of sand and screenings. The plasticity index of that part of the fine aggregate passing the No. 40 sieve shall be not more than 6. Sand shall be composed of durable stone particles free from injurious foreign matter. Screenings shall be of the same or similar material as specified for coarse aggregate.

The coarse aggregate shall be that part of the aggregate retained on a No. 10 sieve; shall consist of clean, crushed, durable fragments of stone, crushed blast furnace slag, crushed gravel, or combinations thereof as hereinafter specified, of uniform quality throughout. Coarse aggregate will be tested in accordance with THD Bulletin C-11(Decantation) and material removed shall not be more than one percent by weight. The coarse aggregate shall have an abrasion of not more than 40 percent loss by weight when subjected to the Los Angeles abrasion test.

Mineral filler shall consist of thoroughly dry-stone dust, slate dust, Portland cement or other non-plastic mineral dust approved by the Town Engineer. The mineral filler shall be free from foreign and other injurious matter. When tested by the method outlined in THD Bulletin C-14, it shall meet the following grading requirements:

| | Percent by Weight |
|---|---|
| Passing a No. 30 sieve | 100 |
| Passing a No. 80 sieve, not less than | 90 |
| Passing a No. 200 sieve, not less than | 65 |

Asphaltic materials shall be of the grade and type shown on the plans or approved by the Town Engineer and shall meet the following requirements:

| TYPE GRADE | OA-30 Min. | Max | OA-55 Min. | Max | OA-90 Min. | Max | OA-135 Min. | Max | OA-175 Min. | Max | OA-230 Min. | Max | OA-400 Min. | Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Penetration at 32 F., 200g, 60 sec. | 15 | | | | | | | | | | | | | |
| Penetration at 77 F., 100g, 5 sec. | 25 | 35 | 50 | 60 | 85 | 100 | 120 | 150 | 150 | 200 | 210 | 250 | | |
| Penetration at 115 F., 50g, 5 sec. | - | 65 | - | - | - | - | - | - | - | | | | | |
| Ductility at 77 F., 5 cm/min., cms: | 2 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | 70 | 0 | 70 | - | - | - |
| Original OA | | | | | | | | | | | | | | |
| Flash Point C.O.C., F. | 450 | - | 450 | - | 450 | - | 450 | - | 450 | - | 450 | - | 425 | - |
| Softening Point, R. & B., F. | 185 | - | 113 | 140 | 113 | 140 | 104 | 140 | 95 | 130 | 86 | 122 | - | - |
| Thin Film Oven Test, 1/8 in. Film, 50g., 5 hrs, 325 F.% Loss by Wt. | - | 0.4 | - | 0.8 | - | 1.0 | - | 1.3 | - | 1.4 | - | 1.5 | - | 2.0 |
| Penetration of Residue, at 77 F., 100g., 5 sec. | | | | | | | | | | | | | | |
| % of Original Pen. | - | - | 55 | - | 50 | - | 45 | - | 40 | - | 37 | - | - | - |
| Ductility of Residue at 77 F., 5 cm/min., Cms | - | - | 40 | - | 100 | - | 100 | - | 100 | - | 100 | - | - | - |
| Solubility CCL4, % | 99.5 | - | 99.5 | - | 99.5 | - | 99.5 | - | 99.5 | - | 99.5 | - | 99.5 | - |
| Spot Test on Original OA | Neg. | - | Neg. | - | Neg. | - | Neg. | - | Neg. | - | Neg. | - | Neg. | - |
| Float Test at 122 F., sec. | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tests on 85 to 115 Pen. Residue* | | | | | | | | | | | | | | |
| Residue by Wt., % | - | - | - | - | - | - | - | - | - | - | - | - | 75 | - |
| Ductility, 77 F., 5 cm/min.: | | | | | | | | | | | | | | |
| Original Res., cms | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - |
| Subjected to Thin Film Test, cms. | | | | | | | | | | | | | 100 | |

* Determined by Vacuum Distillation (by evaporation if unable to reduce by vacuum).

b. Paving Mixes: The paving mixtures shall consist of a uniform mixture of coarse aggregate, fine aggregate and asphaltic material. The grading for each constituent of the mineral aggregate shall be such as to produce, when properly proportioned, a mixture, which, when tested in accordance with THD Bulletin C-14, will conform to the limitations for master grading given below for the type specified. Crushed stone, crushed gravel, or pea gravel may be used in the Type "B" binder course and Type "D" surface course.

(1) TYPES:

| Type "A" (Coarse Graded Base Course) | Percent by Weight | | |
|---|---|---|---|
| Passing 2' sieve | | | 100 |
| Passing 1 2/4" sieve | 95 | to | 100 |
| Passing 1 3/4" sieve, retained on 7/8" sieve | 15 | to | 40 |
| Passing 7/8" sieve, retained on 3/8" sieve | 15 | to | 40 |
| Passing 3/8" sieve, retained on No. 4 sieve | 10 | to | 25 |
| Passing No. 4 sieve, retained on No. 10 sieve | 5 | to | 20 |
| Total retained on No. 10 sieve | 65 | to | 80 |
| Passing No. 10 sieve, retained on No. 40 sieve | 0 | to | 20 |
| Passing No. 40 sieve, retained on No. 80 sieve | 3 | to | 15 |
| Passing No. 80 sieve, retained on No. 200 sieve | 2 | to | 15 |
| Passing No. 200 sieve | 0 | to | 6 |

The asphaltic material shall form from to 6 percent of the mixture by Weight.

Type "B" (Fine Graded Base or Leveling-Up Course)

| | | | |
|---|---|---|---|
| Passing 1" sieve | | | 100 |
| Passing 7/8' sieve | 95 | to | 100 |
| Passing 7/8" sieve, retained on 3/8" sieve | 20 | to | 50 |
| Passing 3/8" sieve, retained on No. 4 sieve | 10 | to | 40 |
| Passing No. 4 sieve, retained on No. 10 sieve | 5 | to | 25 |
| Total retained on No.10 sieve | 55 | to | 70 |
| Passing No. l0 sieve, retained on No. 40 sieve | 0 | to | 30 |
| Passing No. 40 sieve, retained on No. 80 sieve | 4 | to | 20 |
| Passing No. 80 sieve, retained on No. 200 sieve | 3 | to | 20 |
| Passing No. 200 sieve | 0 | to | 6 |

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

| Type "C" (Coarse Graded Surface Course): | Percent by Weight | | |
|---|---|---|---|
| Passing 7/8" sieve | | | 100 |
| Passing 5/8" sieve. | 95 | to | 100 |
| Passing 5/8" sieve, retained on 3/8" sieve | 15 | to | 40 |
| Passing 3/8" sieve; retained on No. 4 sieve | 10 | to | 35 |
| Passing No. 4 sieve, retained on No. 10 sieve | 10 | to | 20 |
| Total retained on No. l0 sieve | 50 | to | 70 |
| Passing No. 10 sieve, retained on No. 40 sieve | 0 | to | 30 |
| Passing No. 40 sieve, retained on No. 80 sieve | 4 | to | 25 |
| Passing No. 80 sieve, retained on No. 200 sieve | 3 | to | 25 |
| Passing No. 200 sieve | 0 | to | 6 |

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

| Type *"D"* (Fine Graded Surface Course) | |
|---|---|
| Passing 1/2" sieve | 100 |
| Passing 3/8" sieve | 95 to 100 |
| Passing 3/8" sieve, retained on No. 4 sieve | 20 to 50 |
| Passing No. 4 sieve, retained on No. 10 sieve | 10 to 30 |
| Total retained on No. 10 sieve | 50 to 70 |
| Passing No. l0 sieve, retained on No. 40 sieve | 0 to 30 |
| Passing No.40 sieve, retained on No. 80 stave | 4 to 25 |
| Passing No.80 sieve, retained on No. 200 sieve | 3 to 25 |
| Passing No. 200 sieve | 0 to 6 |

The asphaltic material shall form front 4.0 to 8.0 percent of the mixture by weight.

