

CITY OF LONGMONT
SECTION 700 – LONGMONT POWER & COMMUNICATIONS (LPC)
TABLE OF CONTENTS

700.00	MINIMUM DESIGN CRITERIA	3
700.01	GENERAL	3
700.02	EASEMENTS	3
700.03	CLEARANCES	4
700.04	STANDARD COMMENTS FOR PLAN SUBMITTALS	5
700.05	REQUEST FOR SERVICE	6
700.06	DESIGN	7
700.07	SLEEVE REQUIREMENTS	7
700.08	CHARGES	8
700.09	FEES	9
700.10	SITE DEVELOPMENT PERMITS	9
701.00	DEVELOPER INSTALLATION OF SUBSURFACE INFRASTRUCTURE.....	9
701.01	SLEEVE INSTALLATION.....	9
701.02	TRENCH.....	10
701.03	PVC INSTALLATION.....	11
701.04	TRACER WIRE INSTALLATION.....	11
701.05	CABLE IN CONDUIT (CIC).....	11
701.06	CONNECTION TO THE EXISTING SYSTEM	12
701.07	GROUND SLEEVES	12
701.08	BACKFILLING.....	13
701.09	MATERIALS.....	13
701.10	MATERIAL HANDLING	14
701.11	INSPECTION	14
702.00	LPC INSTALLATION OF SUBSURFACE INFRASTRUCTURE.....	14
703.00	LPC INSTALLATION OF ELECTRICAL APPARATUS	15
704.00	CONSTRUCTION POWER.....	15
705.00	SERVICE LINES SIZES AND INSTALLATION	15
706.00	METERING REQUIREMENTS	17

**SECTION 700 – LONGMONT POWER & COMMUNICATIONS (LPC)
INDEX OF DETAILS**

700-02A	Clearances
700-02B	Clearances
700-03	Sleeve Installation
700-04	Trench
700-05	Equipment Alignment on Trench
700-06	Tracer Wire Installation
700-07A	Cable Handling and Storage Procedures
700-07B	Cable Handling and Storage Procedures
700-08	Cold Shrink Installation
700-09	Transformer, Residential Single Phase Ground Sleeve
700-10	Transformer, Commercial Three Phase Concrete Pad
700-11	Primary Junction Facility Ground Sleeve
700-12	Secondary Junction Facility Ground Sleeve
700-13	Street Light Pole
700-14	Street Light Base
700-15	Service Line Identification
700-16	Metering Single Family
700-17	Metering Phone Line
700-18	Bollard Installation

LONGMONT POWER & COMMUNICATIONS

700.00 MINIMUM DESIGN CRITERIA

700.01 GENERAL

1. Longmont Power & Communications (LPC) is responsible for standards, electrical engineering and design associated with the City owned and maintained electric utility. The following sections will outline requirements, charges and fees to initiate a request for electric utility service through the final installation of electric distribution facilities into new developments.

2. The ~~standards~~Standards and sSpecifications provide direction for electric distribution facilities installed in previously constructed developments.

2.3.All electric distribution systems will comply with the requirements outlined in the Standards and Specifications for electric distribution systems and service line construction, ~~additionally-and~~ as referenced in *LPC Rates and Regulations Governing Electric Service*. Additional criteria may be outlined during public improvement plan review as determined by the Field Engineer.

3.4.As outlined in the *LPC Rates and Regulations Governing Electric Service*, the City will own and maintain the electric utility distribution system ~~which may include~~including primary voltage systems ~~including~~switchgear, circuit vaults, transformers, the secondary voltage system, roadway lighting, etc.

700.02 EASEMENTS

1. Provide easements for the use of installing and maintaining an electric distribution system. All easements for the use of Longmont Power & Communications shall identify the width of the easement and be labeled as LPC easements.

2. Access to easements for maintenance and operations of the electric distribution system is required.

2.3.Residential Subdivisions

a. Single family shall include a corridor ~~7~~seven feet in width behind the sidewalk. The use of the right-of-way combined with a specific easement will be shared with Water/Wastewater.

b. Alley installations or areas not adjacent to the road right-of-way require easements ~~5~~five feet in width that ~~allows~~allows for ~~equipment~~equipment locations to have ~~5~~five feet of clearance and protection from vehicular traffic on all sides of the easement.

i. Where primary electric facilities are not installed adjacent to the road right-of-way, street lighting systems will be installed separately in right-of-way where room is available. Additional easements may be required for lighting as needed.

