4. Detailed Engineering Plan Review Submittal Requirements

4.1 Survey

All designs shall be based on a complete topographic survey including surface and subsurface features, existing utilities, and all property line information on the City's coordinate system (*Appendix D*). Record information on existing utilities and street improvements may be available from the City. Although, when available, this information can be used to assist in determining capacity constraints during conceptual design, all record information must be field verified through design surveys. Surveys must extend beyond the site boundary an adequate distance to determine grading and any other potential impacts to surrounding properties with an absolute minimum of 50 feet.

4.2 Submittal and Format Requirements

4.2 A. **Submittal Requirements**

All plan submittals subsequent to the mandatory pre-submittal conference shall be made directly to the City of Hood River Engineering Department, Attn: City Engineer.

Plan packages can be hand-delivered to:

1200 18th St. Hood River, OR 97031

Alternatively, plan packages can be mailed to:

211 2nd St. Hood River, OR 97031

All documents must be submitted in hard copy and electronic format via removable storage device (i.e. thumb-drive or current equivalent). The only acceptable file type for documents is PDF, except for as-built CAD files, which shall be submitted in DWG format or other pre-approved file format for the City GIS system (*Appendix E*). Email or file sharing submission of electronic files may be allowed, as approved by the City Engineer.

4.2 B. **Site Development Engineer's Cost Estimate**

Design Engineer's estimated project cost (in unit prices) for all proposed infrastructure (Note: This is not for final plat approval; please refer to HRMC Title 16 for final plat approval requirements).

- All estimates shall be based on public works costs including prevailing wage labor rates.

- Estimates shall fall within +15% to -10% of actual construction costs, otherwise reassessment charges shall apply for the difference between estimated and final constructions costs. See Class 1 Estimates as described by the Association for the Advancement of Cost Engineering International in Recommended Practice #18R-97, latest edition.

1) General Requirements:

a) Two (2) copies of the Design Engineer's Site Development Cost Estimate (in unit prices) for all proposed infrastructure on 8.5"x11" paper or 11"x17" paper as appropriate. Shall be stamped by an Oregon licensed professional Engineer.
b) Engineer's cost estimates shall conform to Oregon Department of Transportation (ODOT) Standard and Special Item unit price format. Whenever possible use ODOT standard bid items to describe the work to be performed.
c) All cost estimate items shall be described with limits of work clearly described and defined on the plans or within the plan specifications.
d) A contingency of no less than 10% shall be added to the cost estimate.
e) Any changes in the project scope that are deemed significant by the RE or by the City Engineer shall be reflected in a revised and updated Site Development Engineer's Cost Estimates.

2) Minimum Requirements:

a) All work in the ROW or other public easements.
b) Stormwater, on-site water, drainage, and other related items on-site.
c) Public portions of water systems (fire and potable) serving commercial units on-site.
d) Irrigation connected to the public water system.
e) Public portions of sanitary sewer system related items on-site.
f) On-site grading.
g) Retaining wall structures that support site work or the ROW (Exclude costs for walls that exclusively support new buildings).
h) Joint utility trench sections.
i) All roads, paths, and parking areas, including curbs and gutters.
j) Reconstruction of structures, including parking areas over 3,000 square feet.
k) Public lighting for parking and driving areas.
l) Cross-access related services (i.e. roads or paths required by code or conditional use).
m) Special items required by the Condition of Approval, Planning Commission decision, or at the discretion of the City Engineer.

4.2 C. **List of Changes**

Provide two (2) copies of the List of Changes to the plans and responses to questions resulting from the previous review by the City Engineer on an 8.5”x11” paper.

4.2 D. **Stormwater Management Plan**

A site-specific Stormwater Management Plan prepared by an Oregon Professional Engineer must be submitted for each development project requiring a Detailed Engineering Plan Review (*Section 3.1 C*). At a minimum, the plan must include

1) Two (2) bound copies of the Stormwater Management Plan on 8.5’x11” paper. Any required 11”x17” sheets shall be Z-folded into this bound document.
2) Stormwater management calculations (*Section 8.2*).
3) Drainage area maps (to scale) showing entire contributory area(s) and clearly delineating all calculated sub-areas and time of concentration routes.
4) Documentation of all assumptions.
5) Adequate detail to allow confirmation that calculations meet design criteria in these Engineering Standards.

