City of Grapevine, Texas

CONSTRUCTION PLAN REVIEW CHECKLIST/ APPLICATION FOR PRIVATE DEVELOPMENT

Public Works Department – Engineering Division
200 South Main Street
Grapevine, Texas 76051
Tele: 817.410.3136

Date Submitted to City: _____

Reviewed By: _____

Date Review Completed: _____

DEVELOPER - Email _____
ADDITION NAME: _____
ENGINEER CONTACT/ EMAIL: _____

Required: 1 full size hard copy and email to PWdevelopment@grapevinetexas.gov containing PDF set. and contact information for owner and engineer.
ENGINEER:
The attached plans have been reviewed for completeness prior to submittal. This submittal includes all civil features required for the development. The includes all drainage / grading and storm drain with appropriate calculations both privately and publicly maintained. The submittal also includes plans for the construction of public water, public sanitary sewer, roadways, fire lanes, erosion control, applicable City Std Details, details and specifications for all items not addressed in City details or code.

ENGINEER SIGNATURE: _____Date:_____

The Checklist below is to aid the engineer in reviewing for a complete submittal. Incomplete submittals will result in delays in the review. And additional comments may be generated in subsequent reviews.

See Public Works web site for cad file of Cover sheet and border to be used.
Include One (1) plan set and one (1) PDF of drawings.

1. Project Title should be visible when plans are rolled up.
2. Basic- North Arrow, Scale, Title, sheet number, revision block on all sheets
3. Survey shall be tied to a CITY GPS Benchmark datum and control.
4. Engineer's seal, signature, and date on each sheet after all City comments have been addressed.
5. Verify Sheet Index is complete and accurate.
6. Copy of filed Final Plat with signatures shall follow the coversheet.
7. Copy of the City approved Site Plan shall follow the Final Plat.

8. Easements shown on filed Final Plat correspond with locations of proposed utility lines. An Amended Final Plat will be required prior to construction if easement locations change.
9. Proposed street light locations shall be shown. Developer will be responsible for design and installation of street lights meeting City Stds.
10. Provide offsite easements if any are required.
11. Indicate where TxDOT permits, if any.
12. Size, type, and pressure class of all proposed water mains identified.
13. Location and size of all existing on-site water mains shown.
14. Location and size of all existing off-site water mains within 200' of property shown.
15. Show limits of grading/construction
16. All water and Sanitary lines within easements are inspected by Public Works. Private lines (outside of easements, beyond meters, not just within 5’ of the building) are not inspected by Public Works. These lines shall be designed in accordance with the requirements of the City of Grapevine Building Department.
17. 12” water lines required in industrial areas. Variations will be based on 1,500 GPM availability during peak demand periods with a minimum residual pressure of 30 psi.
18. Profile and grades required for water mains 12" or greater.
19. Assure that water main can be "valved down" without putting more than one fire hydrant out of service.
20. Fire Hydrants shown:
    a. Residential: 500' along the main.
    b. (500' maximum hose laying length)
    c. Non Residential: 300' along the main.
    d. (500' maximum hose laying length)
21. All fire hydrants have a clear 36" operating radius for the top nut.
22. Fire hydrants shall be located 2'-0" behind the pavement edge and shall not be located in the sidewalk.
23. Specify at minimum SDR-35 PVC pipe shall be used. SDR-26 pipe required for lines deeper than 20’ or within 9’ of a water line.
24. 6” minimum lines in residential areas (except apartments). 8” minimum lines in commercial, industrial, and apartment areas.
25. Residential service lines are SDR-35, 4” minimum. Non-residential service lines are 6” minimum and shall be connected to the main via a manhole.
26. Manholes located at 500' maximum spacing and at all sewer line intersections, grade changes, and alignment changes.
27. Clean-outs located at maximum 250' from a manhole.
28. Call out any drop connections or water tight manhole covers.
29. Proposed grades are greater than minimum established and velocity in line does not exceed 10 fps.
30. Elevation of existing and proposed ground at centerline pipe.
31. Rim and flowline elevations at each manhole. Provide flowline elevations for all intersecting pipes.
32. Vertical and horizontal clearance between utilities meets current TX Department of Health and TX Water Commission requirements.
33. Show 100-year water surface elevation for ultimate conditions located in flood prone areas.
34. Steps are not allowed in sanitary sewer manholes.
35. Show diameter of proposed manholes (4-foot minimum). Manhole covers shall have a 24" minimum diameter.

