

STAGE 7 – WARRANTY INSPECTION SUMMARY

Chapter 3

The trigger for Stage 7 begins approximately 90 days before the project warranty expires, which is defined in the Stage 6 Project Infrastructure Acceptance notice. The City will make best efforts to send a 90-day reminder warranty notice; however, it is the Engineer of Record's responsibility to:

- Monitor the project infrastructure warranty beginning and expiration date;
- Perform an independent inspection of the project's infrastructure within the 90-day warranty expiration and generate items of deficiency
 - If inspection includes sanitary sewer warranty, you will need to contact City Utility staff to open manholes and be present to perform the inspection
- Complete Stage 7 Warranty Inspection Checklist and note all defects or deficiencies that will be a combined list from independent inspection and deficiencies observed with City Inspectors
- Notify city inspectors via email as to date that deficiency items will be corrected and completed.
 - Once defects or deficiencies are corrected, submit in writing to City Engineering and state that the contractor has completed all items of deficiencies or defects on the combined list.
- If additional warranty work is not needed, staff will contact you to confirm that the applicable portion or the entire project is complete and closed out.

This warranty inspection shall be completed by the warranty expiration date. Failure to submit the Stage 7 Warranty Inspection Checklist within thirty (30) days of being notified by City Engineering staff may result in the initiation of legal action by the City to enforce the warranty unless, in writing, the City is notified of your intention to extend the warranty period.

ACCEPTANCE or DENIAL of STAGE

If the warranty inspection results in no discrepancies, a formal Project Acceptance Closeout notice will be issued and the project is deemed closed.

If discrepancies are observed during the warranty inspection, the city inspector will discuss with the engineer of record and other attendees at the time of the inspection. An action plan of identified correction action to mitigate and rectify issues, with a given timeframe, will be discussed and formally documented and sent to the engineer of record and developer.

STAGE 7 – WARRANTY INSPECTION CHECKLIST

This checklist shall be completed by Preparer’s / Developer’s Representative prior to City Staff conducting a warranty inspection. This completed checklist shall be submitted prior to warranty inspection expiration. *(This list is not all inclusive, so other information may also be required.)*

Project Name: _____

City Project # (**MUST** be provided): _____

Developer’s Representative Name/Contact Info: _____

Developer’s/Owner Name/email/Contact Info: _____

Date Submitted and version (year) of Manual: _____

Plans Submitted (“x” as applicable): _____ Surface _____ Sewer _____ Water _____ Storm

Other (specify) _____

STAGE #	STAGE PROCESS
1	Project/Development Initiation
2	Conceptual Design Review
3	Preliminary Construction Plan Review
4	Release for Construction (RFC) Plan Review
5	Inspection & Testing
6	Final Inspection & Acceptance
7	Warranty Inspection

PREPARER'S/DEVELOPER REPRESENTATIVE'S WARRANTY INSPECTION RESULTS

Preparer's/Developer Representative's Warranty Inspection Date: _____

Warranty Items: _____

If discrepancy items were identified, date, notified City Inspector of date of completion

Mitigation/Corrective Action needed by Contractor and result:

(Attach Deficiency List and/or Relative Documentation, email, etc.)

SURFACE INFRASTRUCTURE

STREETS & ALLEYS – Paving (including Private Roads, Short Courts, and Cul-de-sacs)

Refer to Article 3 of the City Subdivision Regulations or the Missoula City Public Works Standard Specifications for other projects

- _____ Public Street/roadway
- _____ Private Street/roadway/drive – shall be curbed
- _____ Public/Private Street/roadway names – county verified and/or approved
- _____ Cul-de-sac (length, turn-around) – 600 feet maximum length
- _____ Short court (length, number of units served)
- _____ Allow Overflow parking (length, width, number of spaces) Maintenance/Encroachment
- _____ Street/roadway/driveway layout/design cross-section – private/public short courts
- _____ Width/construction cross-section specifications and design (pavement thickness, base thickness, mix design, testing, type and location of pedestrian facilities/sidewalks)
- _____ Grades (preliminary grading plan, profiles, include vertical curve data, intersection grading is ADA compliant)
- _____ Provide “non-compressed” profile drawings
- _____ All sidewalks and ADA ramps to have both running slope and cross slope labeled
- _____ Cuts and fills: include topsoil and re-vegetation
- _____ Sight obstruction/visibility triangles: NO structures permitted in visibility triangle
- _____ Maintenance agreements for private street/roadway/drive, short courts (see easements)
- _____ Bridges/culverts
- _____ Temporary turn-around(s), required at phase break(s)
- _____ Infrastructure improvements to be constructed within the public right-of-way
- _____ Clearly show tick marks for each item (e.g., gutter profile, intersection –to-intersection, road x-sections curb-to-curb)
- _____ Bike lane(s): location, design, connected, functional, ADA compliance
- _____ Other

