

ENGINEERING CHECKLIST FOR PRELIMINARY SITE PLANS

General Requirements

- Submitted on 24 inch x 36 inch paper with a minimum horizontal scale of 1 inch = 20 feet and vertical of 1 inch = 2 feet. For sites less than three acres or a minimum horizontal scale of 1 foot = 100 feet and vertical of 1 inch = 10 feet for sites of three or more acres.
- General plan at 1 inch - 100 feet or 1 inch = 200 feet when the size of the site prohibits a single plan sheet. Show street names, units, utilities, pavement, site dimensions, and phase lines.
- Plans must be signed and sealed by a professional engineer or architect registered in the State of Michigan. All correspondence concerning the design of the site will be directed to the engineer whose seal appears on the plan.
- Name, address and phone number of both the engineer/architect, owner and the applicant if different from the owner. Owner's signed consent for preliminary site plan approval application if the applicant is not the owner.
- Legal description of property, including lot number and parcel identification number.
- Location map showing section number and major thoroughfares.
- Title block for each sheet. Scale north arrow, date or plan required.
- Existing zoning classification of property, delineation of required yards, dwelling unit schedule, density of development, and lot area per dwelling unit for residential projects, lot coverage percent, and floor area ratio, and location and size of required buffers if applicable. Parcel dimensions and adjoining rights-of-way.
- Location and area of development phases, building program by phase, and projected schedule of development by phase.
- Parcel dimensions and adjoining rights-of-way.
- Adjacent land uses and zoning, including any adjacent property owned by the applicant, location of adjacent buildings, drives and streets.
- General Topography and soils information.
- Building use indicated and other uses of property including any outdoor storage areas.
- Proposed building/structures, location, outline, general dimensions, distance between buildings/structures, floor area, numbers of floors, height, number and type of dwelling units where applicable.
- Proposed streets and drives – general alignment, right-of-way, surface area and width.

- Location and size of open areas and recreation areas.
- Proposed parking and loading - location and dimensions of lots, typical dimensions of spaces and aisles, angle of spaces and required number of spaces by zoning. Loading spaces indicated.
- Location and width of all existing and proposed easements on the site or adjacent to the site.
- General location and size of all utilities (water, sanitary, storm); location of overhead wires and poles.
- Areas of intended grading; outline of existing structures and drives; existing natural and manmade features to be retained or removed.
- Walls or berms, as required by zoning, must be shown in cross-section. Walls separating a grade differential of more than 18 inches are considered retaining walls and require a structural engineering design and review. Design engineer must supply calculations with engineering plan submittal.
- Plantings shown in accordance with zoning requirements.

Topographical Survey

- Show USGS Benchmark (minimum of two).
- Property lines indicated by bearing and distance.
- Existing offsite elevations at a minimum of 50 feet and 100 feet around the property. Elevations at property corners and along property lines and sufficient onsite elevations or contours to establish site drainage.
- Existing conditions shown. Indicate existing natural or manmade features to be removed or retained, including but not limited to; ditches, culverts, utilities (invert and casting elevations), sidewalks, power poles, easements, finish grade of adjacent buildings, trees, wetlands, ponds, structures, driveways and curb cuts.
- Show existing adjacent roads with existing right-of-way and future right-of-way per the Master Plan. Grades must be shown at ditch centerline, top of bank, edge of shoulder, edge of pavement or top of curb and pavement centerline. Grades must be shown on both sides of road. (This must be shown on the final site plan and may be necessary for the preliminary site plan stage).

Water Main

- Minimum size water main is eight (8) inches. Maximum dead-end main lengths are: 40 feet for a 6-inch fire hydrant lead; 450 feet for an 8-inch main; 1000 feet for a 12-inch main.
- All mains must end with a gate valve then a hydrant or blow-off.
- Show water service and size. No private services allowed from a 6-inch hydrant lead or mains over 16 inches in diameter.

- Where water main is next to the right-of-way, a water main easement must be extended across the frontage or to a property line as directed by the City Engineer.
- A 10-foot horizontal separation and an 18-inch vertical separation must be maintained between the water main and sanitary or storm sewers.
- Minimum 12-foot-wide easement must be shown on the plans.
- Valve spacing: In case of a breakage: Three (3) valves to isolate break, no more than two (2) hydrants out of service; no more than 30 single family units or 30 multiple units out of service. For major commercial and industrial developments, building service must be maintained from a looped system with valves and wells on either side of the building service.
- Hydrant spacing: see Hydrant Coverage.
- No Parking within ten (10) feet of a hydrant.
- Fire Department will comment of hydrant locations.
- Plans must conform to Fire Department Guidelines.

Sanitary Sewer

- Where a sanitary sewer is next to the right-of-way, a sanitary sewer easement must be extended across the frontage or to a property line as directed by the City engineer.
- Minimum twenty (20) foot easement. Check for increase due to depth of sewer. Easement must be shown.
- Show size and location of proposed sewers and building service leads.

Storm Sewer

- Proposed collection points, system layout, sizes and outlets must be shown on the site plan. Also, show preliminary invert elevations and detention calculations.
- Minimum twelve (12) foot wide easement. Check for increases due to depth of sewer. Easement must be shown.

Detention Basin

- Supply preliminary calculations for site plan review per City requirements, (see page 23 for formulas).
- Acceptable means are: underground infiltration or storage, oversized storm pipes, and separate basin.
- Separate detention basin requirements: Fenced if side slopes exceed one vertical to five horizontal.

Site Grading

- Sufficient proposed grades indicated to ensure that:
 - Drainage is adequately discharged offsite with proper detention.
 - No upstream drainage is restricted.
 - Paving slopes are adequate.
 - The site generally drains without standing water.
 - Adjacent property will not be adversely impacted.
- Elevation representing the brick ledge, finished grade, and the first floor grade must be indicated.
- Proposed grading will meet abutting property line elevations. Differentials in grade must incorporate a one (1) vertical to four (4) horizontal maximum slope to the abutting property line.
- An easement from the adjacent property owner will be required for any grading necessary on offsite property at the time of final site plan submittal.

Paving and Right-of-Way Improvements

- Onsite paving requirements:
 - Minimum drive widths and parking lot dimensions per standard details.
 - All private roadways and parking lots must have concrete curb and gutter except in zoning districts classified as Research and Development (RD) with City approval.
- Public right-of-way, (City):
 - Right-of-way layout must be shown, including:
 - Appropriate right-of-way width shown.
 - Right-of-way cross-section shown, including pavement width, curb and gutter (if necessary) and sidewalk locations.
 - All roads must have curb and gutter unless otherwise approved by the City.
 - Passing lane, acceleration lane and taper, deceleration and taper as required by the Department of Public Services.
 - Shoulder requirements (uncurbed roads): Local road five (5) inches – 22A gravel, five (5) foot wide.

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- Dedication of right-of-way along frontage to the ultimate right-of-way shown.
 - Major road: One hundred twenty (120) feet.
 - Collector road: Eighty-six (86) feet.
 - Local Road: Sixty-six (66) feet or sixty (60) feet (residential areas only).

- Sidewalks required along the front of all roads.
 - Located one (1) foot from ultimate right-of-way line.
 - Handicapped ramps noted.
 - All structures, hydrants, poles, etc., noted and moved or adjusted as necessary.