- c. Multi-family shall have a minimum ~~5~~five-foot wide easement throughout the site.
 - i. ~~After the electrical design is complete, p~~Provide an easement on the Final Plat ~~after the electrical design is complete~~ with the second submittal of the public improvement plans.
 - ii. Provide an easement over the entire lot or outlot, exclusive of buildings, for LPC.
 - iii. Provide a separate easement, without cost to the City, after the installation of the electric utility that is described and detailed on a drawing by a licensed surveyor, reviewed and approved by the City, recorded by the Developer.
 - ~~iii. Provide a separate easement, without cost to the City, after the installation of the electric utility that is described and detailed on a drawing by a licensed surveyor, reviewed and approved by the City, recorded by the Developer.~~

3.4. Commercial Subdivisions

- a. Provide a ~~7~~seven-foot wide corridor behind the sidewalk utilizing the road right-of-way combined with a specific easement when a local electric distribution system is required.
- b. Incorporate a 12-foot wide corridor utilizing the road right-of-way combined with a specific easement when a main feeder network is required. This can be established after discussion with a Field Engineer at the platting stages.
- c. Provide a ~~5~~five-foot wide easement from the roadway into the parcel of land. The easement shall also encompass the transformer pad, which is ~~6 1/2~~six and one-half feet square.
 - i. ~~After the electrical design is complete, Provide~~provide an easement on the Final Plat ~~after the electrical design is complete~~ with the second submittal of the public improvement plans; ~~or~~
 - ii. Provide an easement over the entire lot or outlot, exclusive of buildings, for LPC; ~~or~~
 - iii. Provide a separate easement, without cost to the City, after the installation of the electric utility that is described and detailed on a drawing by a licensed surveyor, reviewed and approved by the City, recorded by the Developer.

4.5. Vacation of right-of-ways or easements

- a. Draw and label existing electric utility facilities that are present on the parcel of land requiring the vacation.

700.03 CLEARANCES

1. Electrical equipment serving residential subdivisions adjacent to the right-of-way straddles property lines to provide service to two parcels. Refer to the Water Department standards for the installation of water service lines and fire hydrants. The locations and clearances from electric facilities are established to provide adequate ~~clearances~~ clearances and access for the two utilities sharing an easement.
2. Traffic signs shall not be installed on top of the electric distribution facilities. Maintain clearance requirements as outlined in the General Section and subject to utility locates.
3. Electrical equipment requires a minimum five foot of clearance or setback on all sides for access and maintenance as well as protection from vehicular traffic when a curb is present. This includes driveways, alleys, parking lots, etc. Protection such as bollards will be installed at the Developer/Owner's expense any time when the electrical equipment is located in areas where less than the recommended clearances exists or is at risk to vehicular damage. clearance is less than five feet or when there is no curb or permanent feature protecting the equipment. Side clearance from residential driveways may be reduced to 3 feet. Reference LPC's Clearance and Bollard Details.
 - 3 feet along the sides and back from landscape material
 - 3 feet along the sides and back from structures
 - 3 feet along the sides and back adjacent to residential driveways
 - 3 foot minimum from vehicular traffic with use of bollards
 - 5 feet or greater from a driving surface behind a curb or protective feature
 - 10 feet from a driving surface where no curb or protective feature is proposed
- ~~3. Mail box clusters shall not be installed on top of the electric distribution facilities. Maintain clearance requirements as outlined in the General Section and subject to utility locates.~~
4. Specific clearances from overhead and underground electric utility facilities are outlined in the General Section.
5. Maintain clearance requirements set forth by the National Electric Safety Code, which may be amended periodically.
6. Reference clearance details.

700.04 STANDARD COMMENTS FOR PLAN SUBMITTALS

1. Comments are to be included in the Public Improvement Plan submittals as applicable and are listed in the Appendix.
2. Add the following notes to the Landscape Plans:
 - a. Where electric facilities are shown on the Master Utility Plan, the installation of the

irrigation and landscaping within the right-of-way, in electric easements and in the vicinity of the on-site electric distribution system, cannot begin until the installations of Longmont Power & Communication's facilities are complete, unless completed at the Developer's risk. Expenses for repair of landscaping due to the electric installation will not be the responsibility of the City.

- b. Location of landscape material shall be altered to provide adequate clearance from the final location of the electric distribution facilities to the satisfaction of Longmont Power & Communications.

700.05 REQUEST FOR SERVICE

- 1. The following items are to be included with the initial submittal of the construction drawings to the Design Review Committee.

- a. Electronic file submission as outlined in the General Section.

