

Appendix E – Standard Notes, Approval Blocks, Checklists

NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

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Appendix E-1-FC/Lar

General Notes (City of Fort Collins and Larimer County)

Submissions shall include a General Notes sheet. Please contact the Local Entity Engineer for current General Notes. The following General Notes are provided as a guideline for the Local Entities as noted. Include these notes on the plan as follows:

- **Include only the notes that apply to the project**
- **Preserve note numbers given below**

1. All materials, workmanship, and construction of public improvements shall meet or exceed the standards and specifications set forth in the *Larimer County Urban Area Street Standards* and applicable state and federal regulations. Where there is conflict between these plans and the specifications, or any applicable standards, the most restrictive standard shall apply. All work shall be inspected and approved by the Local Entity.

2. All references to any published standards shall refer to the latest revision of said standard, unless specifically stated otherwise.

3. These public improvement construction plans shall be valid for a period of three years from the date of approval by the Local Entity Engineer. Use of these plans after the expiration date will require a new review and approval process by the Local Entity prior to commencement of any work shown in these plans.

4. The engineer who has prepared these plans, by execution and/or seal hereof, does hereby affirm responsibility to the Local Entity, as beneficiary of said engineer's work, for any errors and omissions contained in these plans, and approval of these plans by the Local Entity Engineer shall not relieve the engineer who has prepared these plans of all such responsibility. Further, to the extent permitted by law, the engineer hereby agrees to hold harmless and indemnify the Local Entity, and its officers and employees, from and against all liabilities, claims, and demands which may arise from any errors and omissions contained in these plans.

5. All sanitary sewer, storm sewer, and water line construction, as well as power and other "dry" utility installations, shall conform to the Local Entity standards and specifications current at the date of approval of the plans by the Local Entity Engineer.

6. The type, size, location and number of all known underground utilities are approximate when shown on the drawings. It shall be the responsibility of the Developer to verify the existence and location of all underground utilities along the route of the work before commencing new construction. The Developer shall be responsible for unknown underground utilities.

7. The Engineer shall contact the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987, at least 2 working days prior to beginning excavation or grading, to have all registered utility locations marked. Other unregistered utility entities (i.e. ditch / irrigation company) are to be located by contacting the respective representative. Utility service laterals are also to be located prior to beginning excavation or grading. It shall be

the responsibility of the Developer to relocate all existing utilities that conflict with the proposed improvements shown on these plans.

8. The Developer shall be responsible for protecting all utilities during construction and for coordinating with the appropriate utility company for any utility crossings required.

9. If a conflict exists between existing and proposed utilities and/or a design modification is required, the Developer shall coordinate with the engineer to modify the design. Design modification(s) must be approved by the Local Entity prior to beginning construction.

10. The Developer shall coordinate and cooperate with the Local Entity, and all utility companies involved, to assure that the work is accomplished in a timely fashion and with a minimum disruption of service. The Developer shall be responsible for contacting, in advance, all parties affected by any disruption of any utility service as well as the utility companies.

11. No work may commence within any public storm water, sanitary sewer or potable water system until the Developer notifies the utility provider. Notification shall be a minimum of 2 working days prior to commencement of any work. At the discretion of the water utility provider, a pre-construction meeting may be required prior to commencement of any work.

12. The Developer shall sequence installation of utilities in such a manner as to minimize potential utility conflicts. In general, storm sewer and sanitary sewer should be constructed prior to installation of the water lines and dry utilities.

13. The minimum cover over water lines is 4.5 feet and the maximum cover is 5.5 feet unless otherwise noted in the plans and approved by the Water Utility.

14. A State Construction Dewatering Wastewater Discharge Permit is required if dewatering is required in order to install utilities or water is discharged into a storm sewer, channel, irrigation ditch or any waters of the United States.

15. The Developer shall comply with all terms and conditions of the Colorado Permit for Storm Water Discharge (Contact Colorado Department of Health, Water Quality Control Division, (303) 692-3590), the Storm Water Management Plan, and the Erosion Control Plan.

16. The Local Entity shall not be responsible for the maintenance of storm drainage facilities located on private property. Maintenance of onsite drainage facilities shall be the responsibility of the property owner(s).

17. Prior to final inspection and acceptance by the Local Entity, certification of the drainage facilities, by a registered engineer, must be submitted to and approved by the Stormwater Utility Department. Certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of a certificate of occupancy for single family units. For commercial properties, certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of any building permits in excess of those allowed prior to certification per the Development Agreement.

18. The Local Entity shall not be responsible for any damages or injuries sustained in this Development as a result of groundwater seepage, whether resulting from groundwater

flooding, structural damage or other damage unless such damage or injuries are sustained as a result of the Local Entity failure to properly maintain its water, wastewater, and/or storm drainage facilities in the development.

19. All recommendations of the final drainage and erosion control study (name of the study and date) by (Engineering Firm) shall be followed and implemented.

20. Temporary erosion control during construction shall be provided as shown on the Erosion Control Plan. All erosion control measures shall be maintained in good repair by the Developer, until such time as the entire disturbed areas is stabilized with hard surface or landscaping.

21. The Developer shall be responsible for insuring that no mud or debris shall be tracked onto the existing public street system. Mud and debris must be removed within 24 hours by an appropriate mechanical method (i.e. machine broom sweep, light duty front-end loader, etc.) or as approved by the Local Entity street inspector.

22. No work may commence within any improved or unimproved public Right-of-Way until a Right-of-Way Permit or Development Construction Permit is obtained, if applicable.

23. The Developer shall be responsible for obtaining all necessary permits for all applicable agencies prior to commencement of construction. The Developer shall notify the Local Entity Engineering Inspector (Fort Collins - 221-6605) and the Local Entity Erosion Control Inspector (Fort Collins – 221-6700) at least 2 working days prior to the start of any earth disturbing activity, or construction on any and all public improvements. If the Local Entity Engineer is not available after proper notice of construction activity has been provided, the Developer may commence work in the Engineer absence. However, the Local Entity reserves the right not to accept the improvement if subsequent testing reveals an improper installation.

24. The Developer shall be responsible for obtaining soils tests within the Public Right-of-Way **after** right of way grading and all utility trench work is complete and prior to the placement of curb, gutter, sidewalk and pavement. If the final soils/pavement design report does not correspond with the results of the original geotechnical report, the Developer shall be responsible for a re-design of the subject pavement section or, the Developer may use the Local Entity's default pavement thickness section(s). Regardless of the option used, all final soils/pavement design reports shall be prepared by a licensed Professional Engineer. The final report shall be submitted to the Inspector a minimum of 10 working days prior to placement of base and asphalt. Placement of curb, gutter, sidewalk, base and asphalt shall not occur until the Local Entity Engineer approves the final report.

25. The contractor shall hire a licensed engineer or land surveyor to survey the constructed elevations of the street subgrade and the gutter flowline at all intersections, inlets, and other locations requested by the Local Entity inspector. The engineer or surveyor must certify in a letter to the Local Entity that these elevations conform to the approved plans and specifications. Any deviations shall be noted in the letter and then resolved with the Local Entity before installation of base course or asphalt will be allowed on the streets.

26. All utility installations within or across the roadbed of new residential roads must be completed prior to the final stages of road construction. For the purposes of these standards, any work except c/g above the subgrade is considered final stage work. All service lines must be stubbed to the property lines and marked so as to reduce the excavation necessary for building connections.
27. Portions of Larimer County are within overlay districts. The *Larimer County FloodPlain Resolution* should be referred to for additional criteria for roads within these districts.
28. All road construction in areas designated as Wild Fire Hazard Areas shall be done in accordance with the construction criteria as established in the Wild Fire Hazard Area Mitigation Regulations in force at the time of final plat approval.
29. Prior to the commencement of any construction, the contractor shall contact the Local Entity Forester to schedule a site inspection for any tree removal requiring a permit.
30. The Developer shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security. Refer to OSHA Publication 2226, *Excavating and Trenching*.
31. The Developer shall submit a Construction Traffic Control Plan, in accordance with MUTCD, to the appropriate Right-of-Way authority. (Local Entity, County or State), for approval, prior to any construction activities within, or affecting, the Right-of-Way. The Developer shall be responsible for providing any and all traffic control devices as may be required by the construction activities.
32. Prior to the commencement of any construction that will affect traffic signs of any type, the contractor shall contact Local Entity Traffic Operations Department, who will temporarily remove or relocate the sign at no cost to the contractor; however, if the contractor moves the traffic sign then the contractor will be charged for the labor, materials and equipment to reinstall the sign as needed.
33. The Developer is responsible for all costs for the initial installation of traffic signing and striping for the Development related to the Development's local street operations. In addition, the Developer is responsible for all costs for traffic signing and striping related to directing traffic access to and from the Development.
34. There shall be no site construction activities on Saturdays, unless specifically approved by the Local Entity Engineer, and no site construction activities on Sundays or holidays, unless there is prior written approval by the Local Entity.
35. The Developer is responsible for providing all labor and materials necessary for the completion of the intended improvements, shown on these drawings, or designated to be provided, installed, or constructed, unless specifically noted otherwise.
36. Dimensions for layout and construction are not to be scaled from any drawing. If pertinent dimensions are not shown, contact the Designer for clarification, and annotate the dimension on the as-built record drawings.
37. The Developer shall have, onsite at all times, one (1) signed copy of the approved plans, one (1) copy of the appropriate standards and specifications, and a copy of any permits and extension agreements needed for the job.

38. If, during the construction process, conditions are encountered which could indicate a situation that is not identified in the plans or specifications, the Developer shall contact the Designer and the Local Entity Engineer immediately.

39. The Developer shall be responsible for recording as-built information on a set of record drawings kept on the construction site, and available to the Local Entity's Inspector at all times. Upon completion of the work, the contractor(s) shall submit record drawings to the Local Entity Engineer.

40. The Designer shall provide, in this location on the plan, the location and description of the nearest survey benchmarks (2) for the project as well as the basis of bearings. The information shall be as follows:

Benchmarks—Local Entity survey.

B.M.Number _____, Elev.= _____,

Description _____.

41. All stationing is based on **centerline/flowline (insert proper word)** of roadways unless otherwise noted.

42. Damaged curb, gutter and sidewalk existing prior to construction, as well as existing fences, trees, streets, sidewalks, curbs and gutters, landscaping, structures, and improvements destroyed, damaged or removed due to construction of this project, shall be replaced or restored in like kind at the Developer's expense, unless otherwise indicated on these plans, prior to the acceptance of completed improvements and/or prior to the issuance of the first Certificate of Occupancy.

43. When an existing asphalt street must be cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented by the Local Entity Construction Inspector before any cuts are made. Patching shall be done in accordance with the Local Entity Street Repair Standards. The finished patch shall blend in smoothly into the existing surface. All large patches shall be paved with an asphalt lay-down machine. In streets where more than one cut is made, an overlay of the entire street width, including the patched area, may be required. The determination of need for a complete overlay shall be made by the Local Entity Engineer and/or the Local Entity Inspector at the time the cuts are made.

44. Upon completion of construction, the site shall be cleaned and restored to a condition equal to, or better than, that which existed before construction, or to the grades and condition as required by these plans.

45. Standard Handicap ramps are to be constructed at all curb returns and at all "T" intersections.

46. After acceptance by the Local Entity, public improvements depicted in these plans shall be guaranteed to be free from material and workmanship defects for a minimum period of two years from the date of acceptance.

47. The Local Entity shall not be responsible for the maintenance of roadway and appurtenant improvements, including storm drainage structures and pipes, for the following private streets: (list).