(2} TOLERANCES: The Town Engineer will designate the exact grading of the aggregate and asphalt content to be used in the mixture. The paving mixture produced shall not vary from the designated grading and asphalt content by more than the tolerances allowed herein and shall remain within the limitations of the master grading specified. The respective tolerances, based on the percent by weight of the mixture, are listed as follows:

| | Percent by Weight |
|---|---|
| Passing 1" 3/4" sieve, retained on 7/8" sieve | plus or minus 4 |
| Passing 7/8" sieve, retained on 3/8" sieve | plus or minus 4 |
| Passing 5/8" sieve, retained on 3/8" sieve | plus or minus 4 |
| Passing 3/8" sieve, retained on No. 4 sieve | plus or minus 4 |
| Passing 1/4" sieve, retained on No. 10 sieve | plus or minus 4 |
| Passing No. 4 sieve, retained on No. 10 | plus or minus 4 |

| | |
|---|---|
| Total retained on No. 10 sieve | plus or minus 4 |
| Passing No. 10 sieve, retained on No.40 sieve | plus or minus 4 |

| | Percent by Weight |
|---|---|
| Passing No. 40 sieve, retained on No. 80 sieve | plus or minus 3 |
| Passing No. 80 sieve, retained on No. 200 sieve | plus or minus 3 |
| Passing No. 200 sieve | plus or minus 2 |
| Asphalt Material | plus or minus 0.3 |

The type and amount of the mixture used shall be as specified on the plans.

3) EXTRACTION TEST: Samples of the mixture when tested by the Extraction Test, THD Bulletin C-14, shall not vary from the grading proportions of the aggregate and the asphalt content designated by the Town Engineer by more than the respective tolerances specified above and shall be within the limits specified for master grading.

c. Pack Coat: Asphaltic base and all surfaces of curbs, gutters, headers, manholes, valve boxes, etc., that will be in contact with the asphaltic concrete mixture, shall be given a thin uniform coating of OA-90 tack coat. The Contractor shall use caution to protect the curb and gutter during placement of the tack coat.

d. Prime Coat: Before the application of asphaltic material is begun, the sub-base or crushed stone base will be broomed and cleaned to the satisfaction of the Town Engineer. After the cleaning procedure is completed, a prime coat ofMC-1asphalt will be applied to the subbase or crushed stone base at the rate of 0.10 to 0.25 gallon per square yard.

e. Transporting: The asphaltic mixture, prepared as specified above, shall be hauled to the work in tight vehicles previously cleaned of all foreign material. The dispatching of the vehicles shall be arranged so that all material delivered may be placed and all rolling shall be completed during daylight hours. In cool weather or for long hauls, canvas covers and insulating of the truck bodies may be required. The inside of the truck body may be given a light coating of oil, if necessary, to prevent mixture from adhering to the body.

f. Spreading and Finishing: The prime coat, tack coat or asphaltic mixture when placed with a spreading and finishing machine, shall not be placed when the air temperature is below 50 degrees F. and is falling, but it may be placed when the air temperature is above 40 degrees F. and is rising. The asphaltic mixture when placed with a motor grader shall not be placed when the air temperature is below 60 degrees F. and is falling, but may be placed when the air temperature is above 50 degrees F. and is rising. The air temperature shall be taken in the shade away from artificial heat. It is further provided that the prime coat, tack or other asphaltic mixture shall be placed only when the humidity, general weather conditions and the moisture end temperature of the base, in the opinion of the Town Engineer, are suitable.

   Each course shall be spread and finished as follows: The bituminous base mixture shall be spread and finished immediately after the subgrade has been properly shaped and cleaned.

   The bituminous mixture shall be delivered on the job at a temperature of not less than 275°F. Whenever practical the mixture shall be spread by means of an approved mechanical self-powered paver, capable of spreading the mixture true to the line and grade and crown as shown on the accepted plans and cross-sections.

   Placing of the mixture shall be as continuous as possible and shall be placed in no greater than 2-inch lifts. The roller shall pass over the unprotected edge of the fresh laid mixture only when the laying of the course is to be discontinued for such length of time as to permit the mixture to become chilled.

   Longitudinal and transverse joints shall be well bonded and sealed. If necessary to obtain this result, the joints shall be cut back to the full depth of the previously laid course,

painted with RC-2 asphalt. Before placing the mixture against them, all contract surfaces of curbs, gutters, headers, manholes, etc., shall be painted with a thin uniform coating of RC-2 asphalt or asphalt cement dissolved in naptha.

During the application of asphaltic material, care shall be taken to prevent splattering of adjacent pavement, curb and gutter, and structures. Hot smoothing irons may be used for sealing joints, but extreme care shall be used to avoid burning the surface. Construction joints shall be either parallel to or at right angles to the longitudinal axis of the work. The joints shall be spaced so that the joint in one course will not coincide with that of another course and will lap at least one foot.

The Contractor will use caution during the rolling operation to protect the curb and gutter.

Along curbs, headers, manholes and similar structures, and at all places not accessible to the roller, thorough compaction must be secured by means of hot tampers and at all contacts of this character the joints between these structures and the surface mixture must be effectively sealed.

g. Compacting: After spreading, the mixture shall be thoroughly compacted by a tandem power-driven roller, weighing not less than ten (10) tons, as soon after being spread as it will bear the roller without undue displacement. Rolling shall start longitudinally at the sides and proceed toward the center of the pavement overlapping on successive trips by at least one-half the width of the wheel. The pavement shall be rolled diagonally in two directions with a tandem roller, weighing not less than ten (10) tons, the second diagonal rolling shall cross the lines of the first. Pneumatic rollers shall be used for final rolling.

The pavement shall be compressed thoroughly and uniformly and when tested in accordance with the THD Bulletin C-14 shall meet the following requirements:

| Laboratory Density (THD Bulletin C-14) | |
|---|---|
| Minimum | 94 percent |
| Maximum | 99 percent |
| Optimum | 97 percent |

Stability (THD Bulletin C-14)

Not less than 30 percent, except when otherwise shown on the plans.

h. Inspection: The surface of the pavement, after compression, shall be smooth and true to the established line, grade and cross section, and when tested with a 16-foot straightedge placed parallel to the centerline of the roadway, it shall have no deviation in excess of 1/16 inch per foot from the nearest point of contact. The maximum ordinate measured from the face of the straightedge shall not exceed 1/4 inch at any point. Any point in the surface not meeting these requirements shall be immediately corrected.

Areas of asphaltic concrete pavement which have been determined to be different in thickness by an amount greater than 1/4 inch will not be accepted. Additional cores required in deficient areas shall be made at the expense of the Contractor.

i. Manholes: The paving contractor shall see that all valve boxes, manholes, cleanouts, etc., are set to the proper grade and shall carefully finish the pavement to them. Any such boxes or covers damaged by the Contractor shall be repaired by him before paving, and he shall direct the Town Engineer's attention to any he finds faulty.

j. Testing: All tests as required will be performed by a laboratory approved by the Town at no cost to the Town. The results of the tests will be mailed directly to the Town.

The Contractor will submit to the testing laboratory whatever materials are necessary for the tests. The testing laboratory will design the mixtures in accordance with these specifications and furnish the results to the city.