~~i. Reference LPC Electronic File Submittal Requirements in the detail section.~~

- b. Completed electric service request checklist including acknowledgement signature located in the appendix.

- i. Residential electrical information shall include:

- (1) Product types and locations;
- (2) Square footage of homes;
- (3) Electric panel rating;
- (4) Air conditioning ~~units'~~ number of units and size; and
- (5) Electric heat if applicable.

~~e.ii.~~ _____ Commercial service electrical information shall include:

~~i.(1)~~ _____ One-line diagram;

~~ii.(2)~~ _____ Load calculations; ~~and~~

~~(3) Fault current ratings for electrical equipment.~~

~~d.iii.~~ _____ Irrigation controller loads and private lighting requirements.

~~e.iv.~~ _____ Billing ~~Information~~information, including names and mailing addresses of the parties responsible for payment of construction costs and month-to-month billing when meter sets are complete.

700.06 DESIGN

1. LPC Field Engineer will complete the design ~~effort~~ with the first submittal of Public Improvement Plans. Multi phase developments may require LPC to complete an overall capacity design with the first phase submittal. LPC may request additional information or files and coordinate the design ~~effort~~ with the Design Engineer. The trench line and, equipment locations ~~and the distances between equipment~~ shall be shown on the second submittal of the master utility plan and landscape plans. As revisions are required, updates will be reflected with each submittal. The Design Engineer and Field Engineer will coordinate this effort. Charges for the development review and design effort ~~is-are~~ billable and collected with charges for the installation of the electric distribution system. If the project does not move forward to the construction phase, review and design charges will be invoiced to the Developer and are due upon receipt.

700.07 SLEEVE REQUIREMENTS

1. Crossings for roadways, ditches or other surface features will be shown on the master utility plan as a trench line. The Developer is responsible for coordination and installation of the appropriate quantity and size as directed by the Field Engineer. Sleeve locations, sizes and quantities shall be provided by the Field Engineer and be shown on plan and profile drawings. The Design Engineer, Field Engineer and other City staff will coordinate conflicts as they arise in the planning stages to mitigate conflicts during the construction effort. See the installation requirements.

700.08 CHARGES

~~1. The Developer pays all costs associated with the installation of the electric distribution facilities to serve the site. The Field Engineer will complete an estimate and invoice of the project costs prior to executing the Public Improvement Agreement.~~

~~2.1.~~ The Developer has the option to use a contractor to install the subsurface infrastructure for local electric distribution facilities, which includes:

- a. PVC and/or cable in conduit (CIC);
- b. Ground sleeves; and
- c. Street light poles.

Or,

~~3.2.~~ Request the City to complete the excavation and subsurface installation of the local electric distribution facilities.

~~4.3.~~ In all cases, LPC will install and connect the electric equipment specific to electrical apparatus.

~~5.4.~~ It is the responsibility of the Developer to advise the Field Engineer of subsurface installation choices prior to the preparation of the Public Improvement Agreement.

5. The Developer pays all costs associated with the installation of the electric distribution facilities to serve the site. The Field Engineer will complete an estimate and invoice of the project costs.

6. The Public Improvement Agreement will outline the subsurface infrastructure responsibilities. For Developer installations of the electric conduits, conductors, ground sleeves, etc., the Public Improvement Agreement will outline the securities and warranties. The subsurface ~~effort~~ installation will be organized as all other public improvements including the acceptance process.

7. When the Developer elects to have LPC complete the subsurface installation payment in full is required, separate from the Public Improvement Agreement. This will place the project on a construction schedule pending notification from the Developer of site readiness.

8. Change orders will be issued to the Developer when the site conditions, scope changes, material requirements or initial estimating changes occur. Work identified within the change order will not be completed until signed acceptance by the developer is received by LPC.

9. Damages that occur to LPC facilities due to development construction activity are invoiced directly to the Developer for payment and are due within 30 days.

700.09 FEES

1. An Electric Community Investment Fee (ECIF) is charged to specific projects requiring a building permit. LPC must expand system facilities if it is to accommodate new development, which includes substations and main feeder networks. The funding for these capital expenditures is collected through the imposition of the ECIF. The fee schedule and policy is outlined in *LPC Rates and Regulations Governing Electric Service*.