48. Approved Variances are listed as follows: (Plan set must have a list of all applicable variances for the project).

Appendix E-1-Lov

General Notes - City of Loveland

Submissions shall include a General Notes sheet. Please contact the Local Entity Engineer for current General Notes. The following General Notes are provided as a guideline for the Local Entities as noted. Include these notes on the plan as follows:

- **Include only the notes that apply to the project**
- **Preserve note numbers given below**

General Notes shall be shown on this sheet. Typical General Notes required by the Local Entity are as follows:

1. All materials, workmanship, and construction of public improvements shall meet or exceed the standards and specifications set forth in the *Larimer County Urban Area Street Standards* and applicable state and federal regulations. Where there is conflict between these plans and the specifications, or any applicable standards, the most restrictive standard shall apply. All work shall be inspected and approved by the Local Entity.
2. The Developer is specifically cautioned that the location and/or elevation of existing utilities, as shown on these plans, is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied upon as being exact or complete. The Engineer shall contact the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987, at least 2 working days prior to beginning excavation or grading, to have all registered utility locations marked. Other unregistered utility entities (i.e. ditch / irrigation company) are to be located by contacting the respective representative. Utility service laterals are also to be located prior to beginning excavation or grading. It shall be the responsibility of the Developer to relocate all existing utilities that conflict with the proposed improvements shown on these plans.
3. No work may commence within any improved public Right-of-Way until a Right-of-Way Permit or Development Construction Permit is obtained, if applicable. The Developer shall submit a Construction Traffic Control Plan, in accordance with MUTCD, to the appropriate Right-of-Way authority, (Local Entity, County or State), for approval, prior to any construction activities within, or affecting, the Right-of-Way. The Developer shall be responsible for providing any and all traffic control devices as may be required by the construction activities.
4. The Developer shall be responsible for obtaining all necessary permits for all applicable agencies. The Developer shall notify the Local Entity Engineer at least 2 working days prior to the start of any earth disturbing activity, or construction on any and all public improvements. If the Local Entity Engineer is not available after proper notice of construction activity has been provided, the Developer may commence work in the Engineer absence. However, the Local Entity reserves the right not to accept the improvement if subsequent testing reveals an improper installation.

5. The engineer who has prepared these plans, by execution and/or seal hereof, does hereby affirm responsibility to The City of Fort Collins, as beneficiary of said engineer's work, for any errors and omissions contained in these plans, and approval of these plans by the City Engineer shall not relieve the engineer who has prepared these plans of all such responsibility. Further, to the extent permitted by law, the engineer hereby agrees to hold harmless and indemnify the City, and its officers and employees, from and against all liabilities, claims, and demands which may arise from any errors and omissions contained in these plans.

6. All utility installations within or across the roadbed of new residential roads must be completed prior to the final stages of road construction. For the purposes of these standards, any work except c/g above the subgrade is considered final stage work. All service lines must be stubbed to the property lines and marked so as to reduce the excavation necessary for building connections.

7. The Developer shall coordinate and cooperate with the Local Entity, and all utility companies involved, with regard to relocations, adjustments, extensions and rearrangements of existing utilities during construction, and to assure that the work is accomplished in a timely fashion and with a minimum disruption of service. The Developer shall be responsible for contacting, in advance, all parties affected by any disruption of any utility service as well as the utility companies.

8. No work may commence within any public storm water, sanitary sewer or potable water system until the Developer notifies the utility provider. Notification shall be a minimum of two (2) working days prior to commencement of any work. At the discretion of the water utility provider, a pre-construction meeting may be required prior to commencement of any work.

9. The Developer shall be responsible for protecting all utilities during construction and for coordinating with the appropriate utility company for any utility crossings required.

10. The type, size, location and number of all known underground utilities are approximate when shown on the drawings. It shall be the responsibility of the Developer to verify the existence and location of all underground utilities along the route of the work before commencing new construction. The Developer shall be responsible for unknown underground utilities.

11. When applicable, the Developer shall have onsite at all times, each of the following:

- The Notice of Intent (NOI)
- Best Management Practices (BMP) maintenance folder
- Up to date Stormwater Management Plan (SWMP) that accurately represents current field conditions
- One (1) signed copy of the approved plans
- One (1) copy of the appropriate standards and specifications
- A copy of any permits and extension agreements needed for the job.

12. The Developer shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security. Refer to OSHA Publication 2226, Excavating and Trenching.
13. If, during the construction process, conditions are encountered which could indicate a situation that is not identified in the plans or specifications, the Developer shall contact the Designer and the Local Entity Engineer immediately.
14. All references to any published standards shall refer to the latest revision of said standard, unless specifically stated otherwise.
15. The Developer shall submit a Construction Traffic Control Plan, in accordance with MUTCD, to the appropriate Right-of-Way authority. (Local Entity, County or State), for approval, prior to any construction activities within, or affecting, the Right-of-Way. The Developer shall be responsible for providing any and all traffic control devices as may be required by the construction activities.
16. The Developer is responsible for providing all labor and materials necessary for the completion of the intended improvements, shown on these drawings, or designated to be provided, installed, or constructed, unless specifically noted otherwise.
17. The Developer shall be responsible for insuring that no mud or debris shall be tracked onto the existing public street system. Mud and debris must be removed by the end of each working day by an appropriate mechanical method (i.e. machine broom sweep, light duty front-end loader, etc.) or as approved by the Local Entity street inspector.
18. The Developer shall be responsible for recording as-built information on a set of record drawings kept on the construction site, and available to the Local Entity's Inspector at all times.
19. Dimensions for layout and construction are not to be scaled from any drawing. If pertinent dimensions are not shown, contact the Designer for clarification, and annotate the dimension on the as-built record drawings.
20. The Developer shall comply with all terms and conditions of the Colorado Permit for Storm Water Discharge, the Storm Water Management Plan, and the Erosion Control Plan.
21. All structural erosion control measures shall be installed, at the limits of construction and at areas with disturbed soil, on- or off-site, prior to any other ground-disturbing activity. All erosion control measures shall be maintained in good repair by the Developer, until such time as the entire disturbed areas is stabilized with hard surface or landscaping. To mitigate erosion, the Developer shall use standard erosion control techniques described in the Urban Storm Drainage Criteria Manual, Volume 3 – Best Management Practices, as published by the Urban Drainage and Flood Control District (UDFCD).
22. The Developer shall sequence installation of utilities in such a manner as to minimize potential utility conflicts. In general, storm sewer and sanitary sewer should be constructed prior to installation of the water lines and dry utilities.

23. There shall be no site construction activities on Saturdays, unless specifically approved by the Local Entity Engineer, and no site construction activities on Sundays or holidays, unless there is prior written approval by the Local Entity.

24. The Designer shall provide, in this location on the plan, the location and description of the nearest survey benchmark for the project as well as the basis of bearings. The information shall be as follows:

25. Benchmark—Loveland’s 1995 Level Net survey.

26. B.M.Number _____, Elev.= _____,

27. Description _____.

28. Upon completion of construction, the site shall be cleaned and restored to a condition equal to, or better than, that which existed before construction, or to the grades and condition as required by these plans.

29. Existing fences, trees, streets, sidewalks, curbs and gutters, landscaping, structures, and improvements destroyed, damaged or removed due to construction of this project shall be replaced or restored in like kind at the Developer’s expense, unless otherwise indicated on these plans.

30. Overlot grading construction must comply with the State of Colorado permitting process for “storm water discharges associated with construction activity.” Contact the Colorado Department of Public Health & Environment, Water Quality Control Division, phone (303) 692-3500.

31. A State Construction Dewatering Wastewater Discharge Permit is required if dewatering is required in order to install utilities or before water is discharged into a storm sewer, channel, irrigation ditch or any waters of the United States.

32. The Developer is responsible for field locating and verifying elevations of all existing sewer mains, water mains, curbs, gutters and other utilities at the points of connection shown on the plans, and at any utility crossings prior to installing any of the new improvements. If a conflict exists and/or a design modification is required, the Developer shall coordinate with the engineer to modify the design. Design modification(s) must be approved by the Local Entity prior to beginning construction.

33. After acceptance by the Local Entity, public improvements depicted in these plans shall be guaranteed to be free from material and workmanship defects for a period of two years from the date of acceptance.

34. These public improvement construction plans shall be valid for a period of three years from the date of approval by the Local Entity Engineer. Use of these plans after the expiration date will require a new review and approval process by the Local Entity prior to commencement of any work shown in these plans.

35. Paving shall not start until a soils report and pavement design is accepted by the Local Entity Engineer and subgrade compaction tests are taken and accepted by the Local Entity Engineer.

36. The Developer shall be responsible for obtaining soils tests within the Public Right-of-Way after right of way grading and all utility trench work is complete. If the final

soils/pavement design report does not correspond with the results of the original geotechnical report, the Developer shall be responsible for a re-design of the subject pavement section or, the Developer may use the Local Entity's default pavement thickness section(s). Regardless of the option used, all final soils/pavement design reports shall be prepared by a licensed Professional Engineer. The final report shall be submitted to the Inspector a minimum of ten (10) working days prior to placement of base and asphalt. Placement of base and asphalt shall not occur until the Engineering Division approves the final report.

37. All road construction in areas designated as Wild Fire Hazard Areas shall be done in accordance with the construction criteria as established in the Wild Fire Hazard Area Mitigation Regulations in force at the time of final plat approval.

38. Portions of Larimer County are within overlay districts. The Larimer County FloodPlain Resolution should be referred to for additional criteria for roads within these districts.

39. Standard Handicap ramps are to be constructed at all curb returns and at all "T" intersections.

40. All stationing is based on centerline of roadways unless otherwise noted.

41. The Local Entity shall not be responsible for the maintenance of roadway and appurtenant improvements, including storm drainage structures and pipes, for the following private streets: (list).

42. Approved Variances are listed as follows: (Plan set must have a list of all applicable variances for the project)

Appendix E-2

Construction Notes

NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

A. Standard Grading and Erosion and Sediment Control Construction Plan Notes

1. The erosion control inspector must be notified at least twenty-four (24) hours prior to any construction on this site.
2. There shall be no earth-disturbing activity outside the limits designated on the accepted plans.
3. All required perimeter silt and construction fencing shall be installed **prior** to any land disturbing activity (stockpiling, stripping, grading, etc). All other required erosion control measures shall be installed at the appropriate time in the construction sequence as indicated in the approved project schedule, construction plans, and erosion control report.
4. At all times during construction, the Developer shall be responsible for preventing and controlling on-site erosion including keeping the property sufficiently watered so as to minimize wind blown sediment. The Developer shall also be responsible for installing and maintaining all erosion control facilities shown herein.
5. Pre-disturbance vegetation shall be protected and retained wherever possible. Removal or disturbance of existing vegetation shall be limited to the area(s) required for immediate construction operations, and for the shortest practical period of time.
6. All soils exposed during land disturbing activity (stripping, grading, utility installations, stockpiling, filling, etc.) shall be kept in a roughened condition by ripping or disking along land contours until mulch, vegetation, or other permanent erosion control BMPs are installed. No soils in areas outside project street rights-of-way shall remain exposed by land disturbing activity for more than thirty (30) days before required temporary or permanent erosion control (e.g. seed/mulch, landscaping, etc.) is installed, unless otherwise approved by the Local Entity.
7. In order to minimize erosion potential, all temporary (structural) erosion control measures shall:
 - a. Be inspected at a minimum of once every two (2) weeks and after each significant storm event and repaired or reconstructed as necessary in order to ensure the continued performance of their intended function.

- b. Remain in place until such time as all the surrounding disturbed areas are sufficiently stabilized as determined by the erosion control inspector.
 - c. Be removed after the site has been sufficiently stabilized as determined by the erosion control inspector.
- 8. When temporary erosion control measures are removed, the Developer shall be responsible for the clean up and removal of all sediment and debris from all drainage infrastructure and other public facilities.
- 9. The contractor shall clean up any inadvertent deposited material immediately and make sure streets are free of all materials by the end of each working day.
- 10. All retained sediments, particularly those on paved roadway surfaces, shall be removed and disposed of in a manner and location so as not to cause their release into any waters of the United States.
- 11. No soil stockpile shall exceed ten (10) feet in height. All soil stockpiles shall be protected from sediment transport by surface roughening, watering, and perimeter silt fencing. Any soil stockpile remaining after thirty (30) days shall be seeded and mulched.
- 12. The stormwater volume capacity of detention ponds will be restored and storm sewer lines will be cleaned upon completion of the project and before turning the maintenance over to the Local Entity or Homeowners Association (HOA).
- 13. City Ordinance and Colorado Discharge Permit System (CDPS) requirements make it unlawful to discharge or allow the discharge of any pollutant or contaminated water from construction sites. Pollutants include, but are not limited to discarded building materials, concrete truck washout, chemicals, oil and gas products, litter, and sanitary waste. The developer shall at all times take whatever measures are necessary to assure the proper containment and disposal of pollutants on the site in accordance with any and all applicable local, state, and federal regulations.
- 14. A designated area shall be provided on site for concrete truck chute washout. The area shall be constructed so as to contain washout material and located at least fifty (50) feet away from any waterway during construction. Upon completion of construction activities the concrete washout material will be removed and properly disposed of prior to the area being restored.
- 15. To ensure that sediment does not move off of individual lots one or more of the following sediment/erosion control BMPs shall be installed and maintained until the lots are sufficiently stabilized, as determined by the erosion control inspector, (Within Loveland GMA and City Limits Only).
 - a. Below all gutter downspouts.
 - b. Out to drainage swales.
 - c. Along lot perimeter.
 - d. Other locations, if needed.

