Drainage Criteria Manual
Overview of Changes

As many of you are aware, the City’s updated Drainage Criteria Manual (DCM) was recently approved by City Council. This is the first major update of this document since the late 1990s. As such, there are a number of changes: some are based on technology improvements and others on general changes of policy or philosophy. Our goal is to establish a standard for reasonable drainage analysis and design that provides a level of protection for the citizens at a reasonable cost to land development. It does not relieve the design engineer from employing good design practices and engineering judgement in the design of developments.

The following is a brief discussion of some of the changes in the new DCM.

Chapter 1 – Introduction
- Definitions – Basic terms related to drainage, the platting process and important related documents. An important change, the downstream assessment, is also defined. It is discussed in Chapter 6.
- MDP Reference – Section 1.4 notes that the City has a Master Drainage Plan for a large portion of the city. It lists available data associated with the MDP and notes that this information should be utilized where possible.

Chapter 2 – Drainage Submittals, Requirements and Processes
- Development Consultation Meeting (Pre-Submittal meeting) – in Section 2.5, the need for a development consultation is noted – ‘The City strongly recommends that the Developer schedule a development consultation with the City Engineer during the planning phase of a proposed construction project or development.’ While this is a recommendation, it will typically benefit both the developer and the city in minimizing assumptions and errors in the design process.
- Drainage Analysis Requirements – ‘If a proposed development increases the volume or changes the character of site runoff, a drainage analysis submittal will be required and the user should refer to the Preliminary Drainage Analysis Checklist.’ This drainage analysis may be required as part of the building permit process. City Staff is working to develop a template for the preparation of drainage analysis reports. This should be available in mid-2020.
- ICPR Preferred Software – A table of acceptable software is provided in section 2.3 for specific applications. This does not preclude the use of the Rational Method for smaller drainage basins.
- Section 2.4 provides a table of values establishing finished floor elevations associated with specific drainage features.
- Table 2-2 provides a summary of submittal requirements for different types of drainage related activities.
Chapter 3 – Hydrology

- Rational method – reduced applicable area from 200 to 160 acres.
- Table 3-1 documents the required design frequencies by design type.
- Provided information on the Kerby-Kirpich method for calculation of the time of concentration. This serves as an alternative method to the SCS method. Either method is acceptable.
- Runoff coefficient classifications were modified, but no significant change in the coefficients.
- The intensity curve data coefficients, based on TxDOT methodology, reference the current TxDOT design manual values.
- Unit hydrograph method calculations reference the NOAA Atlas 18 rainfall depths by duration in Table 3.7. These values are generally slightly higher than the previous TP-40 values presented in the old DCM.

Chapter 4 – Hydraulics

- As noted in Table 2-2, calculations will be provided for 2-, 25-, and 100-year events. Most of the design criteria reflects 100-year conditions, but the interim frequency events are required to determine lower peak flow system impacts.
- Design criteria for drainage flow crossing a street, establishing minimum concrete dip width and design flow capacities.
- Extensive information on the design of inlets, storm drains and channels.

Chapter 5 – Playas

- Cut and fill slopes were changed to 7 horizontal to 1 vertical.
- Removed the ‘marginal non-overflow’ classification to simplify playa lake design criteria.
- The initial lake condition criteria is both simplified (no ‘developed’ designation) and more clearly defined. The basic parameters have not changed.

Chapter 6 – Downstream Assessment

- Used to determine the potential impacts to downstream areas related to the increased flow from the proposed development.
- Limit of assessment – shortest of: next downstream playa, next downstream development with approved drainage analysis, or a point downstream that has no hydraulic impact.
- No adverse impact relative to MDP.
- The assessment is waived if the proposed site will not increase downstream runoff, typically through detention / retention.

Chapter 7 – Detention and Retention

- Integral with downstream assessment. Detention shall be provided for the 2-, 25-, and 100-year design storms based on the results of the downstream assessment.
- Facility Maintenance Agreement is required for stormwater controls that will not be maintained by the City.
- Initial conditions in the pond will be based on the criteria set forth in the playa lake section, 5.6.3 Initial Playa Conditions.
• Modified rational method is acceptable for drainage basins under 25 acres.

Chapter 8 – Floodplain and Floodway Development Requirements
• The concept of ‘city floodplains’ is presented. These are based on future fully developed conditions and are found in the current version of the MDP.
• LOMR-F is not allowed within the playa overflow conveyance area.
• FEMA floodplains shall be used to determine the need for a LOMR with a proposed development.
• Floodplain development permit required for development activities that would alter topography within a FEMA floodplain. Analysis of the impacts of the modifications are required as part of the permit. This analysis will include both hydrology for existing (FEMA) conditions and future fully developed conditions.

Chapter 9 – Stormwater Quality
• Overview of MS4 designation, Stormwater Management Plan (SWMP) requirements and the Construction General Permit.
• Listing of post-construction best management practices (BMPs)

This update of the DCM included modification of three different sections in the Code of Ordinances to maintain consistency between the documents. These changes include the following.

Section 22 – Stormwater Regulations
• 22.11.004 – Definitions
  o Drainage criteria manual – That manual adopted and approved by the city council that establishes requirements for drainage plans, drainage analysis, drainage design, and construction in newly developing or redeveloping areas.
  o Flood Insurance Rate Map (FIRM) – An official map of a community on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard areas and other flood areas and the risk premium zones applicable to the community.
  o Lake area – That part of any stormwater lake area within the corporate limits or in the extraterritorial jurisdiction of the city, the perimeter of which has been established by the city engineer at substantially the overflow elevation for overflow playas and the 500-year, 24-hour predicted peak water surface elevation for non-overflow playas. The lake area can either reside in its natural state or be modified through a cut and fill plan.
  o Master drainage plan – That plan adopted and approved by the city council that establishes the regulatory water surface elevation for playa lakes and rates of overflow between lakes for certain areas studied within the corporate limits of the city and certain areas within the city’s extraterritorial jurisdiction.
  o Playa or playa lake. Any of several naturally occurring broad, shallow, roughly circular depressions of varying sizes and depths that serve as natural detention basins for stormwater flows within the city or its extraterritorial jurisdiction (ETJ). (See lake area).
Stormwater detention basin. An area dedicated for the primary use of stormwater impoundment. Undeveloped open space activities may also exist. Stormwater detention basins may be under public or private ownership.

Stormwater engineer. The person appointed to the position of stormwater engineer, the City Engineer, or his/her duly authorize representative(s).

Section 30 – Lakes, Waterways and Floodplains

- Section 30.01.001
  - Facility Maintenance Agreement. The signed, written agreement between the City of Lubbock and the party, or parties, responsible for the operation and maintenance activities of infrastructure: including, but not limited to, keeping spaces, structures and infrastructure in proper operating condition in a routine, scheduled, or anticipated fashion to prevent failure and/or degradation.
  - Non-overflow playa. A playa with sufficient water storage capacity to contain the combined volume of its own drainage basin as well as the volume contributed from upstream playas for the one-hundred-year, twenty-four-hour storm event as defined in the City of Lubbock Drainage Criteria Manual. Regulator elevations shall be stored in the Master Drainage Plan.

- In various locations in 30.03, Flood Hazard Areas, Division 2, the term ‘Floodplain’ is added to ‘development permit’.
- Article 30.03, Sections 30.03.073(1)(C) – referring to the lowest finished floor elevation -
  - (C) Eighteen (18) inches above the highest gutter elevation (or if no curb and gutter is present, one foot above top of crown)
  - This is applied to both residential and nonresidential construction and manufactured homes.

- 30.04.005 Existence of fill declared nuisance
  - Added statement “and the City shall have the authority to abate said nuisance in accordance with Section 34.02.

- 30.04.013 Fills generally
  - Instead of using ‘estimated high water line’, the criteria for fill and excavation in lake areas is based on ‘reference elevation’, defined as “the overflow elevation for overflow playas and the 500-year, 24-hour elevation for non-overflow playas...”
    - Other locations include
      - 30.04.014(b)
      - 30.05.004(b)
      - 38.01 – Definition of ‘Lake area’

- 38.03.004(a) and (c)(16)
  - Change ‘plan’ to ‘analysis’ (re: preliminary drainage analysis)

- 38.06.002(a)
  - Add ‘The subdivider shall provide a facilities maintenance agreement to indicate which entity will be responsible for the operations and maintenance of facilities.’