a. Manholes greater than 4’ diameter require an eccentric cone

36. Drop manholes require a minimum 5’ diameter; show drop inside of manhole.
37. Manholes deeper than 10’, serving lines greater than 12”, or containing multiple pipe connections require a minimum 5’ diameter.
38. If there is a FEMA or City of Grapevine floodplain located within the limits of the subject property, then the engineer will need to obtain a Floodplain Reclamation packet from the Public Works Department at 200 S. Main Street, Grapevine, Texas.
39. Indicate sub areas for each inlet or set of inlets and off-site area.
40. Zoning indicated on all off-site drainage areas.
41. Show points of concentration for each drainage sub area.
42. Runoff calculations provided for the 5-year and 100-year storms.
43. Indicate all crest, sags, and street intersections with flow arrows.
44. Provide the calculations for inlet time and pipe travel.
45. Hydrology summary table.
46. Street and R-O-W capacities tabulated.
47. On-site and offsite topography must show total drainage area for project.
48. Flow arrows for surface drainage.
49. Delineation of drainage areas sufficient.
50. Cross sections of open channels and show limits of grading.
51. Drainage easements provided for all public drainage (related to plat):
52. Open, unlined channels – 30’ wider than top of channel
53. Open, lined channels – 15’ wider than top of channel
54. Enclosed system – 15’ minimum (depending on size and depth)
55. Increasing drainage onto downstream property requires a downstream drainage letter from all downstream owners accepting the increased runoff.
56. Permission to may be required from downstream owners.
57. Show that existing downstream drainage systems are adequate to contain the Q100 storm. If downstream drainage is not adequate, then developer may be required to improve downstream systems.
58. Provide inlets where street capacity (i.e. top of curb) is reached.
59. Use recessed inlets for thoroughfares. Local streets can use standard inlets.
60. Indicate the runoff concentrating at all inlets and direction of flow. Show runoff for all stub outs, pipes, and intakes.
61. Locations and cross sections of positive overflow swales required at low points. (One (1) foot deep & ten (10) foot wide minimum)
62. Minimum finished floor elevations where lots are adjacent to floodplain, creeks, and any area subject to flooding. These elevations must match final plat.
63. Type and size of existing and proposed headwalls.
64. Flow arrows for surface drainage.
65. Location and size of grouted riprap at outfalls.
66. 90-degree turns in storm drainage system or outfall are discouraged. Junction box or manhole must be provided in all cases.
67. Location and size of energy dissipaters if required.
68. Storm drainage discharge at the flowline of creeks and channels with the last 20-feet at a slope not to exceed one percent, unless otherwise authorized.
69. Intercept laterals at 60 degrees with trunk lines, if possible.
70. Curb inlets have a minimum throat opening of 10 feet by 6".
71. Show manhole or junction box locations at 400-foot spacing for lines 24" or less and as needed on larger lines with a maximum of 800 foot between manholes or junction boxes.

72. All earthen channels lined with erosion control blanket designed to meet the shear forces of the channel.
73. Underground storm sewers shall be used for all flows up to and including the equivalent capacity of a 72" conduit with an exit velocity of flowing full of 3' per second. Lined channels may be used for flows exceeding a 72" conduit capacity. For flows exceeding a 96" conduit capacity, unlined channels may be used.
74. All unlined channels shall have 15' vehicle accessible areas on both sides of the channel. Lined channels require 15' access on one side.
    a. 2:1 for lined channels
    b. 3:1 for unlined
75. 8" grouted rip-rap provided at all outfalls. (length specified)
76. Show all hydraulics, velocity head changes, gradients, computations and profile outfall with typical section and computations.
77. Show laterals on trunk lines with stations.
78. Show 100-year water surface elevation at outfall of storm drainage system.
79. Location and elevation of 100-year H.G.L.
80. All required sidewalks shown (4' on local and 5' on thoroughfares).
81. Curb and gutter shown for all streets.
82. Washed aggregate driveway approaches, sidewalks or curb and gutter are not allowed.
83. Pavement headers at dead ends.
84. Radii of centerline curves meet requirements:

	Design Speed	Centerline Radius
a. Major Thoroughfare, Type A & B	55 MPH	2000'
b. Minor Thoroughfare, Type C & D	45 MPH	1,125'
c. Collector Streets, Type E & F	40 MPH	800'
d. Residential Streets, Type G	30 MPH	300'

85. Barrier free sidewalk ramps at street intersections (three sidewalk ramps are required at tee intersections). Show R.O.W. corner clips.
86. Traffic control details shown (i.e. stop bars, striping, buttons).
87. Proper sight distance shall be provided at all intersections. The required sight distance for each intersection shall be calculated using AASHTO design criteria. Within the limits of the required sight distance triangles, special attention should be paid to the installation of future fencing and/or landscaping.
88. Minimum street grade is 0.60%.
89. Maximum street grades are 5%, 7.5% and 10% for thoroughfare streets, collector streets and residential streets, respectively.
90. Grade changes with an algebraic difference greater than 1% connected with vertical curves.
91. Intersections designed to avoid abrupt grade changes through the intersection. (Street crowns may be reduced to ½ of normal crown in the intersection to accomplish a smoother grade change.)
92. A subgrade note shall be placed on the plans that states: "A Geotechnical Professional Engineer will recommend to the City of Grapevine the stabilization requirements prior to starting street construction".