Comments

TRAFFIC MANAGEMENT (must fully conform to MUTCD, FHWA, MDOT, UVC)

Must satisfy all requirements for; location, design criteria, minimum radii, landscaping and irrigation, signing and striping, pedestrian facilities and maintenance agreements

- _____ Roundabout(s): location, design, functional; ADA compliant
- _____ Traffic circle(s): location, design, functional; ADA compliant
- _____ Bulb-out(s): location, design, functional; ADA compliance
- _____ Mid-block pedestrian crossing(s): location, design, functional; ADA compliance
- _____ Chicane(s): location, design, functional compliance
- _____ Medians/island(s): location, design, functional compliance; ADA compliance
- _____ Raised crosswalk(s): location, design, functional; ADA compliance
- _____ Speed table(s): location, design, functional; ADA compliance
- _____ Construction cross-section specifications and design (curb/pavement/sidewalk, asphalt/concrete thickness, base thickness, mix design, testing, type and location of pedestrian facilities/sidewalks)
- _____ Infrastructure improvements to be constructed within the public right-of-way
- _____ Construction quantities reported in the following units (no exceptions):
 - _____ lineal feet for curb
 - _____ sq. ft. for asphalt, sidewalk and aprons
- _____ Pedestrian Warning Lights
- _____ Signal type, location, material, application, etc.
- _____ Modification, retiming
- _____ Electrical Plans
- _____ Other

Comments

TRAFFIC SIGNALS – TRAFFIC CONTROL DEVICES

- _____ Sight obstruction/visibility triangles: NO structures permitted in visibility triangle
- _____ Maintenance agreements for private street/roadway/drive, short courts (see easements)
- _____ Bridges/culverts
- _____ Temporary turn-around, required at phase break(s)
- _____ Infrastructure improvements to be constructed within the public right-of-way
- _____ Clearly show tick marks for each item (i.e., gutter profile, intersection-to-intersection, road x-sections, curb-to-curb, etc.)
- _____ Bike lane(s), location, design, connected, functional, ADA compliance
- _____ Other

Comments

DRIVEWAYS – Access / Approaches

Refer to Article 3 of the City Subdivision Regulations or the Missoula City Public Works Standard Specifications for projects that are not subdivision related

- _____ Location (multiple/shared, public/private street/road/drive/alley, etc.)
- _____ Distance from intersection; dimension minimum distance from intersection or crosswalk (must comply with MMC 12.12.170D and E)
- _____ Width of approach(es), curb cut, must be constructed perpendicular (90°) to the adjacent street
- _____ Grades: 8% maximum
- _____ Cross-section: as applicable to driveways, drainage cuts/fills, base/asphalt/concrete depth
- _____ Construction cross-section specifications and design (curb thickness, base thickness, mix design, testing, type and location of pedestrian facilities/sidewalks)
- _____ Construction quantities; lineal feet and/or square feet of asphalt and/or concrete infrastructure improvements to be constructed within the public right-of-way
- _____ Other

Comments

PEDESTRIAN ACCESS – Non-Motorized Facilities, Sidewalks, Trails, Bicycles

Non-motorized facilities, including sidewalks, shared use paths, bike lanes, and crossings, shall adhere to AASHTO and/or NACTO guidelines and meet ADA standards

- _____ Existing facilities within 300 feet of the project limits shall be shown on the plans
- _____ Location: both or one side(s) of street, other/additional location(s)
- _____ Sidewalk design
- _____ Width, cross-section, material, etc. – standard drawings
- _____ Label widths, x-section slope, running slope (not combined)
- _____ Sidewalk and boulevard width per approved construction plans
- _____ Construction cross-section specifications and design (concrete sidewalk thickness, base thickness, jointing, mix design, testing, type and location of pedestrian facilities/sidewalks)
- _____ Backfilling boulevard and adjacent to sidewalk
- _____ ADA compliance: location, width, ramps/grades, landings, cross-slope, detectable warning/truncated domes, etc.
 - _____ Provide ramp grade as a percentage (vector) down center of proposed ramp
- _____ Label width, length, slope, and cross slope; dimensions of detectable warning plates
- _____ Trail (width, location)
- _____ Connections: between on-site pedestrian facilities, parks, common area(s), with adjacent property(ies)/subdivision(s), etc.
- _____ Street-crossing (mid-block, bulb-out, etc.)
- _____ Bike lanes (width, location)
- _____ Bridges, non-motorized access: pedestrians, bicycles, trails, etc.
- _____ Other