- 38.06.003(a)(4)
  - A facilities maintenance agreement shall be provided indicating which party, or parties, will be responsible for the operations and maintenance of the facilities.
Forms

Part of the new DCM calls for specific forms to be prepared and submitted as part of the development process. These Forms / Checklists aid in the preparation of the proper documents and expedite the review process. The following documents are attached:

- Construction – Capital Projects Checklist
- FEMA Letter of Map Change Submittal
- Final Requirements Checklist
- Floodplain Development Permit Checklist
- FMA Checklist
- Information Request – Update
- Playa Lake Cut and Fill
- Preliminary Requirements Checklist
- Record Drawing Submittal
- Redevelopment Permit Submittal
- Storm Water Checklists
- Variance Request Form
Proposed Project Description

Type of Drainage Improvement (Channel, Culvert, Roadway):

Improvement size and shape:

Improvement material:

Design Frequency (yrs):

Drainage Area:

Improvement Analysis:

Improvement Slope:

N values:

100-yr proposed discharge (cfs):

100-yr fully developed discharge (cfs):

100-yr proposed tailwater (ft):

100-yr fully developed tailwater (ft):

100-yr proposed headwater (ft):

100-yr fully developed headwater (ft):

Allowable highwater (ft):

100-yr proposed velocity (fps):

100-yr fully developed velocity (fps):

% Flow overtopping road for Q₁₀₀:

Height of water over road for Q₁₀₀ (ft):

Time duration of overtopping for Q₁₀₀ (hr):

Estimated overtopping frequency (yrs):

Comparison with existing hydraulic condition:

Meets FEMA requirements: Yes ☐ No ☐ N/A ☐

Outlet velocity excessive: Yes ☐ No ☐

Outlet protection/control:

Comments:

Notes/Comments:

Impact to other processes:

Reviewer Signature: ____________________________ Date: _____________________
**FEMA LETTER OF MAP CHANGE SUBMITTAL**

Lubbock Storm Water Management  
PO Box 2000 / 1625 13th St.  
Lubbock, TX 79401

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(Telephone)

**Proposed Project Description**

Name: ______________________________________________________

Type: ______________________________________________________

Location: __________________________________________________

FIRM Map Information: ______________________________________

**Type of Map Change Requesting:**

- ☐ Elevation Certificate
- ☐ Letter of Map Amendment (LOMA)
- ☐ Letter of Map Revision Based on Fill (LOMR-F)
- ☐ Conditional Letter of Map Revision (CLOMR)
- ☐ Letter of Map Revision (LOMR)

SWPPP Attached:

- ☐ Yes
- ☐ No

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<tr>
<td>LOMC Request No.:</td>
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<td>Justification of Decision:</td>
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<td>Notes/Comments:</td>
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LOMC Decision: Accepted ☐ Denied ☐

Impact to other processes: ______________________________________________________

Reviewer Signature: ____________________________ Date: ____________________________
1. Project Information
   A. Name of Project: ____________________________________________________________
   B. Date: ___________________________________________________________________
   C. Location of Project: ________________________________________________________
   D. Type of Project (circle one): Development/CIP
   E. Project Description: ________________________________________________________
   F. Total Disturbed Area (acres): ________________
   G. Proposed land uses (COL zoning designations (N/A for City CIPs)):
   H. Anticipated Start of Construction: _______________________________________________________________________________________

2. Items to be Provided (Identify sheet number if included with plans or write "attached" if included as an attachment with this checklist)
   ___ Final Plat or Site Plan
   ___ Final Construction Plan (with Exhibits)
   ___ Additional Attachments as specified
   ___ Waiver Requests
   Additional Notes:
   ___ Developed under manual other than current manual (Identify Year)
   ___ Calculations dependent on a phase developed under previous criteria (Identify Year)
   ___ Attach additional sheets as necessary for comments and descriptions
   ___ Fold all sheets to 8 ½” x 11” and bind with a clip
   Plan File Number (if available): ____________________

For City Use Only
Project Manager: __________________________ Date: __________________
   ___ Preliminary Plans, Checklist, Referenced Attachments
   Checklist completed correctly and in sufficient detail: Yes / No
   Comments: _________________________________________________________
   COL Storm Water Accepted: Yes / No  By: ______________ Date: __________
   Case No.: _____________________ CIP No.: _________________________
   Comments: _________________________________________________________
3. **Changes to Preliminary Plan**: (May be reprinted with changes tracked or highlighted) with the following information added to the maps and/or written narrative.

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<td>A. Provide supporting calculations for all analyses, including tables and/or printouts showing the input and output data from software programs</td>
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<td>B. Calculate the 2-year and 100-year peak discharge (and/or 25-year and 500-year as applicable) for each sub-basin area, applicable off-site drainage areas, and points of confluence</td>
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<td>C. Calculate maximum street section flow capacities. Effective conveyance in streets will be limited to 5 feet back-of-curb except for 2-dimensional models</td>
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<td>D. Calculate maximum alley section capacities every 200 feet. Maximum alley section capacities shall meet or exceed the projected 100-year peak discharge</td>
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<td>E. Calculate the 100-year flow and flow depth in drainage channels</td>
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<td>F. Calculate street and alley section 2-year and 100-year flow depth</td>
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<td>G. Calculate and show hydraulic grade line for all storm sewers and inlets</td>
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<td>H. Calculate flow rates for each inlet</td>
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<td>I. Provide step backwater analysis for large ditches or open channels</td>
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<td>J. Provide calculations of culvert size selection and design flow</td>
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<td>K. Is discharge to an unstudied playa proposed?</td>
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<td>L. Is discharge from site to an acceptable outfall location?</td>
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<td>M. Is onsite detention/retention required?</td>
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<td>N. Hydrologic calculations provided in acceptable format?</td>
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<td>O. Hydraulic calculations provided in acceptable format?</td>
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<td>P. Location, details, and notes for erosion controls and sediment</td>
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<td>Q. Schedule and phasing of temporary and permanent stabilization on different area of the site</td>
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<td>R. Has floodplain development permit been included if required?</td>
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<td>S. Include all of the information required for the preliminary drainage map, updated to incorporate all required and/or proposed changes</td>
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<td>T. Show existing contours at intervals which will allow delineations of both onsite and offsite drainage areas (1-ft interval is preferred)</td>
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<td>U. Show runoff flow rates and direction of flow in all streets, alleys, and other drainage features</td>
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<td>V. Show flow rates at points of confluence</td>
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<td>W. Indicate the calculated peak 100-year water surface elevation in overflow playas, and the peak 500-year water surface elevation in non-overflow playas</td>
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<td>X. Show required minimum finish floor elevations for each lot or tract in the subdivision. The required minimum finish floor elevations shall be compared to proposed finished floor elevations</td>
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<td>Y. Include backup data and excerpts from any referenced drainage analysis reports</td>
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<td>Z. Will variance be requested for any portion of the proposed development?</td>
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<td>AA. Bear the seal and signature of the Developer’s Professional Engineer responsible for the design</td>
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<td>AB. Include a letter signed by the Developer stating that proposed development complies with all applicable local, state and federal regulations</td>
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4. Additional Attachments (include if applicable)  
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<td>A. Dam Safety Checklist</td>
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<td>B. Executed Maintenance Agreement (with Maintenance Plan)</td>
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<td>C. Landscaping Plan (for Stormwater controls)</td>
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<td>D. Copy of approved Waiver Request</td>
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<td>E. Calculation of proposed Stormwater Fee Credits</td>
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5. Applicable Local, State and Federal Permits (Indicate acquired or application pending)  
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<tr>
<td>A. CLOMR, LOMR, or LOMA</td>
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<td>B. TCEQ water rights permit</td>
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<td>C. 404 Permit</td>
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<td>D. Urban Forestry Permit</td>
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<td>E. Floodplain Development Permit</td>
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6. Hydrologic Analysis of Stormwater Management Design Plan (separate attachment, either A or B)  
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<tr>
<td>A. Approved Infrastructure Plans (with TPW CFA)</td>
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<td>B. Site Plan showing final hydrology, Identification of all stormwater controls with summary calculations, delineation of adequate outfalls, zones of influence, required mitigation, and structural details and specifications as required.</td>
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<td>C. Has the capture and treatment of stormwater been considered in terms of water quality?</td>
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I certify that this Final Checklist and referenced documents were prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.

It is the intent of the information provided in this checklist and within the plans regarding the Plan to be used as the general guidelines of the Storm Water Pollution Prevention Plan for this project to establish a minimum basis of compliance with local, state, and federal regulations. The contractor must amend plans whenever there is a change in design, construction, operation, or maintenance of the plan, or when the existing plan proves ineffective. The contractor shall be solely responsible for implementation, maintenance, monitoring, and permitting of all erosion, sediment, and waste control aspects associated with the project.

