



CONSTRUCTION PLAN CHECKLIST

The design engineer is responsible for ensuring that plans submitted for city review are in accordance with this checklist. It is requested that the executed checklist be submitted with the building permit application. The following checklist will be used during the plan review.

GENERAL

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| 1. North arrow and scale clearly shown on each plan sheet | Yes___ | No___ | N/A___ |
| 2. Title blocks, title, sheet number legends, and scales shown. | Yes___ | No___ | N/A___ |
| 3. Each sheet must bear the seal of a Licensed Professional Engineer, signature and a date per TBPE rules and regulations. | Yes___ | No___ | N/A___ |
| 4. Submit two (2) copies of construction plans and one (1) copy of the drainage report for review. | Yes___ | No___ | N/A___ |
| 5. Existing, proposed and future facilities must be clearly identified | Yes___ | No___ | N/A___ |
| 6. Is TxDOT ROW included? Did consultant coordinate with TxDOT? | Yes___ | No___ | N/A___ |
| 7. Is a dumpster pad required? Is a detail provided & coordinated with Solid Waste? | Yes___ | No___ | N/A___ |
| 8. Is the project in the Edwards Recharge Zone? Is TCEQ permit provided? | Yes___ | No___ | N/A___ |
| 9. Traffic Impact Analysis in accordance with Se. 118-46 y. 1 of the Code of Ordinances | Yes___ | No___ | N/A___ |
| 10. Is the approved final plat included in the plan set? | Yes___ | No___ | N/A___ |
| 11. Provide a copy of all required and approved permits necessary to construct the project. Such permits and agencies include, but are not limited to, NPDES (addressed in drainage manual in chapter 13), Section 404 permit from the U.S. Army Corps of Engineers, the Environmental Protection Agency (EPA), and Texas Commission on Environmental Quality (TCEQ). | Yes___ | No___ | N/A___ |

COVER SHEET

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| 1. The following statement shall be included:
"All responsibility for the adequacy of these plans remains with the engineer of record. In accepting these plans, the City of New Braunfels must rely upon the adequacy of the work of the engineer of record." | Yes___ | No___ | N/A___ |
| 2. Include the following note:
"If construction has not commenced within one-year of City approval for construction inspection, that approval is no longer valid." | Yes___ | No___ | N/A___ |
| 3. Project title and type of project. | Yes___ | No___ | N/A___ |
| 4. Location map with North arrow and scale | Yes___ | No___ | N/A___ |
| 5. Index of sheets. | Yes___ | No___ | N/A___ |
| 6. Professional Engineer's seal, signature and date. | Yes___ | No___ | N/A___ |

- 7. Type 1, 2 or 3 Development or Redevelopment indicated on the plans. Yes___ No___ N/A___
- 8. FEMA FIRM Panel number and date provided with a description of what portion of the project, if any, is located in a floodplain. Yes___ No___ N/A___
- 9. Include statement regarding the location of the project in reference to the an Edwards Aquifer jurisdictional boundary. Yes___ No___ N/A___

GENERAL NOTES SHEET

- 1. Standard City Construction Plan Notes (see City of New Braunfels website). Yes___ No___ N/A___
- 2. TMUTCD references provided for all traffic signs. Yes___ No___ N/A___
- 3. Provide Note: Drainage improvements sufficient to mitigate the impact of construction shall be installed prior to adding impervious cover. Yes___ No___ N/A___
- 4. Sequence of Construction provided. Yes___ No___ N/A___

GRADING PLAN

- 1. Existing one-foot contours based on topographic map. Yes___ No___ N/A___
- 2. Proposed one-foot contours. Yes___ No___ N/A___
- 3. Letter of permission if grading is proposed on adjacent property. Yes___ No___ N/A___
- 4. Utility easement from abutting property owners. Yes___ No___ N/A___
- 5. Proposed inlets, label and size. Yes___ No___ N/A___
- 6. Proposed pipes, label and size. Yes___ No___ N/A___
- 7. Existing inlets and pipes. Yes___ No___ N/A___
- 8. Delineation of watersheds. Yes___ No___ N/A___
- 9. Grading plan provided with arrows showing which way water is draining. Yes___ No___ N/A___
- 10. Disposal site for excess excavation if not within project limits. Yes___ No___ N/A___