16. Conditions in the field may warrant erosion control measures in addition to what is shown on these plans. The Developer shall implement whatever measures are determined necessary, as directed by the City/County.
17. A vehicle tracking control pad shall be installed when needed for construction equipment, including but not limited to personal vehicles exiting existing roadways. No earthen materials, i.e. stone, dirt, etc. shall be placed in the curb & gutter or roadway as a ramp to access temporary stockpiles, staging areas, construction materials, concrete washout areas, and/or building sites.
18. Add notes to reflect the stormwater runoff control plan of the individual development.

B. Street Improvements Notes

1. All street construction is subject to the General Notes on the cover sheet of these plans as well as the Street Improvements Notes listed here.
2. A paving section design, signed and stamped by a Colorado licensed Engineer, must be submitted to the Local Entity Engineer for approval, prior to any street construction activity, (full depth asphalt sections are not permitted at a depth greater than 8 inches of asphalt). The job mix shall be submitted for approval prior to placement of any asphalt.
3. Where proposed paving adjoins existing asphalt, the existing asphalt shall be saw cut, a minimum distance of 12 inches from the existing edge, to create a clean construction joint. The Developer shall be required to remove existing pavement to a distance where a clean construction joint can be made. Wheel cuts shall not be allowed unless approved by the Local Entity Engineer in Loveland.
4. Street subgrades shall be scarified the top 12 inches and re-compacted prior to subbase installation. No base material shall be laid until the subgrade has been inspected and approved by the Local Entity Engineer.
5. Ft. Collins only. Valve boxes and manholes are to be brought up to grade at the time of pavement placement or overlay. Valve box adjusting rings are not allowed.
6. When an existing asphalt street must be cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented by the Inspector before any cuts are made. Cutting and patching shall be done in conformance with **Chapter 25, Reconstruction and Repair**. The finished patch shall blend smoothly into the existing surface. The determination of need for a complete overlay shall be made by the Local Entity Engineer. All overlay work shall be coordinated with adjacent landowners such that future projects do not cut the new asphalt overlay work.
7. All traffic control devices shall be in conformance with these plans or as otherwise specified in M.U.T.C.D. (including Colorado supplement) and as per the Right-of-Way Work Permit traffic control plan.

8. The Developer is required to perform a gutter water flow test in the presence of the Local Entity Inspector and prior to installation of asphalt. Gutters that hold more than ¼ inch deep or 5 feet longitudinally, of water, shall be completely removed and reconstructed to drain properly.
9. Prior to placement of H.B.P. or concrete within the street *and* after moisture/density tests have been taken on the subgrade material (when a full depth section is proposed) or on the subgrade and base material (when a composite section is proposed), a mechanical "proof roll" will be required. The entire subgrade and/or base material shall be rolled with a heavily loaded vehicle having a total GVW of not less than 50,000 lbs. and a single axle weight of at least 18,000 lbs. with pneumatic tires inflated to not less than 90 p.s.i.g. "Proof roll" vehicles shall not travel at speeds greater than 3 m.p.h. Any portion of the subgrade or base material which exhibits excessive pumping or deformation, as determined by the Local Entity Engineer, shall be reworked, replaced or otherwise modified to form a smooth, non-yielding surface. The Local Entity Engineer shall be notified at least 24 hours prior to the "proof roll." All "proof rolls" shall be performed in the presence of an Inspector.

C. Traffic Signing and Pavement Marking Construction Notes

1. All signage and marking is subject to the General Notes on the cover sheet of these plans, as well as the Traffic Signing and Marking Construction Notes listed here.
2. All symbols, including arrows, ONLYS, crosswalks, stop bars, etc. shall be pre-formed thermo-plastic.
3. All signage shall be per Local Entity Standards and these plans or as otherwise specified in MUTCD.
4. All lane lines for asphalt pavement shall receive two coats of latex paint with glass beads.
5. All lane lines for concrete pavement should be epoxy paint.
6. Prior to permanent installation of traffic striping and symbols, the Developer shall place temporary tabs or tape depicting alignment and placement of the same. Their placement shall be approved by the Local Entity Engineer prior to permanent installation of striping and symbols.
7. Pre-formed thermo-plastic applications shall be as specified in these Plans and/or these Standards.
8. Epoxy applications shall be applied as specified in CDOT Standard Specifications for Road and Bridge Construction.
9. All surfaces shall be thoroughly cleaned prior to installation of striping or markings.
10. All sign posts shall utilize break-away assemblies and fasteners per the Standards.

11. A field inspection of location and installation of all signs shall be performed by the Local Entity Engineer. All discrepancies identified during the field inspection must be corrected before the 2-year warranty period will begin.
12. The Developer installing signs shall be responsible for locating and protecting all underground utilities.
13. Special care shall be taken in sign location to ensure an unobstructed view of each sign.
14. Signage and striping has been determined by information available at the time of review. Prior to initiation of the warranty period, the Local Entity Engineer reserves the right to require additional signage and/or striping if the Local Entity Engineer determines that an unforeseen condition warrants such signage according to the MUTCD or the CDOT *M and S Standards*. All signage and striping shall fall under the requirements of the 2-year warranty period for new construction (except fair wear on traffic markings).
15. Sleeves for sign posts shall be required for use in islands/medians. Refer to **Chapter 14, Traffic Control Devices**, for additional detail.

D. Storm Drainage Notes

1. The City of Fort Collins shall not be responsible for the maintenance of storm drainage facilities located on private property. Maintenance of onsite drainage facilities shall be the responsibility of the property owner(s).
2. All recommendations of the final drainage and erosion control study **(name of the study and date)** by **(Engineering Firm)** shall be followed and implemented.
3. Prior to final inspection and acceptance by The City of Fort Collins, certification of the drainage facilities, by a registered engineer, must be submitted to and approved by the Stormwater Utility Department. Certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of a certificate of occupancy for single family units. For commercial properties, certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of any building permits in excess of those allowed prior to certification per the Development Agreement.

E. Waterline Note

1. The minimum cover over water lines is 4.5 feet and the maximum cover is 5.5 feet unless otherwise noted in the plans and approved by the Water Utility.

Appendix E-3

Signature Review Block for Public Improvements Construction Plans

NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

(For City of Loveland Only)

REVIEWED BY

CITY OF LOVELAND – TRANSPORTATION ENGINEERING DIVISION

BY: _____ DATE: _____

CITY OF LOVELAND – WATER/WASTEWATER ENGINEERING DIVISION

BY: _____ DATE: _____

CITY OF LOVELAND – FIRE DEPARTMENT

BY: _____ DATE: _____

CITY OF LOVELAND – ELECTRICAL ENGINEERING DIVISION

BY: _____ DATE: _____

CITY OF LOVELAND – CURRENT PLANNING DIVISION

BY: _____ DATE: _____

CITY OF LOVELAND – STORM DRAINAGE ENGINEERING DIVISION

BY: _____ DATE: _____

The City of Loveland review constitutes compliance with the City's Development Standards, subject to these plans being stamped, signed, and dated by the professional engineer of record. Review by the City does not constitute approval of the plan design. Errors in the design or calculations remain the responsibility of the engineer of record.

This review does not constitute review/approval of any private on-site improvements which may be shown. These plans are intended to be for city review of public improvements adjacent to the property. Construction of on-site private improvements cannot commence until all required traffic worksheet or study(s), final development plan(s), special review(s), and building permit(s) are complete, approved and on file with the City of Loveland.

(For Larimer County Only)

Reviewed by:

LARIMER COUNTY ENGINEERING

DATE

The Larimer County review constitutes compliance with these Standards. Review by the county does not constitute approval of the plan design.

This review does not constitute review/approval of any private on-site improvements which may be shown. These plans are intended to be for county review of public improvements adjacent to the property. Construction of on-site private improvements cannot commence until all required traffic worksheet or study(s), final development plan(s), special review(s), and building permit(s) are complete, approved and on file with Larimer County.

Appendix E-4

City of Fort Collins

Requirements for Utility Plans

PROJECT NAME: _____

PROJECT PLANNER: _____

DESIGN ENGINEERING FIRM: _____

DEVELOPER: _____

All applications for final development plans **must** include final development plan documents (“Utility Plans”). The standards for these Utility Plans are set forth in Division 3.3 of the City of Fort Collins Land Use Code, these Standards, and as further noted in this appendix.

THIS LIST PROVIDES THE DESIGN ENGINEER INFORMATION TO HELP HIM/HER DETERMINE WHAT THE CITY OF FORT COLLINS EXPECTS TO SEE ON DRAWINGS SUBMITTED FOR REVIEW AND APPROVAL. THIS LIST IS NOT INTENDED TO BE ALL-INCLUSIVE AND SHALL NOT, IN ANY WAY, OVERRIDE OR SUPERCEDE THE STANDARDS SET FORTH IN THE CITY OF FORT COLLINS LAND USE CODE AND/OR THE LARIMER COUNTY URBAN AREA STREET STANDARDS MANUAL. ADDITIONAL INFORMATION MAY BE REQUIRED ON SPECIFIC PLAN DESIGNS AND IS NOT INTENDED TO RELIEVE THE DESIGN ENGINEER OF THEIR OBLIGATION TO UTILIZE GOOD ENGINEERING PRACTICES.

The two “check list” columns to the left of the Utility Plan requirements below are provided for the convenience of both City staff and the Developer’s Engineer. The columns are organized as follows:

- (1) The first column, “Applicant Validation,” is provided as a check list for the applicant to ensure that all required items are addressed within the Utility Plans.
- (2) Upon submittal, City staff will check off the items in the second column to ensure that all the required items are included within the Utility Plans.

PLEASE NOTE: All items with an arrow (▶) are items required prior to public hearing. All items without an arrow will be required during final compliance.

Applicant
Validation
N/A Included

Staff
Check

I. Cover Sheet

			<p>A. ► Preamble title of "Utility Plans For..."</p>
			<p>B. ► Legal description below the project name</p>
			<p>C. ► Vicinity map including project location, nearest two Arterial Streets, existing street system, street names for collector and Arterial Streets, City limit lines, north arrow and major public facilities</p>
			<p>D. ► Index to all sheets contained within the Utility Plan placed on right side of sheet.</p>
			<p>E. The current date (month and year) under the legal description</p>
			<p>F. General Construction Notes, and if applicable, CDOT General Construction Notes (see attached Appendix E-2) placed on left side of sheet</p>
			<p>G. ► Project Bench Marks referencing the City of Fort Collins' datum</p>
			<p>H. Reference to the updated or current soils investigation report</p>
			<p>I. Stamp and signature of a licensed Civil Engineer registered in the State of Colorado (on approved final development plan documents) in accordance with State Statutes and Board Rules.</p>
			<p>J. The following statement is annotated on the Cover Sheet: <i>I hereby affirm that these final construction plans were prepared under my direct supervision, in accordance with all applicable City of Fort Collins and State of Colorado standards and statutes, respectively; and that I am fully responsible for the accuracy of all design, revisions, and record conditions that I have noted on these plans.</i></p>
			<p>K. ► Typical street section(s) provided for each street type being proposed. Sections include appropriate horizontal and vertical dimensions and cross slopes, type of curb and gutter and any deviations from standards. See Figures 7-1F thru 7-13F. (These sections may also be located on the plan/profile sheets or a separate sheet within the utility plan set.)</p>
			<p>L. The names, addresses, phone numbers for the Developer(s), Owner(s), and Consultant Engineer are provided.</p>

<u>Applicant Validation</u>		<u>Staff Check</u>
<u>N/A</u>	<u>Included</u>	
_____	_____	_____

M. Indemnification Statement provided and annotated as follows:

These plans have been reviewed by the Local Entity for concept only. The review does not imply responsibility by the reviewing department, the Local Entity Engineer, or the Local Entity for accuracy and correctness of the calculations. Furthermore, the review does not imply that quantities of items on the plans are the final quantities required. The review shall not be construed in any reason as acceptance of financial responsibility by the Local Entity for additional quantities of items shown that may be required during the construction phase.