The approved laboratory will furnish plant control, which shall include but not be limited to bin analysis, extractions and gradations, and stability.

The approved laboratory shall also conduct field density tests on the completed mixture.

The laboratory will, during construction, and after construction make the following number of daily tests and report results to the Town Engineer and the Contractor.

1. One sample (three test specimens) for determination of density and stability.

2. One sample for determination of proportioning of materials.

3. There will be test specimens taken every 300 linear feet to determine the thickness and density of the asphalt pavement after paving is completed as directed by the Town Engineer.

## CHAPTER IV - REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

4.1 DEFINITION: This item shall consist of Portland cement concrete pavement constructed on a prepared subgrade in accordance with these specifications and in conformity with the lines and grades and typical cross-sections as shown on the accepted drawings.

4.2 MATERIALS: The concrete used in the construction of Portland cement concrete pavements shall conform to the requirements of the Texas Highway Departments 1972 standard Specifications for the Construction of Highways, Streets and Bridges.

The concrete mix will be designed with the intention of producing a minimum average flexural strength (modulus of rupture) of 650 pounds per square inch at the age of 7 days using a standard testing machine in which the load is applied at the center of the beam span. The coarse aggregate factor (dry, loose volume of coarse aggregate per unit volume of concrete) shall not exceed 0.85. Unless otherwise shown on plans, the concrete shall contain not less than five sacks of cement per cubic yard of concrete. The water-cement ratio (net gallons of water per sack of 94 pounds of cement) shall not exceed 6.25 gallons per sack. The Contractor shall furnish test results of at least two test beams for each 500 linear feet of pavement.

4.3 FORMS FOR CONCRETE PAVING: Forms for pavement slabs shall be of metal and shall have a minimum length of ten (1.0) feet except that on sharp curves wood forms may be used. All forms shall be free from bends and warps and shall be set so that they rest firmly throughout their entire length on the subgrade and shall be joined neatly and tightly together. Forms shall not vary more than one- eighth (1/8) inch from line and grade braced in such a manner that they will remain true to line and grade under the pressure of the concrete and the impact of the finishing machine screed. All forms shall be oiled before placing concrete.

4.4 PLACING REINFORCEMENT: Reinforcing metal shall be kept clean and free from rust, straight and free from distortion.

4.5 PLACING AND FINISHING CONCRETE: Concrete shall be placed on a moist subgrade. Concrete mixed to the proper consistency shall be deposited on the prepared subgrade rapidly in successive batches by means of a discharging device and in a manner which will not cause separation in the mix and shall be distributed to the required depth and for the entire width of the pavement by shoveling or other approved methods.

Rakes shall not be used in handling concrete. Concrete adjacent to joints shall be deposited on the subgrade as near to the joints as possible without touching them. It shall then be shoveled against both sides of the joint simultaneously maintaining equal pressure on both sides. After placing, the concrete shall be leveled and immediately struck off by means of an approved transverse mechanical finishing machine or by approved hand methods by using a steel screed weighing not less than four hundred (400) pounds and having a face resting on the forms of not less than ten (10) inches in width. The template shall be shaped to the desired cross section and have sufficient strength to retain its shape under working conditions. The template shall be

moved forward with a combined longitudinal and cross-wise motion. If necessary, the template shall be used a second time or until a true surface is obtained. All concrete adjacent to forms or other surfaces shall be thoroughly spaded so as to bring sufficient mortar to the face of the surfaces to eliminate honeycombing. After the concrete has been screeded, it shall be finished as follows:

> The concrete shall be floated with a wooden transverse float and the float shall be moved forward with a combined longitudinal and cross-wise motion. The float shall be used until all free water has been removed and the surface presents a smooth appearance. After floating with the transverse wooden float the concrete shall then be finished with a sixteen 16 foot longitudinal float or by an approved mechanical longitudinal float. The desired finish may be put on the concrete by means of a hand belt, burlap or other approved methods. The outer edge of the concrete shall be tool rounded. Before the final finishing, the concrete shall be tested with a sixteen (16) foot straightedge laid parallel to the edge of the pavement so as to bridge any depression. Any irregularities exceeding one-eighth (1/8) of an inch shall be corrected.

Expansion, contraction, and longitudinal joints shall be placed in accordance with the approved plans.

4.6 CURING CONCRETE: Immediately after finishing operations have been completed the entire surface of the newly laid concrete shall be covered and cured by one of the methods listed in Chapter III under Curb and Gutter.

4.7 PULLING FORMS: After the concrete has set and attained sufficient strength the forms shall be pulled. All honeycombs exposed by pulling the forms shall be patched with a cement mortar.

4.8 BACKFILLING: Backfill shall be of suitable material and shall be placeed and tamped until it is firm and solid. Backfilling shall follow immediately after the concrete forms have been removed.

4.9 SEASONAL LIMITS: No concrete shall be poured on a frozen or thawing subgrade or during unfavorable weather conditions, or when the temperature is 38 degrees F. and falling.

## CHAPTER V - STREET CUTS

5.1 CUT OF IMPROVED STREETS PROHI.BITED: No underground utility installation shall be placed under a permanently improved street, except by boring or jacking such crossing from curb line to curb line.

5.2 EXCEPTION: An open cut shall be permitted only with the approval of the Town Engineer or his designated representative in such case as it is impractical to bore or jack under a permanently improved street due to the presence of rock or other obstruction, and the repair of such cut shall be in accordance with these specifications.

5.3 CUT OF UNIMPROVED STREETS: An open cut of an unimproved street shall be permitted only with the approval of the Town Engineer or his designated representative. Each unimproved street shall be considered individually on its own merits and shall only be approved if in the best judgment of the Town Engineer there will be no undesirable consequences or cost to the Town.

5.4 CONSTRUCTION STANDARDS FOR STREET CUTS: Before excavation shall begin, the Contractor shall spade or saw the asphalt to a neat straight line. The Contractor shall remove all excavated materials from the job site, and shall backfill the trench with sand or mixed sand and gravel free from lumps, large stones, clay, etc. The backfill material shall be brought to the surface or the existing paving and compacted by jetting. After compaction, the contractor shall resaw any asphalt edges which were broken down during construction. The backfill shall then be excavated to the depth of the original asphalt. The Town Engineer may require the Contractor to pour a Portland cement concrete base, if in his best judgment the conditions require it, and that it would be in the best interest of the Town. The Contractor shall then lay and compact an approved asphaltic concrete mix to the original grade and density and in conformance with these specifications.

## CHAPTER VI - CONCRETE SIDEWALKS AND DRIVEWAY APPROACHES

6.1 DESCRIPTION: This item shall consist of sidewalks, and driveway approaches, with reinforcing steel, composed of Portland cement concrete, constructed as herein specified on an approved subgrade, in conformity with the lines and grades established by the Town Engineer, and the details shown on the plans.

6.2 MATERIALS: Materials and proportions used in construction under this item shall conform to the requirements as specified for Class *"A"* concrete, and shall have a minimum cement content of 5 sacks of cement per cubic yard of concrete.

6.3 STRENGTH: The concrete shall have-minimum compressive strength at 28 days of 3,000 pounds per square inch.

6.4 THICKNESS: Concrete sidewalks shall be a minimum of 4 inches thick, and concrete driveway approaches shall be a minimum of 6 inches thick. Concrete which fails to meet the requirements for thickness shall be removed and replaced by the Contractor at his own expense.