PAVING PLAN

- 1. Right-of-way, streets, drives and sidewalks dimensioned. Yes___ No___ N/A___
- 2. Centerline stations shown. Yes___ No___ N/A___
- 3. Limits of work defined. Yes___ No___ N/A___
- 4. Barrier free ramps at all intersections. Yes___ No___ N/A___
- 5. Sidewalks, driveways, and ramps per City Standards Yes___ No___ N/A___
- 6. Traffic control items, striping, traffic buttons. Yes___ No___ N/A___
- 7. Are driveway locations indicated?-Check construction and spacing Yes___ No___ N/A___

requirements per Chapter 143 of City Code of Ordinances

- 8. Pavement design sealed by a PE based on a Geotechnical Report. Yes___ No___ N/A___
- 9. References to appropriate details for pavement thicknesses and transitions. Yes___ No___ N/A___
- 10. Roadways comply with master thoroughfare plan. Yes___ No___ N/A___
- 11. Geometrics meet design speed criteria. Yes___ No___ N/A___
- 12. Is Superelevation required? Yes___ No___ N/A___
- 12. Retaining Walls:
 - a. Type, beginning and ending locations and wall elevations. Yes___ No___ N/A___
 - b. Provide design if non-standard or modified. Yes___ No___ N/A___
 - c. Drainage behind walls shown. Yes___ No___ N/A___
- 13. Driveway grades shown and within acceptable tolerance. Yes___ No___ N/A___
- 14. Radii shown on streets and driveways Yes___ No___ N/A___

PAVING PROFILES AND GRADES

- 1. Profiles plotted showing ground at centerline and each right of way. Yes___ No___ N/A___
- 2. Top of curb profiles must meet minimum and maximum grade requirements. Yes___ No___ N/A___
- 3. Vertical curves must be designed in accordance with AASHTO. Yes___ No___ N/A___
- 4. Check carefully for any place water might pond. Are inlets located at sag points or vertical curves? Yes___ No___ N/A___
- 5. Are grades, cross fall, slopes, etc., consistent with information shown on typical section? Yes___ No___ N/A___
- 6. Check ends of project for drainage. If gutters drain to ditches or field type inlets, are grades and profiles shown? Yes___ No___ N/A___
- 7. Minimum grades maintained to assure complete drainage. Yes___ No___ N/A___
- 8. Guard rails at culvert crossings in accordance with TxDOT design manual. Yes___ No___ N/A___

STORM SEWER PLANS

- 1. Plan and profile of all proposed storm sewers. Yes___ No___ N/A___
- 2. Station of laterals on trunk profile. Yes___ No___ N/A___
- 3. Plan view of each area showing:
 - a. Size of inlet Yes___ No___ N/A___
 - b. Lateral size. Yes___ No___ N/A___
 - c. Flow line. Yes___ No___ N/A___
 - d. Paving station. Yes___ No___ N/A___
 - e. Top of curb elevation. Yes___ No___ N/A___
- 4. Details of all non-standard items. Yes___ No___ N/A___

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| 5. Property lines and easements with dimensions. | Yes___ No___ N/A___ |
| 6. Class III RCP or CMP if in Public Right of Way. | Yes___ No___ N/A___ |
| 7. Pipe embedment detail. | Yes___ No___ N/A___ |
| 8. Plot hydraulic grade line (HGL). | Yes___ No___ N/A___ |
| 9. Storm drain discharge at flow line of creek or channel and use rip-rap. Show coincident water surface of outfall. | Yes___ No___ N/A___ |
| 10. Headwalls and erosion control at outfall of storm drains. | Yes___ No___ N/A___ |
| 11. Laterals connected at minimum 60 degree angle. | Yes___ No___ N/A___ |
| 12. Matching pipe top of connection. | Yes___ No___ N/A___ |
| 13. Existing and proposed utilities in plan and profile. | Yes___ No___ N/A___ |
| 14. On profile indicate: | |
| a. Grade. | Yes___ No___ N/A___ |
| b. Flow line elevations at every station. | Yes___ No___ N/A___ |
| c. Existing and proposed finished surface. | Yes___ No___ N/A___ |
| d. Hydraulic grade line and data. | Yes___ No___ N/A___ |
| 15. Show sizes in plan and profile. | Yes___ No___ N/A___ |
| 16. Show computations for existing system when connecting to existing storm drain. | Yes___ No___ N/A___ |
| 17. Velocities and hydraulic gradients conform to City of New Braunfels Drainage Manual. | Yes___ No___ N/A___ |
| 18. Inlets and conduits properly sized. | Yes___ No___ N/A___ |
| 19. Storm drain inlet and outlet velocity calculations. | Yes___ No___ N/A___ |
| 20. Manholes at all pipe size changes and at least every 500lf. | Yes___ No___ N/A___ |
| 21. Show plan and profile of all drainage elements on separate sheets from paving plans. | Yes___ No___ N/A___ |
| 22. Indicate concrete thrust blocks and collars where applicable. | Yes___ No___ N/A___ |
| 23. Specify the type of storm drainpipe to be used. | Yes___ No___ N/A___ |
| 24. Number inlets according to the number designation given for the area or subarea contributing runoff to the inlet. | Yes___ No___ N/A___ |
| 25. Indicate quantity and direction of flows at all inlets, stubouts, pipes and intakes. | Yes___ No___ N/A___ |
| 26. Show water surface at outfall of storm sewer, velocity and typical section of receiving water body. | Yes___ No___ N/A___ |
| 27. Where fill is proposed for trench cut in creeks or outfall ditches, specify compacted fill and compaction criteria. | Yes___ No___ N/A___ |