Signed ________________________________ Date ______________

Print Name: ________________________________
FLOODPLAIN DEVELOPMENT PERMIT
APPLICATION FORM CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________________________
(Please Print)

For: ________________________________________________
(Please Print)

Street/Post Office Box
City ____________________ State ____________________ Zip ________
Telephone (_____)__________

GENERAL INFORMATION

1. No work of any kind may begin in a floodplain area designated as A, A1-30, AE, AO, AH, or B until a floodplain development permit is issued.
2. The permit may be revoked if any false statements are made in this application.
3. If revoked, all work must cease until a permit is re-issued.
4. The development may not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within 6 months of the date of issue.
6. The permit will not be issued until any other necessary local, state or federal permits have been obtained.
7. By signing and submitting this application, the Applicant gives consent to the local Floodplain Administrator or his/her representative to make reasonable inspections prior to the issuance of a Certificate of Compliance.
8. By signing and submitting this application, the Applicant certifies that all statements contained in SECTION I of the application, and in any additional attachments submitted by the Applicant, are true and accurate.

For City Use Only

Project Manager: ____________________ Date: ________________

Preliminary Plans, Checklist, Referenced Attachments Checklist completed correctly and in sufficient detail: Yes / No
Comments: __________________________________________________

COL Storm Water Accepted: Yes / No  By: ____________ Date: ________

Permit No.: __________________________________________________
Comments: ___________________________________________________
1. Project Information
A. Name of Project: _________________________________  B. Date: ________________
C. Location of Project: _________________________________________________________________
D. Lot/Block: _________________________  
E. Subdivision: ____________________
F. Legal Description (attach to this document)
G. Structural Development (Please check all that apply)
   Type of Structure
   ☐ Residential (1 to 2 families unit)
   ☐ Residential (More than 2 families unit)
   ☐ Non-Residential
      ☐ Elevated
      ☐ Floodproofed
   ☐ Combined Use (Residential and Non-Residential)
   ☐ Manufactured (mobile) Home
      ☐ Located within a Manufactured Home Park
      ☐ Located outside a Manufactured Home Park
   ☐ Manufactured (mobile) Home
   ☐ Elevate
   ☐ Floodproofed
   ☐ Combined Use (Residential and Non-Residential)
   ☐ Manufactured (mobile) Home
   ☐ Located within a Manufactured Home Park
   ☐ Located outside a Manufactured Home Park
   ☐ Manufactured (mobile) Home

   Type of Structural Activity
   ☐ New Structure
   ☐ Addition of Existing Structure
   ☐ Alteration to Existing Structure
   ☐ Relocation of Existing Structure
   ☐ Demolition of Existing Structure
   ☐ Replacement of Existing Structure

H. Other Development Activities
   ☐ Excavation (not related to a Structural Development listed in Part A)
   ☐ Clearing
   ☐ Placement of fill material
   ☐ Grading
   ☐ Mining
   ☐ Drilling
   ☐ Dredging
   ☐ Watercourse alteration
   ☐ Drainage improvement
   ☐ Individual water or sewer system
   ☐ Roadway or bridge construction
   ☐ Other development not listed above (specify) ____________________________

If the value of an addition or alteration to a Structure equals or exceeds 50% of the value of the structure before the addition or alteration, the entire structure must be treated as a substantially improved structure. A relocated alteration structure must be treated as new construction.

I certify that to the best of my knowledge the information contained in this application is true and accurate.

________________________________________  ____________________________  ______________
(Printed Name)                                  (Signed Name)                                  (Date)
2. To be Completed by Floodplain Manager

A. The proposed development is located on FIRM map panel: ___________________________ (number and suffix)
B. The date on the FIRM is: ______________________
C. The proposed development is located in Zone: ________________________________ (A, A1-30, AE, AO, AH, B, C, D, or X)

D. Is the proposed development located in either of the following zones? A, A1-30, AE, AO, AH, B or shaded X?
   ☐ Yes  ☐ No  **If No, no permit floodplain development is required**

E. If the proposed development is located in Zone B or shaded Zone X, a floodplain development permit is only required if the Development is a “critical facility” as defined in the Flood Damage Prevention Ordinance.  **Otherwise, no floodplain development permit is required in Zone B or shaded Zone X.**

F. If the proposed development is located within either Zone A1-30 or Zone AE, is it also located within a Regulatory floodway?
   ☐ Yes
   ☐ No
   If Yes, a **No Rise Certificate** is necessary before proceeding.
   If No, continue.

| If the proposed development is located within Zones A, A1-30, AE, AO, AH, B or shaded X (critical facilities only), apply the criteria of the Flood Damage Prevention Ordinance to minimize flood damages to the proposed Development and to adjacent properties as well. |

For structures, the provisions of the ordinance specify that the lowest floor, including utilities, be elevated 2 feet above the base flood elevation. Therefore, it is necessary that the following information be provided:

G. Base flood elevation at the site: ______________________________ feet above mean sea level (MSL)
H. Vertical datum used in the Flood Insurance Study, on the flood map and in survey is: ____________________
I. Source of the base flood elevation (BFE):
   ☐ FIRM (flood map)
   ☐ Flood Insurance Study Profile # __________________
   ☐ Other source (specify): ____________________________________________________________

J. Proposed lowest floor elevation (including utilities):
   This elevation must be 2 feet greater than the BFE. For non-residential structures, floodproofing may be used for protection in the floodplain areas, but not in the floodways: __________________________________________

K. The following documents may be required *(Check Applicable)*
   ☐ Map and plans off the development
   ☐ An **Elevation Certificate** – required for all structures
   ☐ A **Floodproofing Certificate** – required if floodproofing a non-residential structure
   ☐ A **No-Rise Certificate** – if the proposed development is in a “regulatory floodway”
   ☐ An elevation study showing BFE’s on developments exceeding 50 lots or 5 acres in Zone A
   ☐ A copy of **Wetland Permit** from the U.S. Army Corps of Engineers if required; and other local, state, federal permits. Other permits: ____________________________________________________

| I certify that to the best of my knowledge the information contained in this application is true and accurate. |
| ______________________________________________ | ___________________________________________ | __________ |
| (Printed Name) | (Signed Name) | (Date) |
3. **Forms which map be required by the Floodplain Administrator:** (Attach. Submit only if required to do so by the Floodplain Administrator)

- Elevation Certificate
- Floodproofing Certificate
- No-Rise/No-Impact Certificate

4. **Permit Fees:**

- One- and two-family dwelling floodplain permit fee: $100.00 + ($.05/sf for residential)
- Other than one- and two-family dwelling floodplain permit fee: $250.00 = ($.10/sf for commercial)
- If filed separately prior to application for building permit: Three (3) complete sets of plans, sealed by a Texas registered engineer, architect or land surveyor are needed.
FACILITY MAINTENANCE AGREEMENT CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________________________
(Please Print)

For: ________________________________________________
(Please Print)

Street/Post Office Box

City State Zip

(_____)______

TelephoneNumber

_____________________________________________________________________________________________________

(Note: If the property has not been addressed, please enter the legal description)

Associated Plat Numbers: ____________________________
(Note: if request is related to multiple play applications, please list each individually)

Associated Building Permit Numbers: ___________________ 
(Note: If request is related to multiple permits, please list each individually)

Associated Final Drainage Analysis Report (DAR) Numbers: ________________________________________________

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a corporation, the agreement must be signed by the President or a Vice-President of the company. If a partnership, the agreement must be signed by the managing partner. If the applicant is a sole proprietor, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the Articles of Incorporation, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner.) The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be the original and notarized. Lastly, please submit a copy of the deed for the noted property.

