



**BROOKSHIRE-KATY DRAINAGE DISTRICT  
RULES AND REGULATIONS**

**22-01**

**ADOPTED FEBRUARY 22, 2022**



# **BROOKSHIRE-KATY DRAINAGE DISTRICT**

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DISTRICT ADMINISTRATOR

**BROOKSHIRE-KATY DRAINAGE DISTRICT  
RULES AND REGULATIONS NO. 22-01**

RULES AND REGULATIONS, DEVELOPMENT AND CONSTRUCTION POLICIES FOR UTILITY, PIPELINE, AND CABLE CROSSINGS, PRIVATE AND PUBLIC CROSSINGS, DRAINAGE CONNECTIONS WITHOUT LAND USE CHANGES, TRACT DEVELOPMENT WITHOUT PLATTING, AND TRACT DEVELOPMENT WITH PLATTING, ESTABLISHING FEES, PROVIDING PENALTY, AND PROVIDING FOR A FINE OF NOT MORE THAN \$5,000.00 UPON CONVICTION OF A VIOLATION UNDER THESE RULES AND REGULATIONS; PROVIDING FOR ATTORNEYS FEES AND EXPERT WITNESSES FEES AND COSTS OF COURT; PROVIDING AN EFFECTIVE DATE; PROVIDING A REPEALER CLAUSE; PROVIDING A SEVERABILITY CLAUSE; PROVIDING FOR POSTING AND PUBLISHING.

WHEREAS, the Brookshire-Katy Drainage District, hereinafter termed "District", has power and authority to control the drainage of overland flows of the lands within the District, as granted under the authority of the State of Texas, an Act creating a Conservation and Reclamation District under the provisions of Section 59, Article XVI, of the Constitution of the State of Texas, and created by the 59th Legislature, Chapter 203, House Bill 302, amended by the 77th Legislature, Chapter 1339, House Bill 2959, and as approved by voters on November 19, 2001, and further authority under Title IV, Chapter 49 and 53, et seq, of the General Laws of the Texas Water Code, as amended by Senate Bill 1865 enacted by the 75<sup>th</sup> Legislature, 1997, as amended by Senate Bill 1526 enacted by the 80<sup>th</sup> Legislature, 2007, applicable to Fresh Water Supply Districts under Chapter 53 of the Texas Water Code, and,

WHEREAS, this authority governs the use, connection to, crossing of, or altering in any other means any drainage facility within the District, and,

WHEREAS, the uncontrolled increase in runoff from development of land within the District can overload drainage facilities, erode easements, and cause an increase in flooding on the development and/or adjacent properties, and,

WHEREAS, the subdivision of property into two (2) or more parts within Waller County, including the incorporated areas within the County, is controlled and governed by the policies, ordinances, and regulations of Waller County, and the incorporated areas, and,

WHEREAS, this rule is not to supersede any of the existing rules, ordinances, or policies of these entities, or to usurp any authority from the other entities, and,

WHEREAS, the Brookshire- Katy Drainage District Board of Supervisors has determined that it would be in the best interest of the Brookshire-Katy Drainage District to adopt policies and to establish guidelines and procedures for obtaining the District's approval for use, connection to, crossing of, or altering in any other means, drainage facilities within the District for each of the following:

1. Utility, Pipeline, and Cable Crossings
2. Private and Public Crossings
3. Drainage Connections Without Land Use Changes
4. Tract Development Without Platting
5. Tract Development With Platting, and,

WHEREAS, the caption of this rule has been published two (2) consecutive times in a publication having general circulation in the area, therefore,

BE IT ORDAINED by the Board of Supervisors of the Brookshire-Katy Drainage District, Brookshire, Texas, that these Rules, having full force and effect, shall establish development and construction policies with the District until amended or revoked by further appropriate action of the Board of Supervisors of the Brookshire-Katy Drainage District.

## ARTICLE 1. UTILITY, PIPELINE, AND CABLE CROSSINGS

### SECTION 1. GENERAL INFORMATION

- A. All utilities, pipelines, and cables, either publicly or privately owned, shall obtain a Permit from the District prior to any construction to cross any drainage facility within a District held easement or fee strip.
- B. All utilities, pipelines, and cables shall cross a District facility within 20 degrees of perpendicular to that facility. No utility, pipeline, or cable shall be located within and parallel to a District easement, fee strip, and/or facility.
- C. A private irrigation line servicing a single landowner shall comply with all Rules and Regulations of this article except for the depth which shall be at least 30 inches below grade.

### SECTION 2. PROCEDURE

- A. Fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items:
  - 1. One (1) copy of completed District Application Form (blank form furnished by the District).
  - 2. One (1) copy of engineering drawings providing details of crossing. Drawings shall include both a plan and profile view, the limits of the District's easement or fee strip, survey name and abstract number, and physical location, including State Plane Coordinates of the crossing.
  - 3. Application Processing Fee
  - 4. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.

- B. The District and District Engineer shall review the submitted materials.

### SECTION 3. REQUIREMENTS

- A. The utility crossing shall be designed to minimize obstruction of the channel flow and conform with the channel section and channel easement or fee strip. Contact the District for information regarding the channel section and channel easement or fee strip at the proposed crossing prior to design. Utilities shall include, but not be limited to, water lines, sanitary sewer lines, oil and gas pipelines, and cable/conduit lines.
- B. All utility lines shall be placed under the channel of a district facility with the top portion of the utility casing or carrier line no less than ten (10) feet below the projected flowline of the ultimate channel as shown in the Standard District Details. When appropriate, facilities may be constructed on special utility bridges or trestles in accordance with standard bridge design criteria. Pipe and conduits spanning the channel should be located above the top of banks for hydraulic and maintenance reasons. These overhead crossings shall be approved by the DISTRICT prior to design and construction. For utility crossings on public bridges, contact the appropriate government body responsible for the bridge for approval.

- C. All manholes, pull boxes, junction boxes, etc., required for the utility or utility conduit shall be located outside the District's easement or fee strip. Backfill within the District's easement or fee strip shall be in accordance with the backfill requirements specified by the District or the utility company, whichever is most stringent.
- D. Crossings shall be clearly marked in the field with a sign on either side of the District facility, which shall be placed immediately outside the District easement or fee strip. Each sign shall contain the name, address, and contact phone number of the owner of the utility. If ownership of the utility changes, all signs shall be updated to current ownership.
- E. Within thirty (30) days after completion of the permitted work, the Applicant shall provide the District with Record Drawings, both in hard copy form and in an electronic format acceptable to the District, of the construction, along with the Applicant's engineer's certification that the construction was in accordance with the Permit granted.
- F. The Applicant shall provide the District with two (2) business days' notice prior the start of construction of crossing.

#### SECTION 4. PERMIT

- A. Upon approval of Permit Application by Board, the District shall sign the Permit Application granting the Applicant the privilege to cross the District facility. The Applicant shall maintain a signed copy of the approved Permit and drawings on the project site. Permits shall have no force or effect upon easements or rights-of-way granted by others to the District unless an easement or right-of-way is also granted to the Applicant by the owner of the tract of land in question.
- B. Maintenance of the permitted facilities shall be the responsibility of the Applicant. The District reserves the right to require any changes, maintenance, or repairs as necessary to provide protection of life and property. The District may require the Applicant or Owner of the permitted facility to relocate the permitted facility by giving Applicant or Owner thirty (30) days written notice.
- C. Permit approvals are valid for six (6) months from the date of Permit approval. If the Applicant fails to commence construction of an approved project within that time, said failure shall make such approvals null and void. If the Applicant fails to complete the permitted work within twelve (12) months from the date of Permit approval, said failure shall make such approvals null and void. All fees shall be forfeited and will not be returned to the Applicant. A request for a one-time extension, for a period not to exceed one hundred eighty (180) days, may be granted by the District, at its discretion, provided good cause is shown and the request for the extension is made prior to the expiration of the original Permit approval.

#### SECTION 5. BOND

- A. If required by the Board, the Applicant shall provide to the District a bond, cash, or irrevocable letter of credit, in an amount to be determined by the District, prior to the issuance of the Permit. The bond or irrevocable letter of credit must be made payable to the District and shall be on a form acceptable to the District. Cash may be in the form of a certificate of deposit to be placed with the District. The bond or irrevocable letter of credit shall be in force for a period not less than one (1) year from the date of Permit approval. The District shall release bond, cash, or irrevocable letter of credit after an inspection of the construction site is made by the District not less than one (1) year from date of Permit approval, and the District is satisfied that the site has been restored to acceptable conditions.

#### SECTION 6. FEES

A. The Permit Application fee is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check, and shall be submitted with the District Permit Application Form.

## ARTICLE II. PRIVATE AND PUBLIC CROSSINGS

### SECTION 1. GENERAL INFORMATION

- A. All new crossings of District's facilities shall be governed by and shall meet the requirements stated herein.

### SECTION 2. PROCEDURE

- A. Fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items:

1. One (1) copy of completed District Application Form (blank form furnished by the District).
2. One (1) copy of engineering drawings providing details of crossing. Drawings shall include both a plan and profile view, the limits of the District's easement or fee strip, survey name and abstract number, and physical location, including State Plane Coordinates of the crossing.
3. One (1) copy of the drainage calculations for the sizing of the crossing. The crossing shall not restrict the current flow in the channel. The crossing shall also be in compliance with the District's Master Drainage Plan, now existing or hereafter adopted.
4. Application Processing Fee
5. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.

- B. The District and District Engineer shall review the submitted materials.

### SECTION 3. REQUIREMENTS

- A. Culverts shall be bedded and backfilled with suitable material to prevent settlement and wash-outs. Concrete rip-rap, or other suitable erosion prevention material, may be required by Board after review of the Permit Application.
- B. Bridges or other similar structures may require additional erosion prevention material, as determined by the Board, to protect the channel from erosion. No wooden bridges shall be allowed by the District.
- C. Crossings shall not impede or restrict the District's access to its easement or fee strip.
- D. The Applicant shall provide the District with two (2) business days' notice prior the start of construction of the crossing.
- E. Based on the District's review of the Application, the District may participate in the installation of the crossing. The Applicant shall pay for all materials related to the proposed work.
- F. Any crossing within a public right-of-way or easement shall have the approval of the City, County, State, or other governmental entity having jurisdiction over the right-of-way or easement before District approval

is granted.

- G. Should permitted facility become damaged by the property owner, Applicant or others, the Applicant or person damaging the facility shall pay for the replacement, repair, and/or removal of the crossing, including all materials, labor, and equipment costs. Should the District, due to either safety concerns or by agreement with the property owner, undertake the replacement, repair, and/or removal of a damaged crossing, the property owner shall reimburse the District for all materials, labor, and equipment costs incurred in replacing, repairing, and/or removing the structure. Should the permitted facility be damaged by the District equipment and personnel during normal District operations, the District will use its equipment and personnel to replace, repair, and/or remove the crossing.
- H. Should permitted facility deteriorate from natural causes, the property owner shall pay for replacement and/or removal of the crossing, including all materials, labor, and equipment costs. Should the District, due to either safety concerns or by agreement with the property owner, undertake the replacement and/or removal of a deteriorated crossing, the property owner shall reimburse the District for all materials, labor, and equipment costs incurred in replacing or removing the structure.
- I. Should the crossing be located within a public right-of-way or easement, the City, County, State, or other governmental entity having jurisdiction in the area shall be responsible for the maintenance, operation, repair, and/or removal of the crossing once the right-of-way or easement, including all public infrastructure contained therein, has been accepted by said entity.
- J. If proposed work requires enlargement or modification to an existing District facility, all work must comply with the District's Master Drainage Plan, now existing or hereafter adopted.
- K. Within thirty (30) days after completion of the permitted work, the Applicant shall provide the District with Record Drawings, both in hard copy form and in an electronic format acceptable to the District, of the construction, along with the Applicant's engineer's certification that the construction was in accordance with the Permit granted.

#### SECTION 4. PERMIT

- A. Upon approval of Permit Application by Board, the District shall sign the Permit Application granting the Applicant the privilege to cross the District facility. The Applicant shall maintain a signed copy of the approved Permit and drawings on the project site. Permits shall have no force or effect upon easements or rights-of-way granted by others to the District unless an easement or right-of-way is also granted to the Applicant by the owner of the tract of land in question.
- B. Maintenance of the permitted facilities shall be the responsibility of the Applicant. The District reserves the right to require any changes, maintenance, or repairs as necessary to provide protection of life and property. The District may require the Applicant or Owner of the permitted facility to relocate the permitted facility by giving Applicant or Owner thirty (30) days written notice.
- C. Permit approvals are valid for twelve (12) months from the date of Permit approval. If the Applicant fails to commence construction of an approved project within that time, said failure shall make such approvals null and void. If the Applicant fails to complete the permitted work within twenty-four (24) months from the date of Permit approval, said failure shall make such approvals null and void. All fees shall be forfeited and will not be returned to the Applicant. A request for a one-time extension, for a period not to exceed one hundred eighty (180) days, may be granted by the District, at its discretion, provided good cause is shown and the request for the extension is made prior to the expiration of the original Permit approval.

