

Subdivision Infrastructure Substantial Completion Checklist

The following is a check list of construction that is common to most subdivision construction projects that can be used to ensure that all infrastructure construction is completed before requesting a substantial completion inspection and punch list. **If all applicable items on this list are not completed, then the project is not substantially complete.**

For those items not checked off, indicate Not Applicable (N/A) or provide status of completion. Once the form has been completed and signed, drop off a copy at the Public Works office or email the completed form to Public Works Inspections at rmorger@ci.boerne.tx.us . Public Works will schedule the substantial completion inspection when all items are complete and provide you with a punch list of items needing correction. If the project appears to be incomplete we will contact you with details.

No Substantial Completion inspection will be performed if permanent property pins required by Plat have not been installed per plat specifications.

- Permanent property pins required by Plat are installed and visible or marked where they can be located.

SOIL EROSION AND SEDIMENT CONTROL

- Erosion controls are in-place according to approved engineered plans and specifications. Erosion controls are operational and being maintained.
- Gravel construction entrances are removed and the area disturbed by the entrance is to final grade and finished.
- Permanent vegetation is installed in all Public Easements and Right of Ways.

OVERALL UTILITY INSPECTION

- The overall utility inspection has been scheduled and completed. All valve boxes, meter boxes, service markers, manholes, end of line cleanouts, test stations, and other utility appurtenances are to final grade and ready to be inspected and put in service.

SANITARY SEWER SYSTEM

- Sanitary Sewer mains, services and manholes are installed to grade and line indicated on the approved plans and details.
- Trenches for sewer mains, services and manholes were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for the sewer piping was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.

- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to CoB Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Locations are indicated on Record Drawings.
- Sanitary sewer service connections are installed at a 45 degree angle. Deep sewer service laterals have concrete encasement enveloping the sewer service connection and extending six inches beyond the edge of the fitting in all directions.
- Sanitary sewer service laterals are installed at a constant 2% grade unless otherwise indicated on the approved plans.
- Sanitary sewer service lateral cleanout risers extend two foot above finish grade at the location indicated in the approved details. Service cleanout wyes are installed at the easement line or property line, as applicable. The lateral extends 3 FT 6 IN beyond the cleanout wye and is terminated with a PVC solid cap.
- Taps to existing pipe are installed to approved plan locations set at a forty-five degree angle and have concrete encasement installed a minimum of six inches beyond the edge of the fitting in all directions.
- End of line cleanouts and service lateral cleanouts in pavements have a cast iron cleanout box installed with a concrete collar around it and is flush with the pavement.
- Drop manhole fittings are installed according to the approved details with fittings encased in controlled low strength material.
- Precast concrete manholes are installed plumb at the location designated on the approved plans. Each manhole has a minimum of two and a maximum of four grade adjustment rings installed. An approved ring and cover with concrete ring encasement meeting the minimum requirements of the approved details is installed flush with pavement and no more than two inches above finish grade in unpaved areas.
- Sewers have been air tested or hydrostatically tested in the presence of CoB Public Works.
- Manholes have been vacuum tested in the presence of the CoB Public Works prior to the application of the interior coating.
- A mandrel conforming to TCEQ requirements has been successfully pulled through each sewer without binding or use of excessive force in the presence of CoB Public Works and no sooner than 30 days after final backfill has been completed.
- Vented manhole covers have the required vented infiltration pan and vent hole installed. Vented manhole cover locations are indicated on record drawings.
- Each manhole has been coated on the exterior and interior with an approved coating.
- An approved chimney seal is installed in each manhole constructed or modified by the project.

- All sewer mains and services have been thoroughly cleaned.
- All sewer mains and services have been inspected internally using remote controlled video equipment and the DVD recordings were submitted to CoB Public Works on _____.
- All manhole ring and covers and cast iron cleanout boxes have been cleaned and are in good order. Bolted manhole covers are bolted tight with no missing bolts.
- As-built plan information for the sanitary sewer system has been turned into the Engineer for final documentation.