Note: Agreement and all attachments should be submitted on 8 1/2” x 11” paper.
<table>
<thead>
<tr>
<th></th>
<th><strong>Legal Agreement</strong> – Standard agreement form provided by Department of Law.</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th><strong>Comments and Descriptions</strong></th>
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<td>2.</td>
<td><strong>Exhibit “A” – Legal Description (Attached)</strong></td>
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<td></td>
<td>A. Metes and Bounds.</td>
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<td></td>
<td>B. Surveyor’s Drawing, with seal affixed and marked as “Drainage Easement”.</td>
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<td>C. Preliminary Plat.</td>
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<td><strong>Exhibit “B” – Design Plan and Specifications (Attached)</strong></td>
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<td></td>
<td>A. Design Calculations – in accordance with the DCM.</td>
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<td></td>
<td>B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:</td>
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<td></td>
<td>• Plan View showing critical structural elements.</td>
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<td>• Critical Structural elements are clearly labeled in layman terms.</td>
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<td></td>
<td>• Profile including a longitudinal section showing all critical structural elements and elevations.</td>
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<td></td>
<td>• Cross-sections as needed to show size and general grading.</td>
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<td></td>
<td>• Note indicating basin parameters and applicability of TCEQ Dam Safety Program.</td>
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<td><strong>Note:</strong> All Schematics should be submitted on 8 ½” x 11” paper.</td>
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<td></td>
<td>C. Landscaping shown per approved Landscape Plans.</td>
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<td>4.</td>
<td><strong>Exhibit “C” – Operations and Maintenance Plan (Attached)</strong></td>
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<tr>
<td></td>
<td>A. Routine Maintenance Specifications:</td>
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<tr>
<td></td>
<td>1. Mowing as needed to control weeds and woody plants.</td>
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<td></td>
<td>2. Trash removal from critical structural elements.</td>
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<td></td>
<td>3. Additional maintenance.</td>
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<td></td>
<td>B. Non-routine Maintenance Activities:</td>
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<tr>
<td></td>
<td>1. Bank repair and stabilization.</td>
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</tbody>
</table>
2. Re-vegetation – required when 30% or more of area is unprotected.

3. Sediment removal from the detention/retention facility when:
   - Detention basin – when water depth is reduced 25% or more, or basin does not drain within 72 hours.
   - Retention pond – when water depth is 4’ or less.
   - Sediment traps/forebay – when depth is reduced by 50% or more.

4. Structural repair/replacement for all damaged or deteriorated structures, trickle channel, trash rack, etc.

5. Mechanical equipment repairs.

6. Other maintenance activities.

5. Exhibit “D” – Maintenance Checklist *
   A. Covers ordinary needs, in layman terms.
   B. Structural components label consistent with Schematic Plan.

NOTE: All Exhibits should be submitted on 8 ½” x 11” paper.

I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.

Signed: _______________________________ Date: __________________
Print Name: _______________________________
INFORMATION REQUEST/UPDATE

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ________________________________  For: ________________________________
(Please Print)  (Please Print)

Street/Post Office Box
City  State  Zip
( ) Telephone

For City Use Only
Information Request No.: ____________________________  Response Date: ________________
Justification of Decision: _______________________________________________________________________
Notes/Comments: ___________________________________________________________________________

Information Update Decision: Accepted ☐  Denied ☐
Impact to other processes: _____________________________________________________________________
Reviewer Signature: ____________________________  Date: ____________________________

Proposed Project Description
Name: ________________________________
Type: ________________________________
Location: ________________________________

Date of Request: ____________________________
Information Requested:
☐ Final Drainage Analysis Report (DAR)
☐ MDP
☐ Playa Cut/Fill
☐ As-builts
☐ Models
☐ FEMA map

Comments: ________________________________________________________________________________
__________________________________________________________________________________________

Information to be Updated: ________________________________
__________________________________________________________________________________________

MDP Table Attached:
☐ Yes
☐ No

August 2017  Form COL – SW – 9
PLAYA LAKE CUT/FILL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________________________________________
(Please Print)

For: __________________________________________________________________
(Please Print)

Street/Post Office Box

City ___________________ State __________ Zip ____________

Telephone ___________________________

Proposed Project Description

Name: __________________________________________________________________

Type: __________________________________________________________________

Location: __________________________________________________________________

Allowable Reclamation: __________________________________________________________________

Reclamation to date: __________________________________________________________________

Proposed Reclamation: __________________________________________________________________

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECTID</td>
<td>100YR_PWSE</td>
<td>SHAPE</td>
<td>500YR_PWSE</td>
</tr>
<tr>
<td>PlayaID</td>
<td>100YR_QOut</td>
<td>InitialWSE</td>
<td>500YR_QOut</td>
</tr>
<tr>
<td>OverflowWSE</td>
<td>SubBasin</td>
<td>Classification</td>
<td>DownstreamLake</td>
</tr>
<tr>
<td>Playa System</td>
<td>IWSE_SOURCE</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>OFE_LOCATION</td>
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</tr>
</tbody>
</table>

☐ Cut/Fill Plan attached

For City Use Only

Notes/Comments: __________________________________________________________________

Impact to other processes: __________________________________________________________________

Reviewer Signature: ____________________________________________________________________ Date: ________________

August 2017
Form COL – SW - 3
PRELIMINARY DRAINAGE ANALYSIS CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________
(Please Print)

For: ________________________________
(Please Print)

Street/Post Office Box

City ____________________ State ___________ Zip ___________

Telephone ____________________________

1. Project Information
A. Name of Project: ____________________________
B. Date: ______________________________________
C. Location of Project: ____________________________
D. Type of Project (circle one): Development/CIP
E. Project Description: ____________________________
F. Total Disturbed Area (acres): ____________________________
G. Proposed land uses (COL zoning designations (N/A for City CIPs): ____________________________
H. Anticipated Start of Construction: ____________________________

2. Items to be Provided
(Identify sheet number if included with plans or write “attached” if included as an attachment with this checklist)
   - Preliminary Plat or Site Plan
   - Pre-Development Aerial Photo with composite impervious area calculations for site – See #3 below
   - Pre-Development Drainage Area Map(s) – See #4 below
   - Post-Development Drainage Area Map(s) – See #5 below
   - Narrative – See #6 below
   - Waiver Requests (Optional)

Additional Notes:
   - Developed under manual other than current manual (Identify Year)
   - Calculations dependent on a phase developed under previous criteria
   - Attach additional sheets as necessary for comments and descriptions
   - Fold all sheets to 8 ½” x 11” and bind with a clip

Plan File Number (if available): ____________________________

For City Use Only
Project Manager: ____________________________ Date: ____________________________

Preliminary Plans, Checklist, Referenced Attachments
Checklist completed correctly and in sufficient detail: Yes / No
Comments: __________________________________________________

COL Storm Water Accepted: Yes / No By: ____________________________ Date: ____________________________
Case No.: ____________________________ CIP No.: ____________________________
Comments: __________________________________________________

August 2017
Form COL – SW – 4
### 3. Pre-Development Impervious Area Map(s)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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<tbody>
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</tbody>
</table>

- **A. Project boundaries**
- **B. Aerial photo representing existing conditions (no more than 5-years before submittal)**
- **C. Site specific composite runoff coefficient**

### 4. Pre-Development Drainage Area Map(s) containing the following information:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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</table>

- **A. Project Boundaries**
- **B. Existing topography (1-foot contours)**
- **C. NRCS soil types (if using hydrographs). A separate soil map may be submitted**
- **D. Playa lake and overflow paths with applicable elevations**
- **E. Delineation of FEMA floodplains, studied floodplains, floodplain easements and open channels**
- **F. Locations of stormwater impoundments**
- **G. Existing roads, buildings, and other impervious areas**
- **H. Location and size of major utility lines and easements**
- **I. Show existing drainage features such as channels, ditches, storm sewers and inlets, streets, alleys, and drainage easements**
- **J. Delineation of watershed boundaries with flow areas**
- **K. Delineation of off-site drainage areas**
- **L. Time of concentration calculations for each area and lag time calculations for hydrograph methods. Delineation of longest flow path required unless using minimum lag time**
- **O. Computation tables showing drainage areas, runoff coefficients or curve number, time of concentration or lag times, rainfall intensities and peak discharges for the 2, 25, 100-year storms**
### 5. Post Development Drainage Area Map(s) showing the following information for the project site:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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<tbody>
<tr>
<td>A. Project Boundaries</td>
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<tr>
<td>B. Existing topography (1-foot contours) and proposed grading contours or spot elevations</td>
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<tr>
<td>C. Delineation of FEMA floodplains, studied floodplains, floodplain easements and open channels</td>
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<tr>
<td>D. Locations of stormwater impoundments</td>
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<tr>
<td>E. Location and size of major utility lines and easements</td>
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<tr>
<td>F. Show existing drainage features such as channels, ditches, storm sewers and inlets, streets, alleys, and drainage easements</td>
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<td>G. Location of all proposed site outfalls or locations where runoff leaves the site</td>
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<td>H. Proposed zoning or land use</td>
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<tr>
<td>I. Delineation of watershed boundaries with flow arrows</td>
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<tr>
<td>J. Delineation of off-site drainage areas</td>
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<tr>
<td>K. Proposed modifications to watershed boundaries</td>
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<tr>
<td>L. Composite runoff coefficients calculations for each drainage area for the rational method or Curve Number (CN) calculations for the hydrograph method.</td>
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<tr>
<td>M. Time of concentration calculations for each area and lag time calculations for hydrograph methods. Delineation of longest flow path required unless using minimum lag time</td>
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<tr>
<td>N. Computation tables showing drainage areas, runoff coefficients or curve number, time of concentration or lag times, rainfall intensities and peak discharges for the 2, 25, 100-year storms</td>
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<tr>
<td>O. Delineate the entire limits of downstream assessment</td>
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</table>
6. **Written Narrative**: Provide a written narrative and supporting methodology to demonstrate compliance with the criteria. Methodology must be in accordance with the Drainage Criteria Manual. The narrative may be in the form of notes on the plan, letter report, or formal report, depending on the scope of the project. Note: For conceptual – level submittals, the narrative shall be limited to a summary of the proposed project and expected drainage impacts. Methodology shall be described in a future submittal.

