

CITY OF SOUTHLAKE
CONSTRUCTION PLAN CHECKLIST

PROJECT NAME: _____

ENGINEER: _____ CONTACT: _____

PHONE: _____ FAX: _____

EMAIL: _____

ADDRESS: _____

DATE RECEIVED: _____ REVIEWED BY: _____

WATER, SANITARY SEWER, PAVING, GRADING AND DRAINAGE PLANS

SHOWN N/A A. COVER SHEET / PLAT

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Addition or project name |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. City of Southlake, Tarrant or Denton County, Texas |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Sheet index |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Graphic location map |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Project name on right end of sheet |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Date |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Name, address phone and fax of the Developer |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Name, address, phone and fax of the Engineer |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Final Plat as second sheet |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Approved Site Plan as the third sheet for commercial projects |

SHOWN N/A B. GENERAL REQUIREMENTS FOR ALL SHEETS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Title block, project name, sheet numbering sequence |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Scale max 1"=20' for plan/profile drawings and at least 1"=100' for the overall layouts |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. North arrow |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Seal, signature and date (except City of Southlake standard detail sheets) |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Legend and special drafting symbols |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Drawing sets that must be 22" x 34" and (1) Drawing set that must be 11" x 17" |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. All street names shown |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Sheet orientation map on each sheet |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Property information shown in accordance with final plat |
| <input type="checkbox"/> | <input type="checkbox"/> | a. Property lines on all lots |
| <input type="checkbox"/> | <input type="checkbox"/> | b. Subdivision name |
| <input type="checkbox"/> | <input type="checkbox"/> | c. Street names |
| <input type="checkbox"/> | <input type="checkbox"/> | d. Lot and block numbers |
| <input type="checkbox"/> | <input type="checkbox"/> | e. Front lot dimensions |
| <input type="checkbox"/> | <input type="checkbox"/> | f. Show all easements with type and size |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. All easements shown offset with improvements only in one Lot |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Location of existing and proposed utilities |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Methodology and assumptions utilized for calculations and design shall meet the most current ISWM (Integrated Stormwater Management Program). |

- | SHOWN | N/A | C. RELATED ISSUES |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Request for City participation on any improvements to be submitted to the City Engineer as part of the Developer Agreement. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Off-site grade-to-drain permission letter submitted prior to construction plan approval. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Off-site easements submitted prior to construction plan approval. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. FEMA CLOMR, LOMR requests submitted prior to final plat approval |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Development Permit required when building within 100-year floodplain |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Conform to Pathways Master Plan |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. TPDES Permit No TXR150000 |

- | SHOWN | N/A | D. SPECIAL PLANS |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Erosion control plan and details |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Computer models, i.e. HECI, HECII |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Tree preservation plan and tree survey, showing protected trees and trees to be removed. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Geotechnical report for the public streets submitted by the Design Engineer. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Earth Disturbance Permit issued by Building Services. |

WATER PLANS

- | SHOWN | N/A | A. PROPOSED WATER MAIN REQUIREMENTS |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Located approximately 6' behind the back of curb for new subdivisions. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Clear curb inlets by at least 2'. (horizontally and vertically) |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Plans list all necessary fittings for all water main construction. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. No installations under public streets. (except for crossings) |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Where lines are to be terminated, but extended in the future, the pipe is stubbed two pipe lengths past the gate valve and end with a 2" blowoff. Permanent dead end water lines shall end with a Fire Hydrant. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Lines along unimproved streets have a minimum depth of 5' to 6'. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Minimum cover of 42" for water mains. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. All systems shall be looped unless approved by the Director of Public Works. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. All existing lines, valves and hydrants shown and labeled. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Conflicts or crossings with existing or proposed utilities shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Adequate stub-outs to adjacent properties. |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Plans meet the requirements of the Master Water Plan. |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Size, type and pressure class of all lines shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. Installed no closer than 9' horizontally and 2' vertically to sanitary sewer mains. |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. Minimum water line size is 8". (unless approved by Director of Public Works) |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. 10" Water Main is not allowed. Typical 8" or 12" Water Mains sizes only. |
| <input type="checkbox"/> | <input type="checkbox"/> | 17. Water Mains are to be encased in steel where there is creek crossings, or roads classified as Collector or Greater. |
| <input type="checkbox"/> | <input type="checkbox"/> | 18. No Open-cut of Roadways without approval of the City Engineer. |

