CIVIL ENGINGEERING PLAN CHECKLIST

PROVIDE COMPLETED CHECKLIST SIGNED BY PREPARER WITH APPLICATION

INSTRUCTIONS:

- Use the attached list to verify the completeness of the engineering plans being submitted
- Check the box next to each item that has been provided on the plans
- If an item or section is not applicable to the given project, write "N/A"
- Add notes next to any items where clarification to Town staff is needed
- Sign and complete contact information at end of checklist
- Attach the completed checklist with the engineering plans at the time of **first submittal only**
- Two (2) sets of 24" x 26" and one (1) set of 11" x 17" plans submitted to the Town for initial review
    - Each set shall be neatly bound, no loose sheets will be accepted
    - Each set should include the following sheets as applicable:
        - Cover Sheet
        - Town General Notes
        - Plat
        - Approved Site Plan (commercial projects)
        - Dimensional Control Plan (commercial projects)
        - Erosion Control Plan
        - Grading Plan
        - Drainage Area Map and Drainage Plans
        - Water and Sewer Plans
        - Paving Plans
        - Sidewalk Layout Plan
        - Street Light and Street Sign Plan
        - Construction Details
        - Tree Survey and Preservation Plan
        - Landscaping and Irrigation Plans

Please note the following information is intended to assist the design engineer in preparation of civil drawings for review by Town Staff. The following checklists is not intended to be a definitive list of all information or a list of design requirements. Refer to Town design manuals for complete design information.

GENERAL

- Title block with engineering firm information, registration number, engineer's seal, sheet title, and page numbers clearly shown
- A minimum of two (2) benchmarks
- North Arrow and scale clearly shown on each plan sheet
- Legend (relevant to each sheet) showing all special symbols, line types and hatches used
- Street names labeled on all existing, proposed, and future streets
- Lot & Block numbers and/or ownership info shown for all lots
- Caution notes shown when working next to any existing utilities (public and franchise)

- Accurate vicinity map included with north to the top

GRADING PLAN

- Existing and proposed contours at one (1) foot intervals
- Proposed contours lie back into existing contours
- Provide a letter of permission for offsite grading if necessary
- Maximum slope for grading is 3:1 (33%)
- Maximum slope for a fire lane is 6% (16.67:1) longitudinally and 4% (25:1) horizontally
- Lot-to-lot drainage is not allowed in residential developments, and only allowed in non-residential with dedicated drainage easements
- Retaining walls must be shown on the grading plan. A signed and sealed wall detail must be provided, and any wall over four feet (4') in height will require a building permit
- Retaining walls shall not run longitudinally within utility or drainage easements
- Clearly show all walls and label top/bottom elevations of the wall at key locations
- Finished Floor Elevations (on plat) are a minimum of two (2) feet above the adjacent ultimate 100-year water surface elevation
- Both on-site and off-site existing/proposed contours shown and labeled
- Date and name of firm who prepared geotechnical report with corresponding note stating: "Work shall be done in accordance with Geotechnical Report by _____, dated _____."
- Show driveway locations for all lots adjacent to storm inlets
- Show drop grade beams and elevations as needed
- Positive overflow provided at all low points, easements dedicated as needed
- Finished pad and/or floor elevations shown
- Minimum finished floor elevations shown adjacent to floodplains, ponds, creeks/channels, etc.
- FEMA 100-year floodplain and Fully Developed 100-year floodplain delineated
- Cross-sections and flow data for all swales and open channels provided
- Spot shots shown to ensure proper drainage and adequate ADA/TAS routing where applicable

PAVING PLAN

- Roadways shall be designed in accordance with the Town of Prosper Thoroughfare and Circulation Design Requirements

<u>Plan View</u>

- For all new streets, a site specific geotechnical evaluation and pavement design must be submitted with plans
- Typical Pavement Section details shown (fire lane, parking areas, streets, subgrade, etc.)
- For streets, centerline stationing at every one hundred (100) feet, PC's, PT's, and curve data labeled
- Intersection, driveway and island curb radii labeled
- All sidewalks and barrier free ramps shown, labeled and dimensioned
- Existing, proposed, future streets and drives shown and labeled

