**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

**Project/Development Name:** _____
**City Project Number:** _____
**Reviewer's Initials and Date:** _____

Please mark completed items in the space provided. Mark N/A if not applicable. Items left blank are incomplete.

## COVER SHEET AND GENERAL REVIEW

___ Project Name (Title) (Past Project Names if applicable)
___ Owner's / Developers Name, Address, & Phone Number
___ Engineer's Name, Address and Phone Number
___ Architect's Name, Address and Phone Number
___ City of Camas Approval Block (Locate in lower right hand corner of cover sheet)
___ Vicinity Map
___ Legend
___ General Notes
  ___Reference to Standard Specifications
    ___City of Camas
    ___WSDOT/APWA
___ North Arrow and Scale
___ Preliminary State of Washington Engineer's Stamp (Signed at final review)
___ Memo Stating the Total Linear Feet of Improvements
  ___Street
  ___Water
  ___Storm
  ___Sanitary
___ Sheet Index
___ Benchmark, Datum Elevations
___ Complies with Request for Utility Services (R.U.S.)
___ Complies with Council's Decision (Staff to Review Notice of Final Decision)
___ Submitted Four Full-Sized & One Half-Size Set of Plans (1st review only)

Comments: _____

**GENERAL PLAN REVIEW CHECKLIST**
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## GRADING & EROSION CONTROL

___ Preliminary State of Washington Engineer's Stamp
___ North Arrow and Scale
___ Standard City of Camas Erosion Prevention & Sediment Control and Grading Detail Sheets
__ Construction Entrance __ Silt Fence __ Cut-off Ditches
__ Inlet Protection __ Slope Stability __ Temp. Sediment Ponds
__ Temp. Stockpile Area(s) Shown w/ Protection
___ Special Details Required
___ Easement(s) Required, Shown, Called Out
___ Property Lines / Adjoining Tax Lots Shown
___ Street Names (Names to be Assigned by Building Official)
___ Proposed Right of Way
___ Identify All Sensitive Areas (Wetlands and Buffers, Floodplains, Tree Resource Area, Streams, Creeks, Springs, etc.)
___ Existing and Finished Contours (**Finished Grade Slope No Greater than 2:1**)
___ Existing Area of Potential Slope Instability and Structures
___ Location of 100 Year Flood Plain & Shoreline Management Area Limits on the Site
___ Proposed Impervious Surfaces Other than Streets and Sidewalks
___ Drainage Flow Routes and Existing Discharge Points to and from Site
___ Edge of Pavement
___ Existing Trees, Trees to be Removed (w/ Diameter), Utility Poles, Wells, Septic Tanks, Drainage Structures, Fire Hydrants, Street Lights, Etc.)
___ Site Acreage
___ Area of Cut/Fill
___ Quantity of Cut/Fill
___ Wetland Area and Buffers – Cannot be Used for Treatment or Detention
___ Location of Buildable Lot Area
___ Testing Requirements / Frequency Matrix

Comments: _____

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

**Project/Development Name:** _____
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**Reviewer's Initials and Date:** _____

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## SANITARY SEWER

___ Preliminary State of Washington Engineer's Stamp
___ North Arrow and Scale
___ Sewer: ___ STEP; ___ STEF; ___Gravity; ___ Combo
___ Standard City of Camas Sewer Detail Sheets
___ Special Details Required
___ Easement(s) Required, Shown, Called Out
___ Property Lines / Adjoining Tax Lots Shown
___ Street Names and Widths
___ Pipe size, Lengths, & Material meet City standards and are shown
___ Stationing
___ Existing and Proposed Utilities Shown
___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
___ Lateral Table
___Lateral Size ___Length ___Depth ___Pipe Material
___ Dimensioning (Lateral ends 8' from curb and cleanout at property line)
___ Manhole Spacing (max. 400' for gravity system)
___ Cleanout Spacing (max. 200' or every 90° of Bend for STEF system)
___ All manholes with Coated Lining Called Out (STEP/STEF/Gravity)
___ Special Manhole Frame or Cover Required
___ Separation from Water Utility (10' horizontal, 18" vertical)
___ Invert Elevations
___ Rim Elevations
___ Check Slopes
___ Minimum Design Slopes (0.004 for gravity and STEF mains)
___ Minimum Depth and Cover (6' for gravity and STEF, 5' for STEP mains)
___ Concrete Pipe Anchors for Main Lines (Slopes greater than 20%)
___ Service to Each Lot
___ Shown on Profile

Comments: _____

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

**Project/Development Name:** _____
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**Reviewer's Initials and Date:** _____

Please mark completed items in the space provided. Mark N/A if not applicable. Items left blank are incomplete.