- | SHOWN | N/A | B. FIRE HYDRANT LOCATIONS |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Out of traffic and in accessible areas (steamer nozzle to be located at least 3' back of curb), 50' from building. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Hydrants should be located at all intersecting streets at the curb return. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Hydrants located between intersections, and in the cul-de-sacs should align with common lot lines. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. For single family residences; hydrants shall be spaced a maximum 400 linear feet apart for unsprinklered and 600' for sprinklered residences. |

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 5. For all commercial and industrial uses, fire hydrant shall be spaced a maximum 300 linear feet apart, 600' if buildings are sprinklered. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. On all other land uses where there is no development, fire hydrants shall be spaced as determined by Public Works and Fire Marshal. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. A fire hydrant must be located within 100' of a fire department connection. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Fire hydrants located in median islands in parking lots may require 3-6" concrete bollards around them. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Fire hydrants should not be located in handicap parking spaces. |

SHOWN N/A

C. GATE VALVES

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Installed to allow for isolation of lines for repairs. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Main line valves to be located back of the proposed curb at the point of tangency for curb return to eliminate conflict with curb/ramp. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Those installed between intersections will align with common lot lines or as directed by City Inspectors. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. In-line valves required to isolate no more than 20 homes. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Gate Valves should not be located in Parking spaces. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. There shall be a minimum 2 gate valves at Tees and 3 gate valves at crossings. |

SHOWN N/A

D. WATER SERVICES

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. All water services to be 1" minimum diameter: 1", 2", 4" 6", and 8" only. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. All water services shall be installed 10' (ten) from the sanitary sewer service. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Services shown to common green areas if irrigation is intended. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. All Water Services taps Must be the same size as the meter. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Cannot have multiple meters feeding into same domestic line into building, i.e. 2x2" meter instead of 1x4" meter. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Residential Subdivision shall have 1 service line per lot. Future Irrigation lines may be added at the time of Building Permits. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Existing Water services shall be abandoned at the main if it is not utilized. |

SHOWN N/A

E. WATER PIPES

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. All PVC pipe shall be SDR 18 C-900. (HDPE is not allowed) |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Minimum radius used for PVC pipe: |

Pipe Size (inches)	Minimum Allowable Radius (feet)
* 6	150
8	200
12	300

For sizes larger than 12":

Minimum Radius = 300 x Pipe Diameter (Ft)

***6" water lines require approval from the City Engineer**

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Profile all water mains 12" or larger. |
|--------------------------|--------------------------|---|

SHOWN N/A

F. FIRE LINES

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. To install the Backflow Assembly inside the building, the distance from the tap to the assembly must not be more than 100'. Branch lines from tap to assembly are not allowed. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Fire lines more than 100' from the tap to assembly, the assembly shall be installed in an approved vault. The assembly will be located on private property, not in an easement, right-of-way, parking lot, or private pavement. |

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Fire lines shall be tied into the Water Main via tee and isolation valve. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Other lines, i.e. Meters, Fire Hydrants, etc. shall not be tied into Fire lines. |

SHOWN N/A G. GENERAL NOTES / DETAIL SHEETS - WATER

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. General notes included |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. City standard detail sheet |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Any special details required. e. g. aerial crossings. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. 4", 6", & 8" meters require vault and detail. |

SANITARY SEWER PLANS

SHOWN N/A A. SEWER MAINS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Private sanitary sewer mains and manholes to be labeled. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Easements to be shown for public sewer mains which are outside of the public right-of-way. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Mains are to be encased in steel where there is less than 3' of cover, creek crossings, or road. classified as Collector or Greater. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. The flow line elevation of mains is indicated at each station and at 50-foot intervals in profile. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Flow direction arrows along the mains are shown on the layout drawing. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Installed on uniform grade when possible. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Avoid rapid grade changes at manholes or reduced velocities at the lower section of the main. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. NO construction of vertical curves is to be used in a section of sewer mains |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. All proposed or existing pipelines or conduits that conflict with sanitary sewer mains are shown on profile view. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Length, type and size of pipe labeled between manholes. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Profile shows existing and proposed ground at pipe centerline. |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Vertical and horizontal separations meet TCEQ requirements. Where separation cannot be met, sewer main to be encased with steel or use pressure rated pipe. |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Minimum slope for sanitary sewers flowing full or half full, a minimum velocity of 2 ft/sec. and having a Manning's Coefficient of n=0.013 is: |