II. Grading, Drainage & Erosion Control Plan

_____	_____	_____	A. ► Drainage report submitted
_____	_____	_____	B. ► Existing and proposed contours provided at 2' (min.) intervals and labeled.
_____	_____	_____	C. ► Contours extended a minimum of 50' offsite and tie into existing contours.
_____	_____	_____	D. Finish grade elevations provided for streets, lot corners, and finish floors/top of foundation of buildings for all lots.
_____	_____	_____	E. This statement provided: <i>"The top of foundation elevations shown are the minimum elevations required for protection from the 100-year storm.</i>
_____	_____	_____	F. ► Drainage arrows are provided and show positive drainage to streets or to an approved drainage facility.
_____	_____	_____	G. Phasing of development and construction of all public improvements. All public improvements within each phase stand alone. Phases separated by a thick, ghosted line and identified by either numbers or letters.
_____	_____	_____	H. Temporary and long term erosion control devices are provided and labeled.
_____	_____	_____	I. ► Revegetation methods and specific notes are provided.
_____	_____	_____	J. ► If the project proposes any construction in a floodplain, please pick up the separate "Preliminary Floodplain Submittal Requirements" available at the Stormwater Utility.

Applicant
Validation
N/A Included

Staff
Check

III. Overall Utility Plan Sheet(s)

A. Streets

- | | | | |
|---------------|---------------|---------------|-----------------------------------------------------------------------|
| <u> </u> | <u> </u> | <u> </u> | 1. ► R.O.W., property lines and easements with dimensions and labels. |
| <u> </u> | <u> </u> | <u> </u> | 2. ► Cross-pans |
| <u> </u> | <u> </u> | <u> </u> | 3. ► Access ramps |
| <u> </u> | <u> </u> | <u> </u> | 4. ► Curb and gutter |
| <u> </u> | <u> </u> | <u> </u> | 5. ► Sidewalks |
| <u> </u> | <u> </u> | <u> </u> | 6. ► Driveway locations |
| <u> </u> | <u> </u> | <u> </u> | 7. ► Medians, including flowline and lip of gutter |
| <u> </u> | <u> </u> | <u> </u> | 8. General location of signs (speed, stop, monument, etc.) |

B. Phasing lines of development and construction of all public improvements. All public improvements within each phase stand alone. Phases separated by a thick, ghosted line and identified by either numbers or letters.

C. Water Facilities

- | | | | |
|---------------|---------------|---------------|--------------------------------------------------------------------------------|
| <u> </u> | <u> </u> | <u> </u> | 1. ► Mains with sizes |
| <u> </u> | <u> </u> | <u> </u> | 2. ► Fire hydrant locations |
| <u> </u> | <u> </u> | <u> </u> | 3. ► Valves |
| <u> </u> | <u> </u> | <u> </u> | 4. Meter pits and curb stops |
| <u> </u> | <u> </u> | <u> </u> | 5. ► Manhole locations |
| <u> </u> | <u> </u> | <u> </u> | 6. ► Show service locations at preliminary, except for single family uses. |
| <u> </u> | <u> </u> | <u> </u> | 7. Waterline lowerings |
| <u> </u> | <u> </u> | <u> </u> | 8. Dimensioning of manholes and cleanouts from the centerline of the roadways. |

D. Sanitary Sewer Facilities

- | | | | |
|---------------|---------------|---------------|----------------------------------------|
| <u> </u> | <u> </u> | <u> </u> | 1. ► Mains with sizes |
| <u> </u> | <u> </u> | <u> </u> | 2. ► Manhole locations and numbering |
| <u> </u> | <u> </u> | <u> </u> | 3. Length of segments between manholes |
| <u> </u> | <u> </u> | <u> </u> | 4. Type of pipe |
| <u> </u> | <u> </u> | <u> </u> | 5. Slopes |

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	6. Clean-outs
_____	_____	_____	7. ► Show services at preliminary, except for single family uses.
E. Storm Sewer Facilities			
_____	_____	_____	1. ► General layout of stormsewers, channels and swales.
_____	_____	_____	2. ► Manhole locations
_____	_____	_____	3. ► Junction structures
_____	_____	_____	4. ► Clean-outs
_____	_____	_____	5. ► Type of pipe
_____	_____	_____	6. ► Sizes
_____	_____	_____	7. ► Slopes
_____	_____	_____	8. ► Length of segments between manholes
_____	_____	_____	9. Subdrains (where applicable)
_____	_____	_____	10. ► Manhole numbering
_____	_____	_____	F. ► Existing features shown for a minimum of 150' beyond the project limits
_____	_____	_____	G. ► Proposed utility connections with existing utilities.
IV. Street Plan and Profile Sheets (Horizontal Alignment)			
_____	_____	_____	A. ► Largest possible curve radii used on Arterial and Major Arterial roadways. <i>Minimum curve radii used only where necessary. See Table 7-3.</i>
_____	_____	_____	B. ► Minimum tangent lengths at intersections. See Table 7-3.
_____	_____	_____	C. ► Crossing streets intersect at 90° (minor street can vary ±10°).
_____	_____	_____	D. ► Angle of departure of streets at intersections do not exceed 10° for the length of the required tangent.
_____	_____	_____	E. ► Minimum tangent between reverse curves provided. See Table 7-3.
_____	_____	_____	F. ► Broken-back curves are separated by a length equal to 2 times the tangent length. See Table 7-3.
_____	_____	_____	G. ► Compound curves: ratio value of ≤1.5 (Larger radius divided by the smaller radius).

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
			I. ▶ Minimum centerline arcs for curves with deflection angles 10° or less. See Table 7-5 .
			J. Horizontal curves do not begin at the top of a crest curve or the bottom of a sag curve.
			K. ▶ Tapers and transitions: Refer to Chapter 8
			L. ▶ Sight distance triangles and easements: Shown on all plan & profile sheets. Sight distance easements dedicated on the Plat.
			M. ▶ Minimum Local Street widths provided per Table 7-1 and are consistent with the TIS.
			N. ▶ Access ramps and crosswalks provided. Crosswalk lengths are a maximum of 56' in length. See Chapter 16, Pedestrian Facilities Design and Technical Criteria .
			O. ▶ Minimum of one mid-block access ramps provided at all "T" intersections.
			P. ▶ Complete horizontal alignment includes, but is not limited to: centerline of roads, intersecting streets, driveway locations, and storm drainage facilities.
			Q. ▶ Existing and proposed Property and/or ROW lines, easements and/or tracts provided, dimensioned, and labeled clearly.
			R. Existing utilities and structures (shown as phantom line) included:
			1. ▶ Storm sewer and appurtenances
			2. Fence lines and gates
			3. ▶ Water lines and appurtenances
			4. ▶ Ditches and swales
			5. ▶ Electric lines and appurtenances
			6. ▶ Curbs and gutters
			7. ▶ Sanitary Sewer lines and appurtenances
			8. ▶ Pavement limits
			9. ▶ Telephone lines and appurtenances
			10. ▶ Bridges and/or culverts
			11. ▶ CATV lines and appurtenances
			12. ▶ Guardrails
			13. Signs
			14. ▶ Gas lines and appurtenances

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	S. Station, critical elevation, and dimension of all existing and proposed utility and/or drainage structures provided.
_____	_____	_____	T. Intersections show construction and lane details for new and existing facilities for a minimum of 150' beyond the limits of construction.
			V. Street Plan and Profile Sheets (Vertical Alignment)
_____	_____	_____	A. ► Maximum grades for streets comply. See Table 7-3.
_____	_____	_____	B. ► Maximum grades of cul-de-sacs are 3.0%.
_____	_____	_____	C. Continuance of profile and ground lines for all Local and Collector Streets that dead end (excluding cul-de-sacs) shown for 500' beyond the proposed construction.
_____	_____	_____	D. Continuance of profile and ground lines for Arterial Streets shown for 1000' beyond the proposed construction.
_____	_____	_____	E. ► Minimum crest and sag curve lengths for street classifications. See Figures 7-17 and 7-18. Lengths must meet or exceed these minimums.
_____	_____	_____	F. Crest curves: street centerline, curb and gutter designed with vertical curves. See Table 7-3.
_____	_____	_____	G. Sag curves: street centerline and flowline designed with a vertical curve (see exception below). See Figure 7-18 and Table 7-3.
_____	_____	_____	H. Sag Curves: For grade changes <1.0%: gutter flowlines at low points are not designed with vertical curves, but must meet the minimum .5% grade into the inlet.
_____	_____	_____	I. Sag Curves: For grade changes >1.0%: both street centerline and curb and gutter are designed with vertical curves, but a minimum flowline grade of .5% must still be maintained.
_____	_____	_____	J. ► Single point grade breaks do not exceed 0.40%, except at inlets where min .5% grade into the inlet is required.
_____	_____	_____	K. ► Series of grade breaks meet the vertical alignment criteria for the design speed of the roadways.
_____	_____	_____	L. ► Minimum centerline and flowline grade for streets is 0.50%.
_____	_____	_____	M. Minimum flowline grade for cul-de-sacs is 1.0%.

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	N. Minimum desirable grade around curb returns is 1.0%. Minimum allowable grade around curb returns is 0.50%.
_____	_____	_____	O. Curb return profiles (except medians) are provided.
_____	_____	_____	P. ► Centerline profiles through intersections provided.
_____	_____	_____	Q. Flowline profiles provided on both sides of all streets (Final compliance).
_____	_____	_____	R. ► Centerline profiles provided for all streets (Preliminary).
_____	_____	_____	S. ► Proposed (solid line type) and existing (dashed line type) ground lines provided and labeled.
_____	_____	_____	T. ► All proposed and existing vertical curves and grade breaks are dimensioned (Preliminary)/stationed and labeled clearly (Final compliance).

VI. Cross Slopes

_____	_____	_____	A. Minimum cross slope of new streets is 2.0%.
_____	_____	_____	B. Minimum cross slope of any reconstruction or overlay is 1.5%.
_____	_____	_____	C. Maximum allowable cross slope on all new streets is 3.0%.
_____	_____	_____	D. Maximum allowable cross slope on any reconstruction or overlay of existing roadways is 4.0%.
_____	_____	_____	E. Street modifications (widening, turn-lane, etc): the widened portion is within the stated limits and is not less than the existing cross slope.
_____	_____	_____	F. When tying to existing cross slopes: Curb and gutter or centerline shall be designed such that the when the existing pavement is overlaid it results in a straight line cross slope grade that meets standards.
_____	_____	_____	G. Cul-de-sacs: See Figure 7-19 .