## STORMWATER

### Plans

___ Preliminary State of Washington Engineer's Stamp
___ North Arrow and Scale
___ Standard City of Camas Stormwater Detail Sheets
___ Special Details Required
___ Property Lines / Adjoining Tax Lots Shown
___ Street Names and Widths
___ Pipe size, Lengths, & Material meet City standards and are shown. Mains 12" minimum and Laterals 10" minimum per CSDS*
___ Stationing
___ Existing and Proposed Utilities Shown
___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
___ Location and dimensions of proposed stormwater facilities, including typical cross sections of proposed facilities)
___ Stormwater Profile for all Systems in R.O.W.
___ Drainage Flow Routes and Existing Discharge Points to and from site
___ Check All Pipe Slopes and Invert Elevations. Mains 0.25% minimum and Laterals 0.3% minimum per CSDS*
___ All changes in pipe size, material, direction, or grade require a catch basin or manhole per CSDS*
___ Connections to Pipe Systems at Catch Basin or MH Only, min. slope 1%
___ If pipe cover is less than what is required in the on Details G2 & G3, provide minimum pipe cover for vehicular loads per manufacturer's specifications
___ Catch basins at low points, not to be located at base of ADA ramps
___ Catch basin spacing 400' max., located all intersections, reduced spacing on roads in excess of 10%
___ Manhole spacing 400' maximum
___ Concrete pipe anchors for main lines with slopes greater than 15%

*CSDS – Camas Stormwater Design Standards

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

## STORMWATER Continued

## WQ Treatment Facility

___ Detail of any flow control structures
___ Provide overflow structure in fine grained soils or if low percolation
___ Check if Oil/water Separator is required
___ Show sufficient dimensions on all stormwater facility(s) for construction
___ Provide typ. Swale Cross section
___ 4:1 slopes preferred for mowing (Max. 3:1) ___ Min. width 2'
___ 1'Freeboard on Ponds & Swales ___ 0.5%-4% slope
___ Minimum 6" topsoil mix for the swale grass if in permeable soils
___ Permeable soils require impermeable liner or 1 ft. clay liner under 6" topsoil layer in swale to be less than 2.4 in/hr to be field verified by design engineer prior to sodding or seeding.
___ List swale seeding specifications
___ Finish elevations on all outfall inverts, top of level spreader, top of grates
___ Energy Dissipater at end of outfall piping
___ If rip rap used, detail length, width, depth, and size
___ Debris barrier/grate for all pipes entering a closed pipe system
___ Retaining Walls – specify top and bottom of wall elevations, dimensions, type of material, backfill material, installation, wall section, footing drainage, etc.
___ Maintenance access to swale or pond from street (min.15' wide, less than 18% slope, min. 15' easement, access 12% or greater required to be paved, & around pond as needed)
___ Barrier or fencing around the stormwater facility, if safety is a concern, (fence type, height (max. 6'), gate opening (10' min), top rail on fence
___ Stenciling / medallions at all catch basins
___ Label Stormwater facility as tract of land, where applicable
___ Stormwater facilities in subdivisions and short plats are shown in separate tract/s, with access.
___ Stormwater facilities on commercial / industrial sites are accessible and a note is on the plans that states 'Facility is owned and maintained by the property owner and right-of-entry shall be granted to the City for inspection purposes.'
___ Types & Number of plantings around pond perimeter to be reviewed by Planning
___ Operating and Maintenance Manual for Storm Facilities (Ref. TIR)
___ Wetlands & Buffers (Sensitive areas labeled and shown)

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

## STORMWATER Continued

___ Roof Downspout Connection:
- ___ To approved drainage structure; Include sizing on plans
- ___ To curb weep holes on crown streets or low side of shed streets

## Infiltration Facility

___ Cross section of infiltration system
- ___ Drywells
- ___ Building roof drain
- ___ Perforated pipe trench
- ___ Infiltration pond