## SECTION 5. BOND

- A. The Applicant shall provide to the District a bond, cash, or irrevocable letter of credit, in an amount to be determined by the District, prior to the issuance of the Permit. The bond or irrevocable letter of credit must be made payable to the District and shall be on a form acceptable to the District. Cash may be in the form of a certificate of deposit to be placed with the District. The bond or irrevocable letter of credit shall be in force for a period not less than one (1) year from the date on Access Permit. The District shall release said bond, cash, or irrevocable letter of credit after an inspection of the construction site is made by the District after one (1) year from date on Permit, and the District is satisfied that the site has been restored to acceptable conditions.

## SECTION 6. ABANDONMENT OF PERMIT

- A. A Permit shall be considered permanent until such time facility is declared abandoned by the Applicant/Owner or is unused for a period of five (5) years. If the Applicant/owner discontinues use of the crossing for a period of 5 years or more, the District reserves the right to remove any improvements and restore area to original condition. Any pipe material salvaged will remain the property of the Applicant/owner, and will be left at the site, off the District's easement. Upon abandonment of a Permit, a release shall be signed by Applicant and recorded in Waller County Deed Records.

## SECTION 7. FEES

- A. The Permit Application fee is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check and shall be submitted with the District Permit Application Form.

## SECTION 8. EXISTING FACILITIES

- A. Should an existing facility become damaged by the property owner or others, the property owner or person damaging the facility shall pay for replacement materials and shall reimburse the District for all labor and equipment costs incurred in replacing or repairing the structure. Should the existing facility be damaged by the District equipment and personnel during normal District operations, the District will use its equipment and personnel to repair, replace or remove the facility.
- B. Should an existing facility deteriorate from natural causes, and the property owner (or predecessor in title) initially paid the costs of the materials, the property owner shall pay for replacement materials only. The District shall use its own labor and equipment in replacing the structure.
- C. Should an existing facility deteriorate from natural causes, and the District initially paid the costs of the materials, the District shall pay for the replacement and/or removal of the facility.
- D. Should the land use change on the property either permitted by or containing an existing facility, the District shall not be responsible for the improvement, replacement, and/or removal of the facility.

## ARTICLE III. DRAINAGE CONNECTIONS WITHOUT LAND USE CHANGES

### SECTION 1. GENERAL INFORMATION

- A. All drainage connections to District's facilities from properties not changing existing land uses shall be governed by and shall meet the requirements stated herein.
- B. If land use changes are being proposed, the Applicant shall comply with either Article IV or Article V of these rules.

### SECTION 2. PROCEDURE

- A. Fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items:

- 1. One (1) copy of completed District Application Form (blank form furnished by the District).
- 2. District shall determine the size, materials, and number of pipe (if applicable).
- 3. Application Processing Fee
- 4. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.

- B. The District and District Engineer shall review the submitted materials.

### SECTION 3. REQUIREMENTS

- A. Open ditch connections to existing channels are prohibited. The Applicant shall use pipe of approved material and size to connect drain or ditch to existing channel.
- B. Construction of pipe drain into channel shall require pipe to be bedded and backfilled with suitable material to prevent settlement and wash-outs. Downstream end of pipe shall be no higher than one (1) foot above flowline of channel, and pipe shall be oriented downstream in the channel. Concrete rip-rap, or other suitable erosion prevention material, may be required by Board after review of Permit Application.
- C. The Applicant shall provide the District with two (2) business days' notice prior the start of construction of the connection.
- D. Based on the District's review of the Application, the District may participate in the installation of the connection. The Applicant shall pay for all materials related to the proposed work.
- E. Should permitted facility become damaged by the Applicant or others, the Applicant or person damaging the facility shall pay for the replacement, repair, and/or removal of the crossing, including all materials, labor, and equipment costs. Should the District, due to either safety concerns or by agreement with the Applicant/property owner, undertake the replacement, repair, and/or removal of a damaged crossing, the property owner shall reimburse the District for all materials, labor, and equipment costs incurred in replacing, repairing, and/or removing the structure. Should the permitted facility be damaged by the

District equipment and personnel during normal District operations, the District will use its own equipment and personnel to replace, repair, and/or remove the facility.

- F. Should permitted facility deteriorate from natural causes, the property owner shall pay for replacement and/or removal of the connection, including all materials, labor, and equipment costs. Should the District, due to either safety concerns or by agreement with the property owner, undertake the replacement and/or removal of a deteriorated connection, the property owner shall reimburse the District for all materials, labor, and equipment costs incurred in replacing or repairing the structure.
- G. If proposed work requires enlargement or modification to an existing District facility, all work must comply with the District's Master Drainage Plan, now existing or hereafter adopted.

#### SECTION 4. PERMIT

- A. Upon approval of Permit Application by Board, the District shall sign the Permit Application granting the Applicant the privilege to access the District facility. Permits shall have no force or effect upon easements or rights-of-way granted by others to the District unless an easement or right-of-way is also granted to the Applicant by the owner of the tract of land in question.
- B. Maintenance of the permitted facilities shall be the responsibility of the Applicant. The District reserves the right to require any changes, maintenance, or repairs as necessary to provide protection of life and property. The District may require the Applicant or Owner of the permitted facility to relocate the permitted facility by giving Applicant or Owner thirty (30) days written notice.
- C. Permit approvals are valid for six (6) months from the date of Permit approval. If the Applicant fails to commence construction of an approved project within that time, said failure shall make such approvals null and void. If the Applicant fails to complete the permitted work within eighteen (18) months from the date of Permit approval, said failure shall make such approvals null and void. All fees shall be forfeited and will not be returned to the Applicant. A request for a one-time extension, for a period not to exceed one hundred eighty (180) days, may be granted by the District, at its discretion, provided good cause is shown and the request for the extension is made prior to the expiration of the original Permit approval.
- D. Permit shall be considered permanent until such time facility is declared abandoned by the Applicant or is unused for a period of five (5) years. If the Applicant discontinues use of permitted work for a period of 5 years or more, the District reserves the right to remove any improvements and restore area to original condition. Any pipe material salvaged will remain the property of the Applicant/owner, and will be left at the site, off the District's easement. Upon abandonment of Permit, a release shall be signed by Applicant and recorded in Waller County Deed Records.
- E. Should the land use change on the property containing an existing facility, the District shall not be responsible for the improvement, replacement, and/or removal of the facility.

#### SECTION 5. FEES

- A. The Permit Application fee is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check, and shall be submitted with the District Permit Application Form.

#### SECTION 6. EXISTING FACILITIES

- A. Should an existing facility deteriorate from natural causes, when said existing facility is replaced, the District shall bear all material, labor, and equipment costs incurred in replacing or removing the structure.

## ARTICLE IV. TRACT DEVELOPMENT WITHOUT PLATTING

### SECTION 1. GENERAL INFORMATION

- A. Any tract development that does not involve the filing of a subdivision plat shall comply with these provisions of these rules.
- B. Any tract of land that shall contain one (1) acre or less and does not negatively impact drainage on adjacent properties, as solely determined by the District, is exempt from these requirements.

### SECTION 2. PROCEDURE

- A. Fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items:

- 1. One (1) copy of completed District Application Form (blank forms furnished by the District).
- 2. One (1) copy of engineering site plan drawings providing details of drainage from the project site. Site plan shall include elevations and/or contours, drainage areas, and all proposed surface and subsurface improvements. Drawings shall include the survey name and abstract number, and physical location.
- 3. Application Processing Fee
- 4. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.

- B. The District and its Engineer shall review the submitted materials.

### SECTION 3. REQUIREMENTS

- A. All drainage runoff from the tract shall be directed to an existing public right-of-way, an existing drainage easement, or existing fee strip. Sheet flow drainage from developed conditions shall not be permitted.
- B. Drainage calculations shall be in accordance with Article VI.
- C. The Applicant shall provide the District with two (2) business days' notice prior the start of construction of tract development.
- D. The Applicant shall pay for all materials and labor related to the proposed work.
- E. If proposed work requires enlargement or modification to an existing District facility, all work must comply with the District's Master Drainage Plan, now existing or hereafter adopted.
- F. Within thirty (30) days after completion of the permitted work, the Applicant shall provide the District with Record Drawings, both in hard copy form and in an electronic format acceptable to the District, of the construction, along with the Applicant's engineer's certification that the construction was in accordance with the Permit granted.

#### SECTION 4. BOND

- A. The Applicant shall provide to the District a bond, cash, or irrevocable letter of credit, in an amount equal to the proposed drainage improvements and as approved by the District, prior to the approval of this Permit. The bond or irrevocable letter of credit must be made payable to the District and shall be on a form acceptable to the District. Cash may be in the form of a certificate of deposit to be placed with the District. The bond or irrevocable letter of credit shall be in force for a period not less than one (1) year from the date from the approval of this Permit. The District shall release bond, cash, or irrevocable letter of credit after an inspection of the construction site is made by the District after one (1) year from date of the approval of this Permit, and the District is satisfied that the site has been restored to acceptable conditions.

#### SECTION 5. DETENTION FACILITIES

- A. Detention facilities shall be accordance with the requirements of Article VI. The District may approve alternate detention facilities in lieu of conventional detention basins on a case-by-case basis. Any alternate detention facility shall meet the same requirements for peak runoff release rates.
- B. The Owner of the property to be developed shall enter into an Agreement with the District, in a form acceptable to the District, providing for the maintenance and operation of any detention facilities in accordance with the approved Permit, which shall state the covenants and restrictions running with the property for the purpose of insuring the proper storm water drainage and detention.
- C. Subject to and in accordance with the provisions of the Agreement, Owner, at Owner's sole cost and expense, shall maintain the Detention Areas and Detention Facility in accordance with the appropriate Ordinances, Rules and Regulations, including but not limited to, all maintenance, repair, replacement, removal, and preservation of capacity.

#### SECTION 6. FILL REGULATIONS

- A. A Permit may not be required if less than 500 cubic yards of fill material or excavation per acre of land are added to or removed from the property. Each acre may not be affected by more than 500 cubic yards of fill material or excavation. Property owner is required to equally disperse and spread fill material to ensure no more than 500 cubic yards of fill being placed on each acre.
- B. If more than 500 cubic yards of fill material or excavation are to be added or removed per acre of land, a Permit shall be obtained from the District. The Applicant (property owner) shall provide a hydraulic analysis (drainage plan) prepared by a registered professional engineer and approved by the District.
- C. The Applicant (property owner) shall provide to the District information relating to the location from which the fill material came, if it was from a governmental project, and who hauled/delivered the fill material.
- D. Unless agreed to in writing by the adjoining landowners, fill material shall be placed no closer than ten (10) feet from the property lines. Unless agreed to in writing by the adjoining landowners, excavations, except approved drainage facilities, shall not be allowed closer than twenty (20) feet plus twice the depth of the excavation from the property lines.
- E. If the fill is placed or an excavation is proposed that modifies the natural flow of water on the property,

then the Applicant (property owner) is required to mitigate for the altered flow. Natural flow could be by sheet flow, swale, ditch, slough, or other natural or man-made means of conveyance of water. Mitigation could include ditches, swales, detention/retention ponds and any other means approved by the District.

- F. All fill material must be spread evenly, in accordance with the applicable Permit, within six (6) months of the Permit issuance date. If the fill material is not spread within this time, the District may require that the property owner remove the fill material.
- G. Nothing contained in this Section shall supersede the flood plain or floodway authority, regulations, and requirements of any other governmental entity within the District.
- H. The placement of fill for the construction of an earthen pad for the placement of a structure shall not be required to obtain a Permit from the District if all the required spacings from adjacent property lines as listed in this Section are met.

#### SECTION 7. PERMIT

- A. Upon approval of Permit Application by Board, the District shall sign the Permit Application granting the Applicant approval for the Tract Development. The Applicant shall maintain a signed copy of the approved Permit and drawings on the project site. Permits shall have no force or effect upon easements or rights-of-way granted by others to the District unless an easement or right-of-way is also granted to the Applicant by the owner of the tract of land in question.
- B. Maintenance of the permitted facilities shall be the responsibility of the Applicant. The District reserves the right to require any changes, maintenance, or repairs as necessary to provide protection of life and property.
- C. Permit approvals are valid for twelve (12) months from the date of Permit approval. If the Applicant fails to commence construction of an approved project within that time, said failure shall make such approvals null and void. If the Applicant fails to complete the permitted work within twenty-four (24) months from the date of Permit approval, said failure shall make such approvals null and void. All fees shall be forfeited and will not be returned to the Applicant. A request for a one-time extension, for a period not to exceed one hundred eighty (180) days, may be granted by the District, at its discretion, provided good cause is shown and the request for the extension is made prior to the expiration of the original Permit approval.