VII. Design Speed

_____	_____	_____	A. ► Roadways are designed according to their proper design speed. See Table 7-3 .
-------	-------	-------	-------------------------------------------------------------------------------------------

VIII. Curb Return Radii

_____	_____	_____	A. Curb return radii used in accordance with Table 8-2 .
-------	-------	-------	-----------------------------------------------------------------

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	B. Minimum desirable flowline grade around curb returns is 1%.
_____	_____	_____	C. Minimum allowable flowline grade around curb returns is 0.50%.
_____	_____	_____	IX. Medians
_____	_____	_____	A. Provided as stated on Figures 7-1F thru 7-13F .
_____	_____	_____	B. ► Width of medians are no less than 4' wide.
_____	_____	_____	C. ► Turn Lane and Access: Left-turn lanes (where warranted) designed using criteria contained in Figures 8-2, 8-3 & 8-11 .
_____	_____	_____	D. ► Landscaped medians include drainage facilities to handle sprinkler runoff and nuisance flows. Refer to Appendix C.
_____	_____	_____	E. ► Median(s) are designed with keyed curb or curb with outfall gutters (if gutters are not needed to handle drainage), or medians are designed with curb with inflow gutters (if gutters are needed to handle drainage).
_____	_____	_____	F. ► Nose of median(s) located such that vehicle turning movements comply with vehicle tracking templates.
_____	_____	_____	G. ► Transition points of medians do not have "angle points". A 100' minimum radius with minimum arc length of 50' is used at transition locations.
_____	_____	_____	H. ► Permanent structures within medians are a minimum of 5' from the closest travel lane.
_____	_____	_____	I. ► Pedestrian refuge areas are provided in the noses of medians. See Chapter 16, Pedestrian Facilities Design and Technical Criteria .
_____	_____	_____	J. Profiles shall be provided for all areas of inflow curb and gutter. Profiles or adequate spot elevations, dimensions and any other information necessary for review and construction shall be provided for all medians.
_____	_____	_____	X. Cul-de-sacs
_____	_____	_____	A. ► Provided only on Local Streets. See Figures 7-19 & 7-21 .
_____	_____	_____	B. ► Maximum length of 660' (1320' max.) if fire sprinkler systems are installed in structures.
_____	_____	_____	C. ► Minimum radii used. See Figure 7-19 .

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
			XI. Eyebrows
			A. ▶ Provided only on Local Streets. See Figure 7-23.
			B. ▶ Spaced in conformance with the requirements in Chapter 9, Access Requirements and Criteria.
			XII. Dead-end Streets
			A. ▶ Temporary dead-end streets provided only on streets that do not have direct access from adjoining property.
			B. ▶ Temporary turnarounds with a minimum radius of 50' provided for permitted dead-end streets. See Figure 7-26.
			C. Temporary access easements dedicated on the Plat.
			XIII. Driveways
			A. Where curb cuts are provided, concentrated runoff from adjoining properties does not discharge across the sidewalk.
			B. ▶ Spacing of curb cuts conform to spacing requirements. See Figure 9-1 and Table 7-3
			C. Drive approaches slope toward the street.
			D. ▶ Driveways intersect streets at $90^{\circ} \pm 10^{\circ}$ for a minimum of 25' measured perpendicular to the street from the curb edge or EOA.
			E. ▶ All access/driveway approaches are paved with Portland cement from the street to the ROW.
			1. SF Residential Approaches
			a. ▶ Minimum width of driveway(s) is 12' and the maximum width is 24'. See Standard Drawings 706 and 707.
			b. ▶ Sidewalks are continuous through driveways. See Standard Drawing 1601.
			c. When pedestrian accessible driveways are required in lieu of mid-block access ramps, the slope of the driveway is $\leq 1:12$ and spaced at 300' intervals on both sides of the street.

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
			2. High Volume Driveway
			a▶*. Driveways accessing Arterial Streets or meeting criteria in Section 9.3.2.A shall conform with Standard Drawing 707.
			b▶*. Maximum width is 36'. If wider, a median separates the inbound and outbound traffic.
			3. ▶ Multi-Family Dwelling Unit Driveways
			Minimum width of driveway(s) is 24'. Minimum of 28' for driveways serving 12 units or more with maximum width of 36'.

XIV. Grading In The ROW

			A. Maximum slope for all areas within the ROW is 4:1.
			B. Maximum slope outside of the ROW affecting public improvements is 4:1.
			C. Retaining walls provided where slopes exceed 4:1. Retaining walls designed in accordance with Chapter 11, Structures.
			D. Minimum slopes in non-roadway areas is 2.0%

XV. Sub-drains

			A. Engineered sub-drain systems meet criteria set forth in Section 7.7.3
			B. Hydrologic study submitted if criteria in Section 5.6.1. A. is met or sub-drains are needed for basements.

XVI. Cross-pans

			A. Cross-pans adjacent to Local Streets are a minimum of 6' wide and 7/8" deep.
			B. Cross-pans adjacent to Collector Streets are a minimum of 8' wide and 1 1/8" deep.
			C. Cross-pans adjacent to Arterial Streets are a minimum of 10' wide and 1 1/2" deep.
			D. Mid-block cross-pans are a minimum of 12' in width and 1 3/4" in depth.
			E. Minimum grade of cross-pans are 0.50%.
			F. Pavement transitions approaching cross-pans designed using the design speeds in Table 7-3 and meet the requirements of Figure 7-27 and Standard Drawing 710.

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	G. Spot elevations provided as shown on Figure 7-27.
			XVII. Inlets
_____	_____	_____	A. ► Inlets are not located within the curb returns.
			XVIII. Bus Bays
_____	_____	_____	A. ► Bus bays are 11' wide.
_____	_____	_____	B. ► Bus bays are constructed with concrete in accordance with Chapter 22, Construction Specifications.
_____	_____	_____	C. ► Bus bays shall be designed in accordance with Section 7.9 and Standard Drawing 711.
			XIX. Intersections
_____	_____	_____	A. ► Travel lanes are aligned through intersection(s) (a 2' shift is allowed in hardship cases only).
_____	_____	_____	B. ► Intersections cross at 90° ±10°.
_____	_____	_____	C. ► Horizontal alignment of streets thru intersections are designed in accordance with Table 7-3.
_____	_____	_____	D. ► Exclusive left-turn lanes provided where required. See Section 8.2.5, Exclusive Left Turn Lanes.
_____	_____	_____	E. ► Exclusive right-turn lanes provided where required. See Section 8.2.6, Exclusive Right Turn Lanes.
_____	_____	_____	F. ► Adequate turning radii used for each type of intersection. See Section 8.2.8, Turning Radius.
_____	_____	_____	G. ► ROW is dedicated as shown on Figure 8-12.
_____	_____	_____	H. ► Additional ROW dedicated for right and left turn lanes.
_____	_____	_____	I. ► Sight distances comply with Figure 7-16.
_____	_____	_____	J. ► Street grades approaching intersections shall be between 0.50% (min.) and 4.0% (max) for a distance equal to the tangent length of the street classification. See Table 7-3)
_____	_____	_____	K. ► Profile grades within the intersection do not exceed 3%
			XX. General Requirements
_____	_____	_____	A. Phased improvements shown clearly.

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	B. Phases within the project limits stand alone and do not leave necessary improvements to future projects.
_____	_____	_____	C. ► Design of State streets meet the requirements presented in the State Highway Access Code Manual .
_____	_____	_____	D. ► North arrows and the appropriate bar/graphic scale(s) are provided.
_____	_____	_____	E. ► Existing features adjacent to this development are shown in a ghosted or alternate line weight.
_____	_____	_____	F. The City's signature block is provided in the lower right corner of each sheet contained within the utility plan set. Each signature block measures 3½" high by 4½" wide.
_____	_____	_____	G. ► Ditch company approval block is provided.
_____	_____	_____	H. ► Water and Sanitary District approval block is provided.
_____	_____	_____	I. County approval block is provided.
_____	_____	_____	J. CDOT approval block is provided.
_____	_____	_____	K. ► Title block is provided on each sheet of the utility plan set and includes the project name, sheet name, engineer's name, address, telephone number and fax number, sheet numbering, and revision block.
_____	_____	_____	L. ► The utility plans correlate with the Site and Landscape Plans
_____	_____	_____	M. Spot elevations at all intersections provided as shown on Figures 7-27 and 7-28 .
_____	_____	_____	N. ► Proposed construction within the Property boundary drawn with solid lines and existing features shown with hidden or dashed lines.
_____	_____	_____	O. Stations and elevations provided at all PC's, driveway intersections and roadway intersections in both plan and profile views.
_____	_____	_____	P. Flowline curve table provided on each plan and profile sheet that includes radius, angle, arc length, and tangent length.
_____	_____	_____	Q. Centerline stationing is the standard and shall be used except at cul-de-sacs, where flowline stationing is used (Station equations provided.), unless approval to use flowline stationing is given.
_____	_____	_____	R. ► Street names provided on all sheets.
_____	_____	_____	T. ► All easements shown in the plan views.

<u>Applicant Validation</u>		<u>Staff Check</u>
<u>N/A</u>	<u>Included</u>	
		U. ▶ Match-lines provided in both plan and profile. Page number, station and elevation included.
		V. The scale of all sheets are as follows:
		1. ▶ Horizontal - 1" = 20', 30', 40', or 50'
		2. ▶ Vertical - 1" = 5' or 10'
		3. ▶ Overall Plan - 1" = 100'
		W. ▶ All private improvements, including but not limited to, roadways, driveways, utilities, etc. are clearly shown and labeled as such.
		X. ▶ A legend is provided on each sheet identifying the symbols used on that particular sheet.
		Y. ▶ Key map is provided on the plan and profile sheets (for utility plans having 3 or more plan and profile sheets).
		XXI. ▶ Street Cross Sections (Preliminary = typical for each street)
		A. Cross sections for Arterial Streets and Collector Streets are provided at 50' intervals. Cross also required where special conditions warrant the need (i.e. widening of an existing street). The interval may be adjusted where site topography is unique.
		1. Information Provided on each Cross Section
		a. ▶ Curb & gutter, existing(f) and proposed(*)
		b. ▶ Roadway surface, existing and proposed
		c. ▶ Sidewalk, existing and proposed
		d. ▶ Cross slopes, existing(f) and proposed(*)
		e. ▶ ROW, existing and proposed
		f. Side slopes, existing and proposed, 15' beyond the proposed ROW
		g. Stations
		h. Proposed flowline and centerline elevations
		i. Utility crossings
		j. ▶ Dimensions

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	k. Areas of overlay, milling, pavement removal and/or reconstruction

XXII. Plat

_____	_____	_____	A. ► Maintenance Guarantee, Repair Guarantee, Notice of Other Documents notes.
_____	_____	_____	B. ► Planning & Zoning Board/Hearing Officer certification statement (to be signed at final compliance).
_____	_____	_____	C. ► Surveyor certification statement (to be signed at final compliance)
_____	_____	_____	D. ► Statement(s) of land ownership
_____	_____	_____	E. ► Statement(s) of ownership and/or maintenance of all tracts.
_____	_____	_____	F. ► Statement(s) of the dedication of any easements, ROW, tracts, and other public areas.
_____	_____	_____	G. ► Vicinity Map: Project location, nearest 2 Arterial Streets, street names, City limits, major public facilities.
_____	_____	_____	H. Curve data complete for all curves.
_____	_____	_____	I. ► 2 ties to aliquot corners.
_____	_____	_____	J. ► All existing and proposed easements and ROW clearly defined.
_____	_____	_____	K. ► Adjoining properties labeled.
_____	_____	_____	L. ► Scale, graphic scale, north arrow, date of preparation, complete title w/ location.
_____	_____	_____	M. ► Boundary legal description closes.
_____	_____	_____	N. ► Lot lines.
_____	_____	_____	O. ► Designation of areas subject to flooding, including floodplain, floodway, and product corridors. (Elevation Datum must be referenced to City of Fort Collins datum.)

Appendix E-4

City of Loveland

Requirements for Public Improvements - Construction Plans

NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

Project Name: _____

All applications for final subdivision plans must include final construction plans for public improvements. The standards for these plans are set forth in Section 16.20.090 of the Municipal Code, these Standards and as further noted in this appendix.

The two “check list” columns to the left of the construction plan requirements below are provided for the convenience of both staff and the Developer’s Engineer. The columns are organized as follows:

- (1) The first column, “Applicant Validation,” is provided as a check list for the applicant to ensure that all required items are addressed within the construction plan set.
- (2) Upon submittal, city staff will check off items in the second column to ensure that all the required items are included within the construction plan set.

<u>Applicant Validation</u>			<u>Staff Check</u>
<u>N/A</u>	<u>Included</u>	<u>Staff Check</u>	
I.	Title Sheet		
_____	_____	_____	A. Preamble title of "Public Improvements Construction Plans".
_____	_____	_____	B. The legal name of the addition or subdivision (the marketing name may be used on the plans, but must be subordinate to the subdivision name).
_____	_____	_____	C. Signature review blocks for City and other applicable entities, i.e., ditch company, C.D.O.T., County, etc. (See Appendix E-3)
_____	_____	_____	D. Index to all sheets in the plan set.
_____	_____	_____	E. The character type and position of benchmark (including elevation) must reference the “City of Loveland 1995 Level Net Survey.
_____	_____	_____	F. Vicinity map, scale and north arrow. The vicinity map must be updated to show all approved projects in the area. 1” = _____.
_____	_____	_____	G. General Construction Notes, Street Construction Notes, & Water/Sewer and Storm Drainage Notes (see attached Appendix E-1).
_____	_____	_____	H. Stamp and signature of licensed Civil Engineer (on final approved sets of plans) in accordance with current State Statutes and Board Rules.