700.10 SITE DEVELOPMENT PERMITS

1. The developer will specifically name LPC in the permits required for on-site development. Examples of the permits are listed but not limited as shown.
 - a. Stormwater Permit for Construction activities C.D.P.H.E
 - b. Stormwater Permit for Construction Activities City of Longmont
 - c. Work in Ditch Right-of-Way Companies ~~Individual~~ Ditch
 - d. City's Work in Right-of-Way Permit ~~Public Works~~
 - e. County's Work in Right-of-Way Permit ~~Boulder County~~
 - f. State's Work in Right-of-Way Permit ~~Colorado Department of Transportation~~

701.00 DEVELOPER INSTALLATION OF SUBSURFACE INFRASTRUCTURE

701.01 SLEEVE INSTALLATION

1. The developer is responsible for providing crossings of surface features as outlined. Reference the detail drawings.
2. The Contractor will install schedule 40 PVC glued and airtight. All sweeps shall have a forty-eight-inch radius and angled as outlined by the details or specified by the Field Engineer.
3. The conduit shall be installed so that it lines up with the trench path. A minimum of 36 inches of cover over the conduit shall be provided, as measured from final grade, and shall not be installed at a depth greater than 48 inches. Trench compaction shall be 95% and meet all applicable criteria specified in the General Section. The end of the conduit shall extend a minimum of ~~3~~ **three** feet past the back of curb, sidewalk, or other surface feature under which it passes. The Developer must maintain access to the ends until the crossing is utilized for the electric distribution system installation. Each crossing location shall be identified using a red tie marker, purchased at the ~~City of Longmont~~ **Longmont Power & Communications'** Warehouse. The marker shall have one end wrapped around the conduit(s) at each end of the crossing and extend above grade for a visual reference. Where multiple conduits are installed, use only one marker

tie at each crossing end point as referenced in the detail drawings.

4. Conduit crossings for phone or cable television use may be placed in the same trench; however, there must be a minimum of ~~12~~18 inches horizontal separation between the electric conduits and other utility conduits. When communication conduits are under electric equipment locations, depth must be a minimum of 36 inches. The conduits shall be extended beyond the LPC easement for future access by the communications utility.
5. In no case shall a crossing for use with a gas line be placed closer than ~~5~~five feet from electric conduits. The conduits shall be extended beyond the LPC easement for future access by the gas utility.
6. It is the responsibility of the Developer to insure the integrity of the crossing until used either by the Contractor or the City. Prior to use, any damage to the crossing must be repaired immediately by the Developer.
7. Should the Developer or ~~his~~ Contractor identify a conflict with the proposed depth, location, or other considerations for the conduit crossing, ~~he/she/they~~ must immediately contact the Field Engineer. Any deviation from these specifications must be approved in advance by the Field Engineer.
8. When City crews are installing the subsurface infrastructure they will excavate along the tie marker to expose the conduit ends. If the tie marker has been damaged or removed during construction, the City crew will excavate within ~~3~~three feet either side of the crossing location, as shown on the plans, up to a depth of 52 inches to attempt to expose the conduit. If the conduit cannot be located or is inaccessible, the LPC crew will inform the Contractor's Representative ~~that they cannot access~~ the conduit cannot be accessed due to surface features, ~~or~~ the installation does not meet the criteria in this specification, and/or the conduit appears to be missing. The crew will move on to another portion of the job or leave the job site. The Developer is responsible for all work necessary to provide access to the conduit to the satisfaction of the City crew, or to make other changes as necessary to correct the problem. The corrections may include but are not limited to installing new conduits using open trench or horizontal boring methods. In the event the City crew is required to leave the project and re-mobilize, an additional mobilization charge may occur.
9. Any existing ROW landscaping disturbed by the Developer or Contractor during sleeve installation shall be repaired to meet Section 600 of these Standards. It will be the Developer's responsibility to schedule all necessary inspections for this work with the Parks and Forestry Division. Any work that does not adhere to current Standards and/or is without the approved inspection of the Parks ~~&~~and Forestry Division shall be corrected at no cost to the City.

701.02 TRENCH

1. The trench alignment is determined by the right-of-way and or easement location and the Field Engineer and Contractor will determine the specific location. As required, the Developer is responsible for surveying property lines, trench alignment, elevations and equipment locations as

needed. The minimum trench width is ~~6~~-six inches and must be at a depth that will provide a minimum of 36 inches to a maximum 48 inches of cover over the top of the conduit. The bottom of the trench must be smooth and continuous. Where soil conditions require, the Developer may be required to provide bedding material. The trench must remain open and accessible until inspected. (See details.)