Diameter (inches)	Slope (feet/feet)
8	0.0040
10	0.0028
12	0.0022
15	0.0015
18	0.0012
21	0.0010
24	0.0008
27	0.00067
30	0.00058
36	0.00046

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 14. Sanitary sewer lines shall be installed approximately 5' behind the curb in new subdivisions. |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. Rigid PVC connectors must be used when connecting pressure rated pipe to sewer pipe. |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. Minimum sewer pipe size is 8". |

SHOWN N/A B. SEWER MAIN DESIGN

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Mains will be extended through the property or development to serve abutting tracts with a manhole at the end and an 8' stub-out for future connection. For cul-de-sac the sanitary sewer line shall be extended through the cul-de-sacs and behind the curb. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Sewers are designed to carry peak flow at 75% of full capacity. (computed using a Manning's n=0.013 or n=0.011, when PVC pipe is used) |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. With drainage areas larger than 100 acres, and proposed land zoning is unknown, Harmons Formula is used, which yields the peak dry weather flow:
$M = 1 + \frac{14}{4 + P}$
M = Ratio of design load to average load
P = Population in thousands, assuming a density of 14 people per acre |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Minimum radius shall be 200' for PVC pipe (having a curved alignment): *
$R = 300D$
R = minimum allowable radius of curvature
D = pipe diameter
R & D are in the same units (feet)
* additional manholes may be required for radii under 200' |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Sanitary sewer PVC pipe shall be SDR 35 if depth of line is 10' or less. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Sanitary sewer PVC pipe shall be SDR 26 if depth of line is greater than 10'. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. No 4" Taps on 12" sewer mains or larger. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. All taps installed must have a minimum 3' separation from each other and bell joints. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. No Open-cut of Roadways without approval of the City Engineer. |

SHOWN N/A C. MANHOLES

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Installed at a maximum of 500' on public sewer lines and at grade changes, direction changes, and pipe size changes or intersecting pipes. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Top of manhole cone to be set at a maximum of 18" below top of the subgrade when located in proposed pavement; 12" behind the curb, allow for 1' of adjustment. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Rim elevations included on profile drawings. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. When located in parkways, rim elevations shall be 0.2' above the adjacent top of curb. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Bolt down rings and lids used, when located in 100-year floodplain, barrow ditches and or as required by the City Engineer. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Inflow lines over 16" off the floor must have internal drop with Reliner and stainless-steel straps. Drop manholes must be 5' diameter manhole with internal drops subject to approval by the City Engineer |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Adequate notes for coring shown when connecting sewer pipe to existing manhole. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Manholes shall be 5' in diameter when sewer line depth is greater than 10' and for all mains 10" and larger or with 3"-8" inflow pipes. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. No 4" services installed at a manhole. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. All manholes must have 0.10' of fall through the manhole. |

SHOWN N/A D. SERVICES

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Sanitary sewer services are to be installed below water main crossings. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Elevation of the sewer service line is shown in the table as follows: |

Block	Lot	Station	Ground Elevation	Service Elevation

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Standard services shown in the center of the lot. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Clean-outs to be provided on all services and located at the property/ROW line. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Dimensions to property lines shown if service is not in standard location. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Sewer services shall be a minimum of 5' below grade at the property or easement line and stubbed out 3' above ground, capped, with tee post and caution tape. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. No shared sewer service taps. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Service lines to be tied into sewer main instead of Manhole. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. 6" services or larger shall have manholes installed at sewer main connection. |

SHOWN N/A E. LIFT STATIONS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Lift Stations installed must be sprayed with Raven liner or constructed of polymer concrete. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Minimum 4" force mains with tracer wire. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Awning to be installed over control cabinets at lift stations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Emergency bypass for all lift stations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. All lift stations shall not have pumps under 5 hp. (unless approved otherwise) |