Applicant Validation

N/A

Included

Staff Check

I. Overall Utility Layout Plan sheet(s)

<u>N/A</u>	<u>Included</u>	<u>Staff Check</u>	
_____	_____	_____	A. Streets
_____	_____	_____	1. R.O.W. and easements.
_____	_____	_____	2. Cross-Pans.
_____	_____	_____	3. Curb and gutter (lines depicting lip and flowline).
_____	_____	_____	4. Walk, (attached or detached).
_____	_____	_____	5. Medians, (line depicting both flowlines), if an outfall gutter then show lip and flowline.
_____	_____	_____	6. Signs (speed, stop, warning) general location.
_____	_____	_____	7. Other roadway signs or devices associated with phasing or dead end streets.
_____	_____	_____	B. Provide 3" P.V.C. schedule 40, 36" deep with pull boxes at intersections that will be signalized now or in the future.
_____	_____	_____	C. Include Phasing of development and construction of all Public Improvements. Minimum development phasing shall be 10 lots; All public improvements within each phase shall stand alone. Phase lines shall be shown by heavy dark lines, all phases shall be identified by number or letter.
_____	_____	_____	D. Water Distribution System Valves, hydrants, bends, airvacs, blowoffs, lowering, crossings, sizes of all mains and services. See Water/Wastewater Development Standards for further requirements.
_____	_____	_____	E. Sanitary Sewer System MH, C.O.'s, services, subdrains (where applicable), crossings and sizes of all mains and services. See Water/Wastewater Development Standards for further requirements.
_____	_____	_____	F. Storm Drain System
_____	_____	_____	1. MH, junction structures
_____	_____	_____	2. Inlets / catch basins
_____	_____	_____	3. Storm sewer pipes
_____	_____	_____	4. Detention Pond Outlet Structures
_____	_____	_____	5. Waterways

<u>Applicant Validation</u>		
<u>N/A</u>	<u>Included</u>	<u>Staff Check</u>

_____	_____	_____
-------	-------	-------

G. Street Lighting Show all public street lights in conformance with Chapter 15 of these Standards.

II. Grading, Drainage & Sediment/Erosion Control Plan & Report

_____	_____	_____
-------	-------	-------

A. A Grading, Drainage and Sediment/Erosion Control Report done in accordance with the City of Loveland Storm Drainage Criteria Manual.

_____	_____	_____
-------	-------	-------

B. Existing and proposed contours in a minimum of two foot intervals.

_____	_____	_____
-------	-------	-------

1. Show contours extending a minimum of 50' off-site, and tying into existing contours.

_____	_____	_____
-------	-------	-------

2. Finish grade elevations for streets, lot corners, and finish floor grades or alternately top of foundation of buildings shown for all lots.

_____	_____	_____
-------	-------	-------

C. This statement: The top of foundation elevations shown are the minimum elevations required for protection from the 100 year storm. The lowest opening elevations shown are at least one foot above the 100 year storm elevation of adjacent streets, channels, ditches, swales, or other drainage facilities. Minimum finished floor elevations above 100-year water surface in streets, channels, ditches, swales, or other drainage facilities, as illustrated by a master grading plan are to be shown.

_____	_____	_____
-------	-------	-------

D. Plans to have positive drainage to streets (showing drainage arrows across lots) or to an approved discharge facility.

_____	_____	_____
-------	-------	-------

E. All drainage improvements are to be designed to include all necessary improvement details on the detail sheet.

_____	_____	_____
-------	-------	-------

F. Cross-check front lot elevations with plan & profile sheets for continuity. Also check for elevations and datum match where streets will meet an adjoining subdivision, especially when the adjoining street is designed but not built.

_____	_____	_____
-------	-------	-------

G. Show phase lines. If phasing is proposed after the construction plans are signed, the consultant must revise the plans to show the phase lines.

_____	_____	_____
-------	-------	-------

H. Criteria:

_____	_____	_____
-------	-------	-------

1. Minimum of 1.5% profile grade on grass and a maximum side slope of 4:1. If special circumstances warrant a steeper cross slope, it will be evaluated on a case-by-case basis.

_____	_____	_____
-------	-------	-------

2. If rear lot drainage distance is greater than 300' and provides less than 2% profile

grade, a concrete trickle channel or an under drain must be provided.

3. Drainage outlets and ending pans typically should have some type of erosion protection indicated. Example: If rip-rap is to be used, details should include size of rock D-50 and dimensions of placement, length, width, depth.

I. Inlets/catch basins, fire hydrants and utility poles are not to be constructed where they would conflict with handicap ramps, or be a hazard to traffic. Maintain a 2' minimum clearance from flowline.

J. A final drainage report must be accepted by the storm water utility.

K. Include Phasing of construction & development if phasing is desired.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Applicant Validation

<u>N/A</u>	<u>Included</u>	<u>Staff Check</u>
------------	-----------------	--------------------

IV. Street Plan & Profile

A. Minimum local street widths is per Table 4.1 and 4.2 .(unless project is a PUD or a waiver or variance is approved).

B. Profile grades:

1. See Table 4.2 for maximum grades. Minimum grade allowed is 0.5%.

2. Street grades within 100' of an approaching intersection shall be a maximum grade of 4%.

3. Maximum grade through the intersection is 3%.

a. 10' min. length for each segment prior to a grade break. 2% max. algebraic difference between segments for Collectors and Arterials. 4% max. grade break on local streets. This is to provide a smooth ride through the intersection.

b. Provide flow line grades for intersections with cross-pans. Check the grades for correctness. Make sure they drain.

c. Provide the percent grade for all curb returns at intersections.

C. Vertical curve is required when the algebraic difference in grades is >1.0% except flowline grades in sumps.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	1. Check actual grades and length for accuracy and correctness.
_____	_____	_____	2. All K-values shall be noted on the profile view; minimum K-values shall be in accordance with design speed. Minimum K=45 for crest vertical curve unless circumstances warrant less than 45 ($K=L/Alg.$ Difference in grades)
_____	_____	_____	3. All proposed streets to match with existing streets and adjacent topography/projects. Show the existing streets profile and topography grade and where the proposed will match it. Existing street and topography grades are to be shown for an adequate distance beyond the proposed improvements to facilitate a smooth transition.
_____	_____	_____	4. Check stationing of plan and profile for errors in design and/or discrepancies between the two. Keep the street names the same. (Don't change names of streets at intersections.)
_____	_____	_____	D. Tapers:
_____	_____	_____	1. When shifting an entire directional stream of traffic the taper length $(L) = WS$ for design speeds of >45mph; and $L=WS^2/60$ for design speeds of <40mph; and for turning bay tapers $L=WS/3$. (L =length of transitional taper section in feet, W =width of lateral lane shift in feet, S =design speed in m.p.h.)
_____	_____	_____	E. Access ramps shall be constructed at all corners of street intersections, including one ramp opposite from corners of tee intersections. It is recommended by the Handicap Advisory Committee that access ramps be installed midblock when blocks exceed 600 feet in length street.
_____	_____	_____	F. Inlets/catch basins, fire hydrants, utility poles and electric appurtenances are not to be constructed where they would conflict with handicap ramps.
_____	_____	_____	G. Provide 3" P.V.C. schedule 40, 36" deep with pull boxes at intersections that will be signalized now or in the future. Includes 90° sweeps.
_____	_____	_____	H. Show all raised medians and include all details for construction. Show interior median treatment and design. (i.e., trees, sprinklers, pavement, rock, splash pan, etc). Trees shall not block signing. See Standard Drawing 4-9.

	<u>Applicant</u> <u>Validation</u>		<u>Staff</u> <u>Check</u>
<u>N/A</u>	<u>Included</u>		

I. Gutter cross pans are not to be designed to cross arterial or major collector streets. Gutter pans widths are as follows:

<u>Width</u>	<u>Intersection Type</u>
6'	Local-Local
8'	Local-Collector
8'	Collector-Collector
10'	Local-Arterial
10'	Arterial-Collector
12'	midblock on local street
30'	midblock on collector street

J. Gutter pans or concrete edge protection may be constructed in place of curb and gutter within industrial zoned areas.

1. Minimum 4' compacted fill to be placed between back edge of concrete edge protection or gutter and top of slope of roadside ditch.

K. Minimum curb radii at intersections will be as follows (measured to flow line):

	Local	Collector	Arterial
Local	15'	20'	30'
Collector	20'	25'	30'
Arterial	30'	30'	35'

Note: As per state highway regulations, a minimum of a 50' flow line radius is required when an arterial street intersects a state highway, unless otherwise approved through traffic engineering.

L. Verify written easements are received for any required easements not dedicated on the final plat. Check the easements for accuracy and check that all roadway improvement (i.e., curb and gutter, walk, etc.) are located within dedicated public ROW or pedestrian easements when applicable.

M. Identify the numeric phasing designation and the physical limits of each construction phase.

1. Type III barricades or 3-rail fence with "End of Road" sign, and any related pre-warning signs at all deadends of roads and sidewalks.

For detail see Part

IV, 4.6.b.

2. Secondary access provided for dead ends of length $\geq 400'$ shall be all weather surface, 20' wide, 6" minimum thickness of Class 5 or 6 ABC or recycled HBP.

3. 50' outside radius all weather turn around at deadend roadways longer than 150'.

of either may result in slopes which overrun the R.O.W. In this case, a construction easement will be required.

<u>Applicant Validation</u>		<u>Staff Check</u>
<u>N/A</u>	<u>Included</u>	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Information to be shown on each cross section.
 - a) Curb and gutter, existing and proposed.
 - b) Roadway surface, existing and proposed.
 - c) Sidewalk, existing and proposed.
 - d) Pavement, base and subgrade thickness, existing and proposed.
 - e) Cross grades, existing and proposed.
 - f) R.O.W., existing and proposed.
 - g) Easements, existing and proposed.
 - h) Sideslopes, existing and proposed.

VI. Striping Plan

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- A. SIGNING & STRIPING PLANS ARE REQUIRED on all streets classified minor collector and greater. Major Collector and Arterial street signing and striping plans shall have a minimum scale of 1"=30' and shall be per M.U.T.C.D. and the City Standards.
 1. Bike lanes w/symbols and dimensions (7' min. adjacent to curb and gutter, 5' min. adjacent to travel lanes w/o curb and gutter.)
 2. Travel lanes w/dimensions for all tapers, angle points, turning bays, medians, symbols, etc.
 3. Location of all existing and proposed signs (i.e., no parking/bike lane, stop, speed, warning, etc.)
 4. R.O.W., easements. (All traffic control devices must be located within right-of-way or easements.)
 5. All street improvements (i.e., curb and gutter, walk, asphalt, etc.) w/dimensions.

Applicant Validation

N/A Included Staff Check

_____	_____	_____	6. Layout data/geometrics to all angle points, end points, symbol locations, and sign locations.
_____	_____	_____	7. Add note to signing and striping sheet: "The layout of all signing and striping using 3-M temporary tape at a minimum of 50' spacing shall be approved by the City Street Inspector prior to the installation".
_____	_____	_____	8. Preformed thermo-plastic for arrows, cross walks, bike symbols, etc.

VII. Sanitary Sewer Plan and Profile

_____	_____	_____	A. Include Phasing of construction and development if phasing is desired. See Water/Wastewater Development Standards for further requirements.
-------	-------	-------	-----------------------------------------------------------------------------------------------------------------------------------------------------

VIII. Storm Sewer Plan and Profile

_____	_____	_____	A. Check to make sure water tight joints are used on all storm drainage pipes underneath roads.
_____	_____	_____	B. Include Phasing of construction and development if phasing is desired.
_____	_____	_____	C. The profiles must include the hydraulic grade lines of the storm event that the storm sewer is being designed for.
_____	_____	_____	D. Check to make sure there is a profile for each storm sewer and culvert being proposed.

