



City of Carencro Drainage Analysis Checklist  
Ordinance 2002-017, Revised

PROJECT NAME:	
Developer:	Engineer:
Point of Contact:	Firm:
Address:	Address:
Phone:	Phone:
Email:	Email:

*The purpose of this checklist is to expedite and facilitate the review process. This checklist gives the minimum requirements needed for initiation of drainage review by the City of Carencro. All items shall be checked as included or marked N.A. The omission of required items may be cause for rejection of the submittal without review.*

**I. General Requirements**

- Bound drainage impact analysis containing 3 distinct and designated parts (Summary, Design Criteria, and Calculations)
- Each submittal shall contain a minimum of two (2) copies of the drainage analysis.
- Pre and Post development output for each storm event as well as supporting calculations shall be separated with dividers bound in the report.
- Cover sheet for the drainage impact analysis shall be signed and sealed by the Engineer of Record as shown above.
- All maps, drawings, or calculations shall be bound and made a part of the impact analysis. (Paper clipped attachments will not be accepted)
- The drainage impact analysis shall be based on the 5 year storm for residential subdivisions and the 10 year storm for commercial developments.

**II. Drawings / Maps**

- A legible copy of the most recent soil survey map with the proposed location clearly identified.
- A pre-development drainage map with the following minimum information:
  - i. Existing topographic plan with elevations. An aerial and/or USGS Quad Maps may be used in lieu of complete survey of entire drainage basin.
  - ii. The location, description, and elevation of all permanent and temporary benchmarks which shall be used during the construction of the project.
  - iii. The pre-development map shall be produced at a scale which legibly shows all pertinent existing drainage information.
  - iv. At a minimum the pre-development drainage map shall include a north arrow, vicinity map, and a title block with the name of the development. The name of the development shall match the name shown on this form.
  - v. Identification of all existing drainage features whether natural or man-made.
  - vi. Clear delineation of each drainage basin both on and off site. Each basin shall be uniquely identified.
  - vii. Each basin shall be annotated with its drainage area, hydraulic length, hydraulic slope, and curve number or runoff coefficient.

- viii. Composite curve numbers or runoff coefficients shall be clearly designated on the pre-development drainage map and calculations supporting each composite number shall be included in the drainage analysis.
- ix. The location of the outfall of the entire drainage area shall be identified to include location, total acreage, and peak discharge for the design storm. If more than one outfall exists for the development, each outfall shall be identified separately.
- A post-development drainage map with the following minimum information:
  - i. Proposed site plan with major improvements to site. This information may be shown on an aerial or USGS quad map if a detailed survey was not performed as part of the entire pre-development drainage analysis.
  - ii. The post-development map shall be produced at a scale which legibly shows all pertinent drainage information.
  - iii. At a minimum the post-development drainage map shall include a north arrow, vicinity map, and a title block with the name of the development.
  - iv. Identification of all existing drainage features whether natural or man-made which will be modified as a result of the development.
  - v. Clear delineation of each drainage basin both on and off site. Each basin shall be uniquely identified. No two drainage areas regardless of pre or post condition shall have the same identifier.
  - vi. Each basin shall be annotated with its drainage area, hydraulic length, hydraulic slope, and curve number or runoff coefficient.
  - vii. Composite curve numbers or runoff coefficients shall be clearly designated on the post-development drainage map and calculations supporting each composite number shall be included in the drainage analysis.
  - viii. The location of the outfall of the entire drainage area shall be identified to include location, total acreage, and peak discharge for the design storm. If more than one outfall exists for the development, each outfall shall be identified separately
- For subdivisions, plan-profile sheets of all streets and proposed drainage features will be required. Plan-profiles shall contain, at a minimum, the following information:
  - i. The minimum scale of plan profile sheets shall be 1"=50' H; 1"=5' V.
  - ii. The location and type of all impervious and semi-pervious areas which are part of the development shall be shown. Residential subdivisions will not be required to show the location of any proposed private homes and/or private drives.
  - iii. Each street shall have unique stationing.
  - iv. The grade and point of vertical intersection (PVI) for all streets shall be clearly annotated with station and elevation.
  - v. The grade and invert of all roadside ditches shall be clearly annotated with station and elevation.
  - vi. All drainage structures shall be clearly annotated with type, material, and length as well as upstream and downstream inverts.
  - vii. Should the engineer of record decide to re-route an existing drainage feature, plan-profile sheets of the proposed drainage feature will be required.
  - viii. Typical sections of each type of drainage feature shall also be included. Typical sections shall include at a minimum the side slopes, bottom width and minimum and maximum depths of each type of feature.