## SECTION 8. FEES

- A. The Permit Application fee is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check, and shall be submitted with the District Permit Application Form. This fee shall provide for two (2) reviews of the complete Permit Application. The review fees for any additional reviews shall be as indicated on the Fee Schedule Worksheet, and said fees shall be submitted with the revised Permit Application package.
- B. In addition to the Permit Application Fee, the Applicant shall be required to pay an Inspection Fee for District costs related to reviewing the construction to verify that the improvements have been constructed in accordance with the District's approval. The fee shall be based on the Applicant's engineer's signed and sealed construction cost estimate of the drainage improvements or the actual construction costs of the drainage improvements from the Applicant's contractor. Construction costs are shall be approved by the District Engineer. The fee amount shall be based on the Fee Schedule Worksheet. The Inspection fees are payable by cash or check, and shall be submitted to the District prior to Permit Application being placed on a Board agenda for consideration.
- C. In addition to the above fees, Applicant shall pay for all expenses related to the Detention Facilities Agreement referenced in SECTION 5. DETENTION FACILITIES. These fees include, but are not limited to, the cost of preparation of the Agreement, title company costs for verifying ownership of and any encumbrances on the property used for detention, and recording fees required by the Waller County Clerk's office. The District shall notify the Applicant of these fees, and said fees are payable by cash or check, and submitted to the District prior to the Permit Application being placed on a Board agenda for consideration.

## SECTION 9. DRAINAGE DESIGN PROCEDURES

### A. GENERAL INFORMATION

1. The following procedures are intended to ensure that new development will not cause any adverse impacts on adjacent property and/or existing drainage facilities.
2. Design engineers should contact the District for any specific requirements for the watershed in which the proposed development is to be located.
3. Drainage design shall comply with Article VI.

### B. Exceptions

1. A single family residential structure being constructed on an existing platted lot in a recorded subdivision is exempt from these Rules and Regulations.
2. A site where (1) all impervious area does not exceed ten (10) percent of the total land area, and (2) a deed restriction is placed on the property which prohibits subdividing the property and prohibits adding any additional impervious area without written approval of the District is exempt from these Rules and Regulations.

C. Exceptions Within the Corporate Limits of the City of Brookshire

1. A home on a lot (but not an outlot) in the Brookshire or Kellner Townsites is exempt from these Rules and Regulations.
2. A manufactured home that will occupy space in a previously approved manufactured home park is exempt from these Rules and Regulations.

## ARTICLE V. TRACT DEVELOPMENT WITH PLATTING

### SECTION 1. GENERAL INFORMATION

- A. It is suggested that each Applicant (owner or subdivider) of land first confer with the District, before preparing the preliminary plat of the proposed subdivision, to secure a copy of the District's Rules and Regulations governing development within the District, and to become familiar with the District Master Drainage Plan, now existing or hereafter adopted.
- B. The Applicant shall be required to install, at his own expense, all drainage facilities and structures in accordance with the District's standards and specifications governing same, including all engineering costs covering design, layout, and construction supervision. Preliminary plans and layouts for all drainage facilities shall be submitted by the Applicant to the District for study by the District Engineer along with the submission of the preliminary plat of the subdivision. Final construction plans shall be submitted by the Applicant at the time of filing the final plat with the District in the same number of copies as required of the subdivision plat.
- C. There will be no participation by the District in the cost of any drainage facilities within the subdivision.

### SECTION 2. PROCEDURE FOR PRELIMINARY PLAT APPROVAL

- A. Fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items
  - 1. One (1) copy of completed District Application Form (blank forms furnished by the District).
  - 2. One (1) copy of the Preliminary Plat.
  - 3. One (1) copy of preliminary drainage plans, including proposed detention and outfalls.
  - 4. Application Processing Fee
  - 5. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.
- B. The District and its Engineer shall review the submitted materials.
- C. Preliminary plat shall conform to the requirements of the governmental entity having jurisdiction over platting, i.e. Waller County, City of Brookshire, City of Katy, City of Pattison, or City of Houston. The District shall not supersede the platting requirements of these entities, except with respect to drainage as it comes under the jurisdiction of the District.
- D. Preliminary plat submittal shall be accompanied by a preliminary plan for both on-site and offsite drainage.
- E. The preliminary plat submitted for approval shall include the Applicant's entire holding or ultimate subdivision, including both on-site and off-site drainage.

- F. Applicant agrees that the approval of the preliminary plat by the District does not constitute official acceptance of the proposed subdivision by the District but does constitute an authorization to begin and proceed with the preparation of the final subdivision plat and final construction plans. There shall be no work in the field on the proposed subdivision until the final plat has been approved and accepted by official actions of the District, and the instrument recorded in the office of the County Clerk.
- G. Approval of the preliminary plat expires at the expiration of a period of six (6) months from the date of Permit approval unless the final plat has been submitted for approval.

### SECTION 3. PROCEDURE OF APPROVAL OF FINAL PLAT

- A. After the approval by the District of the preliminary plat, and fourteen (14) calendar days prior to the regularly scheduled Board Meeting of the District at which approval is desired, the Applicant shall submit to the District a complete Permit Application package including, at a minimum, the following items
  - 1. One (1) copy of completed District Application Form (blank forms furnished by the District).
  - 2. One (1) copy of the Final Plat.
  - 3. One (1) copy of final drainage plans and details, including proposed detention and outfalls. Plans shall include both plan and profile drawings.
  - 4. Application Processing Fee
  - 5. One (1) electronic copy (PDF format) of the complete submittal package.

One (1) electronic copy (PDF format) of the complete submittal package shall be provided to the District Engineer.
- B. Final plat shall conform to the requirements of the governmental entity having jurisdiction over platting, i.e. Waller County, City of Brookshire, City of Katy, City of Pattison, or City of Houston. The District shall not supersede the platting requirements of these entities, except with respect to drainage as it comes under the jurisdiction of the District.
- C. Final plat shall be accompanied by proposed construction plans for both on-site and off-site drainage improvements.
- D. The plat shall bear a properly executed dedication of all easements and/or fee strips intended for drainage use by the District, such dedicatory instrument to be signed by the owner or owners, and by all other persons or parties having an interest or having a mortgage or lien interest in the property.
- E. Before final approval of the plat by the District, there shall be filed with the District the following:
  - 1. A title opinion, dated within sixty (60) days from the date of Board consideration of the Permit Application, from a title company licensed to do business in the State of Texas, or licensed attorney in the State of Texas, addressed to the District stating the ownership of the property, as well as all others having an interest in, mortgage or lien interest in the property, along with all exceptions to title.
  - 2. Tax certificates from all taxing entities stating that all current taxes have been paid.

3. A certificate by the owner or owners of the proposed development certifying that said owner or owners ensure the completion of all improvements required by the District in accordance with the District's standards and specifications.
- F. Final plat shall contain proper signature blanks for certificate of approval to be filled out by the District and the District's Engineer.
- G. After approval of the plat by the District, two (2) blue-line prints and one reproducible mylar film positive shall be furnished to the District. A complete set of final construction plans shall also be provided to the District. Within thirty (30) days after completion of the permitted work, the Applicant shall provide to the District a copy of the final plat with all recording information and a copy of the Record Drawings, both in hard copy form and in an electronic format acceptable to the District, along with the Applicant's engineer's certification that the construction was in accordance with the Permit granted.
- H. Approval of the final plat shall expire if the plat is not filed for record with the County Clerk within a twelve (12) month period from the date of Permit approval. If the Applicant fails to file the final plat within that twelve (12) month period, said failure shall make such approval null and void. All fees shall be forfeited and will not be returned to the Applicant.

#### SECTION 4. REQUIREMENTS

- A. The drainage runoff from the tract shall be directed to an existing public right-of-way, an existing drainage easement, or an existing drainage fee strip. Sheet flow drainage from developed conditions shall not be permitted.
- B. Drainage calculations shall be in accordance with Article VI.
- C. The Applicant shall provide the District with two (2) business days notice prior the start of construction of tract development.
- D. The Applicant shall pay for all materials and labor related to the proposed work.
- E. If proposed work requires enlargement or modification to an existing District facility, all work must comply with the District's Master Drainage Plan, now existing or hereafter adopted.

#### SECTION 5. BOND

- A. The Applicant shall provide to the District a bond, cash, or irrevocable letter of credit, in an amount equal to the proposed drainage improvements and as approved by the District, prior to the approval of this Permit. The bond or irrevocable letter of credit must be made payable to the District, and shall be on a form acceptable to the District. Cash may be in the form of a certificate of deposit to be placed with the District. The bond or letter of credit shall be in force for a period not less than one (1) year from the date from the approval of this Permit. The District shall release bond, cash, or letter of credit after an inspection of the construction site is made by the District after one (1) year from date of the approval of this Permit, and the District is satisfied that the site and development complies with the terms of the Permit.
- B. If the Applicant is providing a bond, cash, or irrevocable letter of credit to another governmental entity having jurisdiction in the area, the Applicant may substitute these bonds for the requirements of this section.

## SECTION 6. DETENTION FACILITIES

- A. Detention facilities shall be accordance with the requirements of Article VI. The District may approve alternate detention facilities in lieu of conventional detention basins on a case-by-case basis. Any alternate detention facility shall meet the same requirements for peak runoff release rates.
- B. The Owner of the property to be developed shall enter into an Agreement with the District, in a form acceptable to the District, providing for the maintenance and operation of any detention facilities in accordance with the approved Permit, which shall state the covenants and restrictions running with the property for the purpose of insuring the proper storm water drainage and detention.
- C. Subject to and in accordance with the provisions of the Agreement, Owner, at Owner's sole cost and expense, shall maintain the Detention Areas and Detention Facility in accordance with the appropriate Ordinances, Rules and Regulations, including but not limited to, all maintenance, repair, replacement, removal, and preservation of capacity

## SECTION 7. PERMIT

- A. Upon approval of Permit Application by Board, the District shall sign the Permit Application granting the Applicant approval for the Tract Development. The Applicant shall maintain a signed copy of the approved Permit and drawings on the project site (if applicable). Permits shall have no force or effect upon easements or rights-of-way granted by others to the District unless an easement or right-of-way is also granted to the Applicant by the owner of the tract of land in question.
- B. Maintenance of the permitted facilities shall be the responsibility of the Applicant. The District reserves the right to require any changes, maintenance, or repairs as necessary to provide protection of life and property
- C. Permit approvals for a Final Plat are valid for twelve (12) months from the date of Permit approval. If the Applicant fails to commence construction of an approved project within that time, said failure shall make such approvals null and void. If the Applicant fails to complete the permitted work within twenty-four (24) months from the date of Permit approval, said failure shall make such approvals null and void. All fees shall be forfeited and will not be returned to the Applicant. A request for a one-time extension, for a period not to exceed one hundred eighty (180) days, may be granted by the District, at its discretion, provided good cause is shown and the request for the extension is made prior to the expiration of the original Permit approval.

## SECTION 8. FEES

- A. The Permit Application fee for a Preliminary Plat Permit Application is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check and shall be submitted with the District Permit Application Form. This fee shall provide for two (2) reviews of the complete Permit Application. The review fees for any additional reviews shall be as indicated on the Fee Schedule Worksheet and said fees shall be submitted with the revised Permit Application package.
- B. The Permit Application fee for a Final Plat Permit Application is as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check and shall be submitted with the District Permit Application Form. This fee shall provide for two (2) reviews of the complete Permit Application. The review fees for any additional reviews shall be as indicated on the Fee Schedule Worksheet and said fees shall be submitted with the revised Permit Application package.

- C. In addition to the Permit Application Fee, the Applicant shall be required to pay an Inspection Fee for District costs related to reviewing the construction to verify that the improvements have been constructed in accordance with the District's approval. The fee shall be based on the Applicant's engineer's signed and sealed construction cost estimate of the drainage improvements or the actual construction costs of the drainage improvements from the Applicant's contractor. Construction costs shall be approved by the District Engineer. The fee amount shall be based on the Fee Schedule Worksheet. The Inspection fees are payable by cash or check and shall be submitted to the District prior to Permit Application being placed on a Board agenda for consideration.
- D. In addition to the above fees, Applicant shall pay for all expenses related to the Detention Facilities Agreement referenced in SECTION 6. DETENTION FACILITIES. These fees include, but are not limited to, the cost of preparation of the Agreement, title company costs for verifying ownership of and any encumbrances on the property used for detention, and recording fees required by the Waller County Clerk's office. The District shall notify the Applicant of these fees, and said fees are payable by cash or check, and submitted to the District prior to the Permit Application being placed on a Board agenda for consideration.
- E. Should the Permit Application require, as determined by the District, the submittal of a Master Drainage Report, the report shall be submitted with a review fee as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check. This fee shall provide for two (2) reviews. The review fees for any additional reviews shall be as indicated on the Fee Schedule Worksheet and said fees shall be submitted with the revised Master Drainage Report. The fees for future amendments to a Master Drainage Report previously approved by the District shall be as indicated on the Fee Schedule Worksheet. Fees are payable by cash or check and shall be submitted with amending report.

## SECTION 9. DRAINAGE DESIGN PROCEDURES

### A. GENERAL INFORMATION

1. The following procedures are intended to ensure that new development will not cause any adverse impacts on adjacent property and/or existing drainage.
2. Design engineers should contact the District for any specific requirements for the watershed in which the proposed facility is to be located.
3. Drainage design shall comply with Article VI.