POTABLE WATER MAIN CONSTRUCTION

- Potable water mains, services and appurtenances are installed to grade and line indicated on the approved plans and details. All pipe connections and service connections have been inspected by CoB Public Works prior to being backfilled.
- An approved 12 AWG direct bury tracer wire was installed one inch above the top of the pipe and terminated in approved tracer wire locate boxes per plans and details. All tracer wires have been tested for continuity under the observation of the CoB Public Works.
- Trenches for water mains, services and appurtenances were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for water mains and services was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.
- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to City of Boerne Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Limits of controlled low strength material are indicated on record drawings.
- Valves are set where shown on the approved plans are properly bedded and set on a firm footing. Cast iron valve boxes are installed plumb to the valve allowing easy attachment of the valve wrench for operation. All valves have been exercised and shown to work properly under the observation of CoB Public Works. Concrete collars have been installed around valve boxes and tracer wire locate boxes and are flush to the finish grade. Tracer wire locate boxes are installed in the proper locations and in sufficient number to allow location of the water system. All valve boxes and tracer wire locate boxes are clean and in proper working order.
- Fire hydrants were installed properly placed and connected to mains per the approved plans and details. Fire hydrants are set to allow eighteen to twenty-four inches of clearance from the finish grade to allow unobstructed opening of the

hydrant. The pumper nozzle on the fire hydrant faces the curb or roadway and is at least one foot from the face of the curb and no more than seven feet from the face of curb unless shown otherwise on approved plans. Proper hydrant operation has been demonstrated to the satisfaction of CoB Public Works. Fire hydrants are clean and painted to meet CoB Specifications.

- Air release valves are installed where shown on the approved plans, are set to finish grade. Proper air release valve operation has been demonstrated to the satisfaction of CoB Public Works.
- End of water main blow offs are installed where indicated on the approved plans and have a concrete collar surrounding the cast iron box set at finish grade. The flush hydrants are set to drain to the street. Proper hydrant operation has been demonstrated to the satisfaction of CoB Public Works.
- Water services are installed where shown on the approved plans with at least one meter to each lot in the subdivision. Service piping is installed at a minimum of three feet deep and extends to one foot beyond the street right of way or utility easement. Property pins are installed to verify the location of the service meter box.. Service lines terminate with an approved angle stop located in a meter box. Meter boxes are installed per the details and where shown on the approved plans and are one-half to one inch above final finish grade.
- Water mains and services have been flushed and hydrostatically pressure tested to the satisfaction of CoB Public Works.
- Water mains, services and appurtenances have been disinfected by approved methods and all bacteriological samples tested negative for coliforms.
- All jumpers have been removed and tie-ins have been completed under the observation of CoB Public Works.
- As-built plan information for the water system has been turned into the Engineer for final documentation.

RECLAIMED WATER MAIN CONSTRUCTION

- Reclaimed water mains, services and appurtenances are installed to grade and line indicated on the approved plans and details. All pipe connections and service connections have been inspected by CoB Public Works prior to being backfilled.
- An approved 12 AWG direct bury tracer wire was installed one inch above the top of the pipe and terminated in approved tracer wire locate boxes per plans and details. All tracer wires have been tested for continuity under the observation of the CoB Public Works.
- Trenches for water mains, services and appurtenances were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for water mains and services was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.

- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to City of Boerne Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Limits of controlled low strength material are indicated on record drawings.
- Valves are set where shown on the approved plans are properly bedded and set on a firm footing. Cast iron valve boxes are installed plumb to the valve allowing easy attachment of the valve wrench for operation. All valves have been exercised and shown to work properly under the observation of CoB Public Works. Concrete collars have been installed around valve boxes and tracer wire locate boxes and are flush to the finish grade. Tracer wire locate boxes are installed in the proper locations and in sufficient number to allow location of the water system. All valve boxes and tracer wire locate boxes are clean and in proper working order and painted purple per Section 09905 Painting System number 21.
- Air release valves are installed where shown on the approved plans, are set to finish grade. Proper air release valve operation has been demonstrated to the satisfaction of CoB Public Works. All portions of the air release valve assembly have been painted purple per Section 09905 Painting System number 21.
- End of main blow offs are installed where indicated on the approved plans and have a concrete collar surrounding the cast iron box set at finish grade. The flush hydrants are set to drain to the street. Proper hydrant operation has been demonstrated to the satisfaction of CoB Public Works. Interior portions of the blow-off valve assembly have been painted purple per section 09905 Painting System number 21.
- Water services are installed where shown on the approved plans with at least one meter to each lot in the subdivision. Service piping is installed at a minimum of three feet deep and extends to one foot beyond the street right of way or utility easement. Property pins are installed to verify the location of the service meter box.. Service lines terminate with an approved angle stop located in a meter box. Meter boxes are installed per the details and where shown on the approved plans and are one-half to one inch above final finish grade. All portions of the service fittings have been painted purple per section 09905 Painting System number 21.
- Water mains and services have been flushed and hydrostatically pressure tested to the satisfaction of CoB Public Works.
- All cross connection testing has been completed to the satisfaction of CoB Public Works.
- All jumpers have been removed and tie-ins have been completed under the observation of CoB Public Works.
- As-built plan information for the water system has been turned into the Engineer for final documentation.