___ Check landscaping plan against stormwater facility (no trees in treatment area, etc.)

___ Design Infiltration Rate & Contractors design table for length of perf. pipe required per 1000 sq. feet of roof area

___ Pre-sedimentation manhole required for all drywells without water quality treatment

___ Verify that no wells or other facilities are adjacent to infiltration pond.

___ Provisions for roof drains for all lots.

Comments: _____

_____

_____

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

**Project/Development Name:** _____
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## Transportation Plan

___ Plan is consistent with traffic study recommendations and decision
___ Signing and striping Plan
___ Sight Distance Triangles and Calculations
___ Sight Distance Triangle Easements on all corner lots (label and Dimension)
___ Road Modifications
___ Pavement Design
___ Preliminary State of Washington Engineer's Stamp
___ North Arrow and Scale
___ Legend
___ Easement(s) Required, Shown, Called Out
___ Property Lines / Adjoining Tax Lots Shown
___ Street Names
___ Existing and proposed Right of Way
___ Stationing
___ Tangent Bearings
___ Statement of ownership, maintenance, and repair of all utilities at private streets
___ Curve Data (per CMC 17.19.040.B.12.c): Centerline Radius 300' minimum on Primary Arterials, and 200' minimum on Secondary Arterials)
___ Curb
  ___ Radii (35' minimum on Arterials and Collectors, 25' minimum on others)
  ___ Elevation at Radius Returns (½'s' ¼'s)
  ___ Elevations at Lot Lines
___ Dimensions
  ___ Streets
  ___ Driveways
  ___ Hammerheads, per Detail ST36
  ___ Temporary Turnarounds, per Detail ST36
  ___ Cul-de-sacs & Dead Ends, per Detail ST36 (Over 300' require approval)
___ Grades (per CMC 17.19.040.B.12.b): Arterials 6% max.; Collectors 10% max.; Others 12% max.)
___ Driveway locations shown on all corner lots – Access control issue
___ Sidewalks
  ___ Pedestrian Ramps (check alignment)
  ___ Connectivity
___ Turning lanes
___ Traffic Signals
___ Vertical Curves per AASHTO (see "Policy on Geometric Design of Highway & Streets", Exhibit 3-76, page 274)

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

## Transportation Plan Continued

___ Intersection alignments and curb return minimums
___ K value Shown
___ Superelevation
___ Design Speed ____ mph; Posted speed ____ mph
___ Typical Street Section
___ Street Classification _____
___ ½ street improvement __ ½ street inlay __ resurfacing of ex.
___ Soil Classification _____
___ Crown Street 2% Min., 4% Max. Cross Slope
___ Shed Street 2% Min., Slopes in excess of 2% require prior approval, 6% Max. Cross Slope
___ Controlled Density Fill (CDF)
___ Center Line
___ Width of Right of Way
___ Width of Street
___ Public Utility Easement (P.U.E.)
___ Subgrade and pavement including depth and type
___ Curb Type
___ Sidewalk location, width, depth, compacted subgrade
___ Misc. Typical Sections
___ Standard Concrete Driveway
___ Concrete Vertical Curb
___ Concrete Curb and Gutter
___ ADA Curb Ramps
___ Ramp detectable warning detail
___ Barricade (Type III)
___ Sidewalk Cross Section
___ Mailbox Location
___ Letter for Road Modification from Engineer
___ Sign and Striping locations in accordance with MUTCD
___ Signs and Mailboxes located in planter strip (5' horizontal clearance; min. 7' vertical clearance).
___ Street configuration and lot numbering conforms to preliminary plat.
___ Bike lanes required
___ Traffic signal plan or loop & conduit installation for future.
___ Neighborhood Traffic Management Compliant

Comments: _____

_____

_____

**GENERAL PLAN REVIEW CHECKLIST**
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**Project/Development Name:** _____
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## Water Plan

___ Preliminary State of Washington Engineer's Stamp
___ North Arrow and Scale
___ Standard City of Camas Water Detail Sheets
___ Special Details Required
___ Easement(s) Required, Shown, Called Out
___ Property Lines / Adjoining Tax Lots Shown
___ Street Names & Widths
___ Pipe Size, Lengths, & Material per Standards
___ 8" Minimum
___ Stationing
___ Existing and Proposed Utilities Shown/Conflicts
___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
___ Dimensioning (6' from North/East Curb)
___ Fire Hydrant w/ Fire Marshal's Approval
___400' Between Hydrants
___ 600' from Property Lines
___No Fire Hydrant on Dead End 6"
___ Valves: 3 on a Tee, 4 on a Cross, and Valves Every 600' (minimums)
___ Fittings / Blocks, Shown & Called Out
___ Pipe Deflection Checked for Pipe Sections
___ Blow-off (Standard or Construction)
___ Separation from Sanitary (10' Horizontal, 18" Vertical)
___ Encased in Concrete
___ Ductile Iron Sleeve, 10' Each Side of Crossing.
___ Water Depths and Crossings Shown on Profile
___ Water Meter Locations and Size
___ Irrigation Meter Locations, Size, and Backflow Prevention Device
___ G.P.M. Available
___ Cross-Connection Control for irrigation and business services
___ Service to Each Lot

**GENERAL PLAN REVIEW CHECKLIST**
**ENGINEERING DEPARTMENT**

## Water Plan Continued

___ Verify Correct Locations, Size, & Type of Existing Water Facilities (Booster Stations, Reservoirs, etc.)
___ Engineered Vacuum Relief Locations for Large Water Mains
___ Air / Vacuum Relief Location Shown - High Point Typical
___ PRV Location / Settings

Comments:

_____
_____
_____
_____
_____