

## SITE PLAN CHECKLIST

Site Plan Name \_\_\_\_\_

Account Number \_\_\_\_\_ Review Engineer \_\_\_\_\_

### Prior To Review

\_\_\_\_\_ Preliminary plan approved by Planning Commission / Council if required. Use tax map number to check planning applications.

\_\_\_\_\_ Review fee paid.

\_\_\_\_\_ Submittal includes:

Transmittal letter.

Drainage calculations – narrative and drainage area maps (including off-site areas).

Pavement design calculations, if plans include turn lanes or street widening.

\_\_\_\_\_ Plan sealed and signed by a Professional Engineer or Certified Land Surveyor.

\_\_\_\_\_ If any of the above items are missing, send out incomplete letter.

### Routing

\_\_\_\_\_ Send one copy to Department of Public Utilities.

\_\_\_\_\_ Send one copy to Planning Department.

\_\_\_\_\_ Send one copy to Fire Department.

\_\_\_\_\_ Send one copy to Traffic Engineering.

\_\_\_\_\_ Send one copy to City Arborist.

\_\_\_\_\_ Send one copy to Zoning Administrator.

\_\_\_\_\_ Send one copy to Parks and Recreation, if there is a public park on the plans.

\_\_\_\_\_ If site is in CRHA project, send one copy to CRHA for approval.

\_\_\_\_\_ If required, send one copy to VDOT for approval.

Each routing should include one copy of the plans, one copy of the transmittal letter, and one copy of appropriate calculations.

### **Preliminary Items**

- \_\_\_\_\_ Review Preliminary File, verify that preliminary plan in Public Works is the plan approved by the Planning Commission, check preliminary approval for stipulations, proffers, variances.
- \_\_\_\_\_ Ensure plan conforms to stipulations and proffers.
- \_\_\_\_\_ Check Preliminary File for Public Works Plat Committee comments, apply to review of construction plans.

### **Field Inspection**

- \_\_\_\_\_ Check for following items:
  - \_\_\_\_\_ Existing drainage conditions.
  - \_\_\_\_\_ Offsite drainage facilities.
  - \_\_\_\_\_ Outfall adequacy.
  - \_\_\_\_\_ Entrance alignments with existing entrances, streets, etc.
  - \_\_\_\_\_ Also, check existing water and sewer availability (with respect to proposed lateral location), existence of fire hydrants, utility poles/boxes, etc. (e.g. existing fire hydrant in conflict with proposed entrance).

### **Plan Requirements**

#### Cover Sheet

- \_\_\_\_\_ States whether site plan or subdivision.
- \_\_\_\_\_ Developer's name and mailing address.
- \_\_\_\_\_ Construction plan assignment statement.
- \_\_\_\_\_ Benchmark and datum.

- \_\_\_\_\_ Tax map number.
- \_\_\_\_\_ Plan provides a table stating zoning, type of business, number of parking spaces provided and number of spaces required.
- \_\_\_\_\_ Note that adjoining property owners must be notified in writing 30 days prior to construction.
- \_\_\_\_\_ Summary of BMP data.
- \_\_\_\_\_ Vicinity map not less than 1" = 1 mile. Must have sufficient landmarks to locate the site.
- \_\_\_\_\_ Numbers of all associated preliminary plans, if any.
- \_\_\_\_\_ Engineer's estimate of cost for land disturbing activities and public improvements.
- \_\_\_\_\_ Table showing impervious area.
- \_\_\_\_\_ Total disturbed area.

#### General

- \_\_\_\_\_ North arrow on each sheet of plans.
- \_\_\_\_\_ All existing and proposed easements on or adjacent to development shown. Width and legal reference for all existing easements.
- \_\_\_\_\_ Details of non-standard public improvements shown.
- \_\_\_\_\_ All existing utilities and drainage pipes shown.
- \_\_\_\_\_ Utilities to be relocated shown with new location.
- \_\_\_\_\_ Scale no smaller than 1" = 25' for sites up to one acre. Smaller scale may be used for larger sites. All improvements along existing right-of-way shown at a scale of 1" = 25' or larger.
- \_\_\_\_\_ Property line boundaries defined by metes and bounds.
- \_\_\_\_\_ No items of work "by others" on plans.
- \_\_\_\_\_ Landscaping plan approved before plan approval.
- \_\_\_\_\_ Where "match grade" is indicated existing elevation shown.

