

SECTION 1
GENERAL RESPONSIBILITIES,
REQUIREMENTS AND PROCESSES

1.1 ENGINEER OF RECORD REQUIREMENTS & RESPONSIBILITIES

A. Requirements

The Engineer of Record for all projects shall be a Professional Engineer (P.E.) registered in the State of Florida who has submitted a Letter of Intent to Lee County Utilities (LCU) designating said engineer as the authorized representative of the Owner/Developer.

B. General Responsibilities

1. LCU encourages the Engineer of Record to schedule a pre-design meeting with LCU prior to the initial submittal for Approval to Construct.
2. The Engineer of Record shall be responsible for the final design and construction of the project and the submittal of all required documents.
 - a) All judgment decisions affecting the design or altering the design will be the responsibility of the Engineer of Record.
 - b) The quality of the project shall be the responsibility of the Engineer to prove.
3. The Engineer of Record must obtain any permit required to work within State rights of way prior to the start of construction.
4. The Engineer of Record shall monitor the progress and construction of the project to assure quality and to minimize 'punch list' items as the project nears completion.
 - a) The Engineer of Record will be responsible for addressing any and all 'punch list' items and will ensure that all required work is completed.

C. Detailed Responsibilities

The Engineer of Record or his designated representative shall also be responsible for:

1. Performing Hydraulic Calculations ensuring any new connections do not adversely affect any existing LCU infrastructure.
 - a) Hydraulic calculations shall be based on the criteria set forth in this Manual and must be approved by LCU prior to granting permission to construct.

C. Detailed Responsibilities - continued

2. Obtaining all applicable permits necessary to construct the proposed infrastructure.
3. Scheduling of a pre-construction conference a minimum of one week in advance of any construction unless otherwise approved by LCU.
4. Attending all:
 - a) Pre-Construction Conferences,
 - b) Pressure Tests,
 - c) Lift Station Start-ups,
 - d) Pre-Final Walk-thru and
 - e) Final Inspections
 - f) Any other occurrences that may be deemed necessary by LCU.
5. Submitting Record Drawings and other necessary documents.

1.2 UNDERGROUND CONTRACTOR'S REQUIREMENTS & RESPONSIBILITIES

A. Requirements

1. All construction work performed must be done by a Contractor licensed in the State of Florida to do the work intended.
2. The Contractor must have proven underground utility experience.
3. LCU reserves the right to require the Contractor to provide evidence of licenses and/or references from other municipalities.
4. LCU has no responsibility, real or implied, for the actions of the Contractor in the performance of his contract or any damage or injuries which result from the contractual work as performed by the Contractor, his agents, or employees.

B. General Responsibilities

1. The Contractor shall at all times observe and comply with all Federal, State, County, and other laws, codes, ordinances, and regulations in any manner affecting the conduct of the work.
2. The Contractor shall not enter private property for any purpose without first obtaining permission.
 - a) He shall use every precaution necessary to prevent damage or injury to any public or private property, trees, fences, monuments, and underground structures on and adjacent to the construction site of the work.
3. The Contractor shall not do any work that would affect any railway track, pipeline, telephone, electric transmission line, or other structure, or enter upon the right-of-way or other lands appurtenant thereto unless proper authorization has been secured.
4. The Contractor shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in the manner or method of executing said work, from the non-execution of said work, or from defective work or materials.
 - a) He shall not be released from said responsibility until the work has been completed and accepted and the warranty requirements fulfilled.

B. General Responsibilities - continued

5. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the Contractor, the Contractor shall restore such property, at the Contractor's expense, to a condition equal to that existing before such damage or injury was done by repairing, rebuilding and/or restoring.
6. Materials stored at the site of the work shall be so placed and the work shall at all times be so conducted as to cause no obstruction to vehicular or pedestrian traffic.
 - a) A roadway shall not be closed or opened except by express permission of the LCDOT or such other authorized public agency having jurisdiction.
7. Prior to commencing construction operations, the Contractor shall:
 - a) Hire or engage the services of a Florida Registered Professional Land Surveyor (PSM) to make a thorough and diligent search for any and all property pins, horizontal and vertical control monuments within the construction area.
 - b) Provide and set in place all construction stakes and marks for lines, grades and measurements necessary or required for the proper control of the work.
 - c) Any survey control found will be tied out sufficiently in such a manner that after the construction is completed, all of the points can be re-established to their original positions by the PSM.
 - d) The Contractor shall be responsible for the accuracy and preservation of the stakes and marks.

C. Detailed Responsibilities

1. The Underground Contractor or his designated representative shall also be responsible for:

- a) Procuring all permits and licenses,
- b) Payment of all charges and fees, and
- c) Giving all notices necessary and incidental to the due and lawful prosecution of the work.
- d) Obtaining any permit required to work within County rights-of-way prior to the start of construction.
- e) Providing and maintaining neat and sanitary accommodations for the use of employees as may be necessary to comply with the requirements and regulations of the State, local health department, or other agencies having jurisdiction.
- f) Providing LCU with a minimum of 48 hours notice prior to the start of construction.