SHOWN N/A F. GREASE TRAPS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. No shared grease traps. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. All grease traps shall have a sample port. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. All grease traps must have an inlet and outlet tee. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Outlet 18" or below from the floor do not require a tee. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Grease trap will not be placed in drive through areas or in lane of traffic. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Riser rings must be Lad-tech or Cretex with proper sealant materials. |

SHOWN N/A G. GENERAL NOTES / DETAIL SHEETS - SANITARY SEWER

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. General notes included |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. City standard details |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Any special details required, e.g. aerial crossings. |

PAVING PLANS

PAVING – PLAN VIEW

SHOWN N/A A. GENERAL

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Temporary turn-around shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Traffic control plans |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Striping plans, all necessary traffic devices. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Horizontal curves meet subdivision ordinance. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Tangents between reverse curves. (unless approved by City Engineer) |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. No compound curves shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Street widths meet standard detail requirements. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. At future street stubs, a Type III barricade with a sign reading "Future Through Street" shall be installed. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Driveway islands and medians shall meet driveway ordinance. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Provide a 10' x 10' corner clip for Right-of-Way at intersections with arterials and |

- collectors.
11. Thirty (30') curb radius on collectors and arterials and any drive designated as fire lane.

SHOWN N/A B. STREET FACILITIES

1. Cut and Fill areas shown on the plan layout
2. Flow arrows for direction of storm water runoff in gutter, at crests, sags and street intersections.
3. P.I. with intersecting streets.
4. High and low point elevations and stations.
5. Elevations at quarter points on cul-de-sacs.
6. 3:1 side slopes maximum in right-of-way or easement.
7. Valley gutter must have adequate fall across gutter, 2% preferred, insure that drainage area map shows area draining to gutter.
8. Cul de sac have radius of 60'.

SHOWN N/A C. BASE LINE OR CENTER LINE TIES TO EXISTING OR PROPOSED REFERENCE POINTS

1. Monuments
2. Property corners
3. Show stationing
4. P.C. stations
5. P.I. stations
6. P.T. stations
7. P.R.C. stations
8. P.C.C. stations
9. Intersecting street and equations
10. Angle between intersecting street centerlines

SHOWN N/A D. CURVE DATA

1. Curve identification number
2. Radius
3. Tangent length
4. Central angle
5. Curve length

SHOWN N/A E. BASE LINE OR CENTER LINE TIES (STATIONING AND OFFSET) TO PLANNED IMPROVEMENTS

1. Curb and gutter
2. Limits of project
3. Storm sewers
4. Inlets
5. Manholes
6. Culverts, bridges, headwalls
7. Radius sizes and location for:
- a. Curb returns
- b. Median noses
- c. Turn lanes
- d. Cul-de-sacs
- e. Curb: P.I.'s
8. Replacement of existing driveways.

SHOWN N/A F. SIDEWALKS

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Refer to Ordinance No. 683 |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Sidewalk width will need to follow Ordinance 683 and current Pathways Master plan |
| <input type="checkbox"/> | <input type="checkbox"/> | 3 Collectors and Arterials, SH 114 – refer to Pathways Master plan |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Barrier free ramps at intersections meet current ADA requirements |

PAVING - PROFILE VIEW

SHOWN N/A A. GENERAL

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Top of curb profile |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Vertical curves meet subdivision ordinance criteria. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Safe sight distance for design speed. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Profile of existing ground at centerline, left and right R.O.W. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Minimum grade: .75% |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Maximum grade: |
| <input type="checkbox"/> | <input type="checkbox"/> | a. Arterials - 6% |
| <input type="checkbox"/> | <input type="checkbox"/> | b. Major collectors - 8% |
| <input type="checkbox"/> | <input type="checkbox"/> | c. Minor collectors - 10% |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Top of curb grades shown on 50' stations |
| <input type="checkbox"/> | <input type="checkbox"/> | a. Start elevation |
| <input type="checkbox"/> | <input type="checkbox"/> | b. End elevation |
| <input type="checkbox"/> | <input type="checkbox"/> | c. Top of curb below adjacent ground elevation |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Minimum vertical curve length - 50' per each % change in grade on collectors, and arterial. |

SHOWN N/A B. TOP OF FLOW LINE OF EXISTING OR PROPOSED UTILITIES WITH DESCRIPTION WHEN CONTIGUOUS OR CROSSING PROPOSED FACILITIES*

- | | | |
|--------------------------|--------------------------|-------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Water |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Sanitary sewer |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Gas |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Telephone |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Electric |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Other |

* Not needed on paving profile if S.D. shown on separate sheets.