## ARTICLE VI. DRAINAGE CRITERIA AND REQUIREMENTS

### SECTION 1. INTRODUCTION

#### A. Purpose

Article VI provides design guidance for use by developers and engineers in preparation of drainage plans for development within the District. It establishes rules and regulations that must be consistently followed and will be enforced throughout the District. The design methods presented herein are intended to provide guidance for determination of runoff rates; methods of storm water collection, conveyance, and detention; and design standards for facilities

Methods of design and analysis other than those included herein may be considered in certain cases where there may be inherent problems with the traditional methods. The National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 rainfall data must be used in all instances. Any deviation from the criteria contained herein will require consideration and acceptance by the District Engineer before approval will be granted for any work based on these alternatives.

#### B. Policy

Due to the nature of the watershed hydraulics within the District and the prevalent existence of floodplains that exceed the banks of the creeks, it shall be the policy of District to maintain zero net increase in storm water runoff rates and to insure no negative impacts attributable to new development.

Although it is the District's long-term goal to construct and maintain facilities (i.e., channels and regional detention facilities) that will contain 100-year storm flows within drainage rights-of-way, it is recognized that further impacts cannot be tolerated in the interim period. It is further recognized that impacts to other landowners and jurisdictions outside of the District's boundaries are unacceptable, and the District is dependent and supportive of the action of others to construct upstream and downstream facilities to accommodate 100-year storm flows.

Individual developers must provide infrastructure required to meet the District's stated objective of zero net increase in runoff rates and no negative impacts. Practically, this will mean that developers will provide adequate on-site detention volume to offset increased runoff rates. Developers must provide compensating storage volume as required by Waller County for all fill placed in the 1% annual chance (100-year) and 0.2% annual chance (500-year) floodplain. Development in the delineated 100-year floodway will be restricted by Waller County.

### SECTION 2. ADMINISTRATION

#### A. Submittal

All Permit Applications and supporting documentation shall be submitted to the District in accordance with the current District Rules and Regulations.

#### B. Drainage Plan Review

The drainage plan shall present the applicant's overall approach to collecting and conveying rainfall runoff to the appropriate drainage artery. It is recommended that prior to preparation of the plan a meeting be arranged between

the applicant and the District Engineer to discuss the proposed concept for drainage of the project.

The design submittal shall contain the following items:

1. Name, address, and phone number of engineer that prepared the plan including contact person.
2. Scale of drawing with a minimum scale of 1"=100'.
3. Benchmark and reference benchmark with datum and year of adjustment.
4. A detailed location or vicinity map drawn to a scale. The project site shall be accurately located on the map.
5. Date on all submittals with date of all revisions with month, day, and year.
6. Contour lines at 1 foot where slopes do not exceed 2.0% and 5 foot intervals for slopes exceeding 2.0% intervals covering the entire development and extended beyond the development boundaries at least 50 feet on all sides. At least two contours are required for each project.
7. Scheme for the passage of sheet flow from adjacent properties.
8. Drainage area divides for project area, with peak run-off rates for each drainage area.
9. Locations of all planned drainage improvements proposed for moving run-off water from the development to the principal drainage artery, i.e., creek, stream, bayou, ditch etc., and their point(s) of entry into the drainage artery.
10. Points at which structures or pipelines will cross drainage ditches, streams etc., within the development.
11. Locations of structures or other physical features on the development area to provide orientation as required during field inspection of the site.
12. Location of all existing drainage structures, utility lines, pipelines, and other underground features on the property and adjacent rights-of-way.
13. Location and dimensions of all proposed drainage easements and rights-of-way.
14. Location of major drainage arteries adjacent to or crossing the development.
15. Cross-section of detention facility.
16. Detention calculations in accordance with these Rules including volumetric calculations of detention provided.
17. Drainage area map of receiving system, if discharging to existing storm sewer system.
18. Drainage area of receiving channel if discharging to open ditch or stream. Include calculations to prove capacity is available.
19. Copy of approved permit from TxDOT if draining to or impacting their system.
20. Copies of documents and letters of request for permission to cross privately held easements or rights-of-way and their approvals to do so.
21. Limits of 100-year and 500-year floodplain.

#### C. Drainage Plan Approval

The District Engineer shall provide comments to the applicant as soon as possible after submittal.

District approvals shall expire within one (1) year if construction has not commenced within that time. In cases where approval is given for a master plan and only certain sections are built immediately, the master plan approval will be valid for five (5) years.

All revisions to either the approved drainage plan or plat must be approved by the District. The District Engineer may require a re-submittal of a drainage plan or report dependent upon the character and extent of the changes made as determined by the District.

## SECTION 3. HYDROLOGY

### A. General

Hydrology is the study of precipitation. Policy makers and engineers must study and understand hydrology because they are interested in designing and building structures and systems to safely convey and discharge precipitation runoff while minimizing the potential of flooding. They must determine how much water should be collected and conveyed or stored, how fast this process must take place, how much can be safely discharged without adversely impacting surrounding properties, and what other effects of the development should be considered. The following sections discuss specific parameters and methods to be used in analyzing proposed developments in the District.

### B. Storm Frequency

All drainage improvements shall, at the minimum, be designed for the 2-year, 10-year, and 100-year storm frequencies. Storm sewer systems shall, at a minimum, be designed for the 2-year storm event with calculations for the 100-year storm event. The 2-year storm event hydraulic grade line shall be contained within the pipes. The 100-year storm event hydraulic grade line shall be contained with the development and shall not be higher than 1-foot above the top of drainage inlets, except in truck loading docks.

### C. Peak Storm Runoff Rates

The Rational Method can be used for determining peak runoff flow rate for both existing and proposed conditions. These peak runoff rates are used to estimate the impact of development and the conveyance requirements for drainage improvements. This method is applicable for small to medium drainage areas (generally less than 200 acres) where the flow domain is typically overland sheet flow or shallow surface ditch flow.

Other methods should be used to estimate peak runoff rates for larger areas or those served by well-defined channels where flow routing in defined channels may be significant.

The Rational Method takes the following form:

$$Q = C_f * (C * I * A)$$

Where:

Q	=	Peak Runoff Flow Rate (cfs)
C	=	Runoff Coefficient, See TABLE D
C <sub>f</sub>	=	Frequency factor (the product of C <sub>f</sub> and C should not exceed 1.0)
A	=	Area of drainage basin being studied (acres)
I	=	Rainfall Intensity of the design storm (inches/hour)

### D. Frequency Factor (C<sub>f</sub>)

The Frequency Factor is used in the Rational Method to scale the magnitude of the peak runoff in relationship to the return interval of the storm consistent with observed runoff data. This adjustment factor is used to account for the effects of antecedent moisture conditions that are generally associated with the less frequent storms. Appropriate values of C<sub>f</sub> are presented in the following table.

Table A – Frequency Factor

Storm Frequency	Frequency Factor (Cf)
2	1.00
10	1.00
100	1.25

The product of Cf and C used in the Rational Method should not exceed 1.0.

#### E. Basin Time of Concentration (Tc)

The storm rainfall Intensity used in Rational Method will be selected based upon the return interval of the storm to be used (specified in Section 3.B.), and the duration of the storm to be used (based on the study basin's time of concentration).

Time of Concentration (Tc) is defined as the length of time it takes a drop of water to travel from the most hydraulically remote portion of the drainage basin to its outlet. Tc is a property of the drainage basin reflective of its area, shape, surface gradient, land use, land cover, and soil type. Tc (in minutes) may be estimated from the following equation:

$$T_c = \text{Length}/(\text{Velocity} * 60) + 10$$

Where:

Length = Flow distance (feet)

Velocity = Flow velocity (fps) [see Table B]

Table B – Flow Velocities

Flow Condition	Representative Velocities
Shallow overland flow in undefined channels	0.25 to 0.50 fps
Flow in street curb & gutter or road ditches	0.75 to 1.25 fps
Flow in shallow ditches	1.5 to 3.0 fps
Flow in defined channels	2.0 to 4.0 fps
Flow in closed conduit storm sewers	3.0 to 5.0 fps

The constant value of 60 in this equation is used to convert seconds to minutes and 10 is used as an estimate of initial delay between the start of rainfall and development of actual surface runoff. This method can be applied fairly accurately to large and small basins with either undeveloped or developed surfaces.

However, the designer must specify the flow condition and estimated flow velocities for each flow domain on the site (i.e., the first 100' is overland flow followed by 250' in a gutter followed by 400' in closed conduit, etc.) and estimate time of concentration as the sum of all these individual flow conditions. The flow path used as the basis of this calculation should be clearly denoted on the plans with the associated design calculations.

Another method that can be used to estimate time of concentration for developed areas (i.e., storm sewer projects) is in the following form:

$$T_c = 10*(A)^{0.1761} + 15 \quad \text{Where:}$$

A = Drainage Basin area (acres)

This method accurately estimates  $T_c$  for sewer projects. However, it tends to underestimate actual  $T_c$  for basins with significant overland flow or open ditch flow, and therefore may overestimate peak runoff flow rates for these basins. This should not be used for undeveloped basins.

Alternative methods for estimating the basin's time of concentration will be accepted for review by the District Engineer and may be allowed for use if the method's applicability to a specific situation warrants its use over the methods presented.

#### F. Storm Intensity (I)

For small watersheds and individual developments, the storm intensity should be based upon the time of concentration of the basin being analyzed. For example, in the design of a detention facility serving a basin with a 2-hour time of concentration, an intensity for a 100-year, 2-hour storm should be selected for use in the analysis.

For large watersheds and regional studies, use a 24-hour duration storm for the analysis and design. Appropriate design storm intensities are shown in Table G and Table H for various return interval storms.

### SECTION 4. HYDRAULICS

#### A. GENERAL

Hydraulics is the study of fluid flow behavior. Policy makers and engineers must study and understand hydraulics because they are responsible for designing and constructing conveyance and storage facilities capable of managing storm water runoff in a safe and effective manner while reducing the potential for flooding. The following sections discuss specific methods and parameters to be used in analyzing proposed developments within the District's service area.

#### B. Open Channel Flow

Most of the conveyance capacity within the District's service area is in the network of open channels that the District builds and maintains. The Chezy-Manning equation will be used to estimate a ditch's conveyance capacity. This equation is in the following form:

$$Q = 1.486/n * A * R^{2/3} * S^{1/2}$$

Where:

n = Manning's Roughness Coefficient (unitless)  
A = Flow Cross-sectional area (sf)  
R = Hydraulic Radius (ft)  
S = Slope of the Hydraulic Grade Line (ft/ft)

Typical values for Manning's 'n' are included in Table F.

The flow area (A) is estimated from the ditch cross-section and is the area that will be conveying water (also called the wet area). The hydraulic radius is calculated as the wetted area divided by the wetted perimeter. The wetted perimeter is defined as the length of water/surface interface around the perimeter of the wetted area (does not include the water/air interface length). For open channels, the slope of the hydraulic grade line is estimated to be the same as the ditch slope.

#### C. Closed Conduit (Pipe) Flow

The Chezy-Manning equation presented earlier is also applicable for estimating flow capacity for closed conduits (i.e., pipes). See Table F for appropriate 'n' values. The assumption of hydraulic grade line slope being approximately equal to the pipe slope is only valid under free flow conditions. Once the pipe is full and experiences surcharge conditions, the hydraulic grade line slope will increase as flow increases.

### SECTION 5. DETENTION FACILITIES

#### A. General

To meet District's requirements for zero net increase in runoff rates and no negative impacts due to new development, most projects will need to provide on-site detention facilities. Each detention facility should be designed based upon site specific parameters and constraints using accepted engineering methods.

The District will not allow in-line storage within District ditches, channels, or streams. Additionally, the use of hydrograph timing as a substitution for detention on any project is prohibited. No approvals will be given by the District for any proposed development until the District Engineer has been satisfied that the proposed design meet the District's requirements. The following paragraphs describe general design requirements and allowable methods for generating appropriate designs.

The characteristics of an individual development may be such that additional calculations, plans, and details may be required both for proper review and for construction. The District Engineer shall notify the Developer or the Engineer as this need becomes evident.

Detention Facilities shall be designed to provide enough storage to accommodate the 2-year, 10-year, and 100-year storm event for the subarea it is intended to serve. Detention facilities may be designed to be wet (constant level ponds) or may be designed to drain completely. They must be designed with erosion control elements (i.e., backslope swales, drop pipes, slope pavement, etc.) as necessary to ensure a stable, low maintenance facility.

Outfall structures must be designed to restrict outflow from the detention facility at a rate not to exceed the pre-developed conditions and must include a controlled release mechanism to safely discharge runoff from storm events in excess of the 100- year design storm.

Detention storage may not be placed in road-side ditches or in curb-and-gutter streets in public or private easements and rights-of-way.

Drainage runoff from a tract shall be to an existing public right-of-way, an existing drainage easement, or an existing drainage fee strip.