6.5 EXCAVATION: Excavation shall be made to the required depth and of sufficient width to construct the work to grade, form and dimensions. All soft and yielding or other unsuitable and unstable materials shall be removed and replaced with acceptable materials; the subgrade then shall be compacted to the satisfaction of the Town Engineer.

6.6 REINFORCEMENT: Reinforcement shall be with 3/8-inch steel deformed reinforcing bars on 24-inch centers. Welded wire mesh is not acceptable.

6.7 CONSTRUCTION METHODS: The subgrade shall be excavated and shaped to line, grade, and cross section and, if considered necessary in the opinion of the Town Engineer, hand tamped and sprinkled. The subgrade shall be moist at the time the concrete is placed. Forms shall be of wood or metal, of a section satisfactory to the Town Engineer, straight, free from warp; and of a depth equal to the thickness of the finished work. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete. The reinforcing steel shall be placed in position as shown on the plans. Care shall be exercised to keep all steel in its proper locations.

Sidewalks shall be constructed in sections of the lengths shown on plans. Unless otherwise provided by the plans, no section shall be of a length less than 8 feet and any section less than 8 feet shall be removed by the Contractor at his own expense. The different sections shall be separated by a premolded or board expansion joint of the thickness shown on the plans, placed vertically at right angles to the longitudinal axis of the sidewalk. Where the sidewalk abuts driveways or curb or retaining wall, approved expansion material shall be placed around all obstructions protruding through sidewalks or driveways.

Concrete shall be mixed in manner satisfactory to the Town Engineer, placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar covers the entire surface. The top surface shall be floated with a wooden float to a gritty texture. The outer edges and joints shall then be rounded with approved tools to the radii shown on plans. The surface shall then be steel troweled to a smooth finish. The surface shall then be lightly scored transversely to the slab by lightly brushing with a soft fibered broom as approved by the Town Engineer.

Sidewalks shall be marked into separate sections, each 4 feet in length unless otherwise directed, by the use of approved jointing tools.

When completed, the concrete shall be cured with an approved curing compound. All honeycombed areas disclosed by removal of forms shall be immediately corrected by use of cement mortar.

6.8 BACKFILL: Backfill shall be made of select materials as soon as forms have been removed and the required finishing operations completed. The backfill shall then be compacted to the satisfaction of the Town Engineer, and graded to match the natural ground.

# EXHIBIT "D"
# TOWN OF CROSS TIMBER
# SPECIFICATIONS FOR THE DESIGN
# AND CONSTRUCTION OF STORM SEWERS

EXHIBIT "D"

# TOWN OF CROSS TIMBER
# SPECIFICATIONS FOR THE DESIGN
# AND CONSTRUCTION OF STORM SEWERS

## CHAPTER I - DESIGN STANDARDS

### 1.1 GENERAL

The design of storm drainage improvements in the Town shall be based on discharges determined from the Rational Formula. The formula for calculating storm flows in this manner is:

Q = CIA, where

Q is the storm flow in cubic feet per second at a given point of design

C is a runoff coefficient which is the ratio of the maximum rate of runoff to the average rate of rainfall

I is the average intensity of rainfall in inches per hour for the calculated fine of concentration of the design point

A is the drainage area in acres of the design

### 1.2 QUALITY OF STORM WATER

The quantity of storm water runoff shall be determined for each inlet, bridge, culvert or other designated design point by using the following standards in application of the Rational Formula. The Town Engineer may change any requirement hereunder if deemed necessary under good engineering practices; public safety, the safety of workers, improved construction practices and reduced future maintenance.

### 1.2-1 RUNOFF COEFFICIENT

The runoff coefficient shall be determined for each drainage area from the current Land Use Plan of the Town. The runoff coefficients for land uses shall be as follows:

| | |
|---|---|
| Business Areas | .95 |
| Industrial Areas | .90 |
| Residential Areas | .60 |
| Park Areas | .30 |

Composite runoff coefficients will be determined by direct proportion when more than one land use exists within a drainage area.

## 1.2-2 RAINFALL INTENSITY

Frequency--Rainfall intensity-- frequency curves compiled by the U.S. Department of Commerce Weather Bureau in Technical Paper No.40 shall be used in computing rainfall intensity. The intensity, I, in the Rational Formula shall be determined from the time of concentration and design storm frequency.

(a) Time of Concentration: The time of concentration shall be calculated for all inlets and pipe junctions in a proposed storm sewer system or other point of analysis. The time of concentration shall consist of inlet time and time of flow in the sewer and the basis of design shall be the longest time of concentration applicable to the point of analysis.

For drainage areas of one acre or less the time of concentration need not be calculated- and a storm duration often minutes may be used as the basis of design.

(b) Storm Frequency: Storm frequencies for the storm drainage improvements in the Town are as follows,

DESIGN STORM FREQUENCY

| Type of Facility | Design Frequency (Years) |
|---|---|
| Storm Sewers Culverts, | 25 |
| Bridges Channels and Creeks | 100 |

### 1.2-3 AREA

The area used in determining flows by the Rational Formula shall be calculated by subdividing a map into drainage areas within the basin contributing storm water runoff to the system.

## 1.3 STORM DRAINAGE DESIGN

Before the construction or reconstruction of any street and before the construction of any building or other structure on a site, an engineering investigation shall be made to determine the necessity of on-site or off-site storm drainage facilities to meet the requirements of this ordinance.

### 1.3-1 SURFACE DRAINAGE ON STREETS

Storm drainage inlets shall be located and designed so as to limit the depth of water at the face of curb on any street to five inches and to permit no more than ten (10) cubic feet per second of storm water to cross an intersection.

### 1.3-2 SURFACE DRAINAGE ON PRIVATE PROPERTY

On lots or tracts of three acres or more, storm water runoff shall not be permitted to drain onto adjacent property except in existing creeks, channels or storm sewer. Storm water runoff may be drained on the surface onto public streets provided that resulting total gutter flow does not exceed five inches in depth.

### 1.3-3 STORM SEWERS

Storm water runoff in excess of that permitted to be carried on the surface shall be collected and transported in a storm sewer system. Such storm sewer systems shall be designed using Manning's equation for pipe and channel capacity:

Q = 1.486/n A R 2/3 S1/2 where
Q = Discharge in cubic feet per second
n = Coefficient of roughness
A= Cross-sectional area of flow in square feet
R = Hydraulic Radius in feet
S = Slope of hydraulic gradient in feet per foot

The coefficient of roughness shall be determined as follows,

| Sewer Type | n |
|---|---|
| Concrete Pipe | 0.013 |
| Corrugated Metal Pipe | 0.021 |
| Concrete Lined Channel | 0.015 |
| Earth Channel | 0.033 |

Storm sewer pipes shall be designed so that the average velocity of flow shall be not less than three (3) feet per second and not more than fifteen (15) feet per second. The minimum size of storm sewers shall be eighteen (18) inches in diameter or equivalent cross-sectional area.

In the design of a storm sewer system, the elevation of the hydraulic gradient of the storm sewer shall be a minimum of one and one half (1.5) feet below the elevation of the adjacent street gutter. In any system, the junction of pipes of different diameter shall be made at inlets, junction boxes or manholes so that the crowns of the pipes are at the same elevation.

### 1.3-4 OPEN CHANNELS

When the calculated pipe size for a storm sewer system exceeds seventy-two (72) inches in diameter, storm water runoff may be transported in open channels. Open channels may be fully lined, partially lined or unlined. Unlined channels will be permitted only in areas designated by the Board of Aldermen. Maximum earth slopes for unlined or partially lined channels shall not exceed 3:1. Partially lined channels shall consist of a concrete paved bottom and either earth slopes or concrete lined slopes to a height less than the design depth of water, fully lined channels shall consist of concrete lined bottom and slopes extending at least one foot above the height of design water depth. Maximum side slopes for fully lined channels shall be 1:1.