4.2 E. **General Construction Drawing Requirements**

1) Submit two (2) sets of construction drawings on 22”x34” sheets (24”x36” drawings are also acceptable with the appropriate border for half size reduction to 11”x17”) and two (2) sets on 11”x17” sheets in bound sets.
2) Drawings shall be reproducible in black and white with shading and grays allowed provided that they are easily reproducible by black and white copy machines.
3) Each drawing shall have a title block aligned on the right hand side, or bottom, of the page and contain the seal of the responsible Design Engineer.
4) Horizontal scale for plan and profile sheets shall be at a scale of 1”= 20’, unless otherwise approved via the Design Exception process.
5) Vertical scale on profiles shall be 1”= 2’, unless otherwise approved via the Design Exception process.
6) Text on full size sheets shall not be less than 0.1” using all capital lettering. Fonts shall be clearly legible and easily reproducible at half size when reduced.
7) North arrow shall be shown on all plan views.
8) Area Hatches shall be reproducible in black and white and shall be clearly identified by Legend.
9) Linetypes shall be distinct and reproducible in black and white. When line types are not self-identified provide a clear Legend that describes each significant feature being represented by the line. They shall conform to the City of Hood River CAD Standards (*Appendix E*).

10) CAD Record Drawing files reflecting as-built conditions shall be submitted in DWG format prior to final acceptance and must comply with the City of Hood River CAD Standards (*Appendix E*).

4.2 F. **Minimum Sheet Requirements**

The construction drawing submittal shall address all design criteria included or referenced in these Standards and shall include the following sheets as applicable:

1) Cover Sheet:

a) Project name, Owner, Developer, Surveyor, and Design Engineer with contact information for each, Vicinity Map, Legend, Standard Notes as listed below, Sheet Index, Signature Blocks for Utility Owners, and City Engineer.
b) All potential conflicts with private utilities must be addressed prior to submission of the final (100%) plan submittal. The applicant must verify plan submission requirements for each private utility according to their specific franchise agreements with the City of Hood River. Final plan submittal shall include completed signature blocks for all private utilities. The Design Engineer or spplicant shall be responsible to coordinate with all non-city-owned utilities to resolve conflicts and obtain signatures. Provide full name, position, and current contact information for each utility provider and the City Engineer including daytime phone number. Provide signature and date block for each signatory.
c) The following "Standard Notes" shall be included on the Cover Sheet of all projects:

i. All materials and workmanship shall be in accordance with the HRES, the ODOT/APWA Oregon Standard Specifications for Construction, and the American Water Works Association (AWWA) Standard Specifications. In case of conflicts, the City's Engineering Standards shall apply unless specifically listed as a Design Exception on this Drawing.
ii. All late-season AC paving (placed after October 15th and before April 1st), shall be held to the same performance criteria as all other paving. If for any reason there is aggregate separation, a rough finished surface, or other non-acceptable final product and the City Engineer determines that it is not in the best interest of the City to reject the work and have it removed and reconstructed, the City Engineer may require an asphalt seal coat or other remediation on the entire surface or portions thereof.
iii. Design Exceptions: all Design Exceptions shall be listed below this note.

2) Standard Roadway Section(s) and General Notes:

Project specific applicable standard roadway, sidewalk, and other significant surface sections and general notes. Drawings shall be at a scale appropriate to show the level of complexity. Sections shall be clearly defined according to their locations on the site plans.

3) Existing Conditions Plans:

Show all existing streets, utilities, appurtenances, streetscape elements, street markings, contours, control devices, signals, lighting, storm drainage, survey control, ROW and property lines, easements, jurisdictional overlays (i.e. zoning, city limits, UGB, and IAMP boundaries, etc.), curbs, walks, ramps, driveways, retaining wall, bridges, structures and natural features including wetlands, floodways, floodplains, all significant trees and their drip lines.

4) Phasing Plan (If Necessary):

Projects which include multiple phases shall provide a phasing plan, clearly indicating the areas and type of work to be performed in each phase

5) Demolition Plan (If Necessary):

Clearly indicate existing conditions to be removed or relocated.