☐ Narrative attached

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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7. **Planning Concerns**: (Planning concerns may include previous drainage or watershed studies, known history of flooding or excessive erosion downstream, downstream drainage constrictions)

   ___________________________________________
   ___________________________________________
   ___________________________________________
   ___________________________________________
8. **Water Quality Considerations:** Describe the post-construction BMP’s being proposed. Refer to Chapter 9 for list of allowable post-construction BMP’s. Discuss any opportunities for transition of any temporary BMP’s to become permanent.

---

9. **Description of Any Proposed Waiver Requests:** (for informational purposes only; all Waiver Requests must follow the procedure outlined in the Drainage Manual)

---

10. **Other Comments:**
I certify that this Preliminary Checklist and referenced documents were prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.

Signed ________________________________            Date ____________

Print Name: ________________________________
RECORD DRAWING/CONSTRUCTION PLAN SUBMITTAL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ________________________________ For: ________________________________
(Please Print) (Please Print)

Street/Post Office Box Street/Post Office Box

City State Zip City State Zip

( ) ( )
Telephone Telephone

Proposed Project Description

Name: ____________________________________________________________

Type: __________________________________________________________________

Location: __________________________________________________________________

Type of Improvement
☐ Channel
☐ Culvert
☐ Storm Drain

Attach documentation for all improvements listed above. Record drawings shall include post-construction survey elevations that indicate the elevations at which the improvements were installed.

☐ Attachment(s)

For City Use Only

Project No.: ________________________________ Response Date: ________________________________

Notes/Comments: ___________________________________________________________________

Plans accepted/updated in system? Yes ☐ No ☐ Reason: ________________________________

Impact to other processes: __________________________________________________________________

Reviewer Signature: ________________________________ Date: ________________________________
## REDEVELOPMENT PERMIT SUBMITTAL

Lubbock Storm Water Management  
PO Box 2000 / 1625 13th St.  
Lubbock, TX 79401

**Applicant:** ____________________________  
(Please Print)  
Street/Post Office Box  
City State Zip  
(_____)  
Telephone

**For:** ____________________________  
(Please Print)  
Street/Post Office Box  
City State Zip  
(_____)  
Telephone

### Proposed Project Description

Name: ____________________________________

Type: ____________________________________

Location: ____________________________________

☐ Application and Checklist for Site Plan Review Attached

Describe Hydrologic and/or Hydraulic changes proposed for redevelopment of proposed site: ____________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

Changes proposed to:

☐ Impervious Area

☐ Runoff Coefficient

☐ MDP

☐ Playa Lake Cut/Fill

☐ Final Drainage Analysis Report (DAR)  
DAR Name: __________________ Date: ______

☐ Letter of Map Change (LOMC)

☐ Other ____________________________

Attach supporting documentation for proposed changes.  
☐ Attachment(s)

### For City Use Only

Notes/Comments: ____________________________________

_____________________________________________________________________________

_____________________________________________________________________________

Impact to other processes: ____________________________________

Reviewer Signature: ____________________________  
Date: ____________________________

August 2017  
Form COL – SW – 1
REDEVELOPMENT PERMIT SUBMITTAL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ________________________________ For: ________________________________
(Please Print) (Please Print)

Street/Post Office Box Street/Post Office Box
City State Zip City State Zip
( ) ( )
Telephone Telephone

Proposed Project Description

Name: ______________________________________________________________
Type: ______________________________________________________________
Location: __________________________________________________________

☐ Application and Checklist for Site Plan Review Attached

Describe Hydrologic and/or Hydraulic changes proposed for redevelopment of proposed site: __________________________________________________________

Changes proposed to:
☐ Impervious Area
☐ Runoff Coefficient
☐ MDP
☐ Playa Lake Cut/Fill
☐ Final Drainage Analysis Report (DAR) DAR Name: __________________________ Date: _____________
☐ Letter of Map Change (LOMC)
☐ Other ______________________________________

Attach supporting documentation for proposed changes.
☐ Attachment(s)

For City Use Only

Notes/Comments: ______________________________________________________

Impact to other processes: ______________________________________________

Reviewer Signature: ____________________________ Date: ______________________

August 2017 Form COL – SW – 1
FEMA LETTER OF MAP CHANGE SUBMITTAL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________ For: ____________________________
(Please Print) (Please Print)

Street/Post Office Box

City State Zip

(____) Telephone

City State Zip

(____) Telephone

Proposed Project Description
Name: ____________________________

Type: ____________________________

Location: ____________________________

FIRM Map Information: ____________________________

Type of Map Change Requesting: 
  □ Elevation Certificate
  □ Letter of Map Amendment (LOMA)
  □ Letter of Map Revision Based on Fill (LOMR-F)
  □ Conditional Letter of Map Revision (CLOMR)
  □ Letter of Map Revision (LOMR)

SWPPP Attached:
  □ Yes
  □ No

For City Use Only
LOMC Request No.: ________________ Response Date: ________________
Justification of Decision: ____________________________
Notes/Comments: ____________________________

LOMC Decision: Accepted □ Denied □
Impact to other processes: ____________________________
Reviewer Signature: ____________________________ Date: ________________
PLAYA LAKE CUT/FILL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ________________________________
(Please Print)

For: ____________________________________________________________________________
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Street/Post Office Box

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Reclamation to Date: _______________________

Proposed Reclamation: _______________________

Allowable Reclamation: _______________________

Proposed Project Description

Name: ____________________________________________________________________________

Type: ____________________________________________________________________________

Location: _________________________________________________________________________

□ Cut/Fill Plan attached

Notes/Comments: __________________________________________________________________

Impact to other processes: ____________________________________________________________________

Reviewer Signature: __________________________ Date: ______________

For City Use Only

ObjectID: 100YR_PWSE

Shape: 500YR_PWSE

PlayaID: 100YR_QOut

InitialWSE: 500YR_QOut

OverflowWSE: SubBasin

Classification: DownstreamLake

Playa System: IWSE_SOURCE

OFE LOCATION

August 2017 Form COL – SW - 3
# PRELIMINARY DRAINAGE ANALYSIS CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

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## 1. Project Information

A. Name of Project: ____________________________________________

B. Date: ____________________________________________________

C. Location of Project: ________________________________________

D. Type of Project (circle one): Development/CIP

E. Project Description: _________________________________________

F. Total Disturbed Area (acres): _________________________________

G. Proposed land uses (COL zoning designations (N/A for City CIPs):

H. Anticipated Start of Construction: ____________________________

## 2. Items to be Provided

(Identify sheet number if included with plans or write “attached” if included as an attachment with this checklist)

- Preliminary Plat or Site Plan
- Pre-Development Aerial Photo with composite impervious area calculations for site – See #3 below
- Pre-Development Drainage Area Map(s) – See #4 below
- Post-Development Drainage Area Map(s) – See #5 below
- Narrative – See #6 below
- Waiver Requests (Optional)

**Additional Notes:**

- Developed under manual other than current manual (Identify Year)
- Calculations dependent on a phase developed under previous criteria
- Attach additional sheets as necessary for comments and descriptions
- Fold all sheets to 8½” x 11” and bind with a clip