### 1.3-5 BRIDGES AND CULVERTS

In addition to satisfying capacity requirements resulting from the application of Manning's formula, bridges and culverts constructed to provide crossings of streams and open channels shall provide a clear waterway having at least the same width as the downstream channel and shall have a clear height of one foot above the calculated upstream water depth for the design storm unless otherwise approved by the Town Engineer. Bridges shall have concrete lined bottoms and slope and both bridges and culverts shall have upstream and downstream slope protection in the form of headwalls or wingwalls.

## CHAPTER II - CONSTRUCTION STANDARDS

### 2.1 CONCRETE STRUCTURES

### 2.1-1 DESCRIPTION

This item shall consist of the construction of concrete structures and other incidental work.

### 2.1-2 MATERIALS

The cement used shall conform to the following specifications: Portland Cement, A.S.T.M. Designation C-150 or later revisions thereof, and shall be Type I or Type III.

Concrete aggregates shall consist of natural, washed and screened sand, and washed and screened gravel or clean crushed stone conforming to Standard Specifications for Concrete, Aggregates, A.S.T.M. Serial Designation C-33-39 or later revisions thereof. The amount of deleterious substance shall not exceed the following:

| | Fine Aggregate | Coarse Aggregate |
|---|---|---|
| Clay Lumps | 1.00% | 0.25% |
| Soft fragments | | 4.00 |
| Coal and Lignite | 0.75 | 0.75 |
| Material finer than 200 mesh sieve | 3.00 | 1.00 |
| All other deleterious substances | 2.00 | 2.00 |

All fine aggregate shall be free from injurious amounts or organic impurities, and when subjected to the calorimetric test for organic impurities and found to be darker than the standard, will be rejected.

Aggregates shall be well graded from coarse to fine and when tested by laboratory sieves shall conform to the following requirements:

| | Fine Aggregates | Coarse Aggregate |
|---|---|---|
| Passing 1-1/2" sieve | -- | 100 |
| Passing 1" sieve | -- | 90-100 |
| Passing ½" sieve | -- | 25-60 |
| Passing 3/8" sieve | 100% | -- |
| Passing No. 4 sieve | 95-100 | 0-10 |
| Passing No. 16 sieve | 45-80 | -- |
| Passing No. 50 sieve | 10-30 | -- |
| Passing No. 100 sieve | 5-15 | |
| Passing No. 200 sieve mesh not more than | 3% | 1% |

The maximum size of coarse aggregate shall be limited to 3/4 of the minimum clear space between reinforcing bars and not larger than one-fifth of the narrowest dimensions between forms of the member for which the concrete is to be used.

## 2.1-3 REINFORCING STEEL

All reinforcing steel shall meet the Specifications for New Billet Steel, A.S.T.M. Designation A15-30 or later revisions thereof or Rail Steel Concrete Reinforcement Bars AS.T.M. Designation A1E-35 or later revisions thereof. Deformation of reinforcing steel shall meet the requirements of A.S.T.M. Specification A-305-50.

## 2.1-4 WATER

Water for concrete shall be clean and free from alkali or other harmful impurities. The mixer is to be equipped with a suitable water measuring device so that the predetermined quantity of water may be measured and a uniform amount used per batch.

## 2.1-5 CONCRETE -- STRUCTURAL

Concrete shall be composed of fine and coarse aggregate, so graded and proportioned, and thoroughly mixed with the required cement and water, as will produce a homogeneous mixture of such quality that the concrete will conform to the design and test requirements of this specification.

Fine and Coarse aggregate shall be separately and accurately measured by weight only when structural concrete is being poured unless otherwise directed by the Town Engineer. Volume measurement may be used by lower grade concrete to be used for blocking and cradle.

## 2.1-6 DESIGN AND TESTING

The concrete mix will be designed by the approved testing laboratory with the intention of producing a structural concrete of 3,000 pounds per square inch strength in 28 days. This strength shall be checked during construction by taking a minimum of two (2) test cylinders during each pour or a minimum of two (2) test cylinders during each twenty-five (25) cubic yards of continuous pouring. compressive test at seven days, and one test at 28 days. These tests shall be conducted by an approved testing laboratory and the cost of these tests is to be home by the Contractor.

The following limits of slumps shall be used for control of the design and placing of concrete:

| | Slump in Inches | | |
|---|---|---|---|
| Foundations and slabs on the ground | 1 | to | 3 inches |
| Heavy slabs, beams and walls | 3 | to | 6 inches |
| Thin walls | 3 | to | 6 inches |

All expense for the design of the concrete mixture and the testing of the cylinders taken during construction will be home by the Contractor.

## 2.1-7 MIXING

Concrete shall be composed of Portland Cement, fine aggregate, coarse aggregate, and water mixed in proportions designated by an approved private testing laboratory and in conformity with these specifications in order to produce a concrete of the specified strengths and workability. The laboratory will base their proportions on laboratory investigations of the proposed materials to be used throughout the job. In no case shall the mixing time be less than one minute.

## 2.1-8 EXCAVATION

Excavation shall be done in a workmanlike manner so as not to interfere with or damage any other structure near the one for which the excavation is being made. Grading shall be true to slopes shown on plans and as set down under the item Structural Excavation.

## 2.1-9 PUMPING, BAILING AND DRAINING

The Contractor shall immediately remove all surface or seepage water which may accumulate during the excavation and construction work by providing the necessary underdrains or otherwise, and by doing the necessary pumping, bailing or draining. The Contractor shall have available at all times sufficient equipment in proper working order for doing the work. All water removed from the excavation shall be disposed of in an approved manner, so as not to create unsanitary conditions, cause injury to persons or property, damage to the work in progress, not to interfere unduly with the progress of the work.

## 2.1-10 BACKFILL

All backfill around box culverts, bridge backwalls, retaining walls, wings, manholes, etc., that will be in the roadway or within three feet of the back of curb will be of granular material. Granular material shall be sand or mixed sand and gravel free from lumps, large stones, clay, and organic materials. The granular material will be jetted, and will not form mud or muck. Any variation of this specification will have to have the permission of the Town Engineer.

The backfill shall be brought to within one foot of the subgrade, and the remaining will be placed in accordance with the Embankment Specifications.

No backfill shall be placed against any abutment or retaining wall or box culvert until such structure has been in place for at least 7 days. Backfill placed around abutments and piers shall be deposited on both sides to approximately the same elevation at the same time.

## 2.1-11 FORMS

Forms may be of metal or wood or a combination of the two and shall be designed and built true to line, dimension and elevation; they shall be rigidly braced and unyielding, and shall be so constructed that they may be removed without injuring the concrete. If required by the Town Engineer, the Contractor shall submit detailed plans of the form work proposed to be used. If such plans appear inadequate, the Town Engineer will recommend to the Contractor such changes as he deems necessary. The Town Engineer's concurrence shall in no way relieve the Contractor of his entire responsibility for obtaining satisfactory results or of his responsibility for any and all damages or injury resulting from the use of such forming plans.

All form lumber shall be uniformly strong and sound, and for all interior and exposed surfaces shall be surfaced both sides and both edges and a uniform thickness. Plywood or iron or steel plates on undressed lumber for the backing will be permitted. Undressed lumber may be used for backing and for other unexposed surfaces.

Inside forms for all concrete shall be of plywood, iron or steel plates on undressed lumber or steel sections for the backing. All bolts or rivets heads on the side next to the concrete shall be countersunk.