SHOWN N/A C. STORM DRAINAGE FACILITIES

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Manhole locations with stations and invert and rim elevations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Location of proposed storm sewers and inlets with stationing sizes and grades. |

SHOWN N/A D. GENERAL NOTES / DETAIL SHEETS - PAVING

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. General notes included |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. City standard detail sheets |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Any special details, e.g. guard rails |

STORM DRAINAGE PLANS

STORM DRAIN - PLAN VIEW

SHOWN N/A A. GENERAL

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Easements adequate for maintenance/access |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Junction box installed when pipe size changes 1' or more |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Easement width 15' minimum for pipes sizes thru 36" |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Easement width 20' minimum for pipe sizes 42" through 54" |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Easement width 25' minimum for pipe sizes 60" through 66" |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Easement width 30' minimum for pipe sizes 72" through 102" |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. 5' additional easement when shared with other utilities for pipe sizes 36" through 54". |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Box culvert easements with equal to the box plus twenty (20) additional feet. The edge of the box shall be located five 5' from either edge of the easement. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Install benchmarks on inlets or drainage structures. Send a letter with X, Y and Z information using State Plane feet, NAD 1983 datum prior to the subdivision being accepted by the City of Southlake. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. All public storm sewer pipe shown as RCP and minimum 18" diameter. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Property drains into a critical drainage structure, fee to be paid prior to construction. |

SHOWN N/A B. DRAINAGE AREA MAP

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Overall drainage map, U.S.G.S. topography, show all off-site areas |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Drainage map with maximum scale of 1" = 200' and 5' contours |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. All existing and proposed storm drain lines and inlets |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Indicate sub-areas for each collection point |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Label design points for concentration or collection |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Fort Worth hydraulic computation sheet provided |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Method of analysis noted |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Drainage calculations sufficient |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Criteria meet the drainage ordinance |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Indicate runoff for all dead-end streets or outfall into adjacent undeveloped tracts |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Post Developed Condition Maps with tabulation comparing ultimate design point's runoff. |

SHOWN N/A C. CENTERLINE DATA

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Stationing along centerline |
| <input type="checkbox"/> | <input type="checkbox"/> | a. Equations to street paving centerline if applicable |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Beginning station |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Ending station |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. P.C. station |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. P.T. stations |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. P.R.C. stations |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. P.C.C. stations |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Centerline curve information |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Centerline deflection |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Ties to property corners sufficient to reestablish |

SHOWN N/A D. STATIONS AND OFFSETS TO:

- | | | |
|--------------------------|--------------------------|-----------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Manholes |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Inlets |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Special structures |

- | | | |
|--------------------------|--------------------------|---------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Culverts |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Special fittings |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Other |

SHOWN N/A E. PROPOSED CULVERTS

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Stations and offset ties |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Skew angle |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Spot elevations in ditches upstream and downstream with capacities of existing ditches. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. A reducer is required at the pipe connection of pipes of different sizes. |

SHOWN N/A F. GRADING PLAN

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Lot drainage shown with directional arrows on all lots |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Surface drainage across lots will not acceptable in some situations |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Storm sewer pipes with beehive inlets may be required to pick up water from lots to inhibit the flow of drainage across lots. |

SHOWN N/A G. EROSION CONTROL PLAN PROVIDED

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Adequate details |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Appropriate locations |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Erosion control for stub streets |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. An erosion control mat shall be installed in all open channels until vegetation is established. |

SHOWN N/A H. LAND USE RUNOFF COEFFICIENTS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Fully Developed Criteria: All runoff coefficients shall be based on land uses as if fully developed with those types of uses. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Land Uses: All runoff coefficients shall be in accordance with the existing zoning or the current Land Use Plan approved by the City, whichever coefficient is more intense, and meet current ISWM requirements |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. When it is determined by the Site Plan review process or other City review process, that the actual development of a particular property will create a runoff factor greater than that shown for the tract as determined above, retention or detention may be required on the tract prior to the issuance of a certificate of occupancy. |