### **Right-of-Way**

- \_\_\_\_\_ Plans show existing right-of-way lines, width, and centerline of original right-of-way.
- \_\_\_\_\_ Dedication to provide up to a 60' right-of-way.
- \_\_\_\_\_ Right-of-way reservation shown which reflects ultimate right-of-way on adjacent streets.
- \_\_\_\_\_ Building setback lines to be from reservation line.
- \_\_\_\_\_ Existing right-of-way widths must be shown ("Variable" width right-of-way is unacceptable).
- \_\_\_\_\_ Restoration of right-of-way addressed.

### **Entrance**

- \_\_\_\_\_ Entrance improvements will be required when modifications are proposed to existing sites which will significantly increase the traffic volume generated by the site or when existing entrance presents hazardous traffic conditions.
- \_\_\_\_\_ Type of entrance shall conform with the City Standards (page III-17, paragraph III-A2). Length of pavement widening for CG-12 shall be based on traffic generations.  
  
Standard Identification \_\_\_\_\_
- \_\_\_\_\_ The minimum acceptable entrance width is 30' for two way traffic and 24' for one way traffic (must be designated).
- \_\_\_\_\_ Elevations required on entrance to show the following:
  - \_\_\_\_\_ Cross section conforms to City standard detail. Sufficient elevations must be shown to verify conformance.
  - \_\_\_\_\_ Minimum 0.2% flow line slope. Sufficient elevations shall be shown to verify conformance.
  - \_\_\_\_\_ Adequate cover over entrance pipe (9" absolute minimum, also cannot protrude into pavement section).
  - \_\_\_\_\_ Water flows from entrance into public street (i.e. no public water flowing onto private property).

\_\_\_\_\_ Entrance shall be located as far from intersections as possible and in no case be located in the ultimate intersection curb return and entrance curb return – minimum distance 25’.

\_\_\_\_\_ The minimum distance between the opening of the entrance and the property line is 12.5’.

\_\_\_\_\_ Turn lanes and/or acceleration/deceleration lanes may be required when justified by the traffic volume generated by the site and/or by the traffic conditions (e.g. speeds – 45 M.P.H. or heavy traffic) on the adjacent roadway. Ensure pavement design is on plan (match existing is unacceptable). Pavement thickness for widening shall be based on site traffic generations, but shall not be less than the existing pavement section.

\_\_\_\_\_ Entrance pavement section shall be designed to accommodate the type and volume of traffic which will be generated by the site, and the anticipated soil strength.

#### Minimum Section

Asphalt 2” Bituminous Concrete Surface Prime Coat  
6” Aggregate Base Stone  
6” Compacted Subgrade

or

Concrete 7” of Class A-3 Concrete  
6” Compacted Subgrade

\_\_\_\_\_ Entrance shall tie into an existing paved, accepted street or one improved and bonded pending acceptance.

\_\_\_\_\_ Entrance width 30’ minimum from street to first aisleway (i.e. no tapered entrance or for a minimum of 30’).

\_\_\_\_\_ Entrances shall be designed such that an entering vehicle will not encroach upon the exit lane of a two way entrance. Right turning exiting vehicles shall use only the outside through lane without encroaching on the adjacent through lane. Use templates for anticipated traffic type. Sites where tractor trailers are anticipated shall be designed accordingly.

\_\_\_\_\_ Curb radii and entrance width shall be adequate to accommodate the largest type of vehicle expected to access the site. Delivery trucks must be considered.

\_\_\_\_\_ Storm drainage drop inlet structures are not permitted in the entrance. Manholes in the entrance must be designed to withstand HS-20 loading.

### **Pavement Cuts**

- \_\_\_\_\_ Recently overlaid streets or street having ADT greater than 7500 v.p.d. should not be open-cut install utilities.
- \_\_\_\_\_ Three or more pavement cuts within 500' requires a complete overlay.
- \_\_\_\_\_ Three or more pavement cuts within 500' on one-half of a street requires milling and overlay to the crown of the street.
- \_\_\_\_\_ Minimum thickness of SM-2A overlay is 1 ½".
- \_\_\_\_\_ Pavement patch specified for existing traffic volume (PC-1).

### **Parking**

- \_\_\_\_\_ Curb or wheel stop must be 2.5' away from property line.

### **Drainage**

- \_\_\_\_\_ Site plan must show details of site drainage facilities which will transport site runoff to an existing public system without adversely affecting adjacent property or creating maintenance problems for the City.
- \_\_\_\_\_ Check on-site and off-site topography against our topographic master drainage maps. Attach copy of master drainage maps to show site and adjoining properties.
- \_\_\_\_\_ Drainage area map and calculations on-site and off-site are required to support proposed drainage design. Check master drainage maps and printouts.