**Plan File Number** (if available): ____________________________

---

**For City Use Only**

Project Manager: __________________ Date: ______________

Preliminary Plans, Checklist, Referenced Attachments

Checklist completed correctly and in sufficient detail: Yes / No

Comments: ____________________________________________

COL Storm Water Accepted: Yes / No  By: ______________ Date: ______________

Case No.: __________________ CIP No.: __________________

Comments: ____________________________________________
### 3. Pre-Development Impervious Area Map(s)
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<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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<tbody>
<tr>
<td>A. Project boundaries</td>
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<td>B. Aerial photo</td>
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<td>representing existing</td>
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<td>conditions (no</td>
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<td>before submittal)</td>
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<tr>
<td>C. Site specific</td>
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<tr>
<td>composite runoff</td>
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<td>coefficient</td>
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### 4. Pre-Development Drainage Area Map(s) containing the following information:

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<th>No</th>
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<th>Comments and Descriptions</th>
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<tr>
<td>A. Project Boundaries</td>
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<td>B. Existing topography</td>
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<td>(1-foot contours)</td>
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<tr>
<td>C. NRCS soil types</td>
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<td>(if using hydrographs)</td>
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<td>D. Playa lake</td>
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<td>and overflow paths</td>
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<td>elevations</td>
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<td>E. Delineation of FEMA</td>
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<td>floodplains, studied</td>
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<td>F. Locations of</td>
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<td>stormwater impoundments</td>
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<td>G. Existing roads,</td>
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<td>buildings, and other</td>
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<td>H. Location and size</td>
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<td>of major utility lines</td>
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<td>drainage features</td>
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<td>with flow areas</td>
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<td>K. Delineation of</td>
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<td>area and lag time</td>
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<td>calculations for</td>
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<td>hydrograph methods.</td>
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<td>Delineation of longest</td>
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<td>O. Computation tables</td>
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<td>showing drainage areas</td>
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<td>areas, runoff coefficients or curve number, time of concentration or lag times, rainfall intensities and peak discharges for the 2, 25, 100-year storms</td>
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5. Post Development Drainage Area Map(s) showing the following information for the project site:

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<tr>
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<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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<tbody>
<tr>
<td>A. Project Boundaries</td>
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<tr>
<td>B. Existing topography (1-foot contours) and proposed grading contours or spot elevations</td>
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<td>C. Delineation of FEMA floodplains, studied floodplains, floodplain easements and open channels</td>
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<tr>
<td>D. Locations of stormwater impoundments</td>
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<td>E. Location and size of major utility lines and easements</td>
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<td>F. Show existing drainage features such as channels, ditches, storm sewers and inlets, streets, alleys, and drainage easements</td>
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<td>G. Location of all proposed site outfalls or locations where runoff leaves the site</td>
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<td>H. Proposed zoning or land use</td>
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<td>I. Delineation of watershed boundaries with flow arrows</td>
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<td>J. Delineation of off-site drainage areas</td>
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<td>K. Proposed modifications to watershed boundaries</td>
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<td>L. Composite runoff coefficients calculations for each drainage area for the rational method or Curve Number (CN) calculations for the hydrograph method.</td>
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<td>M. Time of concentration calculations for each area and lag time calculations for hydrograph methods. Delineation of longest flow path required unless using minimum lag time</td>
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<tr>
<td>N. Computation tables showing drainage areas, runoff coefficients or curve number, time of concentration or lag times, rainfall intensities and peak discharges for the 2, 25, 100-year storms</td>
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<td>O. Delineate the entire limits of downstream assessment</td>
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### 6. Written Narrative:

Provide a written narrative and supporting methodology to demonstrate compliance with the criteria. Methodology must be in accordance with the Drainage Criteria Manual. The narrative may be in the form of notes on the plan, letter report, or formal report, depending on the scope of the project. Note: For conceptual – level submittals, the narrative shall be limited to a summary of the proposed project and expected drainage impacts. Methodology shall be described in a future submittal.

- **Narrative attached**

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### 7. Planning Concerns:

(Planning concerns may include previous drainage or watershed studies, known history of flooding or excessive erosion downstream, downstream drainage constrictions)

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P. Show downstream constrictions with runoff controls (Mitigation documentation not required until Final DAR)

Q. Off-site easements

R. Proposed facilities with private maintenance (if detention is proposed, provide volume required)

S. Statement of compliance from the Developer stating that proposed development complies with all applicable local, state and federal regulations
8. **Water Quality Considerations**: Describe the post-construction BMP’s being proposed. Refer to Chapter 9 for list of allowable post-construction BMP’s. Discuss any opportunities for transition of any temporary BMP’s to become permanent.

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

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9. **Description of Any Proposed Waiver Requests**: (for informational purposes only; all Waiver Requests must follow the procedure outlined in the Drainage Manual)

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

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10. **Other Comments**:

____________________________________________________________________________________________________________________________

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<tr>
<th>I certify that this Preliminary Checklist and referenced documents were prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.</th>
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<tr>
<td>Signed ____________________________</td>
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<td>Print Name: ____________________________</td>
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</table>
FINAL DRAINAGE ANALYSIS CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________
(Please Print)

For: ____________________________
(Please Print)

Street/Post Office Box
City State Zip
( ) __________________
Telephone

1. Project Information
A. Name of Project: _____________________________________________________________
B. Date: ________________________________________________________________
C. Location of Project: ______________________________________________________
D. Type of Project (circle one): Development/CIP
E. Project Description: ______________________________________________________
F. Total Disturbed Area (acres): _____________________________________________
G. Proposed land uses (COL zoning designations (N/A for City CIPs): ______________
H. Anticipated Start of Construction: __________________________________________

2. Items to be Provided (Identify sheet number if included with plans or write
"attached" if included as an attachment with this checklist)
   ___ Final Plat or site Plan
   ___ Final Construction Plan (with Exhibits)
   ___ Additional Attachments as specified
   ___ Waiver Requests

   Additional Notes:
   ___ Developed under manual other than current manual (Identify Year)
   ___ Calculations dependent on a phase developed under previous criteria
      (Identify Year)
   ___ Attach additional sheets as necessary for comments and descriptions
   ___ Fold all sheets to 8 ½” x 11” and bind with a clip

   Plan File Number (if available): __________________

For City Use Only
Project Manager: ___________________ Date: __________________
___ Preliminary Plans, Checklist, Referenced Attachments
Checklist completed correctly and in sufficient detail: Yes / No
Comments: __________________________________________

COL Storm Water Accepted: Yes / No By: ______________ Date: __________
Case No.: ___________________ CIP No.: __________________
Comments: __________________________________________

August 201
Form COL – SW – 5
3. Changes to Preliminary Plan: (May be reprinted with changes tracked or highlighted) with the following information added to the maps and/or written narrative.

A. Provide supporting calculations for all analyses, including tables and/or printouts showing the input and output data from software programs

B. Calculate the 2-year and 100-year peak discharge (and/or 25-year and 500-year as applicable) for each sub-basin area, applicable off-site drainage areas, and points of confluence

C. Calculate maximum street section flow capacities. Effective conveyance in streets will be limited to 5 feet back-of-curb except for 2-dimensional models

D. Calculate maximum alley section capacities every 200 feet. Maximum alley section capacities shall meet or exceed the projected 100-year peak discharge

E. Calculate the 100-year flow and flow depth in drainage channels

F. Calculate street and alley section 2-year and 100-year flow depth

G. Calculate and show hydraulic grade line for all storm sewers and inlets

H. Calculate flow rates for each inlet

I. Provide step backwater analysis for large ditches or open channels

J. Provide calculations of culvert size selection and design flow

K. Is discharge to an unstudied playa proposed?

L. Is discharge from site to an acceptable outfall location?

M. Is onsite detention/retention required?

N. Hydrologic calculations provided in acceptable format?

O. Hydraulic calculations provided in acceptable format?
<table>
<thead>
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<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
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<tbody>
<tr>
<td>P. Location, details, and notes for erosion controls and sediment</td>
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<td>Q. Schedule and phasing of temporary and permanent stabilization on different areas of the site</td>
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<td>R. Has floodplain development permit been included if required?</td>
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<tr>
<td>S. Include all of the information required for the preliminary drainage map, updated to incorporate all required and/or proposed changes</td>
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<tr>
<td>T. Show existing contours at intervals which will allow delineations of both onsite and offsite drainage areas (1-ft interval is preferred)</td>
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<td>U. Show runoff flow rates and direction of flow in all streets, alleys, and other drainage features</td>
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<td>V. Show flow rates at points of confluence</td>
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<td>W. Indicate the calculated peak 100-year water surface elevation in overflow playas, and the peak 500-year water surface elevation in non-overflow playas</td>
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<td>X. Show required minimum finish floor elevations for each lot or tract in the subdivision. The required minimum finish floor elevations shall be compared to proposed finished floor elevations</td>
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<td>Y. Include backup data and excerpts from any referenced drainage analysis reports</td>
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<td>Z. Will variance be requested for any portion of the proposed development?</td>
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<td>AA. Bear the seal and signature of the Developer’s Professional Engineer responsible for the design</td>
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<td>AB. Include a letter signed by the Developer stating that proposed development complies with all applicable local, state and federal regulations</td>
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### 4. Additional Attachments (include if applicable)