701.03 PVC INSTALLATION

1. As required, the Contractor will install schedule 40 PVC glued and airtight. All sweeps shall have a 48-inch radius and angled as outlined by the details or specified by the Field Engineer. PVC joints shall be made with long line bell ends and couplings using cold weather glue. The conduit shall enter ground sleeves as shown in the detail drawings.
2. All pipes shall be carefully placed in the trench as level and straight in the bottom as possible. Pipe and accessories shall be inspected for defects prior to being lowered in to the trench. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed into the trench. The ends of the pipe shall be plugged or capped when work stops or is directed into equipment locations.
3. At any time, the electrical design may call for multiple conduits in specific trench segments. The Contractor is responsible for assuring proper pipes are directed to equipment locations as shown on the plans provided by the City.

701.04 TRACER WIRE INSTALLATION

1. Where a PVC conduit is installed for future use and no electrical conductor exists, a tracer wire will be installed along the entire length of the pipe, as directed by the Field Engineer. A #14 AWG copper wire with insulation will be taped securely to the top of the pipe and 3three feet of excess wire coiled in the ground sleeve as shown in the details. Also reference Trench Detail 100-01.

701.05 CABLE IN CONDUIT (CIC)

1. Cable in conduit (CIC) is an electrical conductor pre-installed into a high density, polyethylene resin duct (HDPE). At any time, the electrical design may call for multiple conductors of different sizes in specific trench segments. The Contractor is responsible for assuring proper conductors are directed to equipment locations as shown on the plans provided by the City. The CIC shall enter ground sleeves as shown in the details.
2. Loading and unloading of CIC is the Contractor's responsibility and must be accomplished without compromising the electric and mechanical integrity of the cable or duct. Under no circumstances shall reels be dropped from the delivering vehicle to the ground. Reels shall be stored on a hard surface in an upright position. Crushing, cutting or kinking of the cable or conduit is prohibited. Reference the detail drawings.
3. All CIC shall be carefully placed in the trench, as level and straight in the bottom as possible.

CIC shall be inspected for defects prior to being lowered in to the trench. All bends or sweeps must be gradual and have a 48-inch radius as shown in the details. HDPE that has been placed into a trench that contains a sweep that was formed too tight or kinked will not be accepted. Additional costs for material replacement due to poor workmanship will be paid by the Developer.

4. The CIC will be swept up into equipment locations as shown on the design plan. The conductor will be cut at lengths as shown in the specific ground sleeve detail. A cold shrink end cap will be used to seal the cable ends. Refer to ground sleeve details and cold shrink details.
5. LPC purchases the cable jacket which is permanently and legibly imprinted showing size and type of conductor at approximately ~~2~~two-foot intervals. The Contractor is responsible for confirming cable lengths and types.

701.06 CONNECTION TO THE EXISTING SYSTEM

1. The Developer or Contractor shall coordinate access into existing electrical equipment with the Inspector. **At no time is a Contractor to access LPC equipment without a LPC Inspector or Lineworker present.** Charges for the standby personnel will be invoiced to the developer.

701.07 GROUND SLEEVES

1. Ground sleeves are the subsurface features that support electrical equipment. They are specific to equipment types and shall be installed as shown on the plans. They shall be installed ~~4~~four-inches higher than the proposed sidewalk or finished surface area, and level with the sidewalk. The excavation for ground sleeves shall be compacted and ~~1~~one-inch washed rock installed under ground sleeves as specified in the details.
 - a. Where electrical equipment is installed on a hill or slope, the Developer shall design a retaining wall that meets the clearance requirements outlined in the Standards and may be subject to the approval of the Parks ~~&~~and Forestry Division.
2. Transformer
 - a. Residential single phase
 - i. Install an ~~8~~eight-foot ground rod
 - b. Commercial three phase
 - i. Install an ~~8~~eight-foot ground rod
 - ii. Concrete pad, specifications in the detail
3. Primary junction facility

- a. Install an eight-foot ground rod
- 4. Secondary junction facility
- 5. Street light poles