Check:

- \_\_\_\_\_ Areas (on-site and off-site).
- \_\_\_\_\_ C factor (off-site must reflect ultimate development).
- \_\_\_\_\_ Time of concentration.
- \_\_\_\_\_ Intensity (Appendix      ).
- \_\_\_\_\_ Calculations and map attached (stamp and date).

\_\_\_\_\_ Hydraulic Grade Line calculations may be required (e.g. to determine impact of development on existing facilities for proposed public facilities, etc.). ( ) If required, check:

\_\_\_\_\_ Initial tailwater depth, if natural outfall also use master drainage information.

\_\_\_\_\_ Minimum velocity in public system of 2.5 fps.

\_\_\_\_\_ Water surface must remain below the gutter flow line for design year storm (public streets).

\_\_\_\_\_ Calculations attached, stamped, and dated.

\_\_\_\_\_ Check computations for open channels or ditches (if applicable). Ensure correct tailwater elevation and n are used. Calculations stamped and dated.

\_\_\_\_\_ Public ditches – max side slope = 2:1 & min. bottom width 2’.

\_\_\_\_\_ Deepening of roadside ditches greater than 6” will require ditch and shoulder improvements. Shoulder width in accordance with VDOT Standard (minimum 8’). Any roadside ditch greater than 3 feet in depth will be piped.

\_\_\_\_\_ Offsite drainage improvements are required except when:

\_\_\_\_\_ Retention/Detention is used to restrict developed flow to less than or equal to pre-development flow.

\_\_\_\_\_ Increase in peak runoff generated by development is less than or equal to 1% of existing flow in the facility at the point of entry. ( ) Calculations attached.

\_\_\_\_\_ If site is part of previously mastered drainage area, then drainage improvements should conform to approved plans.

Improvement Plans Title \_\_\_\_\_ Date Approved \_\_\_\_\_

\_\_\_\_\_ The discharge of runoff from the site through the entrance onto the right-of-way in excess of adjacent gutter capacity or in excess of 2 C.F.S. (II-IV-I.9) will not be permitted. Total site contribution must not cause the gutter capacity to be exceeded. Calculations may be required to verify that inlet and gutter capacity is not exceeded (no greater than 10’ spread results during a 2 year storm ). If required, calculations attached, stamped and dated.

\_\_\_\_\_ Entrance pipes shall be sized for ultimate development upstream. Drainage calculations and areas are required to support pipe size selection. (II-I-H)

Check:

\_\_\_\_\_ Areas.

\_\_\_\_\_ C factors (offsite at ultimate).

\_\_\_\_\_ Time of concentration.

\_\_\_\_\_ Intensity (Appendix \_\_\_\_\_ )

\_\_\_\_\_ Calculations and map attached, stamped and dated.

\_\_\_\_\_ On-site detention (must meet City criteria \_\_\_\_\_ )

\_\_\_\_\_ Method must be acceptable to City and calculations required.

\_\_\_\_\_ Restriction by plate over outlet undesirable. Small pipe should be used to restrict flow.

\_\_\_\_\_ No public water permitted in a private impoundment system.

\_\_\_\_\_ Check predeveloped Q (or allowable discharge).

\_\_\_\_\_ Check results of engineers calculations. Ensure head calculations are included. No damage to vehicles or property.

\_\_\_\_\_ Calculations attached, stamped, and dated.

\_\_\_\_\_ Check City's Master Drainage Plan

Watershed \_\_\_\_\_ -

\_\_\_\_\_ Is pro-rata required?

\_\_\_\_\_ Pro-rata calculations attached, stamped, and dated.

\_\_\_\_\_ Pro-rata paid (must be prior to plan approval).

\_\_\_\_\_ Complete copy of pro-rata sheet.

\_\_\_\_\_ All concrete pipe within the right-of-way or subject to traffic must be Class III.

\_\_\_\_\_ PVC & PE pipes.

\_\_\_\_\_ Cover less than 1.5 diameters must have manufacturer approval anchoring.

\_\_\_\_\_ Cover less than 3', must use VDOT type 57 stone for bedding, haunching, and backfill.

\_\_\_\_\_ Cover not less than manufacturer recommendation or 1', whichever is greater.

\_\_\_\_\_ Minimum pipe size in public system = 12".

\_\_\_\_\_ Mannings "n" acceptable RCP = 0.013, PVC or PE = 0.011.

\_\_\_\_\_ Maximum length between access openings on storm drainage system is 350'. (II – I-L.3).

\_\_\_\_\_ Site grading.

\_\_\_\_\_ Ensure plan shows how site grading is to be accomplished.