All forms shall be mortar tight, and when necessary to close cracks in timber forms, they shall be soaked with water. Provisions shall be made for preventing the adhesion of mortar to the forms by adequately coating the surface with approved grease or oil, by soaping or by wetting with water immediately before placing concrete.

The interior surface of all forms shall be clean, smooth and tight, and in such condition that the required concrete surface will be obtained. Chamfers and fillets shall be as directed by the Town Engineer. Forms used more than one time shall be free from warps or bulges, and shall have any damaged piece properly repaired and shall be clean. Immediately preceding the placing of concrete, any dirt, shavings, sawdust, chips, water or other foreign substance shall be removed from the forms and the Contractor shall inspect the forms for accuracy and correctness. No wooden spreaders or other devices shall be left in the forms. Should the forms show any yielding, bulging, spreading, or otherwise become displaced from correct alignment or position during the placing of concrete, or after, they shall immediately and satisfactorily be corrected by adjustment or bracing, or when required by the Town Engineer, shall be removed in part, or in their entirety, and be rebuilt.

## 2.1-12 TRANSPORTING AND PLACING CONCRETE

Concrete shall not be placed unless the Town Engineer is present and until the forms, reinforcement, etc., have been inspected and approved.

Concrete shall be handled to the place of final deposit in a manner to avoid segregation, separation or loss of the ingredients, or the displacement of the reinforcement. The arrangement

and use of chutes, when necessary, shall extend as near as possible to the final place of deposit of the concrete.

Dropping of concrete a greater distance than 5 feet, or depositing a large quantity of concrete at one point and flowing or working it along the forms will not be permitted.

Placing concrete shall be so regulated that undue pressure will not be exerted against the forms. The concrete shall be consolidated into a dense mass, and mortar shall be flushed to the surface of the forms by continuous tamping, vibrator, spading and slicing. Care shall be taken to fill each part of the forms by depositing concrete directly as near its final location as practicable to work the coarse aggregates back from the surface, and to work the concrete under and around the reinforcement bars without displacing them. After the concrete has taken its initial set, care shall be taken to avoid jarring or placing any strain on the projecting ends of reinforcing bars.

Concrete shall be placed in continuous horizontal layers not exceeding 12 inches in thickness, unless otherwise permitted by the Town Engineer. The batches of concrete in any layer and the layers of concrete in any structure or section of structure being concreted shall follow each other so closely that each batch or layer will be placed and consolidated before the concrete previously placed has taken its initial set.

Each layer of concrete shall be left somewhat rough in order to secure thorough bonding with the next layer above. The top surface of layers completing the day's work, or placed just prior to temporarily discontinuing operations, shall be left in such condition to prevent the formation of laitance. The entire operation of depositing, consolidating and compacting concrete shall be so conducted that the exposed surfaces will be of smooth and uniform texture.

## 2.1-13 CONSTRUCTION JOINTS

Construction joints shall be placed at the locations shown on the plans, and concrete shall be poured in one continuous operation between such construction joints; however, where work is unavoidably suspended between regularly planned construction joint locations before the concrete shall have taken its initial set, then a construction joint located and formed in a manner satisfactory to the Town Engineer shall be placed. Keys of the depth and width shown on the plans shall be formed by imbedding water soaked wooden strips in the soft concrete and removing them after the concrete has hardened. When keys for joints not shown on the plans are required, they shall not be leveled off, but shall be left somewhat rough. Forms which have spread away from the concrete already in place shall be drawn back tightly against the concrete before placing fresh concrete. Upon resuming concreting, the surface of the concrete previously placed shall be thoroughly cleaned of all dirt, scum, laitance or other inert materials, using a stiff wire brush, or by other means approved by the Town Engineer. Immediately preceding the placing of fresh concrete, the surface of the concrete previously placed shall be thoroughly washed with clean water and covered with a substantial coating of cement mortar of the same mixture used in the concrete. All measures necessary shall be taken by the Contractor to secure a good bond in the concrete at construction joints.

## 2.1-14 PLACING CONCRETE

All concrete not placed as herein specified within 30 minutes after mixing shall be rejected and shall be disposed of by the Contractor. Except upon specific written authorization by the Town Engineer, concrete shall not be placed when the temperature is below 40 degrees F. and falling; but it may be placed when the temperature is above 35 degrees F. and rising, the temperature being taken in the shade and away from artificial heat or as directed by the Town Engineer.

## 2.1-15 REMOVAL OF FORMS

Forms shall not be removed without the approval of the Town Engineer, and such removal shall be carried out in a manner to insure the complete safety of the structure. In general, forms for the several classes of work listed herein below shall remain in place, after the concrete has been placed, until the concrete has attained the following compressive strength in pounds per square inch:

| | |
|---|---|
| Bottom Forms of Concrete Slabs | Twelve Hundred pounds |
| Side Forms of Wall, Beams & Girders | Eight Hundred pounds |

The Contractor shall be responsible for all damage caused by the removal of forms.

## 2.1-16 CURING CONCRETE

Careful attention shall be given to the proper curing of all concrete. The Contractor shall inform the Town Engineer fully as to the methods and procedures proposed for curing; shall provide the proper equipment and material in adequate amounts; and shall have approval of the method equipment and material proposed prior to placing concrete.

Inadequate curing facilities or lack of attention to the proper curing of concrete shall be cause for the Town Engineer to stop all construction on the job until approved curing is provided.

All concrete shall be cured for a period of 4 curing days. A curing day is defined as a calendar day on which the temperature, taken in the shade away from artificial heat, is above 50 degrees F. for at least 19 hours.

The following methods are permitted for curing concrete:

1. Form Curing
2. Water Curing
   a. Wet material
   b. Water spray

c. Ponding
3. Membrane curing

## 2.1-17 SURFACE FINISH

Each and every part of the concrete work shall be carefully, thoroughly and neatly finished. Immediately after removal of forms, all surfaces, whether or not they will be exposed, shall have all honeycombed areas cut out and replaced or pointed up as required by the Town Engineer. All rough spot sand holes shall be carefully pointed up with cement mortar of the same mixture as that used in the concrete. All bolts, wires or other devices used to hold the forms in place, and which pass through or protrude from the concrete, shall be cut off flush with the concrete surface, and on the surface to be exposed, the wire shall then be driven back one (1) inch from the surface and shall be pointed over with mortar as described above. All concrete surfaces which shall be exposed upon completion of the project shall be finished with a carborundum stone, and prior to final acceptance it will be refinished as required by the Town Engineer.

## 2.1-18 REINFORCEMENT

This work consists of metal reinforcement of the type, shape, size and grade required, furnished and placed as specified herein and as shown on the plans.

Reinforcement bars preferably shall be cut and bent in the shop before delivering to the work. Cutting and bending in the field shall be done with the utmost care; all field bending shall be done cold.

Reinforcement bar laps shall be as shown on the plans, and where not shown they shall equal 30 times the bar diameter; hooks and bends shall be made as shown on the plans and where dimension of hooks are not shown, the diameter of the hooks shall equal6 times the bar diameter.