### III. Drainage Features / Structures

- Drainage features/structures which are part of a detention facility may be excluded from the requirements of this section provided these structures are addressed in Section IV.
- All drainage features crossing streets shall be constructed of reinforced concrete.
- Documentation shall be provided for existing outfalls which traverse the proposed development. The documentation shall clearly show that the proposed development will not increase the upstream stage of the outfall prior to its entrance to the development for the design storm.
- Existing outfalls which are not identified on FEMA Flood Maps as posing a flood hazard and traverse the development shall be investigated for the 100 year storm. The upstream stage of the outfall for

the pre-development condition shall be compared to the upstream stage for the post-development condition to a point where the backwater effects are non-existent.

#### **IV. Detention Facilities**

- Typical Sections for each detention facility in the development shall be shown.
- Stage vs. Storage and Stage vs. Discharge information shall be provided for each detention facility.
- The peak water elevation in the detention facility for the design storm shall be noted.
- Freeboard amount between overtopping elevation and peak water elevation for the design storm shall be noted.
- The performance of the detention facility in a 100 year storm shall be investigated and reported in the drainage analysis.
- The combination of existing/relocated outfalls with proposed detention facilities is permitted, however the performance of this system shall be sufficiently detailed to ensure staging in the facility does not increase the upstream water surface elevation.
- When roadside ditches in a subdivision are designed to meet the detention criteria, all ditches in series will be considered a single facility.
- In addition to the criteria listed above, developments having roadside ditches which provide detention shall clearly show the maximum hydraulic grade line (HGL) for each detention facility as well as the proposed top bank. Should parallel ditches be shown on a single plan profile sheet, each hydraulic grade line shall be clearly distinguished from adjacent HGL's.
- For roadside detention, the effects of all future driveways shall be included in the hydraulic analysis.

#### **V. Flood Zone Requirements**

- Developments within the 100 year floodplain shall contain sufficient calculations and details to demonstrate that the 100 year flood stage is not increased.
- Detailed information shall be provided which identifies the location and amount of fill placed in the floodplain.

#### **VI. Floodway Requirements**

- When any portion of a development falls within a Federally designated floodway, a no-rise certificate shall be completed and submitted with the drainage analysis regardless of the type of construction in the floodway.
- A signed copy of the no-rise certificate shall be permanently bound and made a part of the drainage analysis.

#### **VII. Plats**

- For subdivisions designed with open ditches the plat shall include the note as shown in the attached ordinance stating that the ditches shall remain open unless permitted otherwise by the City of Carencro.
- The plat shall include a statement regarding the required pipe size for all driveways. Should various pipe sizes be required for hydraulic capacities, the locations of the sizes shall be clearly noted.
- A note stating that all perimeter lots shall be graded such that no runoff is discharged to adjacent lots and residences with improper grades will not pass final inspection until this criteria is met shall be included on the plat.
- The location of all flood zones and/or floodways shall be clearly marked on the plat along with base flood elevations.

#### **VIII. Additional Requirements**

- Construction plans submitted for approval which do not match the approved drainage analysis will be returned without review.

I, the undersigned, acknowledge by signature that the submitted drainage impact analysis meets or exceeds the requirements set forth by ordinance for the City of Carencro. I understand that failure to comply with the requirements set forth may result in the return of the submitted drainage documents without review.

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Signature

Date

LA License Number