CIVIL ENGINGEERING PLAN CHECKLIST

NON-RESIDENTIAL DEVELOPMENT

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. Scan signed checklist and submit with other electronic files listed below.
- Engineering Plan Review Fee must accompany all initial submittals.
- Attach the completed checklist with the engineering plans at the time of first submittal only.
- Electronic files in pdf format submitted to the Town for initial review. These files should accompany Planning submittals and should be submitted on a CD or USB flash drive (aka thumb drive).
- Each set should be directly created in Adobe or similar (no scanned versions)
- Each set should include the following sheets as applicable:
    - Cover Sheet
    - Town General Notes
    - Plat
    - Site Plan
    - Dimensional Control Plan
    - Paving Plans
    - Erosion Control Plan
    - Grading Plan
    - Drainage Area Map and Drainage Plans
    - Water and Sewer Plans
    - Construction Details
    - Tree Survey and Preservation Plan (and/or Tree Mitigation Plans)
    - Landscaping and Irrigation Plans (*see separate checklist for required items*)

Depending on size of development, items listed above can be combined on the same sheet. However, ensure all pertinent information is clear for each area and scale of drawing is appropriate for each item.

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. Items listed in bold and marked with an " * " are required items on all civils sets. Submittals shall be rejected if denoted items are not included within each civil set. (waivers from said items must be pre-approved from the Assistant Director of Engineering Services over Development) Refer to Town design manuals for complete design information.

This checklist should be used for all infrastructure projects associated with non-residential development.

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 and current vicinity map included with north to the top

DIMENSIONAL CONTROL PLAN

- ☐ Note or other stating if dimensions are to face of curb, back of curb or other
- ☐ Dimensions for all buildings, pavement and hardscape areas (i.e. parking areas, driveways, fire lanes, turn lanes, sidewalks, radii, throat depths, etc.) measured to the nearest 0.0' *
- ☐ Control points to structures (i.e. inlets, etc.) based on dimension from property corner or known feature (not from an arbitrary point parallel to property line) benchmarks are required on all pertinent sheets with at least one being a Town GPS monument *
- ☐ Verification of public right-of-way widths. Dimension each property corner adjacent to public right-of-way to a perpendicular point on opposite side right-of-way line (do not label "variable width" only) *
- ☐ Dimension along right-of-way to nearest cross-street and/or driveway measured from edge of drive to edge of drive.

PAVING PLAN

- ☐ See Residential (and Infrastructure) checklist for all public roads
- ☐ Roadways shall be designed in accordance with the Town of Prosper Roadway Design Requirements

<u>Plan View</u>

- ☐ A site specific geotechnical evaluation and pavement design must be submitted with plans *
- ☐ Typical Pavement Section details shown (includes fire lane, parking areas, streets, subgrade, etc.) for each roadway drive type*
- ☐ 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
- ☐ Connection to existing pavement clearly identified.
- ☐ Storm inlets identified with paving stations and top of curb elevations at center of inlet
- ☐ Drainage clarified with crests, sags, ridges, intersections, and valley gutters identified with flow arrows

GRADING PLAN

- ☐ Existing and proposed contours at one (1) foot intervals
- ☐ Both on-site and off-site existing/proposed contours shown and labeled *
- ☐ Proposed contours tie 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 *
- ☐ Maximum grade differential for fire lanes is 5%
- ☐ Lot-to-lot drainage is only allowed in non-residential with dedicated drainage easements *
- ☐ Retaining walls must be shown on the grading plan. With a note stating all walls will require a building permit
- ☐ Retaining walls shall not run longitudinally within utility or drainage easements. No portion of walls shall be in the right-of-way.
- ☐ 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
- ☐ Date and name of firm who prepared geotechnical report with corresponding note stating: "Work shall be done in accordance with Geotechnical Report by _____, dated _____."
- ☐ 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 *

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 clearly 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=CIA)
- ☐ Use of calculated Time of concentration separate from what is found in design manual, and weighted runoff coefficient calculations need prior approval
- ☐ 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, 25-year WSE, 10-year WSE, and 2-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 SEWER PLAN

<u>Plan View</u>

- ☐ 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 applicable including velocity and flow depth) for EACH pipe segment *
- ☐ 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 HGL and list 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. *
- ☐ Ground line (existing and proposed) shall be shown for a minimum of 50 ft beyond outfall *

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 water services
- ☐ 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, fire lanes, 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 *
- ☐ Show and label all wastewater laterals (all non-residential laterals to be 6" and greater and connected to a manhole)
- ☐ Stub outs labeled with size, slope, length, and flowline elevations (if not profiled) *
- ☐ Show and label all easements
- ☐ Show centerline stationing for wastewater mains
- ☐ 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

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. ***Landscape plans should be submitted electronically in same format and method as civil plans. ***
- ☐ Detailed Tree Survey, as applicable, meeting requirements found on checklist within the Town of Prosper Development Manual. ***Detailed Tree Survey (and any accompanying mitigation plans) should be submitted electronically in same format and method as civil plans. ***
- ☐ Standard Details shall be provided on features needing proper design guidance not covered in the Town of Prosper Specifications
- ☐ Geotechnical Report, as applicable, and associated checklist as identified in Town's Paving and Subgrade Design Manual

"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: _____