701.08 BACKFILLING

1. Backfilling of electric trenches and equipment locations in the right-of-way or adjacent to concrete surface features will be at 95% compaction. This may be achieved by using non-shrinkable trench backfill to a point 12 inches below finished grade. If flowable fill is not chosen, the Contractor ~~shall cover the conduits with 6 inches of sand and then the use~~ may use of native backfill material that is shall be free from angular rock items as outlined in the General Section. Inspection of the trench and native backfill material may dictate the use of 6 inches of sand as bedding and or backfill material to protect the conduit. When flowable fill is not used Compaction tests shall meet the guidelines in the General Section and shall be completed every one (1) foot of trench depth for every one hundred-fifty (150) lineal feet of pipe installation unless otherwise specified by the Field Engineer, at all road crossings, around transformer and primary junction ground sleeves, and street light poles.
2. The Contractor shall install warning ribbon to signal buried electric facilities. The ribbon is to be placed at a depth of 12 inches below finished grade. The final 12 inches may be backfilled with native material. Compaction under hard surfaces must be compacted to 95% or when adjacent to the surface 90% is acceptable.
3. Any existing ROW landscaping disturbed by the Developer or Contractor during backfilling or electrical installation shall be repaired to meet Section 600 of these Standards. It will be the Developer's responsibility to schedule all necessary inspections for this work with the Parks and Forestry Division. Any work that does not adhere to current Standards and/or without the approved inspection of the Parks & and Forestry Division shall be corrected at no cost to the City.

701.09 MATERIALS

1. LPC will provide materials specific to the electrical installation. The material will be paid for by the Developer as it is picked up at the City Warehouse by the Contractor.
2. One weeksTwo-week notice is required from the Developer to the Construction Coordinator to initiate the staging of e the materials in a staging area at the City Longmont Power & Communications' Warehouse located at 1100 South Sherman Street. The Warehouse will contact the Developer with a payment amount prior to staging materials. Once payment has been received, the City Warehouse will place materials in a staging area where tThe Contractor is responsible for confirming the material type, integrity and quantities by signing a receiving document and making payment. The materials are to be transported from the Warehouse to the site by the Contractor within 48 hours. The City will not be responsible for materials which are damaged or stolen after the receiving document is signed. If additional materials are needed, the

Contractor is to request a change order from the Inspector prior to going to the Warehouse.

3. Cable reels with excess cable will be charged to the project. Reels with 200 feet or less will not be accepted for credit. Warehouse staff shall inspect cable reels over 200 feet; damaged cable will not be credited to the project.
4. When the subsurface installation is complete, the City and Contractor will review all materials used for the project. Material changes and cable retirements will be charged or credited to the project appropriately. Upon completion of the itemized review, the City will review all material and determine if additional charges or credits to the Developer are required.

701.10 MATERIAL HANDLING

1. The cable-in-conduit (CIC) is coiled on wooden or steel reels at a maximum of 84-inch diameter and 46-inch outside width. The contractor must be able to handle the cable reels by utilization of a reel trailer, stand or other appropriate device to avoid conduit or cable damage. Also reference material handling outlined in the General Section and LPC details.

701.11 INSPECTION

1. Inspections for trench, conduit, cable and ground sleeve installations will occur as outlined in the General Section. At no time shall a trench be closed without approval of the LPC Inspector. PVC conduit installed by the Developer is subject to testing by LPC crews as they pull electric conductor into the conduits. If LPC is unable to install conductor in a section of pipe or if ground sleeves are not level, or to proper elevations, the Developer or Contractor's Representative shall be advised of the situation. It is the responsibility of the Contractor to make the repairs. The Contractor shall discuss the schedule for repairs with the LPC Construction Coordinator. Job delays may result in additional costs.
2. The facilities installed by the Developer are subject to the acceptance and warranty process as outlined in the Public Improvement Agreement.
3. Charges for inspection will be based on the actual time and equipment required by the project and billed upon completion.

702.00 LPC INSTALLATION OF SUBSURFACE INFRASTRUCTURE

1. LPC will install the site-specific subsurface infrastructure as requested by the Developer. The Developer is responsible for preparation of the site. Project design and invoicing for the installation of electric facilities are based on the assumption that the developer will meet all the following site readiness requirements:
 - a. Concrete sidewalks, curbs, gutters and pavement shall be installed.
 - b. A ten-foot trench path must be graded and sloped relatively flat and smooth to facilitate trencher access and cable installation.

- c. Path shall be free of construction equipment, materials, scrap, concrete, or any object(s) that may inhibit trenching operation.
 - d. Concrete driveways and finished landscaping shall not be installed prior to electric facilities.
 - e. Sidewalks shall be clear with property lines clearly marked and free of debris. The Developer shall remove property pins located within the prepared path.
 - f. The Developer is to coordinate installation of facilities according to specifications, from deepest to shallowest, (i.e., sewer, water, electric, gas, communications). Facilities requiring an installation depth less than electric utilities, which are installed prior to electric facilities, will require a change order and may result in additional installation charges.
 - g. Developer installed street and sidewalk crossings shall be located and installed in accordance with the standards and specifications.
 - h. ~~Previous developer placed facilities shall be properly located, installed, back-filled, and compacted,~~ Developer installed facilities shall be placed as shown on the master utility plan, back-filled, and compacted. (i.e., sewer, water, utility and irrigation sleeves).
2. Additional charges may be incurred when the site is not properly prepared prior to the start of work by LPC.