STORM DRAINAGE SYSTEM

- Reinforced concrete pipe (RCP), and appurtenances are installed to grade and line indicated on the approved plans and details. All underground construction was inspected by CoB Public Works prior to backfill.
- Trenches for utilities were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for the utility was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.
- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to CoB Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Limits of controlled low strength material are indicated on record drawings.
- Manholes, junction boxes, curb inlets and drain inlets are set at the locations designated on the approved plans, are installed plumb and meet the requirements of the specifications and approved plan details. The installation of each was inspected by CoB Public Works.
- Each manhole has a minimum of two and a maximum of four grade adjustment rings installed. An approved ring and cover with concrete ring encasement meeting the minimum requirements of the approved details is installed flush with pavement and no more than two inches above finish grade in unpaved areas. All concrete inverts are installed to required grade to drain the concrete structures completely. Manholes have been inspected by CoB Public Works.
- Concrete drainage aprons and rip rap are installed where required and meet the minimum requirements of the approved plans and details. Concrete testing is completed and Geotechnical test reports were sent to CoB Public Works on _____.
- All earthen swales, channels and detention ponds are constructed to within 0.10 FT of the indicated grade and line on the approved plans and details. All rocks, debris and trash larger than two inches in any dimension have been removed from the surface of the drainage feature.
- Topsoil has been placed and graded to meet the approved plans and approved sod or mulch and seed mixture has been installed and is being maintained to promote vegetative growth.
- Concrete channels and structures were constructed in accordance with the approved plans and details and inspected by CoB Public Works. Testing of concrete was performed and shows concrete meets specification requirements. All Geotechnical test reports were submitted to CoB Public Works on _____.

- All subgrade compaction testing was performed and show meeting requirements of the specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- Concrete surfaces have been properly finished, grouted and rubbed to eliminate projections, fins, gouges, cracks, voids, honeycombs, tie holes and rough areas.
- Handrails have been installed per the approved plans and details. Coatings on the handrails are continuous with no voids or corrosion showing.
- As-built plan information for the drainage system has been turned into the Engineer for final documentation.

UNDERGROUND ELECTRIC DISTRIBUTION

- Electrical primary and secondary conduits are installed to grade and line per the approved plans and details. Conduits were inspected by CoB Public Works prior to backfill.
- Trenches for electric conduits were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for the conduits was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.
- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to CoB Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Limits of controlled low strength material are indicated on record drawings.
- Conduits are clean and ready for wire. An approved mandrel was pulled through each conduit without dragging, or use of excessive force. The mandrel pulling was witnessed by CoB Public Works.
- New 2500 psi pull strap is installed in each conduit with a four foot tail extending beyond the end of each conduit and secured. Conduits are capped to prevent entry of debris and water.
- Street light conduits are installed per the plans and details with new 2500 psi pull strap in them. All street lighting conduits terminate in the center of meter pedestals or on the secondary side of the transformer pad and at plan designated location for the streetlight poles.
- Transformer, meter pedestal and junction box concrete pads are installed on compacted ground at the locations indicated on the approved plans and details. Property pins are installed to verify the location of the pad. The area around the concrete pads has been leveled for a minimum distance of three feet from the pads. The area around the pads has been graded to drain away from the pads

- Top of concrete pad is two inches above final finish grade (this includes proposed turf height)
- All phases are clearly marked on the conduits and grouped per the appropriate approved detail.
- At the transformer pads, primary conduits are on the left side and secondary conduits are on the right side when facing the front of the concrete pad. There is at least eight inches between the primary and secondary conduits with an eight foot ground rod installed between the conduits. The ground rod has no more than four inches extending above the top of the pad.
- As-built plan information for the electric system has been turned into the Engineer for final documentation.