- Right-of-way corner clips and sight visibility easements provided
- Storm inlets identified with paving stations and top of curb elevations at center of inlet
- Drainage clarified by flow arrows at crests, sags, ridges, intersections, and valley gutters
- Show driveway locations for all lots adjacent to storm inlets
- Guardrail required when slopes exceeding 3:1, walls, or other obstructions are within thirty (30) feet of roadways or driveways
- Typical section is provided for each roadway type to be constructed

Profile View

- Existing ground line for left, right, and center of right-of-way shown
- Proposed top of curb line shown for all public streets, proposed invert line shown for all alleys
- Show right and left top of curbs at intersections where split grade occurs
- Top of curb/pavement elevations labeled at every fifty (50) foot stations
- Vertical Curve stationing and elevations including PVC, PVI, PVT, crest/sag location, curve length, algebraic grade difference, and "K" values shown at a minimum
- Street grades shown to the nearest 0.01'. Maximum and minimum grades per street design manual
- Show "compacted fill" callout/note for all areas of fill

DRAINAGE AREA MAP

- All drainage design shall be done in accordance with the Town of Prosper Drainage Design Requirements
- Existing contours clearly shown for entire drainage basin, both onsite and offsite. Aerial topography or similar is acceptable for offsite areas
- Drainage areas and sub areas delineated and labeled
- Flow arrows for surface drainage shown
- Existing and proposed storm lines shown
- Inlet designation labels shown
- Detention/retention pond shown and labeled
- Drainage easements shown and labeled
- Zoning indicated for all offsite areas and/or land use assumptions specified
- Rational Method Peak Runoff Rate Computation Table shown (Q=KCIA)
- Time of concentration and weighted runoff coefficient calculations shown as needed
- List the total site impervious area (square feet of all paving, roof areas, etc.) – commercial projects
- Erosion Hazard Setback, FEMA 100-year floodplain, and Fully Developed 100-year floodplain delineated

HYDRAULIC CALCULATIONS

- Street Flow Computation Table provided for all public streets
- Inlet Interception Computation Table provided for all public inlets
- Pipe Hydraulics Computation Table provided for all public lines

DETENTION POND DESIGN & CALCULATIONS

- Detention pond design calculations shown and method used specified
- Provide detention pond volume sizing calculations and/or computation table
- Provide stage-discharge table and/or curve information
- Provide weir and/or orifice sizing calculations for outfall structures
- Existing and proposed contours shown and labeled
- Cross-section of pond including side slopes, normal pool elevation (if applicable), show 100-year WSE, 10-year WSE, and 3-year WSE
- Detail of pond outfall structure showing all elevations as necessary
- Trash rack (and detail) provided for smaller orifice openings
- Overflow spillway location and design information provided
- Erosion Hazard Setback Easement and 100-year floodplain(s) shown as applicable
- Show and label all existing/proposed utilities and easements
- Access/maintenance ramp provided (max slope 6:1)

STORM WATER PLAN

Plan View

- Show and label all existing and proposed utilities
- Dimension location/spacing of utilities
- Label inlet type, size, paving station, and top of curb elevation at a minimum
- Label type and size of existing/proposed structures (i.e. headwalls, manholes, junction boxes)
- Label type, size and dimensions of all permanent outfall erosion protection
- Show centerline stationing for pipe with PC & PT stations and curve data
- Label centerline stations for lateral connections, manhole and junction box locations, pipe size changes, headwalls, and future stub out connections
- 100-year gutter flows and bypass shown at each inlet along public streets and fire lanes
- FEMA 100-year floodplain and Fully Developed 100-year floodplain shown
- Provide applicable construction details for all drainage structures

Profile View

- Existing and proposed ground line at centerline of pipe shown and labeled
- Show all hydraulic data including pipe flow, pipe capacity, hydraulic slope, velocity, velocity head, and partial flow data if under partial flow conditions (velocity and flow depth)
- Label station and flowline elevation information for all structures, crossings, laterals, etc.
- Label flowlines at every fifty (50) foot station
- Indicate length, type/class, slope and size of all storm pipes
- Show and label 100-year and/or 10-year HGL elevations at all junctions
- All utility crossings and parallel sewer lines shown in profile
- 100-year WSE shown at outfall for ponds, creeks and channels