B. Detention Basin Criteria

1. The time of concentration within the detention basin shall be set at zero (0) minutes, allowing the routing calculations through the detention basin to control the overall site time of concentration. Also, the total impervious area within a development shall include the area of the detention basin as impervious area.
2. All detention basins shall have a maintenance berm clear and free of all other easements or encroachments, except as noted below, in accordance with the following guidelines for all detention basins serving a single property owner:

Table C – Berm Widths

Depth (ft)	Side Slope (h:v)	Berm Width (ft)
<3.0	3:1	10
	4:1	10
3.1 – 6.0	3:1	15
	4:1	15
6.1 – 9.0	3:1	20
	4:1	15
>9.0	3:1	20
	4:1	20

Concrete paved parking and driveway areas may share areas of the maintenance berm for detention basins serving a single property owner and user.

3. All detention basins either owned and/or operated by a public entity or quasi-public (i.e., property owners association) entity and serving two or more property owners shall have a maintenance berm clear and free of all other easements or encroachments, except as noted below, in accordance with the following guidelines:

Table D – Berm Widths

Depth (ft)	Side Slope (h:v)	Berm Width (ft)
<3.0	3:1	20
	4:1	15
3.1 – 6.0	3:1	20
	4:1	20
6.1 – 9.0	3:1	30
	4:1	20
>9.0	3:1	30
	4:1	30

With a separate agreement between the District and another public entity, the maintenance berm can be under a shared use by both entities.

4. Dry bottom detention basins shall also meet the following criteria:
  - a. Inlet and outlet structures shall have erosion control measures approved by the City and the District.
  - b. A concrete pilot channel shall be constructed in the bottom of the basin with a minimum slope of 0.10%.

- c. The bottom of the basin shall slope to the pilot channel with a minimum side slope of 1.0%
  - d. Basin side slopes and berm widths shall be in accordance with Paragraph B.2 or B.3 above.
  - e. The detention basin shall have an emergency spillway, which shall be designed to pass the 100-year release rate within the limits of the detention basins freeboard.
  - f. The detention basin shall be designed with twelve inches (12") of freeboard above the maximum water surface elevation.
5. Wet bottom detention basins shall also meet the following criteria:
- a. Inlet structures shall be completely below the normal water surface elevation of the basins. Inlet and outlet structures shall have erosion control measures approved by the District.
  - b. Side slopes below the normal water surface elevation basin shall be a minimum of 3:1 (H:V).
  - c. Side slopes between the top bank and the normal pool elevation may be increased to a minimum of 6:1 (H:V) to reduce the berm width outside the top bank to 15 feet for basins under Paragraph B.2 or B.3 above.
  - d. The detention basin shall have an emergency spillway, which shall be designed to pass the 100-year release rate within the limits of the detention basin's freeboard.
  - e. The detention basin shall be designed with twelve inches (12") of freeboard above the maximum water surface elevation.
6. Detention basins may be constructed with side slopes less than 3:1 (H:V) under the following conditions:
- a. Minimum maintenance berm width shall be 10 feet for basins with a depth less than or equal to 6 feet, and 15 feet for basins with a depth greater than 6 feet.
  - b. Detention basin shall be secured with a chain link fence and locked gate. Fence shall be at least six (6) feet in height with three (3) strands of intruder wire above top of fence. Fence and gate shall be kept in good condition.
  - c. Detention basin walls shall not be earthen but shall be permanent walls constructed of concrete or masonry materials, or other materials approved by the District. The Permit Application shall be accompanied by a geotechnical report signed and sealed by a Registered Engineer licensed in the State of Texas certifying to the stability of the basin walls.
7. Pumped detention may be approved under the following conditions:
- a. The pump station shall have a lead pump and a lag pump. The lead pump shall not discharge more than 50% of the maximum allowable discharge as defined below. The lag pump shall turn on to assist the lead pump. When the water level in the pump station is falling, the lag pump shall turn off and the lead pump shall continue to lower the water level until pump shut-off is reached. The lead and lag pump shall alternate on each pump cycle. The combined discharge of the two pumps shall not exceed the allowable discharge.

- b. When the pumps discharge to a roadside ditch, the allowable discharge is the lesser of the values calculated as follows:
  - (1) The allowable discharge based on the as-built drainage area map and hydraulic data sheet. In lieu of such as-built plan, “allowable discharge” may be calculated based on a 150-foot wide strip of frontage,  $C=0.65$ , and the 2-year intensity using the Rational Method.
  - (2) The allowable discharge based on a pro-rata method outlined below:
    - (a) Define the contributing area upstream of the point of proposed discharge.
    - (b) Calculate the percentage of the project area to the entire contributing area
    - (c) Calculate the ditch full bank capacity (open channel hydraulics) and the capacity of the immediate downstream culvert (pipe under pressure). Multiply the lesser of these two calculated flow rates by the percentage of the project area to the total contributing area.
  - (3) The allowable discharge obtained by multiplying the allowable discharge in 5. B. 7. b. (1) above by 20%.
- c. When the pump discharge is to a ditch or channel other than a roadside ditch, the allowable discharge is the lesser of the values calculated as follows:
  - (1) The allowable discharge based on the as-built drainage area map and hydraulic data sheet. If no as-built information is available, proceed to the next option.
  - (2) The allowable discharge based on a pro-rata method outlined below:
    - (a) Define the contributing area upstream of the point of proposed discharge.
    - (b) Calculate the percentage of the project area to the entire contributing area.
    - (c) Calculate the ditch full bank capacity (open channel hydraulics) and the capacity of the immediate downstream culvert (pipe under pressure). Multiply the lesser of these two calculated flow rates by the percentage of the project area to the total contributing area.
- d. The detention basin shall have an emergency spillway, which shall be designed to pass the 100-year release rate within the limits of the detention basins freeboard.
- e. Emergency power to the pump station is not required, however, if not provided, electrical panel shall include a fully operational transfer switch with necessary connections to quickly connect a portable generator.
- f. The pump force main shall first enter a junction box equipped with a float that will automatically turn all pumps off once the water surface elevation in the box reaches a certain elevation. That elevation is site specific and will require coordination with the District Engineer. The outfall pipe from the junction box will require a restrictor pipe based on the allowable discharge and a minimum of 2 feet of differential head. There shall be a return line designed to return the flow back to the internal drainage system and detention pond once the restrictor capacity is exceeded.
- g. No more than fifty percent (50%) of the detention basin capacity shall be pumped. A gravity outflow shall be provided for the basin volume above pumped storage. However, if discharging to a TxDOT ditch and allowed by TxDOT, a maximum of seventy-five percent (75%) of the detention basin capacity may be pumped.

- h. The following pump information shall be provided:
    - (1) Pump system and performance curve.
    - (2) Pump motor control system wiring diagram (ladders).
    - (3) Pump vendor/manufacturing information.
    - (4) Discharge rate.
  - i. No groundwater shall be allowed to enter the drainage system and be a part of the allowable discharge.
  - j. If pumped detention is used, the formula for required storage volume for small developments is not allowable.
8. Any surface drainage directed to the basin shall be collected by a backswale channel or other District approved structure to prevent overbank flow.

C. Volume Requirements

The following paragraphs describe allowable methods for use in determining storage volume requirements. This is not an exhaustive discussion of all methods but will provide developers and engineers with a variety of tools for use.

1. Coefficient Method

For small developments (less than 5 acres for commercial or 10 acres for residential), the developer may choose to use this simplified method for detention volume estimation. Using this method, the developer would provide detention storage using the following equation:

$$\text{Storage} = 0.65 * A_{dev}$$

Where:

Storage = Detention volume required (ac-ft),  
 Adev = The area of the site that will have modified cover (acres).

Using this method, storage is only provided for the portion of the site that is being developed. For example, on a 4 acre commercial tract with 2.5 acres of building, parking and landscape areas, the developer would be required to provide (2.5 acres)\*(0.65 ac-ft/ac) = 1.63 ac-ft of detention storage. This method will not be allowed where the total developed area (either proposed or in the future) will exceed 5 acres for commercial or 10 acres for residential developments. The outfall structures will be designed separately as discussed in later paragraphs.

2. Small Watershed Hydrograph Method (Up to 200 acres)

The storage requirements for detention ponds can be determined using the Small Watershed Method (also called Malcom's Method). This method is a hydrograph-based method that compares an expected inflow hydrograph to an allowable outflow hydrograph to determine required storage volume. Using this method, the required volume of storage is equal to the maximum cumulative difference between the inflow and outflow runoff curves.

The inflow hydrograph is constructed by calculating instantaneous flow rates using the following equations:

$$Q_i = (Q_p/2)(1 - \cos(\pi t_i/T_p)) \quad \text{for } t_i \leq 1.25 T_p, \text{ and}$$

$$Q_i = 4.34 Q_p * e^{-1.3 t_i/T_p} \quad \text{for } t_i > 1.25 T_p$$

Where:  $Q_i$  = instantaneous flow rate at time "i" [cfs]

$Q_p$  = peak flow rate (Rational Method) [cfs]

$t_i$  = time interval "i" [minutes]

$T_p$  = time to peak [minutes]

Argument of cosine is in radians

In the equations listed above, the time to peak ( $T_p$ ) is calculated by:

$$\text{Time to peak } (T_p \text{ in minutes}) = V / (1.39 * 60 * Q_p)$$

Where:  $V$  = volume of runoff [ft<sup>3</sup>]

The total volume of runoff generated by the design storm event is the amount of rain that falls upon the watershed minus losses attributable to surface storage, soil infiltration, evaporation & transpiration, etc. For projects use a cumulative depth of excess rainfall as listed in Table H. Therefore, the total runoff volume is calculated by multiplying the cumulative depth of excess rainfall for the design storm event by the watershed area. In no case shall the detention storage rate be less than 0.65 ac-ft per acre.

Detention Facility outflow hydrographs shall be constructed by determining the capacity of the outfall structure under incremental surcharge conditions. A table is generated that contains the estimated outfall rate for the proposed structure given increasing depths of ponding in the detention facility. To determine appropriate detention design, the engineer will provide a mass-balance for water in the detention facility (i.e., change in storage of the system equals the volume of water flowing in minus the volume of water flowing out) for several incremental time steps covering the duration of the storm event. The minimum storage requirement will equal the maximum cumulative storage determined in the time step analysis. However, the minimum shall not be less than 0.65 ac-ft per acre.

The Small Watershed Method is dependent upon the Rational Method for estimation of the peak flow rate, so it should only be used for basins of less than 200 acres where there is no well-defined channel and any flow routing can be considered negligible.

### 3. HEC-HMS / HEC-RAS Computer Modeling

For basins over 200 acres in size, the District will require a HEC-HMS hydrograph analysis covering the site and the adjacent parts of the watershed utilizing Atlas 14 rainfall rates. This analysis should verify that the proposed improvements will not increase runoff rates anywhere in the system and therefore will have no negative impacts on adjacent properties. The engineer must submit a complete design report with sufficient detail (program input, program output and discussion of methods and assumptions used) for the District Engineer to review. Before beginning this type of analysis, please

check with the District to receive the most current baseline HEC-HMS model of the area for development (if one is available). In no case shall the detention storage rate be less than 0.65 ac-ft per acre. Hydrograph timing will not be accepted as a substitution for detention.

#### D. Outfall Restrictor Design

The outfall structure is an important design component of the detention facility. The design of the outfall structure can be as simple as a single pipe segment, and can be as complex as multiple pipes with differing diameters at staggered elevations with overflow weirs and flow orifices. The following paragraphs describe ways to estimate flow conveyance of several flow control structures.

##### 1. Outflow Rate and Design

To comply with District policy to avoid increasing flood risks or flood hazards, maximum allowable outflow rates from detention basins are restricted to the pre-development flows from the 100-year, 10-year, and 2-year Storm, 24-hour events.

If a downstream channel has less capacity than a 10-year event, also restrict the outflow to the amount the pre-development project site contributes to the channel when it is flowing full or at its flooding threshold.

When detention basin modifications are necessary to accommodate a proposed storm sewer outfall or a proposed development, design the modifications such that the 100-year, 10-year, and 2-year Storm, 24-hour events water surface profiles in the detention basin and downstream channels are not increased above existing conditions.

If the outflow is into a roadside ditch or storm sewer, restrict the maximum allowable outflow to the rate allowed from the proposed site development using criteria adopted by the jurisdiction responsible for the roadside ditch or storm sewer.

##### 2. Orifice

One of the most simple flow control structures is an orifice. An orifice is a two-dimensional flow structure (i.e., a drilled hole in a concrete wall, a hole in plate steel or a very short section of pipe) with an estimated conveyance capacity dependent upon the difference in water elevations from one side of the orifice to the other and the orifice opening area.

The general equation for estimating flow through an orifice is as follows:

$$Q = C * A * (2 * g * H)^{1/2}$$

Where:

- Q = Orifice flow capacity (cfs)
- C = Orifice coefficient (unitless) [use 0.8]
- A = Orifice opening area (sf)
- g = Gravitational acceleration constant (32.2 ft/s<sup>2</sup>)
- H = Differential head across the orifice (ft)

For the design head differential (H) use the 100-year water surface elevation in the detention facility minus the 25-year water surface elevation in the receiving ditch (if known). If discharging directly into a roadside ditch or a storm sewer, use the difference between the 100-year water surface elevation at the entrance and

the centroid of the orifice in feet when orifice is partially submerged. The orifice should generally be not less than 6" in diameter to reduce problems with clogging and blockage.