6) Composite Site Plan:

Show all existing and proposed streets, utilities, appurtenances, streetscape elements, street markings, signals, lighting, storm drainage, survey control, ROW and property lines, easements, jurisdictional overlays (i.e. zoning, city limits, UGB, and IAMP boundaries, etc.), curbs, walks, ramps, driveways, retaining walls, bridges, structures and natural features including wetlands, floodways, floodplains, all proposed trees and existing significant trees, and their drip lines.

7) Grading, Erosion, and Sediment Control Plan:

A Grading, Erosion, and Sediment Control Plan (ESCP) drawing must be submitted for all developments requiring a Detailed Engineering Plan Review (*Section 3.1 C*). At a minimum, the drawing shall show

a) The general notes required by *Section 6.3 B* Grading, Erosion, and Sediment Control Design Criteria.
b) Existing contours at a maximum of two foot (2') intervals (1' for sites with an average land slope less than 5%) extending a minimum of 50 feet beyond the

boundaries of the site. Five foot (5') or ten foot (10') contours may be allowed for steeper sites via the Design Exception process.

c) Proposed contours will be required, under normal conditions, when the cuts or fills have the potential to impact surrounding properties and/or the grading plan is an integral part of the stormwater drainage design for the site.
d) Intersection grading plans that clearly show direction of flow and elevations at all curb lines including curb returns, ditch lines, crowns, flow lines, walks, paths, and ramps adjacent to the intersection. Cleary indicate Americans with Disabilities Act (ADA) compliant grading when services are required.
e) Grading limits.
f) Location of all existing and proposed structures including buildings and retaining walls.
g) Finished floor elevations for buildings when appropriate.
h) All natural features including wetlands, floodways, floodplains, significant trees and their drip lines, and dense vegetation. Clearly indicate all protective measures.
i) All existing and proposed drainage systems and ESC measures including swales & channels (both permanent and temporary). Clearly define type and location of each ESC BMP utilized when appropriate. See Oregon DEQ Construction Stormwater Best Management Practices (BMPs) Manual for the 1200-C NPDES General Permit.
j) At a minimum, drainage arrows depicting the proposed direction of flow for all individual lots including those lots not graded as part of the initial construction.
k) Existing utility locations and estimate of depth. Pot holing may be required. Contact Public Works Department prior to pot holing.

8) <u>Plan & Profile Sheets for Streets, Sidewalks, Curbs, Gutters, Ditches, Stormwater Systems, Sanitary Sewers, Private Utilities, Retaining Walls, Structures in the ROW, and Water Systems</u>:

These sheets shall contain all information necessary for staking and construction of these items including

a) General

i. ROW, property, tract, and easement lines (existing and proposed).
ii. Subdivision, Development or Project name, lot numbers, street names.
iii. Existing aboveground and underground utilities and significant trees and their drip lines. Show existing utility profiles with grades. Indicate invert elevations of all pipes and drainage structures.
iv. Location of existing and proposed buildings, walls, structures, wells, septic tanks, drain fields, fuel tanks, and any other buried structures.
v. Clearly designate existing conditions to be demolished or to remain.
vi. Match lines with sheet and station number references.

vii. Location and description of existing survey monuments.
viii. Pot holing may be required to establish elevations of the City's existing utilities. Contact Public Works Department prior to pot holing.