\_\_\_\_\_ Ensure no adverse impact will occur on the adjacent sites.

### **Utilities**

\_\_\_\_\_ Water and sewer service provided. Ensure tapping sleeve and valve, pavement cut as required are shown on plan. Ensure lateral and mater sizes are shown.

\_\_\_\_\_ Off-site utility improvements required when the existing public water and/or sewer improvements must be extended to serve the site as required by the Department of Public Utilities.

\_\_\_\_\_ Easements must be shown on plan.

### **Easements**

\_\_\_\_\_ Existing easements shown with legal reference.

\_\_\_\_\_ Easement dedications required for existing or proposed facilities through the site prior to approval. The easement width will be determined based on ultimate improvements.

\_\_\_\_\_ Easement widths satisfactory – easement tied down by bearing and dimension.

\_\_\_\_\_ All off-site public easements will be required prior to approval of the site plan.

\_\_\_\_\_ Easement widths satisfactory – easement tied down by bearing and dimension.

\_\_\_\_\_ Engineer should be put on notice if any off-site private drainage rights should be obtained (include in approval letter if not obtained).

\_\_\_\_\_ If private on-site detention is used, the impoundment easement (See Appendix IX) must be executed prior to plan approval. Easement tied down by bearing and dimension.

### **Out Parcels – Subdivision**

\_\_\_\_\_ Check tax map – verify whether or not a subdivision will be required.

\_\_\_\_\_ If parcel must be subdivided – subdivision must occur prior to plan approval.

\_\_\_\_\_ If public improvements are to be constructed (e.g. sewer, water) – plan falls under subdivision criteria. Use subdivision checklists.

\_\_\_\_\_ Plan must specify which improvements will be bonded with the subdivision and which will be part of the site plan. This will required two (2) separate approvals. Add statement to review/approval letters concerning bonding. Site plan will not be approved until the improvements plan for the subdivision is approved improvements bonded and plat recorded.

\_\_\_\_\_ Ensure sewer and water laterals are provided to each out parcel.

\_\_\_\_\_ Each out parcel must have the drainage provided for (e.g. pipe, structure with stub, etc.).

\_\_\_\_\_ Ensure required ingress egress easements are on the plan.

\_\_\_\_\_ All required public and private easements must be on the plan.

\_\_\_\_\_ If it appears that the plan will be subdivided at a future date, statements to all review and approval letters must be added: If this property is further subdivided, all requirements (including bonding) of a major subdivision will be applicable. A plan revision must be submitted and approved by this department prior to recordation of the plat.

### **School Sites**

\_\_\_\_\_ Ensure plan shows installation of flashers and all appropriate signs. Note required on plan that this will be done by the developer.

\_\_\_\_\_ Route to Traffic Engineering for comments.

### **Condominiums and Apartments**

\_\_\_\_\_ Condominium and apartment plans must state that garbage collection is to be private. Dumpster pads must be shown.

\_\_\_\_\_ Ensure enough room (grassed area) for placement of street lights in condominium developments.

\_\_\_\_\_ Streets must conform to the City Zoning Ordinance Section 6-1600.

### **Erosion & Sediment Control**

\_\_\_\_\_ Complete erosion and sediment control checklist.

### **Street Right-of-Way Improvements**

\_\_\_\_\_ Ensure traffic control signs and pavement markings are shown on the plan. This includes existing and proposed streets.

\_\_\_\_\_ Regulatory signs (i.e. stop, yield and parking prohibiting signs), see enclosure for definition and application of signs by FHWA.

\_\_\_\_\_ Warning signs (i.e. maximum safe speed, curve ahead, etc).

\_\_\_\_\_ Pavement markings in accordance with VDOT type B.

\_\_\_\_\_ Other traffic control devices such as grade crossings, signals.

\_\_\_\_\_ Route to Traffic Engineering for input.

\_\_\_\_\_ Ensure note is on plan stating that the developer will be responsible for signs, markings, and roadway lighting.

\_\_\_\_\_ Is a traffic signal required to be installed or an existing signal upgraded?

\_\_\_\_\_ Pavement design shall be per \_\_\_\_\_ A maximum average CBR of 4 may be assumed in lieu of actual borings.

\_\_\_\_\_ Pavement widening on existing streets shall conform to standard cross slopes. If existing street is superelevated, then widening must also be superelevated (per Appendix \_\_\_\_\_) – Discuss superelevated areas with supervisor.

\_\_\_\_\_ Existing disturbed sidewalks/handicap ramps shall be replaced and shall meet City standards.

Ref. Manual of Uniform Traffic Control Devices by Federal Highway Administration (FHWA).