WATER PLAN

- Water lines shall be designed in accordance with the Town of Prosper Water Design Requirements
- Water lines shall be extended to the adjacent property where applicable

Plan View

- Show and label all existing and proposed utilities
- Label size, type and pressure class for all proposed water mains
- Show and label all easements
- Dimension location of all mains, services, meters, and spacing form other utilities
- Curve data and stationing provided as necessary
- Show and label all fire hydrants, valves, fittings, FDC locations, and back-flow prevention

Profile View

- Profile all water mains twelve (12) inches and larger, or where potential conflict may arise
- Existing and proposed ground line at centerline of pipe shown and labeled correctly
- Label station and flowline elevations at one hundred (100) foot intervals, and for all fittings, laterals, and crossings
- Indicate length, type/class, slope and size of all lines
- All utility crossings and parallel wastewater/storm lines shown in profile
- Indicate length, type and size of encasement as needed

WASTEWATER PLAN

- Wastewater lines shall be designed in accordance with the Town of Prosper Wastewater Design Requirements
- Wastewater lines shall be extended to adjacent properties where applicable

Plan View

- Show and label all existing and proposed utilities
- Dimension location of all mains from other utilities
- Label line name, size, and type of all proposed wastewater lines
- Stub outs labeled with size, slope, length, and flowline elevations (if not profiled)
- Show and label all easements
- Show centerline stationing for wastewater lines
- Show and label all manholes with rim elevations, as well as cleanouts
- Indicate type and size of encasement where needed
- Show flow direction arrows for wastewater mains
- Topographic contours shown to delineate wastewater basins

Profile View

- Profile shown for all mains eight (8) inches and larger, or where a potential conflict may arise
- Existing and proposed ground line at centerline of pipe shown and labeled
- Label station and flowline elevation information for all manholes, cleanouts, crossings, and laterals

- Label flowlines at every fifty (50) foot station
- Manhole inflow and outflow elevations to be designed with a minimum of 0.1' drop
- Indicate the type and diameter for all manholes
- Indicate length, type/class, slope and size of all wastewater pipe between manholes
- All utility crossings and parallel storm lines shown in profile
- Indicate length, type and size of encasement as needed

STREET LIGHT & STREET SIGN PLAN (Arterial Roadways and Residential Subdivisions)

- Show all street light locations, consideration should be given to electrical layout from the utility company
- Show all stop signs and traffic related signage locations
- Street lights shall be located on the opposite side of the street from the stop sign
- Street lights shall not be located at lot lines where water services are located
- Verification of fire hydrant placement relative to street lights and stop signs (3 ft clear area)
- If symbols used in plan, appropriate legend included for clarification

SIDEWALK PLAN (Residential Subdivisions)

- Provide a single scalable sheet showing all sidewalks and/or hike and bike trails to be installed with the development
- Distinguish between developer installed sidewalks and homebuilder installed sidewalks
- Show actual layout locations and sizes of all proposed sidewalks and barrier free ramps
- Specify the type of barrier free ramps used at all locations
- Confirm sidewalk layout and grades meet ADA and TDLR standards

MISCELLANEOUS

- Site plans, Plats, etc. shall follow all applicable planning checklists found in the Town of Prosper Development Manual
- Landscape Plans (and associated Irrigation Plans) included with civil plans and designed per Town of Prosper Development Manual
- Detailed Tree Survey, as applicable, meeting requirements found on checklist within the Town of Prosper Development Manual
- Standard Details shall be provided on features needing proper design guidance not covered in the Town of Prosper Specifications

"I, the undersigned, Engineer of Record for this project, hereby certify that I have reviewed the Civil Engineering Plan Submittal Process Packet, and that the information provided herein is correct and complete to the best of my knowledge."

Signature: _____ Date: _____

Printed Name: _____ Phone: _____

Project Name
Address or Location:_____ Email: _____