Comments

PARKING – Overflow

- _____ Location: label: distance from intersections, access, and type; parallel, head in/back in, angled: 90°, 60°, 45°
- _____ Dimensions: length, width
- _____ Grading and drainage
- _____ Parking Signage
- _____ Pedestrian access: connection to sidewalks, trails, etc.
- _____ ADA compliance: width, ramps/grades, landings, cross-slope, etc.
- _____ Railroad crossing with truncated domes
- _____ Other

Comments

BUS STOPS

- _____ Location: distance from intersections, signing, configuration, standard drawings
- _____ Pedestrian access: connection to sidewalk, trails, etc.
- _____ ADA compliance: width, ramps/grades, landings, cross-slope, etc.
- _____ Bus stop pull out
- _____ Mountain Line approval
- _____ Other

Comments

SURFACE DRAINAGE

- _____ Natural drainage: existing *both* on-site and adjacent off-site
- _____ Storm drainage: calculations, location on-site/off-site, collection/retention/detention, and source areas, City Standards Manual
(See also “STORMWATER” section below in “UTILITY INFRASTRUCTURE” review)
- _____ Surface drainage – existing/proposed; calculations, cross-sections, overflow, crossings: culvert/bridge sizing, vegetation, etc.
- _____ Surface drainage – individual lots
 - _____ Swales: between lots and through development/subdivision
 - _____ Covenants
 - _____ Building permit specific conditions/requirements
 - _____ Other
- _____ Foundation drains (separate collection system for foundation drainage on hillside development)

- _____ Maintenance: public/private, homeowner’s association, agreement(s)
- _____ Structures: inlets, sumps, manholes; location, design, capacity, etc.
- _____ Construction quantities: structure inventory, type, and lineal feet to be constructed within the public right-of-way
- _____ Other

Comments

EROSION CONTROL (must fully conform to EPA and MT DEQ)

- _____ Montana DEQ Notice of Termination (NOT): one copy required – *if/when applicable (not previously submitted to City Engineering)*
- _____ Montana DEQ Permit Transfer Notice (PTN); one copy required – *if/when applicable (not previously submitted to City Engineering)*

Comments

OTHER INFRASTRUCTURE REQUIREMENTS - (if applicable)

If applicable, documentation (letter, email, photographs, etc.) is attached/included, that the following additional City of Missoula agencies and related interested parties have approved the pertinent requirements, including but NOT limited to:

- _____ City Parks and Recreation Department (*boulevard trees, sprinkler systems, parks, open spaces, etc.*)
- _____ City Fire Department (*fire protection/combustible construction, hydrants, equipment/fire truck access, etc.*)
- _____ City Police Department (*life safety issues, emergency services access, property and structure(s) visibility, etc.*)
- _____ City Building Division (*structure/construction, code requirements, etc.*)
- _____ City Planning (*zoning, subdivision regulations, conditions of approval, boulevard improvements, floodplain administrator, etc.*)
- _____ City-County Health Department (*air quality, water quality, food service, etc.*)
- _____ Missoula Parking Commission (*Central Business District (CBD), University Parking District*)
- _____ Missoula County Public Works Department (*overlapping projects, generally dry-laid sanitary sewer*)
- _____ Mountain Line (*bus structures and access*)
- _____ Missoula Redevelopment Agency (MRA)

- _____ Montana Department of Transportation (MDT) (*federal and state motor vehicle/transportation routes*)
- _____ University of Montana (UM) (*University-related projects*)
- _____ Montana Rail Link (MRL)
- _____ Irrigation/Ditch Company District
- _____ Other

UTILITY INFRASTRUCTURE

SANITARY SEWER

- _____ Ownership: Public or Private
- _____ Type (Gravity, Dry lay, Siphon)
- _____ County review for additional county rules and regulations
- _____ Conformance to City, county, and state specifications and requirements; thrust restraint on mains over 20% grade, etc.
- _____ Structures: location, access,
- _____ Manholes: location, access, type, hole schematic
- _____ Gravity mains: location, sizing, profile, separation, specifications, calculations, etc.
- _____ Lift stations: location, sizing, access both to site and internal, security, specifications, etc.
- _____ Force mains: location, sizing, profile, ports, valves, etc.
- _____ Easement locations
- _____ S.T.E.P. systems and appurtenances designed and engineered for commercial use
- _____ S.T.E.P. mains: location, sizing, profiles, ports, valves, etc.
- _____ S.T.E.P. Tanks and appurtenances: residential, commercial, and community
- _____ Floodplain requirements
- _____ Stub-outs: location, property marked
- _____ Shallow groundwater requirements
- _____ Specifications: pipe type(s), sizing, sumps, bedding, gradations, frost protection, marking, and compaction
- _____ Number and location (by lot) of stub-outs for auditing and permitting purposes
- _____ Construction quantities; lineal feet of pipe by size and inventory of appurtenances to be constructed within the public right-of-way
- _____ Plans show all utilities in corridor
- _____ Other