When placed in the work, reinforcement shall be free from dirt, mill scale, dust, grease, oil or other foreign matter. The reinforcement shall be supported and tied in place, using approved methods so that it will not become displaced during the placing and compacting of concrete. The placing of parallel bars shall not be less than 3 bar diameters, center to center, with a minimum clearance between bars of 2 inches and the distance from the center of bars to surface of concrete shall not be less than 2 bar diameters with a minimum clear covering of one inch, unless otherwise shown on the plans. Bars in footing shall have a minimum clear cover of 2-1/2 inches, unless otherwise shown on the plans. The placing and securing of reinforcement in any section of the work shall be approved by the Town Engineer before any concrete is deposited in the section. In the event of any displacement of reinforcement from its proper position during the concreting operation, it shall be immediately replaced and secured to its original position. All reinforcement shall be furnished in the full length indicated on the plans. No slicing of bars, except where shown on the plans, shall be done without approval by the Town Engineer; splices shall not be less than 30 bar diameters in length and shall be placed at a section which will provide a minimum distance of 2 inches between the splices and the nearest adjacent bar on the surface of the concrete; no splices will be permitted

at points where the section is not sufficient to provide the minimum clearance herein required. No substitution of reinforcement shall be made except upon written permission of the Town Engineer.

## 2.2 REINFORCED CONCRETE PIPE

### 2.2-1 DESCRIPTION

These specifications shall govern for the furnishing and placing of reinforced concrete pipe. The pipe shall be installed in accordance with the requirements of these specifications, to the line and grades shown on the plans, and shall be of the classes, sizes, and dimensions shown thereon. The installation of pipe shall include all joints or connections to new or existing pipes, manholes, catch basins, headwalls, etc., as may be required to complete the work.

### 2.2-2. MATERIALS

Materials, manufacture, and design of pipes shall be as prescribed in the current standard specifications for "Reinforced Concrete Culvert, Storm Drain and Sewer Pipe," A.S.T.M. Designation C-76-57T and in the additional provisions contained herein. All pipe shall be machine made.

Pipe shall be substantially- free from fractures, large or deep cracks, laceration, and surface roughness. The planes of the ends of the pipe shall be perpendicular to the longitudinal axis. The ends of the pipes shall be of such design that when laid, the pipe sections will form a continuous conduit with a smooth and uniform interior surface.

The following shall be clearly stenciled on the pipe:

a. The pipe class.
b. The date of manufacture.
c. The name or trade-mark of the manufacturer.
d. Elliptical pipe with circular reinforcing and circular pipe with elliptical reinforcing shall have the word "top" or "bottom" placed on the inside of the pipe at the correct place to indicate the proper position when laid.
e. Inspector's identification mark.

The pipe shall be subject to rejection because of failure to meet any of the specification requirements or any of the following conditions:

1. Fractures or cracks passing through the shell, except that a single end crack that does not exceed the depth of the joint shall not be cause for rejection. If a single end crack that does not exceed the depth of the joint exists in more than 10 percent of the pipe, however, the defective pipe shall be rejected.
2. Defects which indicate imperfect placing, mixing and curing of the concrete.

3. Spalla deeper than one-half the depth of the joint or extending more than 4 inches around the circumference. If spalls not deeper than one-half of the depth of the joint or extending not more than 4 inches around the circumference exist in more than 10 percent of the pipe, however, the defective pipe shall be rejected.
4. Exposure of the reinforcement when such exposure would indicate that the reinforcement is misplaced.
5. The complete absence of distinct web like markings, which is indicative of a possible deficiency of water in the concrete mix, from the external surface of the pipe made by any process in which the forms are removed immediately after the concrete has been placed.

All rejected pipes shall be plainly marked by the engineer and shall be replaced by the Contractor with pipes which meet the requirements of these specifications. Such rejected pipes shall be immediately removed from the site of the work.

## 2.2-3 PIPE EXCAVATION

All excavation shall be in accordance with the requirements of Sections IV and V. When pipes are laid in a trench, the trench when completed and shaped to receive the pipe, shall be of sufficient width to provide free working space for satisfactory bedding and jointing and thorough tamping of the backfill and bedding material under and around the pipe. The Contractor shall make such temporary provision as may be necessary to insure adequate drainage of the trench and bedding during the construction operation.

The pipe shall be bedded in a foundation of granular material. The material shall be sand, mixed sand and gravel free from lumps, large stones, clay, etc., or washed rock as required by the Town Engineer or his representative. The granular material shall have a thickness of 3 inches under the pipe. Where rock, in either ledge or boulder formation is encountered, it shall be removed below grade and replaced with suitable materials in such manner as to provide a compacted earth cushion having a thickness under the pipe of not less than one-half inch per foot height of fill over the top of the pipe, with the minimum allowable thickness of eight inches. Where the soil encountered at the established grade is a quicksand, muck, or similar unstable material, unless other special construction methods are called for on the plans or in special provisions, such unstable soil shall be removed and replaced in accordance with the requirements of Chapter III.

## 2.2-4 LAYING PIPE

Unless otherwise authorized by the Town Engineer, the laying of pipes on the prepared foundation shall be started at the outlet and with the spigot or tongue ends pointing in the direction of flow and shall proceed toward the inlet end with the abutting sections properly matched, true to the established lines and grades. Proper facilities shall be provided for hoisting and lowering the section of pipe into the trench without disturbing the prepared foundation and the sides of the trench. The ends of the pipes shall be carefully cleaned before the pipes are placed. As each length of pipe is laid, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material. The pipes shall be fitted and matched so that when laid in the bed they

shall form a smooth uniform conduit. When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such a manner that the markings "top" or "bottom", as prescribed in Subsection B above, will be in correct position.

Multiple installations of reinforced concrete pipe shall be laid with the center lines of individual barrels parallel. When not otherwise indicated on plans, the following clear distances between outer surface of adjacent pipes shall be maintained:

| Diameter of pipe | Clear Distance Between Pipes |
|---|---|
| 18" | 0' —9" |
| 24" | 0'—11" |
| 30" | 1'—1" |
| 36" | 1'—3" |
| 42" | 1'—5" |
| 48" | 1'—7" |
| 54" | 1'—11" |
| 60" to 84" | 2'—0 |

| Diameter of Pipe | Clear Distance between pipe & Trench Wall |
|---|---|
| 18" | 9" on Both sides |
| 24" | 9" on Both sides |
| 30" | 9" on Both sides |
| 36" | 1/3 Diameter of Pipe on both sides |
| 42" | 1/3 Diameter of Pipe on both sides |

| Diameter of Pipe | Clear Distance Between Pipe & Trench Wall |
|---|---|
| 48" | 1/3 Diameter of Pipe on both sides |
| 54" | 1/3 Diameter of Pipe on both sides |
| 60" to 84" | 1/3 Diameter of Pipe on both sides |

## 2.25 JOINTING

All pipe shall be closely jointed and sealed with an approved asphalt type sealer or stiff mortar, composed of one-part Portland cement and two parts sand, so placed as to form a durable watertight joint. The ends of the pipe shall be thoroughly cleaned and wetted before making the joint. After any section of pipe is laid and before any succeeding section is laid, the lower half of the bell of the pipe last laid shall be thoroughly plastered by troweling on an even layer of mortar. The spigot end of the next section of pipe shall then be inserted, holding it as high as possible until it is fully inserted and then lowering it gently on the mortar. After the section is laid and uniformly matched and the sections have been fitted as close as the construction of the pipe will permit, the lower half of the inner circumference of the joints of pipe over 18 inches in diameter shall be sealed and packed with mortar and finished smooth and even with the adjacent sections of pipe. Before this mortar has attained initial set, additional mortar shall then be applied from the outside and forced into the unfilled portion of the bell or groove to fill completely the annular space around the spigot or tongue.

For bell and spigot pipe, a bead shall be formed on the outside by troweling on mortar downward at an angle of 45 degrees from the outer edge of the bell to the spigot of the last laid section. For tongue and groove pipe, a bead shall be formed extending at least one inch on either side of the joint and of approximately semi- circular cross-section or triangular cross-section. If the triangular cross-section is used, it shall be formed by placing the mortar at approximately 45 degrees outward from the extreme edges of the bead.