### 3. Outfall Pipe

The engineer may use one or more a pipe sections as flow control devices. The conveyance capacity of the pipe(s) can be estimated using the Chezy-Manning equation discussed earlier. In using this method, the slope of the hydraulic grade line is equal to the head differential across the structure divided by the length of the pipe section. For the design head differential use the 100-year water surface elevation in the detention facility minus the 25-year water surface elevation in the receiving ditch (if known). If discharging directly into a roadside ditch or a storm sewer, use the difference between the 100-year water surface elevation at the entrance and the centroid of the orifice in feet when orifice is partially submerged. The restrictor pipe shall not be less than 6" in diameter.

### 4. Overflow Weir

An overflow weir can be used on an outfall structure to restrict and regulate outflow. One of the biggest advantages of this outfall structure is that they do not have a finite conveyance capacity, and can therefore be used for emergency overflows to control larger than 100-year flows.

There are many types of weir designs to choose from when designing an outfall structure, and each has a slightly different equation for estimating flow capacity. One of the simplest to design and construct is a Cipoletti weir consisting of a horizontal weir (of width B) with triangular weirs on either side (at 4:1 slopes) and a depth of flow of H feet. Capacity of a Cipoletti weir can be estimate by the following equation:

$$Q = 3.367 * B * H^{3/2}$$

Where:

- Q = Weir capacity (cfs)
- B = Weir length (ft)
- H = Depth of flow across weir (ft)

## SECTION VI. CHANNEL DESIGN PARAMETERS

### A. General

The proper hydraulic design of channels is of primary importance to insuring that nuisance drainage conditions, flooding, sedimentation and erosion problems do not occur or the frequency of their occurrence is at an acceptably low rate. The following minimum design standards shall be applied to construction of new or reconstruction of facilities.

### B. Design Frequency

New facilities shall be designed and constructed to contain and safely convey runoff from the 100-year frequency storm when at all feasible to do so. Consideration must be made for the capacity of existing channels downstream, and no improvement shall be made that increase the frequency of downstream flooding.

### C. Design Flow Velocities

Excessive flow velocity can cause erosion problems, may pose a threat to bank stability, and may create safety problems. Additionally, velocities that are too low may allow sediment deposition resulting in loss of channel capacity. Generally, design flow velocities in unlined open channels (for 100-year flows) should be between 2 and 5 fps. Flow velocities in concrete lined channels may increase to be between 5 and 8 fps.

### D. Ditch Channel Slope

Ditches shall have a minimum constructed channel slope of 0.05% to provide for the minimum velocities noted earlier. Excessive slopes may unnecessarily increase the potential for erosion of banks and undermining of bridge and culvert structures, therefore maximum slopes should generally not exceed 1.00%. In areas of steep topography, channel drop structures may be required to limit channel invert slopes.

### E. Ditch Side Slopes

In grass lined channels, maximum side slopes shall be 4:1 (horizontal:vertical). Variance from these criteria may be granted by the District Engineer to accommodate site specific issues, but 3:1 slopes should be the absolute steepest unlined slope proposed. Side slopes for concrete lined channels shall be based on field conditions and shall be site specific.

### F. Ditch Bottom Width

The bottom width for ditches should generally be no less than 2 feet. A larger bottom width may be required to meet other parameter requirements including ditch capacity, design velocity, etc.

### G. Ditch Horizontal Curves

In general, centerline curves for grass channels should be as gradual as possible and should have a radius greater than three times the ultimate ditch top width. Smaller curvature radii can be allowed with adequate slope paving as approved by the District Engineer.

### H. Ditch Confluences

The angle of intersection between the tributary and main channel should be between 15° and 45° (with an optimal value of 30°). Angles in excess of 90° will not be permitted.

### I. Ditch Transitions

Expansions and contractions should be designed to create minimal flow disturbance and thus minimal energy loss. Design consideration must be given to reducing erosion potential and turbulent flow characteristics at ditch transitions.

### J. Ditch Drop Structures

When introducing flow into ditch main channel from shallow surface swales, the designer must include drop pipes to reduce the erosion potential at the confluence. Drop structures shall be appropriately sized for the area being served; with a discharge elevation of 12" above the main channel flowline.

K. Ditch Depth

Roadside ditches shall be designed such that the maximum depth from pavement edge to the flowline of the ditch is no more than four (4) feet at any point.

L. Concrete Lined Channels

As field conditions necessitate, concrete lined channels may be required to provide adequate capacity or erosion protection for less than optimum drainage easement widths. Design of concrete lined channels will be considered by the District on a case-by- case basis.

Table E -Rational Method 'C' Values

Land Use or Land Cover	Rational Coefficient 'C'
Raw, undeveloped acreage	0.20
Improved, undeveloped acreage (i.e., mowed, filled, graded, etc.)	0.30
Park Land	0.40
Residential – 1 acre lots or larger	0.40
Residential – ½ to 1 acre lots	0.45
Residential – less than ½ acre lots	0.55
Multi-Family	0.75
Commercial/Industrial	0.90

Table F - Manning's 'n' Values

Channel/Pipe Material	Manning's 'n'
Plastic Pipe (PVC & HDPE)	0.01
	3
Clean Cast Iron	0.01
	4
Concrete	0.01
	3
Corrugated Metal	0.02
	5
Smooth Bare Earth	0.01
	8
Natural Channels (good condition)	0.02
	5
Natural Channels (stones & weeds)	0.03
	5
Natural Channels (poor condition)	0.06
	0
Rip-rap	0.03
	5

Table G – Rainfall Data (inches)

Duration	2-yr	10-yr	100-yr
5 min	0.59	0.84	1.26
10-min	0.94	1.34	2.01
15-min	1.19	1.69	2.50
30-min	1.70	2.39	3.50
1-hr	2.26	3.22	4.80
2-hr	2.83	4.19	6.91
3-hr	3.17	4.82	8.47
6-hr	3.77	5.97	11.20
12-hr	4.40	7.20	13.80
24-hr	5.09	8.55	16.50

Table H – Excess Rainfall Data (inches)

Percent Impervious	2-yr	10-yr	100-yr
0%	2.44	5.11	12.35
20%	2.86	5.68	13.06
40%	3.29	6.26	13.77
60%	3.71	6.81	14.44
80%	4.14	7.37	15.11

Table I summarizes e, b, d coefficients to be used within the District. Note that these values are based on a regression analysis optimized (and only valid) for durations between 10 minutes and up to two-hours. The rainfall amounts generated using these coefficients do not supersede the rainfall amount in Table G.

Table I – Updated e, b, d Coefficients

	2-Year Storm	10-Year Storm	100-Year Storm
E	0.8126	0.7538	0.6829
b (in.)	62.8550	75.6011	86.2332
d (min)	12.6546	11.7742	11.1001

SECTION 7. OWNERSHIP AND MAINTENANCE RESPONSIBILITIES

- A. The District shall not be responsible for the operation and maintenance of any detention basin, unless specifically approved by the District.
- B. The Applicant and/or Owner, or heirs and assigns, shall be responsible for the operation and maintenance of the detention basin.

- C. The District shall be provided with a copy of the legal documents for the creation of any quasi-public entity responsible for the operation and maintenance of a detention basin. The District shall also be provided with a copy of a projected expense and revenue budget for adequate maintenance of the detention basin.
- D. The Owner of any detention basin, not specifically approved by the District as being maintained by the District, shall execute an agreement for the maintenance and operation of the detention basin in a form acceptable to the District. The agreement shall obligate the Owner, heirs, and assigns, to maintain the detention basin in compliance with the approved Permit and plans.

## ARTICLE VII. COLLECTION OF FEES

SECTION 1. Should costs expended by the District exceed the fee collected for the processing of any Application and the review of any construction work associated with any Application governed by these Rules and Regulations, the District will bill the Applicant for the additional costs, said costs shall be paid within thirty (30) days of presentation. If not paid, said costs shall bear maximum interest allowable under the law. If the District employs an attorney to collect the same, the District shall be entitled to reasonable attorney fees and all costs of court to enforce these Rules and Regulations.

## ARTICLE VIII. PENALTY AND ATTORNEY'S FEES

SECTION 1. Any person violating any of the provisions of the Rules and Regulations shall be guilty of a misdemeanor and shall be fined not more than \$5,000.00 upon conviction of such violation; provided however if such person convicted of an offense under these Rules and Regulations which offense is also a violation of the penal laws of the State of Texas, such person shall be subject to the penalties set out in the penal laws of the State for the offense.

SECTION 2. Any person violating any of the provisions of these Rules and Regulations shall pay all reasonable and necessary attorney fees, expert witnesses fees, interest, costs of the Court, and shall be subject to suit to enjoin violation of these Rules and Regulations.

SECTION 3. The provisions, powers, and penalties of the Water Code, including Section 49.004, and Government Code, including Section 27.031 are incorporated herein by reference.

SECTION 4. Further, any person, firm, or corporation violating any of the provisions of these Rules and Regulations shall be fined for each offense; and a separate offense shall be deemed committed on each day during, on, or which a violation occurs or continues. Any violation of these Rules and Regulations and penal laws of the State of Texas, may be enforced as allowed by law, including vacation of plats, Permit forfeiture or injunctive relief.

## ARTICLE IX. SEVERABILITY

SECTION 1. If any provision, section, subsection, sentence, clause, phrase of these Rules or Regulations, or the Application of same to any person or set of circumstances is for any reason held to be unconstitutional, void or invalid, the validity of the remaining portions of these Rules and Regulations or their Application to other persons or sets of circumstances shall not be affected thereby, it being the intent of the Board of Supervisors in adopting these Rules and Regulations, that no portion or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality of any other portion hereof and all provisions of these Rules and Regulations are declared to be severable for that purpose.

## ARTICLE X REPEAL

SECTION 1. These Rules and Regulations shall take effect from and after the date of its passage, and all Rules and Regulations or portion of Rules and Regulations heretofore passed in conflict with the terms hereof are specifically repealed.

ARTICLE XI POSTING AND PUBLISHING

The Secretary is instructed to post and publish notice of these Rules and Regulations as required by law.

PASSED AND APPROVED this 28<sup>th</sup> day of February, 2022.

By Arnold England  
President  
Board of Supervisors

ATTEST:

David Welch  
David Welch  
Secretary

NOT PRESENT

AYE

NAY

Arnold England– President	<u>—</u>	<u>✓</u>	<u>—</u>
Pat Keeling - Vice President	<u>—</u>	<u>✓</u>	<u>—</u>
David Welch- Secretary	<u>—</u>	<u>✓</u>	<u>—</u>
David Hunsucker – Supervisor	<u>—</u>	<u>✓</u>	<u>—</u>
Ruth Ellis – Supervisor	<u>✓</u>	<u>—</u>	<u>—</u>

District Seal

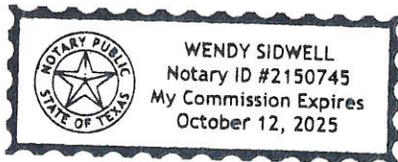


State of Texas §  
County of Waller §

Before me, Wendy Sidwell, a Notary Public, on this day personally appeared the Brookshire-Katy Drainage District Board of Supervisors, known to me to be the persons whose names are subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 28<sup>th</sup> day of FEBRUARY, 2022

Seal



Wendy Sidwell  
Wendy Sidwell  
Notary Public, State of Texas  
My commission expires: 10-12-25

02/23/22

THE STATE OF TEXAS           §       §  
  §       §  
COUNTY OF WALLER         §       §

RESOLUTION NO. 2022-01

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE BROOKSHIRE-KATY DRAINAGE DISTRICT (“DISTRICT”), ACCEPTING AND APPROVING THE REVISED TAKINGS IMPACT ASSESSEMENT REGARDING ITS RULES, REGULATIONS AND GUIDELINES

BE IT HEREBY RESOLVED BY THE BOARD OF SUPERVISORS OF THE BROOKSHIRE-KATY DRAINAGE DISTRICT:

Section 1. That the revised Takings Impact Assessment regarding the District’s revised Rules, Regulations and Guidelines, attached hereto as Exhibit “A” and incorporated herein for all purposes, is hereby accepted and approved.

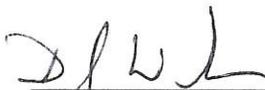
Section 2. That each Supervisor is hereby authorized to execute, and the General Manager to attest, the attached Takings Impact Assessment, for and on behalf of the District.

Section 3. Prior Rules and Regulations are deemed in compliance with all Takings Assessments requirements.

PASSED, APPROVED and ADOPTED this the 28<sup>th</sup> day of February, 2022.