b) Streets, Retaining Walls, Stormwater Plan, and Profiles

i. Horizontal alignment, vertical alignment, and curve data of street centerlines and face of curb flowlines or edge of pavement where curbs are not required. Stationing shall be given at a minimum of 50 foot intervals along tangents and 25 feet at face of curb returns.
ii. All tie-ins to existing streets and stormwater facilities.
iii. Super-elevations and cross-slope transitions; show all rate of change profiles.
iv. Curb return profiles. Flowline of curb elevations shall be given at quarter-delta and 25 foot (max) stations in plan view.
v. In profile view, show existing ground elevations along roadway centerline and, if necessary, along ROW or other applicable offsets.
vi. Profiles of Cul-de-sacs shall show elevations along the flowline of all curbs or street edges, at a minimum of 25 foot intervals. Clearly indicate low or high spots within the cul-de-sac.
vii. Intersection grading plans that indicate spot elevations at all crowns, low points, transitions, and radius points along face of curb radii.
viii. For stub streets that may be extended in the future, the vertical alignment shall be designed for at least 300 feet beyond the present scope of construction.
ix. Driveway locations and dimensions. Clearly identify all ramp and wing transitions.
x. Retaining wall locations. Show wall types, heights, widths, lengths, offsets, and depths. Show all footings. Show beginning and ends of all walls. Show top and bottom of walls on profiles. Clearly indicate subdrainage systems including outlet locations. Indicate utility passage or minimum separations required between walls and utilities.
xi. Retaining wall finishes, patterns, and joint locations.
xii. Sidewalk (existing and proposed) locations including ramps, landings and transitions and their relationship to driveways, planter strips, and approaches.
xiii. Limits of overlay work if any.
xiv. Location of all low points of street grades and curb returns.
xv. Grading limits.
xvi. Plan and profile views showing location, stationing, size, and material of all existing and proposed mains and service lines for storm drainage.
xvii. All existing and proposed stormwater structures including upstream and downstream systems as required to show conditions affecting the design. Include invert and top elevations, slopes, materials, and bedding.

xviii. Numbering system for all proposed stormwater structures consistent with the Capitol Facilities Plan.
xix. All existing and proposed utility crossings shall be shown in profile. Clearly label all utility conflicts (note: if a private utility has not been located vertically, the horizontal location of the crossing shall be shown on the profile at minimum).
xx. All sanitary and water lines in "background" linestyle on plan and profiles so that conflicts can be clearly seen.
xxi. FEMA designated 100-year floodplains and flood ways.
xxii. Wetland areas and water quality buffer strips.
xxiii. Guardrails, where required, including all end treatments.
xxiv. Profiles for ditch and creek flowlines shall extend a minimum of 200 feet beyond the project and include cross sections at 50 foot intervals, unless otherwise directed by the City Engineer.

c) Sanitary Sewer & Water Plan and Profiles

i. All existing and proposed sanitary sewer and water structures and appurtenances including upstream and downstream systems as required to show conditions affecting the design. Include invert and top elevations, slopes, and materials.
ii. Plan and profile views showing location, stationing, size, and material of all existing and proposed mains and service lines for sanitary sewer, and water.
iii. In profile view, show existing ground elevations along roadway centerline and, if necessary, along ROW or utility centerline when located outside of roadway.
iv. Numbering system for all sanitary sewer structures consistent with the Capital Facilities Plan (CFP) and suitable for importation into the City GIS system.
v. All tie-ins to existing sanitary and water systems.
vi. All existing and proposed utility crossings shall be shown in profile. Clearly label all utility conflicts (note: if a private utility has not been located vertically, the horizontal location of the crossing shall be shown on the profile with a note indicating the elevation is unknown).
vii. All stormwater lines in "background" line type on plan and profiles so that conflicts can be clearly seen.

d) Private Utility Plan

i. Location of all proposed power, phone, gas, cable, etc. not owned by the City;
ii. Cross section showing these facilities in relation to the street;

iii. In general and for all new developments, private utilities shall be installed in public utility easements (PUE) when PUE's are required as part of the approved development.

e) Signing, Pavement Marking, and Lighting Plan

i. Location of all proposed street signs, pavement marking, street lights, and traffic signals including conduit and other related items.
ii. Street signs shall be tabulated with size, type, colors, and MUTCD sign codes clearly indicated on the plans.
iii. Pavement markings shall be clearly described using MUTCD designations with color, widths, types, and sizes as pertinent.
iv. Lighting shall be clearly identified.
v. Roadway lighting shall conform to the requirements of *Section 12.3*.

9) Cross Sections:

a) Cross sections shall be clearly defined according to their locations on the site plans.
b) Cross sections shall be labeled sequentially by station, not to exceed 50 foot increments.
c) Throughout intersections, or other specific locations, cross section station intervals shall be as necessary to show all details.

10) Details:

Include all project specific, special, and applicable details. Detail drawings shall be at a scale appropriate to show the level of complexity.