(1) In addition, all materials intended to be contributed to LCU shall be available for inspection at least 48 hours prior to installation.

- g) Notifying LCU of any inspection requests at least 24 hours in advance.
- h) Investigating with LCU staff, the location of existing valves in the vicinity of the project so that in the event of an emergency, the valves can be quickly operated.

(1) All valves are to remain uncovered, visible, and operational throughout the length of the project.

(2) They shall be operated by LCU staff or their designated personnel only, except in emergency cases.

- i) Performing operations necessary for connecting to the existing system at times of minimum flow rate.

(1) Said operations shall be accomplished expeditiously in order to minimize service disruption including performing such work at night when deemed necessary by LCU.

(2) All schedules shall be coordinated with and approved by LCU or the appropriate utility involved.

C. Detailed Responsibilities - continued

- (3) A minimum of three (3) days notice is required prior to any disruption of service.
- j) Conforming to LCU Approved Construction Plans.
 - (1) The entire installation and each part thereof shall be constructed in the position required.
 - (2) The finished surfaces of structures shall conform to the elevations and gradients specified.
 - (3) All parts of both substructures and superstructures shall be in proper alignment and adjustment.
 - (4) Whenever a material or article required is specified or shown on the approved plans by using the name of the proprietary product or of a particular manufacturer or vendor, it shall be considered that this was done only for the purpose of establishing a standard of quality for the specified materials.
 - (5) Any deviation from the plans and working drawings or substitutions that may be required must have prior written approval from the Engineer of Record and LCU.
 - (6) Materials not conforming to the requirements of the LCU Design Manual shall be removed immediately from the site and replaced with satisfactory material by the Contractor at his own expense.
- k) Providing all frames, forms, false-work, shoring, guides, anchors and temporary structures that may be required to assure these results.
- 2. Upon reasonable cause and prior to final acceptance, LCU may require the Contractor to uncover portions of constructed facilities for inspection.
 - a) After inspection, the Contractor shall restore the portions affected to the conditions required by the approved plans and specifications.
- 3. Existing LCU equipment and materials that are to be removed during the course of construction, including pumps, motors and pump parts; pipe, valves and fittings; electrical and control parts; and other salvageable items, shall remain the property of LCU.
 - a) The Contractor shall be responsible for transporting salvaged items to the storage area designated by LCU.

C. Detailed Responsibilities - continued

- b) Special care shall be taken for protection and elimination of damage to said items.
- c) Material shall be cleaned prior to delivery to LCU.
- 4. Existing LCU equipment and materials removed during construction, designated by LCU for disposal, shall be disposed of in a proper and legal manner at the Contractor's expense.
 - a) The size, type and quality of all materials removed for salvage and or disposal are to be noted on the record drawings and shall be included on the Contractor's Certification of Contributory Assets along with the cost associated with said removal.
- 5. Providing all other agencies including but not limited to: the USEPA, the U.S. Department of Labor, FDEP, OSHA and other governmental agencies having legal interest in the project, free access to the site for inspecting materials, work, and the Contractor doing so.
 - a) Any requirements to the Contractor resulting from these inspections shall be given through the Engineer of Record or his designated representative.
- 6. Attending all:
 - a) Pre-Construction Conferences,
 - b) Pressure Tests,
 - c) Lift Station Start-ups,
 - d) Pre-Final Walk-thru and
 - e) Final Inspections
 - f) as well as any other occurrences that may be deemed necessary by LCU.
- 7. Providing the following documents to the Engineer of Record to be included in the LCU Final Acceptance Package:
 - a) Bacteriological Tests
 - b) Compaction Test Reports
 - c) Closed Circuit Television Inspection Reports
 - d) Contractor's Certification(s) of Contributory Assets ([Potable Water](#), [Sanitary Sewer](#), [Lift Stations](#) and/or [Reclaimed Water](#))
 - e) [Waiver and Release of Lien](#) Upon Final Payment
 - f) [One Year Warranty](#)

C. Detailed Responsibilities - continued

- g) As-Built Drawings
- h) Applicable Operations and Maintenance Manuals
- i) Backflow Prevention Device Test Report(s)
- j) Directional Drill Logs (if applicable)

1.3 GENERAL REQUIREMENTS

A. LCU Easement Grant(s)

Individual LCU Easement Grants will be required for each parcel under separate ownership.

1. Location and size requirements for LCU easements shall be determined using the following guidelines:

- a) All potable water, sanitary sewer, and reclaimed water infrastructure to be owned and maintained by LCU shall be installed in County owned rights-of-way or within dedicated LCU easement(s).
- b) Easements shall be a minimum width of twenty (20) feet in order to ensure that neither structures nor trees, etc., are placed closer than ten (10) feet to a LCU owned and maintained pipe or facility.
- c) Easements for a single main shall be a minimum width of twenty (20) feet and must extend ten (10) feet beyond the terminus of the main.
 - (1) LCU may approve the minimum width to be reduced to ten (10) feet if the easement is parallel to and contiguous to a public right of way and if required separations can be met. Any such approval is on a case by case basis and must be obtained in writing.
- d) Easements for two mains shall be minimum width of thirty (30) feet with a minimum of ten (10) feet between the two mains and must extend ten (10) feet beyond the terminus of the main.
 - (1) LCU may approve the minimum width to be reduced to twenty-five (25) feet if the easement is parallel to and contiguous to a public right of way and if required separations can be met. Any such approval is on a case by case basis and must be obtained in writing.
- e) Hydrant easements shall extend to ten (10) feet beyond each side of the hydrant.
- f) Lift Station easements shall be a minimum thirty (30) feet by twenty (20) feet for standard lift stations.
 - (1) The size of easements for master pump stations shall be determined on a case-by-case basis.