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|------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|--------|
| 28. Show size of pipe, length of each pipe size, and stationing at 100-foot intervals in the plan. | Yes___ | No___ | N/A___ |
| 29. Begin and end each sheet with even or 50-foot stationing. | Yes___ | No___ | N/A___ |
| 30. Show diameter of pipes, physical grade, discharge, capacity of pipe, slope of hydraulic grade line and velocity in the pipe in the profile view. | Yes___ | No___ | N/A___ |
| 31. Show elevation of flow lines at 100-foot intervals on the profile. | Yes___ | No___ | N/A___ |
| 32. Give benchmark information. | Yes___ | No___ | N/A___ |
| 33. Runoff from alleys and other paved areas are not to cause street capacity to be exceeded. | Yes___ | No___ | N/A___ |
| 34. Show horizontal and vertical curve data for all drainage elements. | Yes___ | No___ | N/A___ |
| 35. Tie storm sewer stationing with paving stations. | Yes___ | No___ | N/A___ |
| 36. On all dead-end streets and alleys, show grades for drainage overflow path on the plan and profile sheets, and show erosion controls. | Yes___ | No___ | N/A___ |
| 37. Specify concrete strength for all structures. | Yes___ | No___ | N/A___ |
| 38. Provide sections for road, railroad and other ditches with profiles and hydraulic computations. Show design water surface on profile. | Yes___ | No___ | N/A___ |

CREEKS AND OPEN CHANNELS

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|-----------------------------------------------------------------------------------------------------------|--------|-------|--------|
| 1. Stationing in plan and profile. | Yes___ | No___ | N/A___ |
| 2. Profiles indicating: | | | |
| a. Existing flow line. | Yes___ | No___ | N/A___ |
| b. High banks. | Yes___ | No___ | N/A___ |
| c. Hydraulic profile and data. | Yes___ | No___ | N/A___ |
| d. Rock line if velocity is greater than 6 feet per second. | Yes___ | No___ | N/A___ |
| 3. Hydraulic Computations. | | | |
| a. 100-year discharge | Yes___ | No___ | N/A___ |
| b. Velocity | Yes___ | No___ | N/A___ |
| c. Critical depth | Yes___ | No___ | N/A___ |
| d. Manning's "n" | Yes___ | No___ | N/A___ |
| e. Design grade for improved channels | Yes___ | No___ | N/A___ |
| 4. Cross sections as relative to property line. | Yes___ | No___ | N/A___ |
| 5. Erosion control. | Yes___ | No___ | N/A___ |
| 6. Compacted fill where fill required. | Yes___ | No___ | N/A___ |
| 7. Design velocities not greater than original stream velocities or greater than stated in Design Manual. | Yes___ | No___ | N/A___ |
| 8. Maximum side slope on earthen channels not greater than 3:1. | Yes___ | No___ | N/A___ |
| 9. Show side slopes of creeks, channels, etc. | Yes___ | No___ | N/A___ |

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| 10. Indicate any adjacent alley or street elevations on creek profile. | Yes___ | No___ | N/A___ |
| 11. Show and detail any temporary or permanent erosion controls. | Yes___ | No___ | N/A___ |
| 12. Indicate existing and proposed velocities. | Yes___ | No___ | N/A___ |
| 13. Show access and/or maintenance easements. | Yes___ | No___ | N/A___ |
| 14. Identify the datum, benchmarks and date of re-leveling the benchmarks to which the flood and ground elevations are referenced. | Yes___ | No___ | N/A___ |
| 15. Show existing Finished Floor (F.F.), or proposed minimum F.F. of all structures, existing or proposed adjacent to creek or channel alternations. | Yes___ | No___ | N/A___ |

BRIDGES

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|-------------------------------------------------------------------------------------------------------|--------|-------|--------|
| 1. Lowest member of bridge, design water surface, and 100-year water surface elevations are provided. | Yes___ | No___ | N/A___ |
| 2. Indicate soil borings on plans. | Yes___ | No___ | N/A___ |
| 3. Provide a geotechnical soils report. | Yes___ | No___ | N/A___ |
| 4. Channel sections upstream and downstream of bridge. | Yes___ | No___ | N/A___ |
| 5. Structural details and calculations with dead load deflection diagram. | Yes___ | No___ | N/A___ |
| 6. Provide vertical and horizontal alignment. | Yes___ | No___ | N/A___ |
| 7. Bridge cross section. | Yes___ | No___ | N/A___ |
| 8. Provide hydraulic calculations on all sections. | Yes___ | No___ | N/A___ |
| 9. Provide calculations and details for all erosion protection. | Yes___ | No___ | N/A___ |