IX. Utility Details

_____	_____	_____	A. All improvements that have not been standardized are required to be fully designed and shown in the Plans, including the following items:
_____	_____	_____	1. Curb inlets and outlets (to have grates for sidewalks).
_____	_____	_____	2. Irrigation boxes.
_____	_____	_____	3. Drainage structure inlets and outlets.
_____	_____	_____	4. Bridges.
_____	_____	_____	5. Drainage pans.
_____	_____	_____	6. Retaining structures.
_____	_____	_____	B. All standardized improvements shall be depicted by the appropriate City Standard Detail Drawing.

Applicant Validation

N/A Included Staff Check

C. See Water/Wastewater Development Standards for further requirements.

X. Typical Pavement Cross-Sections & Street Improvement Details

A. Pavement sections are to be designed using a soil investigation report as a basis for design, or by using the City's default values as found in Part IV, Table 4.3.

1. This design will include:

a. Methods of stabilizing the subgrade. The most common method is to scarify to a minimum depth of six inches and re-compact to a uniform minimum of 95% relative density as determined by AASHTO T-99.

b. Thickness of the aggregate base course. Compacted to 95% in accordance with T-180.

c. Thickness of asphalt pavement.

2. "Default pavement design" may be chosen vs. a full pavement design based on a soils report. The default pavement design is based on the following coefficients.

a. Aggregate Base Course (A.B.C.) strength coef. = 0.11 per inch, unless R Value tests are submitted which show R values > 78.

b. Pavement Grading "C" & "G" Hot Bituminous pavement strength coefficient = 0.44 per inch.

c. The minimum sums of the coefficients for the default pavement design are listed below:

Pavement Thickness

<u>Street Clarification</u>	<u>WSN</u>	<u>(full depth HBP)</u>
Local	2.22	5.5"
Minor Collector	2.97	7.0"
Major Collector	3.48	8"
2-lane Arterial	4.08	9.5"
4-lane Arterial	4.51	10.5"
6-lane Arterial	4.77	11"

d. Show the min/max lift thickness for Grading "SX" HBP = 1.5" and 2.5" respectively.

<u>Applicant Validation</u>		<u>Staff Check</u>	
<u>N/A</u>	<u>Included</u>		
_____	_____	_____	e. Show the min/max lift thickness for Grading “S” HBP =2” and 3” respectively.
_____	_____	_____	f. Show the min/max lift thickness for Grading “SG” HBP =3” and 5” respectively.
_____	_____	_____	g. Minimum allowable pavement thickness shall be as shown in Table 10-1.
_____	_____	_____	B. Soils/Subsurface investigation report to recommend methods of stabilizing the subgrade when ground water is within 3’ of the pavement section. Details of the methods of construction of the roads, in high ground water areas, shall be shown and described in the appropriate typical cross-section.
_____	_____	_____	C. Standard Details
_____	_____	_____	1. Access ramp.
_____	_____	_____	2. Gutter pan.
_____	_____	_____	3. Curb and gutter (vertical or driveover).
_____	_____	_____	4. Sidewalk (detached or attached).
_____	_____	_____	5. Elevated sidewalk crossings at driveway (detached walk only).
_____	_____	_____	6. Monolithic curb and gutter/walk (driveover or vertical).
_____	_____	_____	7. Commercial drive approach (flared or radius).
_____	_____	_____	8. Residential drive approach (flared or radius).
_____	_____	_____	9. Curb chase.
_____	_____	_____	10. Crown transition.
_____	_____	_____	11. Industrial edge protection.
_____	_____	_____	D. Non Standard Details – construction detail (i.e., speed hump, traffic circles, etc.)
_____	_____	_____	E. Street Construction Notes (See appendix I-B)

Applicant Validation

N/A Included Staff Check

2. Show all proposed public tree lawn treatments.

3. Show all existing mature vegetation.

4. Annotate intersection sight distance triangles and horizontal curve stopping sight distance triangles on all proposed streets. Private easements may be needed which restrict installation of certain landscape material.

5. All proposed and existing water, wastewater, storm drainage facilities, including laterals, services, meterpits, hydrants, blowoffs, airvacs, etc. Clearances of 10' to any tree and 5' to any shrub must be maintained for all proposed and existing facilities.

Appendix E-5

City of Fort Collins - Engineering Inspection STOP WORK ORDER



NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

Job location: _____

I have inspected this structure and these premises and have found the following violations of City laws.

You are hereby notified that no more work shall be done until the above violations are corrected.

Date Inspector

The above signed certifies that a copy of this order was posted on the premises and duly served upon the below signed.

Acknowledged:

Date

DO NOT REMOVE THIS TAG

Please contact the Engineering Department at 281 North College Avenue, (970) 221-6605

Appendix E-6

City of Fort Collins Engineering Department Electronic Document Criteria

NOTE: Appendix Forms and Information are for Reference Only. Contact Local Entity Engineer for Original Forms and Current Information.

1.1.1 GENERAL INFORMATION

In 2000, the City of Fort Collins Engineering Department began converting all Engineering documents into electronic images. The initial conversion included documents such as Subdivision Plats, Utility Plans, Site and Landscape Plans, and Building Elevation Plans. The Colorado Public Records Act states that electronic images must be of a manor and scale to accurately reproduce the original and be of high quality and usable for the customer. To ensure all documents submitted and added to the Engineering Department Document Management System adhere to this act, this set of basic criteria has been developed.

This document is not intended to cover every possible situation that may arise. If you have questions regarding these criteria, please contact the Engineering Department Document Retrieval System Team Leader.

1.1.2 General Submittal Criteria

All final submittals for development projects and City capital projects are required to conform to the criteria set out in this document. This includes all development and capital projects within the jurisdiction of Fort Collins, including those projects soon to be annexed within the Growth Management Area boundaries.

All information shall be clear, concise and legible for final document acceptance. A visual evaluation will be performed on every plan sheet submitted. All sheets, or portions of sheets, found not in conformance with these criteria will be returned to the submitter for correction and resubmittal.

1.2 SUBMITTAL CONTENT REQUIREMENTS

1.2.1 General Requirements

- Adhesive material on mylar shall not be allowed.

- All sheets shall be uniform in contrast, scale, and proportionality to ensure readability.
- An enlarged diagram or detail sheet shall be provided when the details, including short lines, dimensions, and text cannot be clearly shown or read in the body of the plans.
- If an area is congested with a lot of detail, the text information should be located in an open area and referenced back to the point of origin.
- All non-black color will be rejected.
- CAUTION: Photocopied mylars of poor quality will be rejected.

1.2.2 Text and Lettering

The readability of text, lettering and numeric symbols is often obscured when the proportionality between the character and line weight is in conflict. We encourage a design approach that adjusts line weight to the size of the lettering. Smaller text, particularly text that is next to a line, symbol, or other text, is generally unreadable when plotted with a heavier line weight. Therefore these criteria require a proportional line weight to character or letter size to prevent “bleeding” or poor readability.

- The minimum recommended character and/or letter shall be equivalent to a height of 2 mm and a line weight of .25 mm.
- Uppercase lettering is preferable, however, lower case lettering is allowable as long as proper proportionality is used.
- No text, symbols, and/or lines shall be placed on top of other such information to impair readability.

1.2.3 Lines

Line weights have significant impact upon the quality of images. When lines are too thick or close to other information the readability is compromised.

- A minimum recommended grayscale color for any information depicting existing features shall be 252.
- Lines indicating existing facilities and utilities shall be dashed.
- Lines throughout a document shall not be inserted through text, symbols, or numbers. A line should be broken to ensure readability of information.

1.2.4 Shading and Hatching Patterns

When using shading or a hatching pattern to identify areas, the text and other information is often unreadable due to the darkness of the shading or when the thickness of a hatch pattern obscures the underlying information.

- No text, symbols, numbers or other information shall be covered by shading or hatching patterns.

1.2.5 Scale

An appropriate scale shall be used for all engineering drawings and details. Refer to the Larimer County Urban Area Street Standards, Section 3.2.7.

1.3 FIGURES/EXAMPLES

Arrows are provided to draw attention to the specific detail and are not tied to specific words in the caption description.

1.3.1 GOOD EXAMPLES

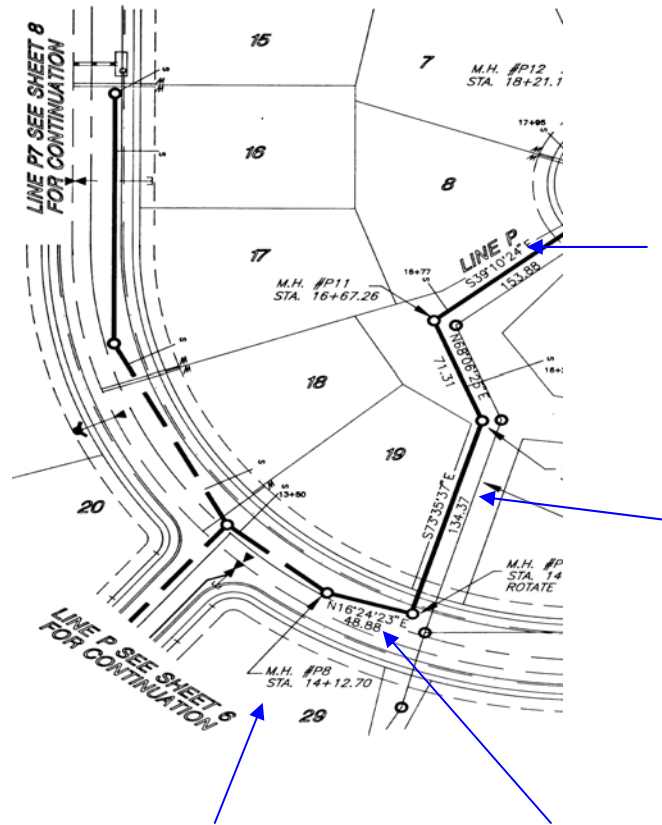


Figure 1.3.1 A – Good overall layout; text is readable; no lines through text or symbols; reduced clutter by using arrows; average proportionality on text.

LINE	DIRECTION	DISTANCE
L1	S 34°37'43" E	34.00'
EL1	N 74°17'10" E	26.69'
EL2	N 15°42'50" W	14.05'
EL3	N 00°17'05" W	14.23'
EL4	N 90°00'00" E	30.24'
EL5	S 89°50'00" E	17.00'

Figure 1.3.1. B - Good proportional text style and pen weight. Round and closed letters are readable.

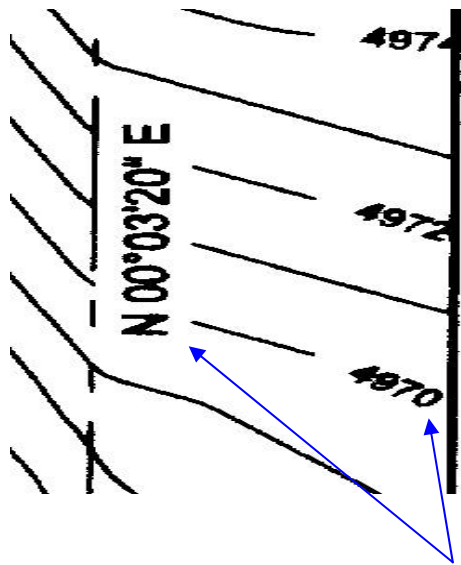


Figure 1.3.1 C – Good line/text usage; line is broken to insert text.