Comments

STORMWATER

- _____ Ownership: public or private
- _____ Type (gravity, STEP, force, dry lay)
- _____ Conformance with current EPA and state (MT DEQ) rules, regulations, practices, and State DEQ approval letter
- _____ Mains: location, sizing, profile, separation, specifications, calculations, etc.
- _____ Appurtenances: manholes, inlets, grates, outfalls, manhole schematic, diffusers, beehives, etc.
- _____ Access: appurtenances, collection/retention/detention systems, etc.
- _____ Specifications: pipe type(s), sizing, bedding, gradations, marking and compaction
- _____ Shallow groundwater requirements
- _____ Construction quantities: lineal feet of pipe by size and inventory of appurtenances to be constructed within the public right-of-way
- _____ Plans show all utilities in corridor
- _____ Other

Comments

WATER

- _____ State DEQ letter attached
- _____ Plans clearly show size, class, and type of main
- _____ Orientation of valves shall be indicated on as-builts (i.e., actuator north of main)
- _____ Water mains should not be placed in curb line
- _____ Water mains should be in roadways unless approved otherwise
- _____ Plans and profiles show all other utilities (including service lines and dry utilities) to be crossed
- _____ Dead ends longer than 500 feet are not allowed unless approved in writing by the Public Works Director or his/her designee
- _____ Plans include an acceptable means for testing and removing air (including BO, valves, etc.)
- _____ Avoid testing of main against existing valves
- _____ Blow offs are adequately sized based on 2.5 fps flushing velocity (3 inches for 8- through 12-inch mains, etc.)
- _____ Easements provided where necessary to extend mains in the future
- _____ Valve configurations meet minimum spacing requirements of 500 feet in commercial areas, 800 feet in residential areas
- _____ Valves placed such that only one hydrant shut down at a time
- _____ At least two valves shall be installed at every mainline tee and at least three valves at every mainline cross
- _____ On mains planned for extension in the near future, add valves near dead ends such that tie-ins can be made without putting customers out of water
- _____ Orientation of butterfly valve actuator compared to mainline shall be indicated on as-builts (e.g., "actuator north of main")

- _____ Hydrant lead pipes should be 8 inches in diameter w/reducer at the hydrant for lead pipes longer than 40 feet
- _____ Approval letter from Fire Department for:
 - Fire hydrant locations
 - Fire flow requirements
- _____ Fire hydrants to be provided by Storz adapters
- _____ Plans provide for fire hydrant design to ensure proper bury depth
- _____ Fire flow requirement provided in writing from Fire Marshal
- _____ Service line locations are clearly marked
- _____ Separate fire and domestic service lines shall be provided. Any fire line, including residential, should be separated from the domestic line
- _____ All curb boxes and shutoff valves shall be in the right-of-way
- _____ Curb boxes and meter boxes shall not be placed in concrete sidewalks or driveways unless approved in writing the City Engineer or by his designee
- _____ Necessary meter pits have been addressed including location outside of, but within 2-5ft of the right-of-way
- _____ For multiple phased projects, consider adding a fill station for construction water
- _____ All Missoula Water Standards and Specifications have been met. If no, explain _____
- _____ Conformance with current state (MT DEQ) rules, regulations, and practices
- _____ Mains: size, location, valves, separation, etc.
- _____ Stub-outs: location, property marked
- _____ Fire protection: mains to structures: commercial, industrial, and residential
- _____ Construction quantities: lineal feet of pipe by size and inventory of appurtenances that will be constructed within the public right-of-way
- _____ Other

Comments

UTILITIES

- _____ Master Plan
- _____ Gas: location, placement of related appurtenances, etc.
- _____ Electric: location, placement of related appurtenances, streetlights, etc.
- _____ Communications – telephone, television, etc.: placement of related appurtenances
- _____ Construction quantities: lineal feet of each utility and inventory of appurtenances to be constructed within the public right-of-way
- _____ Plans must show right-of-way limits, existing utilities and proposed utilities
- _____ Other

Comments

APPLICANT’S CERTIFICATION:

I have reviewed all information and this submittal is true and accurate. To the best of my knowledge, all requirements as specified in Titles 12 and 17 and Articles 3, 5, and 9 of Subdivision Regulations have been satisfied.

Preparer’s / Developer Representative’s Signature

Date