703.00 LPC INSTALLATION OF ELECTRICAL APPARATUS

- 1. Upon completion of the subsurface infrastructure either by the Developer or LPC, the LPC Construction Coordinator will schedule the installation of specific electrical equipment. Construction power will be available when all on-site and off-site electric distribution is installed and energized.

704.00 CONSTRUCTION POWER

- 1. Construction power is available for site trailers and model homes when LPC has completed the construction efforts and approval of temporary use applications has been completed by the City. All electric services require a building permit and inspection by Building Inspections.

705.00 SERVICE LINES SIZES AND INSTALLATION

- 1. For single family residential services, 200 amps or less, the Developer, Builder or Assignee installs underground low voltage service lines from specific electrical equipment utility junction ground sleeves (junction box) to the permanent meter location. The installation must meet the National Electric Code and City of Longmont Standards and be approved by the Building Inspections Division. The bottom of the trench must be smooth and continuous. Where soil

conditions require, the Contractor may be required to provide bedding material. The trench must remain open and accessible until inspected. The service cable must be installed in a ~~2"~~two-inch PVC conduit utilizing sweeps with a minimum bending radius of 24" inches. A one year warranty (measured from the date of the Certificate of Occupancy) on compaction, conduit, cable and meter housing installation shall be provided. ~~At the conclusion of the warranty period, the City will accept ownership and maintenance of the secondary cable service to the line side of the meter housing.~~

2. Residential services greater than 200 amps; the installation, ownership and maintenance of conductors and metering equipment beyond LPC's point of delivery are the property owner's responsibility. The point of delivery is dependant upon sight conditions and may defined as:

- i. Electric transformer
- ii. Low voltage ground sleeve
- iii. Overhead attachment point on customer owned structure

~~2.3.~~It is the Developer or Builder's responsibility to restore compaction when entering into LPC equipment locations. ~~As-When~~ the final meter is installed, ~~City-LPC~~ staff will inspect the ~~facilities~~facilities; ~~installing extension risers on the energized equipment~~ as necessary to meet final grades ~~or and~~ reporting compaction problems from the low voltage service line installation. LPC will advise the Developer or Builder of the ~~required~~ corrections ~~required~~. Repairs must be corrected prior to the Certificate of Occupancy or items deemed a safety issue must be corrected within 10 working days. Charges ~~from the City to the Developer or Builder~~ for work completed by LPC to correct damages, grade or compaction issues are due within 30 days.

~~4.~~ Prior to the conclusion of the warranty period, the City will inspect the service installation. If compaction or elevation deficiencies are found at LPC's energized equipment, those repairs will be completed by LPC. ~~and the builder listed on the permit will be responsible for payment of the repairs.~~ If deficiencies are found in the service equipment originally installed by a private electrician, the builder listed on the permit will be notified and given the option to make the repairs or request LPC to make the repairs at the builder's expense. Items must be corrected and LPC notified within 30 days. Following the inspection or satisfactory completion of the repairs, the City will accept ownership and maintenance of the secondary cable service to the line side of the meter housing.

~~3.5.~~Multi-family and commercial development service lines are installed, owned and maintained by the customer. They must meet the National Electric Code and be approved by the Building Inspections Division. The customer will install cable of sufficient length for termination.

~~4.6.~~In multi-family or commercial developments where more than two service lines are installed out of a transformer or junction facility, the use of heat shrink tubing is required to identify the low voltage conductors. Each service line requires heat shrink tubing with a color that is unique to the unit it serves at both the meter housing and the electric source. The heat shrink tubing is not provided by the City. Reference details.

~~5.7.~~All connections to underground City-owned facilities will be made by City personnel after approval by the Building Inspections Division.

706.00 METERING REQUIREMENTS

1. Meter housings for all types of services shall be located on the outside of the building or structure and accessible to meter readers as referenced in *LPC Rates and Regulations Governing Electric Service*. Single meters shall be installed at a height of ~~5-five~~ feet, ~~6-six~~ inches above ground or platform to the center of the meter and shall not be fenced in. Meter banks shall be installed with the lowest meter at least 24 inches above the ground or platform and the highest meter is not to be over ~~7-seven~~ feet above the ground or platform. Reference the APPROVED MATERIAL LIST for specific metering requirements.
2. Meters housings for irrigation controllers, site entryways or any other private use may be installed on fencing, unistrut or cedar posts. The meter housing shall have a brass tag as outlined below. The maintenance of the structure is not the responsibility of the City.
3. Electrical services requiring more than ~~400 amps single phase 120/240 or 200 amps or~~ three phase voltage are required to obtain meter housings, current transformers and voltage transformers at Longmont Power and & Communications, 1100 South Sherman Street. The customer will be charged for this material.
4. General construction shall provide protection against accidental contact with energized elements of the meter and socket. It shall provide protection to the electrical components against environmental and weather conditions.