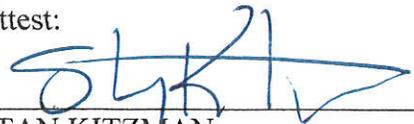
  
\_\_\_\_\_  
ARNOLD ENGLAND  
President

  
\_\_\_\_\_  
PAT KEELING  
Vice President

  
\_\_\_\_\_  
DAVID WELCH  
Secretary

  
\_\_\_\_\_  
RUTH ELLIS  
Assistant Secretary

  
\_\_\_\_\_  
DAVID HUNSUCKER  
Supervisor

Attest:  
  
\_\_\_\_\_  
STAN KITZMAN  
General Manager



## EXHIBIT A

### TAKINGS IMPACT ASSESSMENT PREAMBLE Rules and Regulations 22-01

#### Development and Construction Rules & Regulations

The District has prepared a Takings Impact Assessment for these rules and regulations pursuant to Texas Government Code Ann. Sec. 2007.043. The following is a summary of that Assessment. The purpose of the rules and regulations is to specify drainage and construction policies including utility, pipeline and cable crossings, private and public crossings, drainage connections without land use changes, tract development without platting, and tract development with platting, and establishing fees, providing penalty, and providing for a fine as allowed by State law, upon conviction of a violation under these Rules and Regulations; providing for attorney's fees and expert witness fees and cost of court; providing an effective date; providing a repealer clause; providing a severability clause; providing for posting and publishing. These Rules and Regulations provide for protection and advancement of the health and safety of the general public. Promulgation and enforcement of these Rules and Regulations could effect private real property which is the subject of the Rules and Regulations.

However, the following exceptions to the application of Chapter 2007 of the Texas Government Code listed in Texas Government Code §2007.003(b) apply to these Rules and Regulations.

1. The action is taken in response to a real and substantial threat to public health and safety. Uncontrolled improvement and/or development of private and public properties can present a real and substantial threat to public health and safety if not subjected to reasonable rules and regulations. Increased runoff of storm waters can be injurious to humans, can damage real property and personal property, and can jeopardize public safety services by damage to improvements, roads, bridges, power lines, and communications facilities.
2. The action significantly advances the health and safety purpose. These Rules and Regulations significantly advance the health and safety purpose by requiring any and all individuals and any and all entities to seek the review and approval of the District for any and all construction and/or development. This review and approval requires that any and all individuals and any and all entities determine if the proposed activity has an adverse impact on public health and safety, and if found to be so, requires that said impact be mitigated and/or corrected.
3. The action imposes no greater burden than is necessary to achieve and protect the health and safety of the public. These rules and regulations establish very reasonable requirements which adequately balance the needs for construction and/or development with the protection of public health and safety. The Rules and Regulations are reasonable, fair and equitable in that the Rules and Regulations provide consistent treatment for any and all individuals and for any and all entities who will engage in any and all construction and/or development activities within the jurisdiction of Brookshire-Katy Drainage District.

B. The action is also exempt in that an action taken by political subdivision such as the Brookshire Katy Drainage District may regulate construction in an area designated under law as a floodplain or floodway.

**TAKINGS IMPACT ASSESSMENT  
FOR  
BROOKSHIRE-KATY DRAINAGE DISTRICT  
RULES AND REGULATIONS NO. 2022-01**

RULES AND REGULATIONS, DEVELOPMENT AND INCLUDING CONSTRUCTION POLICIES FOR UTILITY, PIPELINE, AND CABLE CROSSINGS, PRIVATE AND PUBLIC CROSSINGS, DRAINAGE CONNECTIONS WITHOUT LAND USE CHANGES, TRACT DEVELOPMENT WITHOUT PLATTING, AND TRACT DEVELOPMENT WITH PLATTING, AND DETENTION POND REQUIREMENTS, ESTABLISHING FEES, PROVIDING PENALTY, AND PROVIDING FOR A FINE AS PROVIDED BY LAW UPON CONVICTION OF A VIOLATION UNDER THESE RULES AND REGULATIONS; PROVIDING FOR ATTORNEY'S FEES AND EXPERT WITNESS FEES AND COSTS OF COURT; PROVIDING FOR AN EFFECTIVE DATE; PROVIDING FOR A REPEALER CLAUSE; PROVIDING FOR A SEVERABILITY CLAUSE AND PROVIDING FOR POSTING AND PUBLISHING.

Rule/Project No.:	2022-01
Short Title:	Brookshire Katy Drainage District Rules and Regulations 2022-01
Legal Services Contact Person:	DAVID FRISHMAN District Counsel Attorney at Law P.O. Box 637 Katy, Texas 77492
Program Contact Person:	STAN KITZMAN General Manager P.O. Box 608 Brookshire, Texas 77423
District Engineer & Strategic Planning Contact Person:	CHARLES A. KALKOMEY, P.E. 2322 West Grand Parkway North, Suite 150 Katy, Texas 774449
Type of TIA Performed:	<del>Short</del> Full TIA

Based on those items within the Proposed Regulations which might reasonably be determined to be subject to the preparation of a TIA, the District evaluated these items using the guidelines prepared by the State of Texas Office of the Attorney General. These guidelines require each action be evaluated through a series of questions. These questions, with subsequent instructions, and/or explanations are:

**Question 1:** Is the Government Entity undertaking the proposed action a government entity covered by the Property Rights Act (i.e., is it a “Covered Government Entity”)? See Property Rights Act § 2007.002(1).

YES  NO

- If answer is “No” – no further compliance with the Property Rights Act is necessary.
- If the answer is “Yes”, continue to Question 2.

TGS §2007.002(1)(B) indicates that “a political subdivision of this state” is a covered governmental entity. Article IX of the Texas Constitution indicates that Drainage Districts are political subdivisions of the State. Therefore the Drainage District would be a covered governmental entity, subject to the requirements to prepare a TIA where it would otherwise be required.

**Question 2:** Is the proposed action to be undertaken by the Covered Governmental entity an action covered by the Property Rights Act (i.e., a “Covered Governmental Action”)?

YES  NO

- If answer is “No” – no further compliance with the Property Rights Act is necessary.
- If the answer is “Yes”, continue to Question 3.

Based on the District’s review of the Act, certain of the actions included in the Proposed Rules and Regulations may arguably qualify as Covered Governmental Actions (CGA) while others do not. As outlined above, the Proposed Rules and Regulations do not propose any “physical taking” of any particular property, but certain actions are required to be evaluated as a “regulatory taking”.

**Question 3:** Does the Covered Governmental action result in a burden on “Private Real Property” as that term is defined under Property Rights Act Section 2007.002(4)?

This question may be resolvable by reference to the District’s preexisting list of Categorical Determinations.

These Rules and Regulations establish very reasonable requirements, which adequately balance the needs for construction and/or development with the protection of public health and safety. The Rules and Regulations are reasonable, fair and equitable in that they provide consistent treatment for any and all individuals and entities who will engage in any and all construction and development activities within the jurisdiction of Brookshire-Katy Drainage District. These Rules and Regulations are consistent with other rules and regulations of other governmental entities within the area.

The Rules and Regulations, do place, albeit small or nominal burden on real property; for example by requiring the individual or entity to mitigate increased storm water runoff from construction and development. This mitigation could decrease the usable land available for construction or development. The method used to mitigate the increased storm water runoff is left to the discretion of the individual or entity, working with the Brookshire-Katy Drainage District.

- If answer is “No” – a No Impact Determination should be made, and no further compliance with the Property Rights Act is necessary.
- If the answer is “Yes”, then a TIA is required. Continue with Questions 4-8.

Based on the District’s review of the Act, the actions included in the Proposed Rules and Regulations do not result in the imposition of a burden on “Private Real Property” as the term is defined in the Act. Therefore, Question 3 is answered as a qualified “NO”, and therefore “*No Private Real Property Impact*” or *NoPRPI Determination should be made. No further compliance with the Act is necessary if a NoPRPI Determinations is made.*

\_\_\_\_\_ YES \_\_\_ X \_\_\_ NO

**Question 4:** What is the Specific purpose of the Proposed Covered Governmental action?

ANSWER:

These Rules and Regulations significantly advance the health and safety purpose by requiring any and all individual and entities to seek the review and approval of the

District for any and all regulated construction and development. The individual and entities shall determine if the proposed activity has an adverse impact on public health and safety. If the activity is found to have such an impact, the Rules and Regulations require that said impact be mitigated and/or corrected.

**Question 5:** How does the Proposed Covered Governmental action burden Private Real Property?

ANSWER:

These Rules and Regulations establish very reasonable requirements, which adequately balance the needs for construction and/or development with the protection of public health and safety. The Rules and Regulations are reasonable, fair and equitable in that they provide consistent treatment any and all individuals and entities who will engage in any and all construction and development activities within the jurisdiction of Brookshire-Katy Drainage District. These Rules and Regulations are consistent with other rules and regulations of other governmental entities within the area.

**Question 6:** How does the proposed Covered Governmental Action Benefit Society?

ANSWER:

The proposed CGA benefits society in the following ways:

- Serving as a deterrent to unscrupulous developers by providing a third-party notification to the District for non-compliant activities.
- Increasing the likelihood that the District is notified as early as possible about requests to extend utilities to a non-compliant development, providing the best opportunity for the situation to be correct before additional harm is propagated on the public.

These Rules and Regulations significantly advance the health and safety purpose by requiring any and all individual and entities to seek the review and approval of the District for regulated construction and development. The individual and entities and District shall determine if the proposed activity has an adverse impact on public health and safety. If the activity is found to have such an impact, the Rules and Regulations require that said impact be mitigated and/or corrected.

All of the actions determined to be Covered Governmental Actions benefit society, nominal regulation impose a burden on “Private Real Property” as that term is defined in

the Act but benefits society. If those actions had been determined to be both a Covered Governmental Action and which imposed a burden on “Private Real Property” it could have been further evaluated using Questions 4 through 7 in the TIA. The Office of the Attorney General guidance also provides the following sub-questions for items determined to be Covered Governmental Actions.

**Question 7:** Does the Proposed Covered Governmental action result in a taking?

\_\_\_\_\_ YES      X   NO

None of the actions determined to be Covered Governmental Actions imposed a burden on “Private Real Property” as that term is defined in the Act. If those actions had been determined to be both a Covered Governmental Action and which imposed a burden on “Private Real Property” it could have been further evaluated using Questions 4 through 7 in the TIA. The Office of the Attorney General guidance also provides the following sub-questions for items determined to be Covered Governmental Actions:

These Rules and Regulations establish very reasonable requirements, which adequately balance the needs for construction and/or development with the protection of public health and safety. The Rules and Regulations are reasonable, fair and equitable in that they provide consistent treatment for any and all individuals and entities who will engage in any and all drainage, construction and development activities within the jurisdiction of Brookshire-Katy Drainage District. These Rules and Regulations are consistent with other rules and regulations of other governmental entities within the area.

Whether a Proposed Covered Governmental Action “burdens,” in the first analysis, and ultimately results in a taking, must be measured against all three prongs of the takings analysis (statutory, federal constitutional, and state constitutional) outlined in sections **1.2-1.3** of these Attorney General Guidelines. In addition, the proposed governmental action must be a final and authoritative determination. The Covered Governmental Entity proposing to engage in a Covered Governmental Action should consider the following subquestions:

1. Does the proposed covered governmental action result indirectly or directly in a permanent or temporary physical occupation of private real property?

Regulation or action resulting in a permanent or temporary physical occupation of all or a portion of private real property will generally constitute a “taking.” For example, a regulation that required landlords to allow the installation of cable television boxes in their apartments was found to constitute a “taking”.

\_\_\_\_\_YES\_\_\_\_\_NO

2. Does the proposed covered governmental action require a property owner to dedicate a portion of private real property or to grant an easement?

Carefully review all governmental actions requiring the dedication of property or grant of an easement. The dedication of real property must be reasonably and specifically designated to prevent or compensate for adverse impacts of the proposed development. Likewise, the magnitude of the burden placed on the proposed development should be reasonably related to the adverse impacts created by the development. A court will also consider whether the action in question substantially advances a legitimate state interest.

For example, the United States Supreme Court determined in *Nollan* that compelling an owner of waterfront property to grant public easement across his property that does not substantially advance the public's interest in beach access, constitutes a "taking." Likewise, the Court held that compelling a property owner to give public access to a green way, as opposed to keeping it private, did not substantially advance protection of a floodplain, and was a "taking."

These Rules and Regulations establish very reasonable requirements, which adequately balance the needs for construction and/or development with the protection of drainage, public health, and safety. The Rules, and Regulations are reasonable, fair and equitable in that they provide consistent treatment for any and all individuals and entities who will engage in any and all regulated construction and development activities within the jurisdiction of Brookshire-Katy Drainage District. These Rules and Regulations are consistent with other rules and regulations of other governmental entities within the area.

\_\_\_\_\_YES\_\_\_\_\_NO

3. Does the proposed covered governmental action deprive the owner of all economically viable uses of the property?

If a governmental action prohibits or somehow denies all economically viable or beneficial uses of land, it will likely constitute a "taking." In this situation, however, the governmental entity should consider whether it can demonstrate that the proposed uses are prohibited by the laws of nuisance or other preexisting limitations on the use of the property.