All pipe joint surfaces from 27 inches up through 84 inches, will be wiped on the inside. The outside surface of the joint need not be wiped. For pipes too small to permit finish of the inside surface of the joint, a tight stopper of burlap or other equivalent materials shall be dragged through the pipe past the new joint to remove any fins of mortar. Special care shall be exercised in placing adjacent pipe sections to avoid movement of the pipe in place and the breaking of the mortar bond at completed joints. After the initial set, the mortar on the outside shall be protected from air and sun with a thoroughly wetted, earth or burlap cover or acceptable equivalent, which shall be kept wet for a minimum of 48 hours or until the backfill has been completed. No jointing shall be done when the atmospheric temperature is at or below 40 degrees F. and when necessary, because of a sudden drop in temperature, joints shall be protected against freezing for at least 24 hours. After placing, any pipe which is not in true alignment or which shows any undue settlement after laying or is damaged, shall be taken up and relaid or replaced without extra compensation.

## 2.2-6 JOINTS AND CURVES

Pipe to be placed along curves shall consist of whatever pipe joint lengths or beveled and joints of pipe, or combination thereof that are required to place the pipe on the designated center line curve with no more than one-half of the tongue length of the pipe exposed from its normal fully closed joint position. The amount of bevel, "drop", or shortening of the pipe joint length by the bevel shall not exceed the amount shown below for the pipe sizes indicated:

| Pipe Diameter (1. D.) | Maximum Amount of Bevel or Drop |
|---|---|

| | |
|---|---|
| From.12" to 27" inch inclusive | 2 Inches |
| From 30" to 51" inch inclusive | 3 inches |
| From 54" to 84" inch inclusive | 4 inches |

## 2.2-7 BACKFILLING

As soon as practicable, all spaces excavated under this specification, and not occupied by the permanent structure shall be backfilled. Backfill material shall be free from lumps, wood, or other extraneous material. After the bedding has been prepared, the pipes installed as required, the mortar joints have had sufficient time to set up and are not subject to damage during backfilling, selected granular materials shall be placed along both sides of the pipe equally, in uniform layers not exceeding 2 feet in depth (loose measurement), wetted and thoroughly compacted so that each side of the pipe there shall be a berm of thoroughly compacted material at least as wide as the external diameter of the pipe, except insofar as undisturbed material obtrudes into the area. Backfilling shall be continued in this manner to within 12 inches of the subgrade. Special care shall be taken to secure thorough compaction of the material placed under the haunches of the pipe. In the case of embankments, the remainder of the fill above the top of the pipe shall be placed in accordance with the provisions for placing roadway embankment as prescribed in the pertinent specifications included in these specifications. No construction traffic will be permitted to cross any pipe culvert or sewer until the specified minimum depth of fill above the pipe has been placed and consolidated in accordance with these provisions.

## 2.2-8 END FINISH AND CONNECTIONS

The upstream ends of culverts shall be formed to a smooth rounded lip entrance by filling the recess in the bell with joint mortar which shall be placed and cured in accordance with the provisions for jointing in these specifications. Where new culverts are constructed as extensions to culverts or sewers in place, the construction shall include all work necessary to provide a proper connection between the new structure and the old as indicated on the plans.

## 2.2-9 MINIMUM FILL

The minimum fill from the crown of the roadway to the top of the pipe shall be 18 inches unless otherwise shown on the plans.

## 2.3 LINED CHANNELS

## 2.3-1 DESCRIPTION

These specifications shall govern the furnishing of all materials and labor for construction of concrete channel lining where indicated on the plans. This specification includes the excavation for channels in accordance with these specifications.

## 2.3-2 MATERIALS

Lined channels shall be constructed of 5" thick Portland cement concrete made from materials and constructed in accordance with Chapter II of these specifications and having a compressive strength of not less than 3000 pounds per square inch at 28 days.

## 2.3-4 STANDARD DETAILS

Lined channels shall be built according to the dimensions shown on the plans and in accordance with standards for typical detail of concrete flume and ditch lining of the Town. Lining shall have minimum thickness of 5" and maximum side slopes of 1 to 1. Lining shall be reinforced with 6 X 6 X 6 wire mesh, or 3/8" steel on 1-foot centers.

## 2.2-5 EXCAVATION

Excavation shall be made to the required depth and of sufficient width to construct the work to grade, form and dimensions.

All soft and yielding or other unsuitable and unstable materials shall be removed and replaced with acceptable materials; the subgrade then shall be compacted to the satisfaction of the Town Engineer. The subgrade shall be wetted before any concrete is placed. No undercutting of the subgrade will be permitted. Where subgrade is undercut, the space between the bottom of the forms and the subgrade will be filled either with fill sand or concrete and compacted.

## 2.3-6 FORMS

The forms shall be of wood or metal, straight and free from warp, and of sufficient strength to resist springing during the process of depositing and compacting the concrete. Straight forms of wood shall be 2-inch nominal thickness surfaced plank, or of metal of an approved section with a flat surface on top and bottom. Forms for use on radii may be of flexible wood or metal. The forms shall be of a depth equal to the depth of the concrete section in which they are in contact, and so designed as to permit secure fastening together in correct position. Forms shall be securely staked, braced, and firmly held to the required line and grade. All forms shall be cleaned thoroughly and wetted before the concrete is placed against them.

## 2.3-7 REINFORCEMENT

Wire mesh or steel shall consist of sheets of the dimensions as specified or as shown on the plans. The size and spacing of the wires or steel shall conform to the details. Wire mesh shall be placed as shown on the plans; it shall not be bent at right angles to the forms. A minimum lap of six (6) inches shall be used at all splices. Reinforcement shall be properly supported to maintain its position equidistant from top and bottom surface of the slab.

## 2.3-8 CONCRETING

No concrete shall be placed unless the subgrade, forms and reinforcement, if required, have been checked and approved by the Town Engineer. Concrete shall be deposited on a moist subgrade. During placing, the concrete shall be thoroughly spaded next to the forms, and shall be carefully tamped, using an approved tamper until a uniform dense concrete is obtained.

Meter the concrete has been placed, compacted and shaped to conform to the dimensions shown on the plans and after it has set sufficiently to avoid slumping, the surface shall be finished with a wooden float to secure a smooth surface and broomed.

Channel lining shall be poured in sections of lengths indicated on the plans with maximum spacing between expansion joints of 80'-0". At expansion joints the joint shall be 3/4" wide filled with bituminous filler and No. 3 asphalt coated dowel bars 2-0" long on 18" centers shall be installed at the joint with a 1/2" round dowel sleeve 5" in length at the asphalt coated end of the dowel.

Weep holes shall be provided on each side of lined channels at 10'-0" center to center with 3 cubic feet of coarse gravel as a pocket at each hole, or as directed by the Town Engineer.

## 2.3-9 CURING

Curing shall be accomplished as specified in 2.1-16.

## 2.4 USE OF EXPLOSIVES

Should the Contractor elect to use explosives in the prosecution of the work within the Town, he shall obtain a permit from the Town Secretary.

## 2.5 PROTECTION OF UTILITIES

Where new or old utilities are adjacent to or in line with the work, and which will not be removed, the Contractor shall protect such utilities as necessary. And if in the opinion of the Town Engineer such utilities would be damaged by the machinery, hand excavation may be required. The Contractor shall be responsible for all damages to utilities that have been put in prior to his moving onto the job site.