NATURAL GAS DISTRIBUTION SYSTEM

- Natural gas pipe and appurtenances were installed to grade and line per the approved plans and details and inspected by CoB Public Works prior to being backfill.
- A 12 AWG direct bury yellow tracer wire is installed one inch above the pipe as shown in the approved details and has been continuity tested and inspected by CoB Public Works.
- Trenches for gas mains and services were excavated to proper line, width and depth per the approved plans and details.
- Proper bedding material for the gas piping was placed to the required depth before installation of the backfill material and was inspected by CoB Public Works.
- All backfill material was installed in lifts compacted to required density and has detectable warning tape installed properly. All backfill was inspected by CoB Public Works.
- Required compaction testing is completed within specification tolerances. Geotechnical test reports were submitted to CoB Public Works on _____.
- Controlled low strength material (flowable fill), if approved for use by the CoB Public Works Dept. was completely installed and has been inspected by CoB Public Works. Samples of the material were taken for testing. Test results meet specification requirements. Geotechnical test reports were submitted to the CoB Public Works on _____. Limits of controlled low strength material are indicated on record drawings.
- Contractor maintained record of the lot, serial numbers and footage markings of all pipe and valves along with their locations have been turned into the Engineer for addition to the as-built drawings.
- Valves are installed at the locations indicated; valve boxes are installed to grade with a concrete collar around them as indicated on the approved plans and details. All gas valve covers are cleaned off and in good working order.
- Natural gas service lines of the correct size and quantity are installed at the locations indicated on the approved plans. The services are installed to the proper depth with a 12 AWG tracer wire. The lines are bedded correctly and all backfill has been compacted to specification. A marker is placed at the end of the service that extends above finish grade for future location purposes. Property pins are

installed to verify final location of service line and marker. The location of the gas service is marked on the curb where it passes under the curb. The services have been inspected by CoB Public Works.

- All cleaning and pressure testing is completed and any defects have been repaired and retested. CoB Public Works has witnessed final testing.
- All signs required by the plans are installed to indicate the location of the main.
- All mains not yet tied in to the gas system by CoB Gas Department, have a minimum of 50 PSI air in the mains with a pressure gauge showing same on a tap extending to ground level.
- As-built plan information for the natural gas distribution system has been turned into the Engineer for final documentation.

STREETS AND RIGHT-OF-WAY IMPROVEMENTS

- Subgrade construction was completed in accordance with the plans and specifications and was inspected by CoB Public Works. All subgrade compaction testing was performed and shown to meet requirements of the specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- The Soils Engineer inspected subgrades and determined the limits of lime stabilization or other approved stabilization methods for the street subgrade. All subgrade stabilization testing was performed and shown to meet requirements of the specifications. Geotechnical test reports for lime and the lime stabilized subgrade were submitted to CoB Public Works on _____.
- Aggregate base has been installed per the approved plans and details and inspected by CoB Public Works. Testing of completed base courses show conformance to plans and specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- Prime coat if required was installed on completed aggregate base courses and inspected by CoB Public Works.
- Concrete curbs and pavements have been installed per the approved plans and details. Concrete testing was performed and shows concrete meets specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- Hot Mix Asphaltic Concrete (HMAC) paving was installed to the lines and grades of the approved plans and details and inspected by CoB Public Works. Quality control and assurance core testing was performed and shows the HMAC installation meets specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- Concrete sidewalks, driveways, and curb ramps were installed per the approved plans and details, and inspected by CoB Public Works. Concrete testing was performed and shows concrete meets specifications. Geotechnical test reports were submitted to CoB Public Works on _____.
- Sidewalks and curb ramps include detectable warning systems for pedestrians entering roadways and meet approved plans and Texas Accessibility Standards.
- Street and traffic signs of the correct type, number and spelling are installed where indicated on the approved plans and details. Signs adjacent to sidewalks are

a minimum of 7 FT 10 IN tall as measured from the top of the sidewalk surface to the bottom of the lowest sign. All other signs are a minimum 7 FT above finish grade. All sign posts are installed plumb with footings that conform to the approved plans and details.

- Streetlights are installed per approved plan locations if electric system is operated by BEC (Bandera Electric Cooperative) or PEC (Pedernales Electric Cooperative)
- Painted bars, lines and symbols are installed where indicated on the approved plans and details.
- Parkways, easements and other unpaved areas are graded to within 0.10 FT of plan grade and drain towards the streets unless otherwise indicated. All trash, rocks and debris greater than two inches in any dimension have been removed from the surface of the graded areas.
- Topsoil has been placed at a compacted depth of four inches in any areas that will be revegetated. Approved sod or seed and mulch is installed and maintained on areas disturbed by construction activity.
- Sediment and erosion controls are in place, operational and being maintained.

The signature below is to certify that all the above items have been completed as indicated and the project is ready for the substantial completion inspection.

Signature

Date

Company

Title