



**Public Works, Engineering Division
Final Drainage Plan Submittal Checklist**

Reviewer: _____ Date: _____
 Subdivision Name: Bellechase Addition Location: 127th East; N of Harry
 Total Land Area Of Ownership: 100.8 Acres
 Type: Residential _____ Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other _____
 Applicant: Bellechase development Contact: Steve Miller Phone #: 259-2377
 Engineer: Ruggles Bohm Contact: Eric Glover Phone #: 316-2648005

Please check the appropriate box:

I = Included; NA = Non-Applicable; R= Required prior to development
 (If "NA" is checked, an explanation must be entered)

Tab 1. Project Narrative	Applicant		Engr	
	I	NA	I	NA
A. Site Location Map, using USGS Map				
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain				
C. Discussion of offsite conditions				
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series				
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design				
F. Copy of the plat				
G. Preliminary grading plan (The final grading plan shall be sealed, signed and dated prior to Engineering receiving the final sanitary sewer plans. One plan sheet and PDF shall be submitted to the Subdivision Engineer.)				
H. Professional Engineer seal, signature and date on cover of report				
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover				

Tab 2. Existing Conditions Runoff Calculations	Applicant		Engr	
	I	NA	I	NA
A. Copy of applicable orthophoto showing proposed project boundaries (preferable in color)				
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)				
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)				
D. Total Site Area and Total Impervious Area (acres)				
E. Benchmarks used for site control				
F. Streams, creeks, and waterway labeled				
G. Predominant soils from USDA soil surveys, and/or on site soil borings				
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted				
I. Location of existing roads, buildings, parking lots and other impervious areas.				



J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements			Plat page 12	✓	
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			page 6	✓	
L. Flow paths			page 6	✓	
M. Location and dimensions of existing channels, bridges or culvert crossings			no defined channels		✓
N. Existing conditions hydrologic analysis for runoff rates, volumes and velocities showing methodologies used and supporting calculations (2, 5, 10, 25 & 100 year, 24-hour storm events) or Critical Duration			HEC-HMS	✓	
O. Assumed pre-developed runoff curve numbers			page 3	✓	
P. Existing time of concentrations used in calculations			page 3	✓	
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site			page 2	✓	
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)			No exist structures		✓
S. Cross-section data for open channels					✓
T. Ground water elevations, if applicable					✓

Tab 3. Post-Development Hydrologic Analysis	Applicant			Engr	
	I	NA	Explanation / Location in Plan	I	NA
A. Proposed (post-development) conditions hydrologic and hydraulic analysis for runoff rates, volumes, HGL, and velocities showing the methodologies used and supporting calculations for all applicable design storms (2, 5, 10, 25 & 100 year, 24-hour storm events)			HEC-HMS	✓	
B. Proposed time of concentrations used in calculations			page 8	✓	
C. Assumed post-developed runoff curve numbers			page 7	✓	
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)			page 10	✓	
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration			Drainage Areas page 10 Weirs page 10 Tables page 9	✓	
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities			HEC-HMS page 9	✓	
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary			TABLE 1 shows runoff from each event will be reduced		
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)			pages 13-16	✓	
I. Design water surface elevations and normal pool elevation for ponds.			page 10	✓	
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.			page 10	✓	
K. Proposed limits of clearing and grading			page 11	✓	
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.			page 6	✓	
M. Location of existing and proposed utilities (e.g., water, sewer) and easements			exist page 6	✓	
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			page 10	✓	
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings			No channel mods	✓	

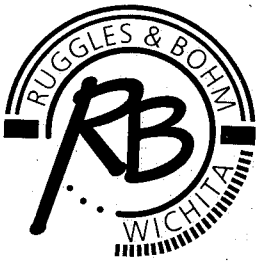


Final Drainage Plan Submittal Checklist
Adopted: February 23, 2007

P. Preliminary selection and location of stormwater controls			page 11	✓	
Q. Emergency overflow structure's flow path			page 11	✓	
R. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)			page 11	✓	
S. The 100-year 24-hour HWL delineated on the plan for detention pond			page 11	✓	
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds			page 12	✓	
U. Stormwater Management Facilities located within a Reserve			page 10		✓
V. Maintenance responsibility of stormwater management facility shall be specified in the plat text. (e.g. HOA, Lot Owners Association, or lot)			page 12	✓	
W. Off-site drainage easements or agreements required, where necessary					✓

Tab 4. Floodplain Submittal	Applicant		Engr
	I	NA	
A. Provide source of flood profile			I NA
B. Nearest base flood elevations			page 11 from firm page 11 ✓
C. Delineation of pre-developed regulatory floodplain/floodway limits			page 11 ✓
D. Delineation of post-developed regulatory floodplain and floodway limits			
E. Floodplain boundary determination per elevation (project limits shown)			✓
F. Provide source of floodway data table and discharges			✓
G. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone A area elevation determinations and flood plain map revisions or required permits			✓
H. Provide regulatory floodway and four natural profile models (10,50,100, and 500-yr) for existing and future watershed conditions			✓
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)			page 11 ✓
J. Flood plains and floodways located within a Reserve, where necessary			page 11 ✓

Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	Applicant		Engr
	I/R	NA	
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)			
B. Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Flood Plain Fill, Levee, Water Appropriations, Dam safety permit, etc.)			
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) Shall be included and approved when project modifies the limits of the floodway.			
D. Kansas Department of Transportation			
E. Sedgwick County Right-of-way Permit			



Ruggles & Bohm, P.A

Engineering, Surveying, Land Planning
 924 N. Main
 Wichita, Kansas 67203

Date: Monday, February 04, 2008

MEMO

To: Scott Lindebak
City of Wichita

Description:

- Confirmation
- Transmittal
- Transmittal under separate cover by

From: Eric Glover

Purpose:

- Approval
- Review & comment
- Use
- Other :
- Distribution
- Information
- Record

Project: Bellechase Addition

Enclosures/Attachments:

- Prints
- Originals
- Diskettes containing:
- Change Order
- Shop Drawings

RB Project No.: 3163P

Other Project Reference No.:

Other: _____

Copies	Description
1	Drainage Report
1	CD Rom containing pdf copy of drainage report and HEC-HMS Data

Remarks: _____

Copies to: _____

If checked below, please:

- Acknowledge receipt of enclosures
- Return enclosures to us.

Signed 

If Enclosures are not as noted above, please inform us immediately
 Phone (316) 264-8008 Fax (316) 264-4621