It may be important to analyze the action's impact on the property as a whole, and not just the impact on a portion of the real property. It is also important to assess whether there is any profitable use of the remaining property still available. The remaining use does not necessarily have to be the owner's planned use, a prior use, or the highest and best use of the property. One factor in this assessment is the degree to which the governmental action interferes with a property owner's reasonable investment-backed development exceptions.

Carefully review governmental action requiring that all of a particular parcel of land be left substantially in its natural state. A prohibition of all economically viable uses of the property is vulnerable to a "takings" challenge. In some situations, however, there may be pre-existing limitations on the use of property that could insulate the government from "takings" liability.

These Rules and Regulations establish very reasonable requirements, which adequately balance the needs for construction and/or development with the protection of public health and safety. The Rules and Regulations are reasonable, fair and equitable in that they provide consistent treatment for any and all individuals and entities who will engage in any and all construction and development activities within the jurisdiction of Brookshire-Katy Drainage District. These Rules and Regulations are consistent with other rules and regulations of other governmental entities within the area.

In an extreme case, the proposed CGA could result in a property owner being deprived of all economically viable use of the property in an instance where an unscrupulous developer sold that property owner certain real property from a non-compliant development. If the unscrupulous developer were to go bankrupt without having provided adequate financial assurance, the property owner might be unable to have utilities furnished to property intended for a home site. This would have the effect of depriving that owner of the ability to use that property for a home site, thus depriving him of an important economic use of the property as a home site. However, for a regulatory taking as defined under TLGC §2007.002(5)(B)(ii), to exist, the CGA would need to be the "producing cause". In this instance, the producing cause of the property owner being deprived of the economically viable use of his property would be the actions of the unscrupulous developer and not the CGA of the County. Based on this definition, the proposed CGA would not constitute a regulatory taking.

\_\_\_\_\_ YES \_\_\_\_\_ NO

4. Does the proposed covered governmental action have a significant impact on the landowner's economic interest?

Carefully review governmental actions that have a significant impact on the owner's economic interest. Courts will often compare the value of property before and after the impact of the challenge action. Although a reduction in property value alone may not be a "taking," a severe reduction in property value often indicates a reduction or elimination of reasonably profitable uses. Another economic factor courts will consider is the degree to which the challenged action impacts any development rights of the owner.

Two factors are considered to determine whether a governmental action has unreasonably interfered with a property owner's right to use and enjoy property. The first factor compares the value that has been taken with the remaining value in the property, without considering any anticipated gains or future profits. The second factor examines investment-backed expectations, including knowledge of existing regulations. "Historical uses of the property are critically important when determining the reasonable investment-backed expectations of the landowner."

When access to a property may be impaired as the result of a governmental action, compensation is owed only when access is materially and substantially impaired. Roadways are for the benefit of the traveling public, and those doing business along public roadways must assume the risk that future improvements of the roadway system may divert traffic away from their businesses. Consequently, impairment that results only in increased circuitry of travel is not compensable. In addition, "partial, temporary disruption of access is not sufficiently 'material and substantial' to constitute compensable taking." "The obstruction of streets and highways . . . must be reasonable and necessary for the public improvement which is being made. Similarly, a property owner has no vested right that his premises must be visible from a public roadway."

As outlined in the response to OAG Sub-question 3, the proposed CGA could result in a significant impact to a property owner's economic interest. However, the proposed CGA would not be the "producing cause", and would therefore not constitute a regulatory taking.

\_\_\_\_\_ YES \_\_\_\_\_ NO

5. Does the covered governmental action decrease the market value of the affected private real property by 25 percent or more? Is the affected private real property the subject of the covered governmental action? *See* Property Rights Act § 2007.002(5) (B).

Compensation is not required for every decrease in market value attributable to governmental action. Historically, courts have only allowed recovery if the injury is not one suffered by the community in general. “Community damages are not connected with the landowner’s use and enjoyment of property and give rise to no compensation.” Whether governmental action results in community damages is determined by the nature of the alleged injury rather than the location of the property.

As outlined in the response to OAG Sub-question 3, the proposed CGA could result in a significant impact to a property owner’s economic interest, including a reduction of 25% or more of the market value of the affected Private Real Property. However, the CGA would not be the “producing case”, and would therefore not constitute a regulatory taking.

\_\_\_\_\_ YES \_\_\_\_\_ NO

6. Does the proposed covered governmental action deny a fundamental attribute of ownership?

Governmental actions that deny the landowner a fundamental attribute of ownership-including the right to possess, exclude others and dispose of all or a portion of the property-are potential “takings.”

In *Dolan*, the United States Supreme Court held that a taking resulted when a city required a public easement for recreational purposes where the public interest asserted was conservation of the flood plain. The Court found that the city had not established “why a public greenway, as opposed to a private one, was required in the interest of flood control.” The Court emphasized that the right to exclude others is “one of the most essential sticks in the bundle of rights that are commonly characterized as property.”

The United States Supreme Court also held that barring the inheritance (an essential attribute of ownership) of certain interests in land held by individual members of an Indian tribe constituted a “taking.”

The adoption of these Rules and Regulations is beneficial to the community in that an action taken by a political subdivision such as Brookshire-Katy Drainage District may regulate construction in an area designated by Federal, State or Local statutes as a floodplain, its Enabling Legislation as amended, the Water Code including Ch. 49 and

53 and interlocal agreements with Waller County, Texas, the City of Brookshire, and the Brookshire Municipal Water District.

\_\_\_\_\_YES\_\_\_\_\_NO

**Question 8:** What are the alternatives to the Proposed Covered Governmental action?

ANSWER:

Lastly, the governmental entity must describe reasonable alternative actions to the proposed governmental action that could accomplish the specified purpose and compare and evaluate the alternatives. The governmental agency must also evaluate the “takings” implication of each reasonable alternative to the proposed action pursuant to the applicable provisions of these Guidelines.

The adoption of these Rules and Regulations is also beneficial of the community in that an action taken by a political subdivision such as Brookshire-Katy Drainage District may regulate construction in an area designated by Federal, State or Local statutes as a floodplain, and its enabling legislation as amended, the Water Code including Ch. 49, and 53 and interlocal agreements with Waller County, Texas, the City of Brookshire, and the Brookshire Municipal Water District.

Uncontrolled improvement and/or development of public and private properties can and does present a real and substantial threat to public health and safety. Increased storm water runoff can cause injuries to humans, can damage real property, and can jeopardize public safety services by damage to improvements, roads, bridges, public utilities, and water and wastewater treatment facilities. The adoption of reasonable Rules and Regulations substantially reduces this threat.

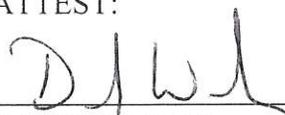
**TAKINGS IMPACT ASSESSMENT**  
**Statement of Performance and Acceptance**

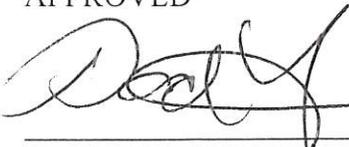
In accordance with and in compliance with Senate Bill 14, enacted by the 74th Legislature, 1995, captioned the “Private Real Property Rights Preservation Act”, by the addition to the Government Code, Chapter 2007, affecting private property rights, requiring that any and all government agencies enacting or adopting any rules, regulations, action or policy that could exact value or rights or private real property, perform a “Takings Impact Assessment” of the rule, regulation or policy prior to enforcement of said rules and regulations.

WHEREAS, the Board of Supervisors of the Brookshire Katy Drainage District has prepared a Takings Impact Assessment for Rules and Regulations 2022-01 publishing notice of hearing as required, 30 days prior to hearing date, for the taking of public testimony in relation to Rules and Regulations 2022-01 and Impact Assessment, and ratification of prior amendments of the District’s Rules and Regulations.

NOW, THEREFORE, on this 28<sup>th</sup> day of February, 2022, the Board of Supervisors held a public meeting to hear testimony relative to the 2022-01 Rules and Regulations and the Takings Impact Assessment, and the Board of Supervisors by majority vote has accepted the TIA and adopted the Rules and Regulations.

  
\_\_\_\_\_  
ARNOLD ENGLAND  
President

ATTEST:  
  
\_\_\_\_\_  
DAVID WELCH  
Secretary

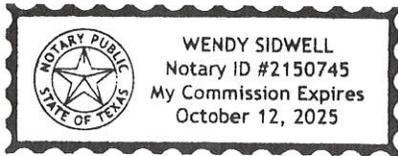
APPROVED  
  
\_\_\_\_\_  
DAVID FRISHMAN  
District Counsel



STATE OF TEXAS           §  
COUNTY OF WALLER   §

BEFORE ME, Wendy Sidwell, a Notary Public, on this day personally appeared ARNOLD ENGLAND, President, and DAVID WELCH, Secretary, known to be the persons whose names are subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN under my hand and seal of office on this the 28<sup>th</sup> day of February, 2022.



A handwritten signature in blue ink that reads "Wendy Sidwell".

WENDY SIDWELL  
Notary Public, State of Texas  
My commission expires: October 12, 2025

**TAKINGS IMPACT ASSESSMENT  
Rules and Regulations 22-01**

**Brookshire-Katy Drainage District Rules and Regulations  
Attachment**

I. Stated Purpose

The District has prepared a Takings Impact Assessment for these rules and regulations pursuant to Texas Government Code Ann. Sec. 2007.043. The following is a summary of that Assessment. The purpose of the rules and regulations is to specify construction policies for utility, pipeline and cable crossings, private and public crossings, drainage connections without land use changes, tract development without platting, and residential and commercial development with platting, establishing fees, providing penalty, and providing for severability.

III. Exceptions

However, the following exceptions to the application of Chapter 2007 of the Texas Government Code listed in Texas Government Code §2007.003(b) apply to these rules and regulations.

4. a. Is this action in response to a real and substantial threat to public health and safety? YES

This action is taken in response to a real and substantial threat to public health and safety. Uncontrolled improvement and/or development of private and public properties can present a real and substantial threat to public health and safety if not subjected to reasonable rules and regulations. Increased runoff of storm waters can be injurious to humans, can damage real property, and can jeopardize public safety services by damage to roads, bridges, power lines, and communication facilities.

b. Does this action significantly advance the health and safety purpose? YES

The action significantly advances the health and safety purpose. These rules and regulations significantly advance the health and safety purposes by requiring any and all individuals any and all entities to seek the review and approval of the District for any and all construction and/or development. This review and approval requires that any and all individuals and any and all entities determine if the proposed activity has an adverse impact on public health and safety, and if found to be so, requires that said impact be mitigated and/or corrected.

c. Does the action impose no greater burden than is necessary to achieve the health and safety Purpose stated in (b) above? YES

The action imposes no greater burden than is necessary to achieve and protect the health and safety of the public. These rules and regulations establish very reasonable requirements which adequately balance the needs for construction and/or development with protection of

public health and safety. The Rules and Regulations are reasonable, fair and equitable in that the Rules and Regulations provide consistent treatment for any and all individuals and for any and all entities who will engage in any and all construction and/or development activities within the jurisdiction of Brookshire Katy Drainage District.

6. Does any other exemption in Senate Bill 14 specifically apply? YES

This action is also exempt in that an action taken by a political subdivision such as the Brookshire-Katy Drainage District may regulate construction in an area designated under the law as a floodplain.

THE STATE OF TEXAS  
COUNTY OF WALLER

I  
I

OF THE COMMISSIONERS' COURT  
OF WALLER COUNTY, T E X A S

BE IT REMEMBERED that on this the 25th day of July 1983, the Commissioners' Court of Waller County, Texas, met in Special Session at its regular meeting place in the County Courtroom in Hempstead, Texas with the following members of said Court present:

A.M. McCaig, County Judge  
Freddie Zach, Commissioner, Pct. #1  
James R. Muse, Commissioner, Pct. #2  
Richard Frey, Commissioner, Pct. #3  
W.C. Taylor, Commissioner, Pct. #4

Whereupon the Court being duly opened there came upon the matter of amending Waller County Subdivision Regulations to provide for the subdivider to coordinate with the Brookshire-Katy Drainage District officials for any subdivisions developed within the confines of the Brookshire-Katy Drainage District area. After due discussion a motion was made by Commissioner Taylor, duly seconded by Commissioner Muse that Section III of the existing subdivision regulations be amended by adding sub-paragraph 7b (5) which reads as follows:

In those instances where a subdivision is developed within the limits of the Brookshire-Katy Drainage District, it will be necessary for the developer to refer the plat to the Drainage District for approval by the Board of Directors of the District before submitting the plat for Waller County Commissioners' Court approval. Format for signatures on the plat will follow that prescribed for Commissioners' Court.

Whereupon the motion being timely put by the County Judge, all members present voted AYE, and no members present voted NAYE. The County Judge then declared the motion passed and adopted as an Order of this Court. The County Road Administrator is directed to amend the Waller County Subdivision Regulations accordingly.

A.M. McCaig  
A.M. McCaig, County Judge

ATTEST:

Elva D. Mathis  
Elva D. Mathis, County Clerk

7-25-83  
Date

By: Bernice Harlan, Dep.

Exhibit 1