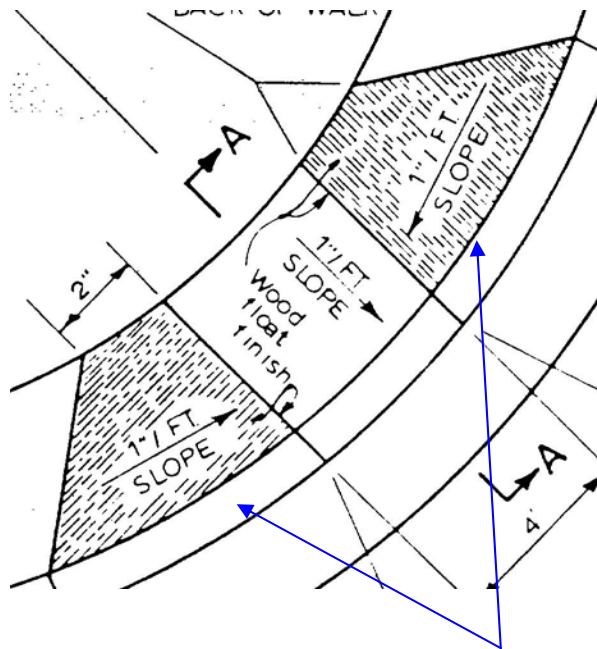


Figure 1.3.1 D – Good hatch pattern; pattern cleared for text.

1.3.2 – Poor Examples

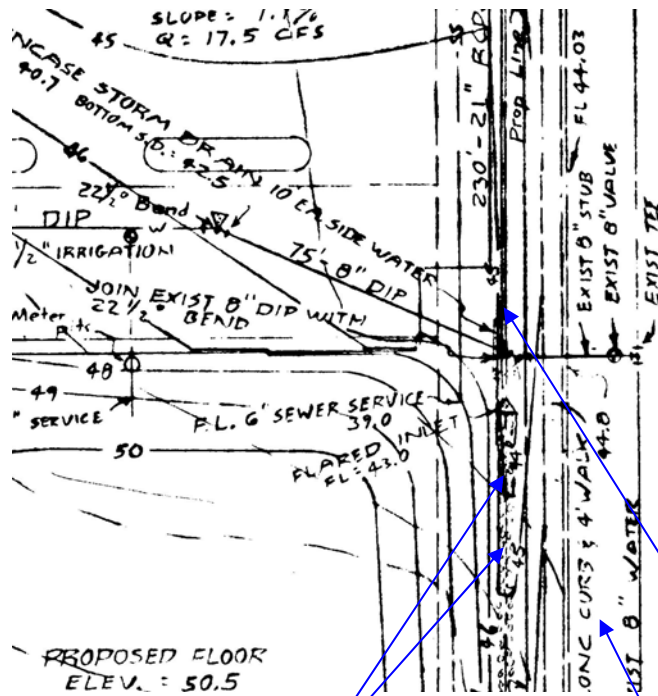


Figure 1.3.2 A – Poor overall layout; lines through text; text unreadable; line weight is too thick in some areas; hatching obscures text.

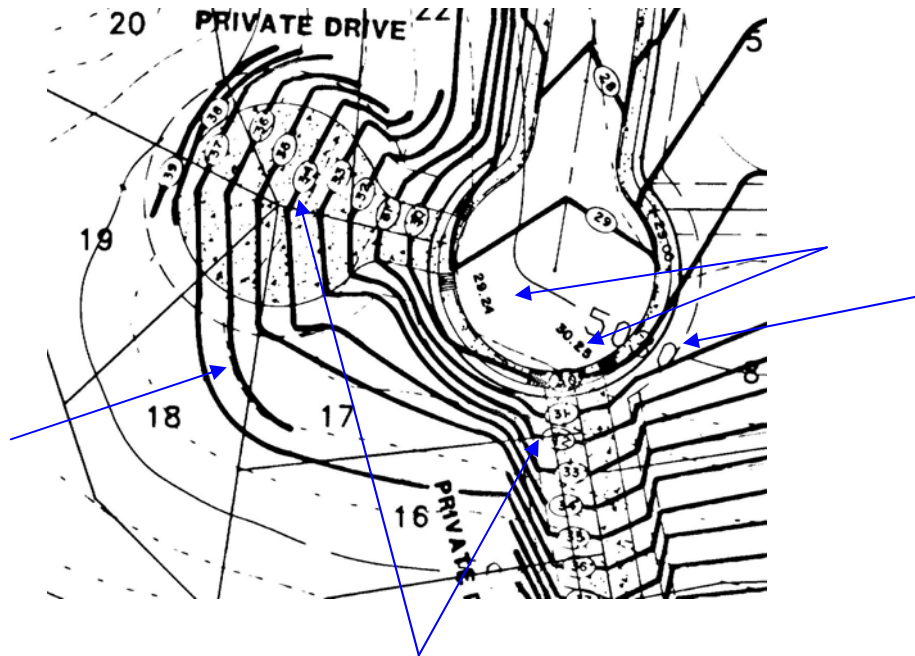


Figure 1.3.2 B – Poor proportionality with text and pen weight; thick lines, hatching conflict with text ; text/numbers without reference point.

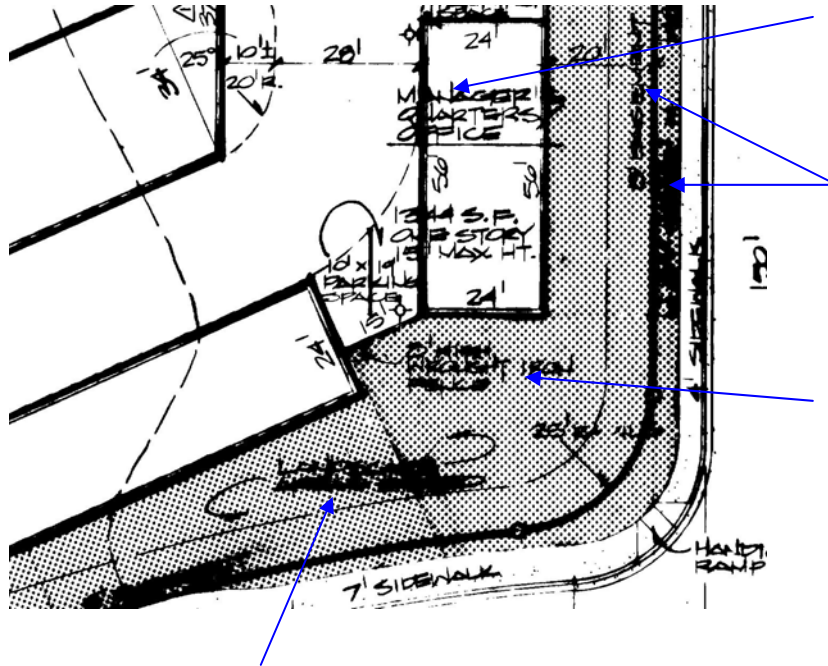


Figure 1.3.2 C – Poor hatching/text; poor proportionality of text and pen weight; poor text style; lines through text.

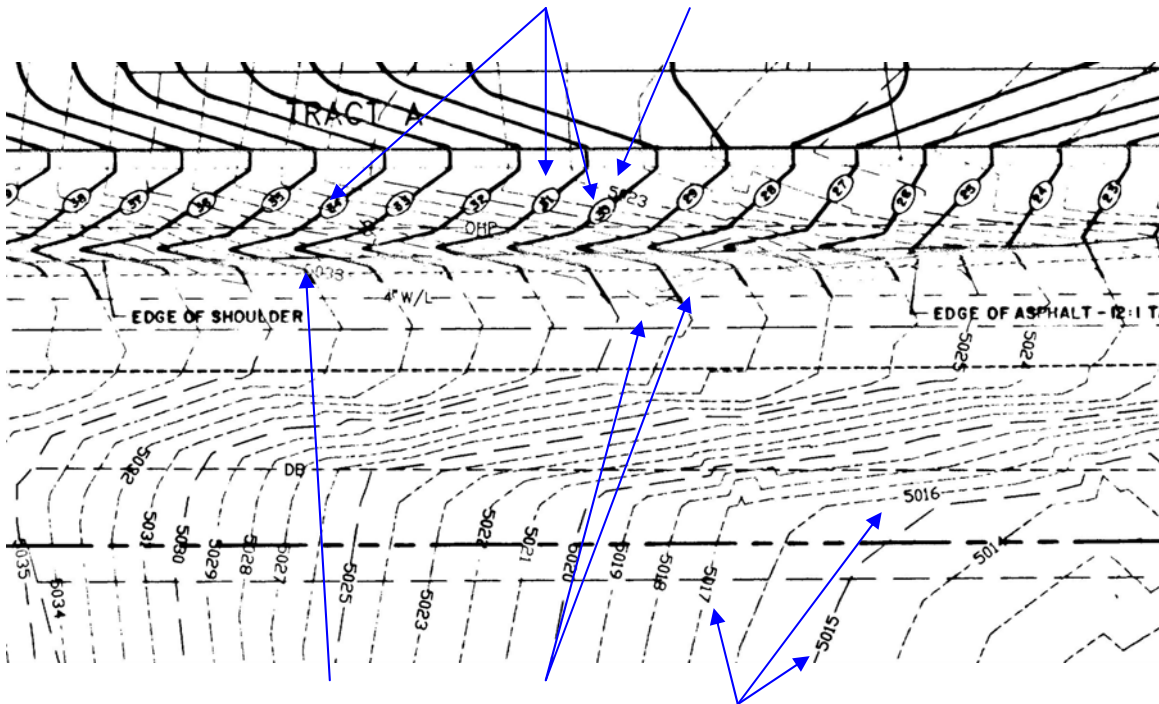


Figure 1.3.2 D – Poor use of lines through text; text going in opposite directions; loss of lines and information; poor proportionality between text and pen weight.

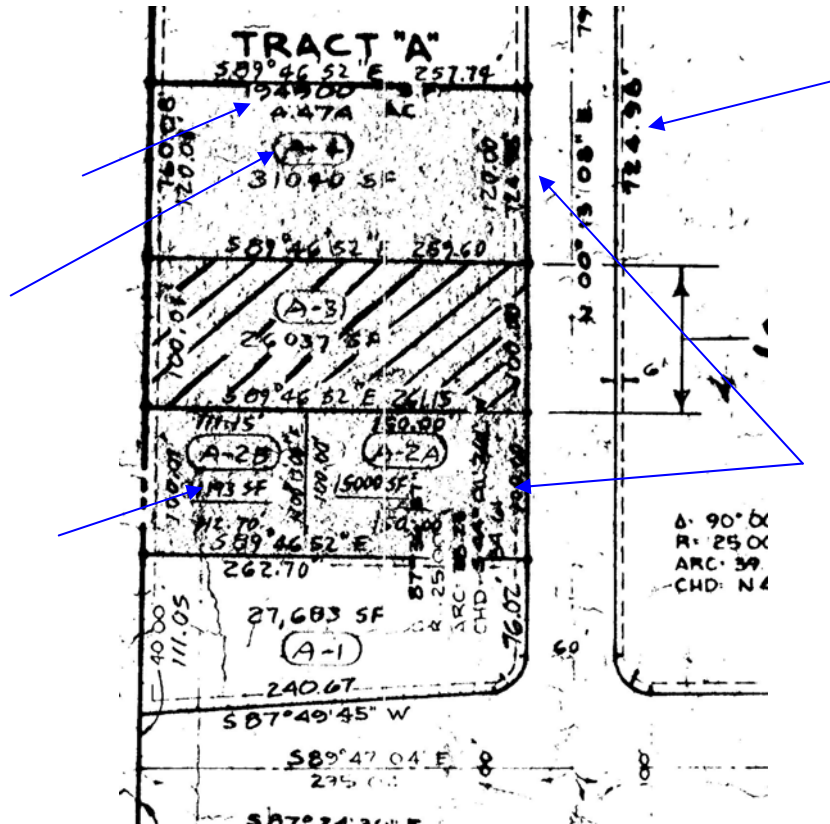


Figure 1.3.2 E – Poor use of shading; poor proportionality of text and line weight; difficult to read.

and rights-of-way now on re

Have caused the same to be shown on this plat known as Collins, Larimer County, Colorado and for public use forever laid out on this plat.

1. CURB LANDING SHALL BE CONCRETE COLORED WITH 4 LBS/ CU YD COLORED DYE NO. 1117 (TILE NEED PIGMENT OR APPROVED EQUAL. DYE'S CLEAR SEALANT OR APPROVED EQUAL SHALL BE APPLIED ON ALL COLORED CONCRETE SURFACES.

Figure 1.3.2 F – Poor examples of text quality; poor proportionality of text and pen weight; unreadable.