STORM DRAIN - PROFILE VIEW

SHOWN N/A A. PROPOSED STORM DRAINS

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Size |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Length |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Grade |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Capacity required for storm drains and inlets |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Capacity provided for storm drains and inlets |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Downstream hydraulic gradient shown and documented at ultimate discharge point |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Outfall headwall |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Q in streets shown for inlets |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Checked downstream drainage course for problems where applicable |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Manhole or in-line structure location at least 1 every 500' |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Natural ground and proposed finished grade profile over centerline of proposed storm drain |

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Profile data of all proposed or existing utilities that parallel or cross the proposed storm drain facilities |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. 100-year HGL shown on profile sheet |

SHOWN N/A B. CULVERTS (FORT WORTH STORM DRAIN DESIGN MANUAL)

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Size of openings |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Length |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Type of operation under design condition |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Flow line elevations for both ends of culvert |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Tailwater elevation |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Headwater elevation |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Design frequency |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Type of headwalls |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Outfall velocity (outfall onto adjacent property to be less than 4feet per second) |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Approach velocity |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Outfall riprap grouted |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Laterals minimum of 18" diameter |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Minimum inlet size is 10' |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. All pipes and structures under lakes or under backwater shall have watertight joints and design |

SHOWN N/A C. OPEN CHANNELS

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Type and thickness of lining |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Geometric properties of channel cross-section (Easement width to provide for 1' freeboard and 10' access) |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Natural ground elevation on both banks |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Channel gradient |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Water surface profile |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Typical section (including steel placement if concrete lined section) |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Design flow |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Depth of flow at design discharge |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. 1' freeboard |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Actual capacity of lined channel (include freeboard) |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Method of determining design discharge |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Roughness coefficient of lining |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Permissible construction joints, expansion joints, etc., on concrete lined sections |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. Upstream and downstream toewalls (2'-6" minimum) |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. Typical channel detail sheet required |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. Contiguous proposed finished floor elevations on all plan-profile sheets showing channel design |
| <input type="checkbox"/> | <input type="checkbox"/> | 17. Run-up calculations provided outside curve if velocity exceeds 8feet/second |
| <input type="checkbox"/> | <input type="checkbox"/> | 18. Information provided in channel segments at specific intervals of grade where drainage areas are to be shown on all channel plan-profile sheets |
| <input type="checkbox"/> | <input type="checkbox"/> | 19. Profile centerline and top of both banks for open channels |
| <input type="checkbox"/> | <input type="checkbox"/> | 20. An erosion control mat shall be installed in all open channels until vegetation is established. |
| <input type="checkbox"/> | <input type="checkbox"/> | 21. Establish access for maintenance either by widened top bank or access ramp (with easements) onto channel bottom. |

SHOWN N/A D. RETENTION / DETENTION SYSTEMS

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Drawing provides plan view showing on-site and off-site drainage areas and calculations |
|--------------------------|--------------------------|--|

Construction Plan Checklist

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- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Cross-section of holding pond shown including normal pool elevation, 100-yr. elevation, 10-yr elevation and dam details |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Downstream riprap or soil erosion protection measures |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Pipe outfall at or above flow line of downstream structure |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Plan view shows limits of normal pool and 100-yr. and 10-yr limits |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Any improvements required for existing dam |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Calculations include pre-developed conditions, capacity of existing culverts, maximum outfall of pond culvert, acre/feet of storage, storage outfall time |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Size, type, upstream and downstream flowlines shown for existing culverts and culverts supplying detention pond |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Drainage easement includes area of 100-yr. storm storage and adequate area for access to pond |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Size and type of outfall from pond shown with flow lines |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. Maintenance note provided |

SHOWN N/A E. GENERAL NOTES / DETAIL SHEETS - DRAINAGE IMPROVEMENTS

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. General notes included |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. City standard detail sheet |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Any special details required, e.g., box culverts, bridges, detention basins, etc. |