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<th>Attachments</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Dam Safety Checklist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Executed Maintenance Agreement (with Maintenance Plan)</td>
<td></td>
<td></td>
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<tr>
<td>C. Landscaping Plan (for Stormwater controls)</td>
<td></td>
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<tr>
<td>D. Copy of approved Waiver Request</td>
<td></td>
<td></td>
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<tr>
<td>E. Calculation of proposed Stormwater Fee Credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5. Applicable Local, State and Federal Permits (Indicate acquired or application pending)

<table>
<thead>
<tr>
<th>Permits</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. CLOMR, LOMR, or LOMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>B. TCEQ water rights permit</td>
<td></td>
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<tr>
<td>C. 404 Permit</td>
<td></td>
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<tr>
<td>D. Urban Forestry Permit</td>
<td></td>
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<tr>
<td>E. Floodplain Development Permit</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 6. Hydrologic Analysis of Stormwater Management Design Plan (separate attachment, either A or B)

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments and Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Approved Infrastructure Plans (with TPW CFA)</td>
<td></td>
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</tr>
<tr>
<td>B. Site Plan showing final hydrology, Identification of all stormwater controls with summary calculations, delineation of adequate outfalls, zones of influence, required mitigation, and structural details and specifications as required.</td>
<td></td>
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<tr>
<td>C. Has the capture and treatment of stormwater been considered in terms of water quality?</td>
<td></td>
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</tr>
</tbody>
</table>
I certify that this Final Checklist and referenced documents were prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.

It is the intent of the information provided in this checklist and within the plans regarding the Plan to be used as the general guidelines of the Storm Water Pollution Prevention Plan for this project to establish a minimum basis of compliance with local, state, and federal regulations. The contractor must amend plans whenever there is a change in design, construction, operation, or maintenance of the plan, or when the existing plan proves ineffective. The contractor shall be solely responsible for implementation, maintenance, monitoring, and permitting of all erosion, sediment, and waste control aspects associated with the project.

Signed ______________________________________________  Date ______________

Print Name: __________________________________________
RECORD DRAWING/CONSTRUCTION PLAN SUBMITTAL

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________  For: ____________________________
(Please Print)  (Please Print)
Street/Post Office Box
City ____________________________  Street/Post Office Box
State ________________  Zip ________________
(_____) ____________________________  (_____) ____________________________
Telephone  Telephone

Proposed Project Description

Name: ________________________________________________________________
Type: ________________________________________________________________
Location: ____________________________________________________________

Type of Improvement
☐ Channel  ☐ Culvert  ☐ Storm Drain

Attach documentation for all improvements listed above. Record drawings shall include post-construction survey elevations that indicate the elevations at which the improvements were installed.

☐ Attachment(s)

For City Use Only

Project No.: ____________________________  Response Date: ____________________________
Notes/Comments: ________________________________________________________________

Plans accepted/updated in system?  Yes ☐  No ☐  Reason: ____________________________
Impact to other processes: ________________________________________________________
Reviewer Signature: ____________________________  Date: ____________________________
# VARIANCE REQUEST FORM

Lubbock Storm Water Management  
PO Box 2000 / 1625 13th St.  
Lubbock, TX 79401

**Applicant:**  
(Please Print)

**For:**  
(Please Print)

Street/Post Office Box  
City  
State  
Zip  

Telephone  

Street/Post Office Box  
City  
State  
Zip  

Telephone

## Proposed Project Description

Name:  

Type:  

Location:

## Existing Condition (show information on map or drawing)

City of Lubbock Maintained Facilities:  

Existing Right-of-Way for City of Lubbock facility:  

Topography:

Other Pertinent Date Related to Variance Request:

## Variance Request

Specific criteria you want to vary:  

Explain why the criteria needs to be varied or is not applicable:  

Explain how the basis for the criteria will be satisfied:

List attachments supporting variance requests (preliminary design report excerpt, construction drawings, calculations, photographs, map, etc.):

☐ Attachment(s)

## For City Use Only

Variance Request No.:  

Response Date:  

Justification of Decision:

Notes/Comments:

Variance Decision:  Accepted ☐  Denied ☐

Impact to other processes:

Reviewer Signature:  

Date:

August 2017  

Form COL – SW - 8
INFORMATION REQUEST/UPDATE

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________________________
(Please Print)

For: ____________________________________________
(Please Print)

Street/Post Office Box

City ____________________________ State ____________ Zip ____________

Telephone (_____)__________________________

Street/Post Office Box

City ____________________________ State ____________ Zip ____________

Telephone (_____)__________________________

Proposed Project Description

Name: ____________________________________________

Type: ____________________________________________

Location: ____________________________________________

Date of Request: ________________________________

Information Requested:

☐ Final Drainage Analysis Report (DAR)
☐ MDP
☐ Playa Cut/Fill
☐ As-builts
☐ Models
☐ FEMA map

Comments: ____________________________________________

Information to be Updated: ____________________________________________

MDP Table Attached:

☐ Yes
☐ No

For City Use Only

Information Request No.: ________________________________

Response Date: ________________________________

Justification of Decision: ____________________________________________

Notes/Comments: ____________________________________________

Information Update Decision: Accepted ☐ Denied ☐

Impact to other processes: ____________________________________________

Reviewer Signature: ____________________________________________

Date: ________________________________
FACILITY MAINTENANCE AGREEMENT CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: _____________________________
(Please Print)

For: _____________________________
(Please Print)

Property Location: ________________________________________________________________
(Note: If the property has not been addressed, please enter the legal description)

Associated Plat Numbers: _______________________________________________________
(Note: if request is related to multiple plat applications, please list each individually)

Associated Building Permit Numbers: ___________________________________________
(Note: If request is related to multiple permits, please list each individually)

Associated Final Drainage Analysis Report (DAR) Numbers: _______________________

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a corporation, the agreement must be signed by the President or a Vice-President of the company. If a partnership, the agreement must be signed by the managing partner. If the applicant is a sole proprietor, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the Articles of Incorporation, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner.) The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be the original and notarized. Lastly, please submit a copy of the deed for the noted property.

Note: Agreement and all attachments should be submitted on 8 1/2” x 11” paper.
1. **Legal Agreement** – Standard agreement form provided by Department of Law.
   ![Yes](Yes) ![No](No) ![N/A](N/A) **Comments and Descriptions**

2. **Exhibit “A” – Legal Description (Attached)**
   - A. Metes and Bounds.
     ![Yes](Yes) ![No](No) ![N/A](N/A)
   - B. Surveyor’s Drawing, with seal affixed and marked as “Drainage Easement”.
     ![Yes](Yes) ![No](No) ![N/A](N/A)
   - C. Preliminary Plat.
     ![Yes](Yes) ![No](No) ![N/A](N/A)

3. **Exhibit “B” – Design Plan and Specifications (Attached)**
   - A. Design Calculations – in accordance with the DCM.
     ![Yes](Yes) ![No](No) ![N/A](N/A)
   - B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:
     - Plan View showing critical structural elements.
     - Critical Structural elements are clearly labeled in layman terms.
     - Profile including a longitudinal section showing all critical structural elements and elevations.
     - Cross-sections as needed to show size and general grading.
     - Note indicating basin parameters and applicability of TCEQ Dam Safety Program.
     ![Yes](Yes) ![No](No) ![N/A](N/A)
   - C. Landscaping shown per approved Landscape Plans.
     ![Yes](Yes) ![No](No) ![N/A](N/A)

4. **Exhibit “C” – Operations and Maintenance Plan (Attached)**
   - A. Routine Maintenance Specifications:
     - 1. Mowing as needed to control weeds and woody plants.
        ![Yes](Yes) ![No](No) ![N/A](N/A)
        ![Yes](Yes) ![No](No) ![N/A](N/A)
     - 3. Additional maintenance.
        ![Yes](Yes) ![No](No) ![N/A](N/A)
   - B. Non-routine Maintenance Activities:
     - 1. Bank repair and stabilization.
        ![Yes](Yes) ![No](No) ![N/A](N/A)

---

**Note:** All Schematics should be submitted on 8½” x 11” paper.
2. Re-vegetation – required when 30% or more of area is unprotected.