5. Refer to the Approved Materials list and detail drawings for specific metering requirements.

~~5.6.~~Residential subdivisions and new residential, single service

- a. Meters rated 200 amps or less shall be in direct line of sight with the low voltage ground sleeve, (utility junction box) and shall not be fenced in. Reference details.
- ~~a. Meters shall be installed on the front quarter of the house, be in direct line of site with the low voltage ground sleeve and shall not be fenced in. Reference details.~~
- b. Meters shall be installed on the front quarter of the house; electric meter housings not installed on the front ~~1/4~~ one-quarter of the house or fenced in will require the installation of a remote read technology meter at the builder or homeowner's expense.
- c. Residential services greater than 200 amps are installed and maintained by the property owner.

~~6.7.~~ Single phase services ~~—~~ greater than 400 amps 120/240 and 225 amps 120/208 and over

- a. Current transformer cabinet will be supplied and installed by the customer. The minimum dimensions shall be 24 inches x 24 inches x 10 inches, NEMA rated. Minimum distance from floor or ground shall be 24 inches to the bottom of the cabinet. Maximum distance from floor or ground to the top of the cabinet shall be ~~8~~eight feet.
- b. Conduit from current transformer cabinets and meter housings shall be a minimum of ~~1~~one inch, shall not exceed 50 feet in length, shall not exceed a total of 360 degrees bending radius and shall not be accessible by means of splicing and pulling boxes. All meter wiring in meter housings and CT housings will be provided and installed by LPC.

7.7. Commercial ~~three phase~~

- a. Services ~~requiring 200 amps or less 480 volts and are less than 200 amps will~~ will only be allowed when the meter is cold sequenced with a sealable disconnect ~~ahead on the line side~~ of the meter that will be sealed by LPC.
- b. Current transformer cabinets, NEMA rated, will be supplied and installed by the customer. ~~Minimum distance from the floor or the ground shall be 24 inches to the bottom of the cabinet. Maximum distance from the floor or ground to the top of the cabinet shall be 8 feet.~~

The minimum cabinet dimensions shall be:

- 30-24 inches x 30-24 inches x 10 inches for services 1000 amps or less 280-208 volts
- 24 inches x 24 inches x 12 inches for services greater than 1000 amps 208 volts
- 36 inches x 36 inches x 10 inches for services 1000 amps or less 480 volts
- 36 inches x 36 inches x 12 inches for services greater than 1000 amps 480 volts

c. Commercial Services 1000 amps or at greater 1000 amp 277/480 volt or 2000 amp 120/208 volt and greater require

a dedicated single pair analog phone line for each meter. Provide a conduit a minimum of ~~1/2~~one-half inch into or within 24 inches of the meter housing, as shown in the detail. For questions regarding the phone line, please call 303-651-8386.

- d. As requested by the customer, LPC will install a pulse-initiating ~~device~~device on a customer's existing meter socket for an additional fee. The City will install wiring from the meter socket to the terminal block. LPC's responsibility and liability ends at the line side of the terminal block.

8.8. Marking of single commercial and multiple meter sockets ~~is~~are the electrical contractor's responsibility. Each meter of a multiple meter socket and all individual meter sockets will have a permanent brass tag showing which apartment, office, or room is metered by each meter. Brass tag requirements are as follows:

- a. The tag will be round and a minimum of 1~~one~~¼ inches in diameter;
- b. The tag will have a ~~3/16~~three-sixteenths inch diameter hole near the edge; and

c. Letters and numbers must be a stamped impression in the tag and must be at least ~~3/16~~three-sixteenths inches in height.

9.9. Meters will not be installed until all sockets are tagged correctly with embossed stamped brass badges. When internal number and/or lettering schemes are changed or incorrect tagging creates inaccurate information in the City's records, the Developer or Owner will be responsible for actual labor, equipment and material charges incurred by LPC to correct the situation.

~~10.10.~~ All exceptions to the metering specifications must be approved by the LPC Meter ing Division staff Shop at 303-651-8386.