DETENTION AND RETENTION FACILITIES

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|--------|
| 1. Show plan view of detention/retention area and outlet structure. | Yes___ | No___ | N/A___ |
| 2. Delineate limits of conservation pool, sediment storage area, flood storage pool and/or freeboard. | Yes___ | No___ | N/A___ |
| 3. Indicate size, dimensions, total capacity and design discharge velocity of the outlet structure. | Yes___ | No___ | N/A___ |
| 4. Show erosion control features at the discharge point of the outlet structure. | Yes___ | No___ | N/A___ |
| 5. Specify side slopes of facility and outlet structure. | Yes___ | No___ | N/A___ |
| 6. Show existing or proposed structures or other facilities downstream of the outlet structure and emergency spillway, and provide information sufficient to show that the adjacent facilities will not be subjected to inundation (or increased inundation) or otherwise affected by the discharge from the facility. | Yes___ | No___ | N/A___ |
| 7. Indicate locations and quantities of all inflows to the facility. | Yes___ | No___ | N/A___ |
| 8. State the design time to empty the facility. | Yes___ | No___ | N/A___ |

LEVEES

- 1. Show location, extent, nature, dimensions, etc., of levee embankments and associated interior and exterior drainage facilities. Yes___ No___ N/A___
- 2. Provide engineering analysis addressing potential erosion of the levee embankments during flood events. Yes___ No___ N/A___
- 3. Provide engineering analysis of levee embankment stability and seepage through the levee during flood events. Yes___ No___ N/A___
- 4. Compaction of fill material should be performed in accordance with standard engineering practices. Yes___ No___ N/A___
- 5. Analyze interior drainage concerns. Identify sources of interior flooding and extent and depth of such flooding. Consider capacity of pumps and other drainage devices for evacuating interior waters. Yes___ No___ N/A___
- 6. Submit an operations manual which discusses the flood warning system to trigger closures; closure operations, procedures and personnel; operation plans for Interior drainage facilities; at least an annual inspection program; and maintenance plans, procedures and frequency. Yes___ No___ N/A___
- 7. Provide all other information requested or required by the City Engineer and/or the Federal Emergency Management Agency. Yes___ No___ N/A___

EROSION CONTROL

- 1. Existing and proposed grading. Yes___ No___ N/A___
- 2. Existing and proposed drainage features. Yes___ No___ N/A___
- 3. Erosion features including temporary construction entrance, silt fence, inlet protection, rock berms, seeding, etc. Yes___ No___ N/A___
- 4. Erosion control standard details. Yes___ No___ N/A___

PAVEMENT MARKING AND SIGNAGE

- 1. Pavement markings and signage plan in accordance with TMUTCD. Yes___ No___ N/A___
- 2. Pavement markings standard details. Yes___ No___ N/A___
- 3. Signage plan notes compliant with City Construction Plan Notes. Yes___ No___ N/A___

DRAINAGE AREA MAP

- 1. Use a scale of one-inch equals 200 feet for the development and a scale of up to one-inch equals 2,000 feet for creeks and off-site areas, provided that the scale is adequate for review, and show match lines between any two or more maps. Yes___ No___ N/A___
- 2. Show existing and proposed storm sewers and inlets. Yes___ No___ N/A___
- 3. Indicate subareas for each alley, street, inlets, off-site areas, etc. Yes___ No___ N/A___
- 4. Indicate contours on map for on- and off-site areas. Yes___ No___ N/A___
- 5. Indicate zoning on drainage area. Yes___ No___ N/A___

- 6. Show points of concentration of design points. Yes___ No___ N/A___
- 7. Indicate runoff at all inlets, dead-end streets and alleys or to adjacent additions or acreage. Yes___ No___ N/A___
- 8. Provide runoff calculations for all areas showing acreage, runoff coefficient, inlet time and storm frequency. Yes___ No___ N/A___
- 9. Indicate all crests, sags and street and alley intersections with flow arrows. Yes___ No___ N/A___

DRAINAGE REPORT CALCULATIONS

- 1. Show hydraulic grade lines with computations. Yes___ No___ N/A___
- 2. Provide table with input parameters for all models and formulas. Yes___ No___ N/A___
- 3. Indicate all assumptions. Yes___ No___ N/A___