3. Sediment removal from the detention/retention facility when:
   - Detention basin – when water depth is reduced 25% or more, or basin does not drain within 72 hours.
   - Retention pond – when water depth is 4’ or less.
   - Sediment traps/forebay – when depth is reduced by 50% or more.

4. Structural repair/replacement for all damaged or deteriorated structures, trickle channel, trash rack, etc.

5. Mechanical equipment repairs.

6. Other maintenance activities.

5. Exhibit “D” – Maintenance Checklist *
   A. Covers ordinary needs, in layman terms.
   B. Structural components label consistent with Schematic Plan.

NOTE: All Exhibits should be submitted on 8 ½” x 11” paper.

I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved.

Signed: ___________________________ Date: ______________
Print Name: ___________________________
FLOODPLAIN DEVELOPMENT PERMIT
APPLICATION FORM CHECKLIST

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________________________
(Please Print)

For: ________________________________________________
(Please Print)

Street/Post Office Box

Street/Post Office Box

City State Zip

City State Zip

Telephone

Telephone

GENERAL INFORMATION

1. No work of any kind may begin in a floodplain area designated as A, A1-30, AE, AO, AH, or B until a floodplain development permit is issued.
2. The permit may be revoked if any false statements are made in this application.
3. If revoked, all work must cease until a permit is re-issued.
4. The development may not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within 6 months of the date of issue.
6. The permit will not be issued until any other necessary local, state or federal permits have been obtained.
7. By signing and submitting this application, the Applicant gives consent to the local Floodplain Administrator or his/her representative to make reasonable inspections prior to the issuance of a Certificate of Compliance.
8. By signing and submitting this application, the Applicant certifies that all statements contained in SECTION I of the application, and in any additional attachments submitted by the Applicant, are true and accurate.

For City Use Only

Project Manager: __________________________ Date: _________________

Preliminary Plans, Checklist, Referenced Attachments

Checklist completed correctly and in sufficient detail: Yes / No

Comments: ______________________________________________________

COL Storm Water Accepted: Yes / No By: ___________ Date: _________

Permit No.: _______________________________________________________

Comments: _______________________________________________________
1. Project Information

A. Name of Project: _________________________________
B. Date: __________________________
C. Location of Project: _________________________________________________________________
D. Lot/Block: _________________________
E. Subdivision: ____________________
F. Legal Description (attach to this document)
G. Structural Development (Please check all that apply)

Type of Structure
☐ Residential (1 to 2 families unit)
☐ Residential (More than 2 families unit)
☐ Non-Residential
  ☐ Elevated
  ☐ Floodproofed
☐ Combined Use (Residential and Non-Residential)
☐ Manufactured (mobile) Home
  ☐ Located within a Manufactured Home Park
  ☐ Located outside a Manufactured Home Park

Type of Structural Activity
☐ New Structure
☐ Addition of Existing Structure
☐ Alteration to Existing Structure
☐ Relocation of Existing Structure
☐ Demolition of Existing Structure
☐ Replacement of Existing Structure

H. Other Development Activities
☐ Excavation (not related to a Structural Development listed in Part A)
☐ Clearing
☐ Placement of fill material
☐ Grading
☐ Mining
☐ Drilling
☐ Dredging
☐ Watercourse alteration
☐ Drainage improvement
☐ Individual water or sewer system
☐ Roadway or bridge construction
☐ Other development not listed above (specify) ____________________________

2 Estimate Cost of Project: ________________

2If the value of an addition or alteration to a Structure equals or exceeds 50% of the value of the structure before the addition or alteration, the entire structure must be treated as a substantially improved structure. A relocated alteration structure must be treated as new construction.

I certify that to the best of my knowledge the information contained in this application is true and accurate.

_________________________  __________________________  ____________
(Printed Name)  (Signed Name)  (Date)
### 2. To be Completed by Floodplain Manager

A. The proposed development is located on FIRM map panel: ____________________  (number and suffix)
B. The date on the FIRM is: ____________________
C. The proposed development is located in Zone: ____________________  (A, A1-30, AE, AO, AH, B, C, D, or X)
D. Is the proposed development located in either of the following zones? A, A1-30, AE, AO, AH, B or shaded X?
   - Yes  ☐  No  ☐  If No, no permit floodplain development is required
E. If the proposed development is located in Zone B or shaded Zone X, a floodplain development permit is only required if the Development is a “critical facility” as defined in the Flood Damage Prevention Ordinance.  
   **Otherwise, no floodplain development permit is required in Zone B or shaded Zone X.**
F. If the proposed development is located within either Zone A1-30 or Zone AE, is it also located within a Regulatory floodway?
   - Yes  ☐  No  ☐  If Yes, a **No Rise Certificate** is necessary before proceeding.
   - If No, continue.

**If the proposed development is located within Zones A, A1-30, AE, AO, AH, B or shaded X (critical facilities only), apply the criteria of the Flood Damage Prevention Ordinance to minimize flood damages to the proposed Development and to adjacent properties as well.**

For structures, the provisions of the ordinance specify that the lowest floor, including utilities, be elevated 2 feet above the base flood elevation. Therefore, it is necessary that the following information be provided:

G. Base flood elevation at the site: ____________________ feet above mean sea level (MSL)
H. Vertical datum used in the Flood Insurance Study, on the flood map and in survey is: _________________
I. Source of the base flood elevation (BFE):
   - FIRM (flood map)  ☐  Flood Insurance Study Profile # _________________
   - Other source (specify): ____________________________________________________________________________
J. Proposed lowest floor elevation (including utilities):
   - This elevation must be 2 feet greater than the BFE. For non-residential structures, floodproofing may be used for protection in the floodplain areas, but not in the floodways: ____________________________________________________________________________

K. The following documents may be required *(Check Applicable)*
   - Map and plans off the development
   - An **Elevation Certificate** – required for all structures
   - A **Floodproofing Certificate** – required if floodproofing a non-residential structure
   - A **No-Rise Certificate** – if the proposed development is in a “regulated floodway”
   - An elevation study showing BFE’s on developments exceeding 50 lots or 5 acres in Zone A
   - A copy of **Wetland Permit** from the U.S. Army Corps of Engineers if required; and other local, state, federal permits. Other permits: ____________________________________________________________________________

**I certify that to the best of my knowledge the information contained in this application is true and accurate.**

________________________  ____________________  ____________
(Printed Name)  (Signed Name)  (Date)
3. **Forms which map be required by the Floodplain Administrator:** (Attach. Submit only if required to do so by the Floodplain Administrator)

   - Elevation Certificate
   - Floodproofing Certificate
   - No-Rise/No-Impact Certificate

4. **Permit Fees:**

   - One- and two-family dwelling floodplain permit fee: $100.00 + ($.05/sf for residential)
   - Other than one- and two-family dwelling floodplain permit fee: $250.00 = ($.10/sf for commercial)
   - If filed separately prior to application for building permit: Three (3) complete sets of plans, sealed by a Texas registered engineer, architect or land surveyor are needed.
VARIANCE REQUEST FORM

Lubbock Storm Water Management
PO Box 2000 / 1625 13th St.
Lubbock, TX 79401

Applicant: ____________________________  For: ____________________________
(Please Print)  (Please Print)

Street/Post Office Box  Street/Post Office Box
City  State  Zip  City  State  Zip
(____)  (____)
Telephone  Telephone

Proposed Project Description

Name: ____________________________
Type: ____________________________
Location: ____________________________

Existing Condition (show information on map or drawing)

City of Lubbock Maintained Facilities: ____________________________
Existing Right-of-Way for City of Lubbock facility: ____________________________
Topography: ____________________________
Other Pertinent Date Related to Variance Request: ____________________________

Variance Request

Specific criteria you want to vary: ____________________________

Explain why the criteria needs to be varied or is not applicable: ____________________________

Explain how the basis for the criteria will be satisfied: ____________________________

List attachments supporting variance requests (preliminary design report excerpt, construction drawings, calculations, photographs, map, etc.):

☐ Attachment(s)

For City Use Only

Variance Request No.: ______________ Response Date: ______________
Justification of Decision: ____________________________
Notes/Comments: ____________________________

Variance Decision: Accepted ☐  Denied ☐
Impact to other processes: ____________________________

Reviewer Signature: ____________________________  Date: ______________

August 2017  Form COL – SW - 8