A. LCU Easement Grant(s) - continued

- g) Easements for potable water, sanitary sewer, and reclaimed water services shall be a minimum of ten (10) feet wide and shall extend a minimum of five (5) feet beyond the point of service.
2. Additional requirements are as follows:
- a) LCU does not allow trees, structures or encroaching of other easements within LCU easements.
 - b) A minimum of ten (10) feet horizontal separation is also required between other public and/or private utilities, structure(s), building(s), wall(s), fountain(s), fence(s) and LCU infrastructure unless specifically approved by LCU.
 - c) The root ball of palm trees shall be a minimum of five (5) feet and the root ball of shade trees shall be a minimum of ten (10) feet from any existing or proposed LCU owned and maintained pipe or facility.
 - d) All new light pole foundations shall be a minimum of five (5) feet from any existing or proposed LCU owned and maintained pipeline or facility unless approved by LCU.
 - e) TV cable, telephone, gas, electric power, and irrigation lines may cross under LCU facilities with a minimum of eighteen (18) inches of vertical clearance.
3. LCU Easement Legal Descriptions and Sketches Requirements:
- a) Are to include a list of all of the strap numbers subject to the easement.
 - b) Legal Descriptions:
 - (1) Must be described as metes and bounds (centerline and offset methods are not admissible),
 - (2) Must include northing and easting coordinates to the nearest hundredth at the Point of Beginning (POB), Point of Commencement (POC) and an opposite corner of the described easement. Northing and Easting coordinates provided shall be referenced with respect to the NAVD 1988 State Plane Florida West (feet) Coordinate System,
 - (3) and wherever possible, be described from a verified section corner.
 - c) Must include the actual square footage of the easement area along with a sketch of the legal descriptions,

A. LCU Easement Grant(s) - continued

- d) Must be in recordable form and printed on sheet(s) eight and one-half (8.5) inches by eleven (11) inches in size,
- e) The easement perimeter shall be clearly identified on the sketch with a heavy (bold) line; and,
- f) Must be signed and sealed by a PSM.

Please note that the legal descriptions and sketches for proposed utility easements shall be submitted to LCU for review prior to recording. LCU reserves the right to reject any legal description that is not sufficiently detailed so as to locate the easement on the County's Geographic Information System (GIS).

B. Minimum Drawing Requirements

1. Drawings shall be 24" x 36" sized sheets, folded if practical.
2. Sheets shall be numbered with some form of sequential number system.
3. A drawing index and phasing plan (if applicable) shall be included on the cover sheet or first sheet following the cover sheet.
4. A drawing Key Map shall be required for plans with greater than five (5) plan/profile sheets.
5. The general order of sheets in the plan set shall be as follows: Cover Sheet, Key Map Sheet (if required), Utility Plan and Profile Sheets, and LCU Standard Detail Sheets.
6. All proposed easements must be shown on the drawings.
7. Horizontal scale shall not be greater than 1" = 40' and not less than 1" = 60', unless otherwise approved by LCU.
8. Vertical scale shall not be greater than 1" = 4' and not less than 1" = 6', unless otherwise approved by LCU.
 - a) Larger scaled details may be required in congested areas.
9. Plans are to include profiles showing all potable water, sanitary sewer, reclaimed water infrastructure and storm piping systems delineating any conflicts.
10. Each plan sheet shall have an accompanying profile either on the same sheet or on the sheet which immediately follows.
11. All plan and profile sheets shall have the same scale.
12. All elevations shall be with respect to NAVD 1988.
13. The size, material, and material classifications of all materials removed and/or abandoned are to be noted on each sheet.
14. Each Sheet(s) shall include:
 - a) Project name.
 - b) Title block.
 - c) North arrow preferably oriented to the top or right of the plan view.
 - d) Engineer of Record's name and Florida registration number.
 - e) Signed, dated in ink, and sealed by the Engineer of Record.

B. Minimum Drawing Requirements – continued

- f) Graphic bar scale.
- g) Date of current version.
- h) Revision block, updated to reflect each revision to each sheet

15. Cover Sheet shall include all of the above and:

- a) Vicinity map.
- b) Location map.
- c) STRAP number(s) for the subject parcel(s).
- d) Development Order Number if applicative

16. Plan & Profile Sheets shall include all information noted in item #15 above as well as:

- a) Match lines and/or key plan to assist in sheet to sheet navigation.
 - (1) Phase and match lines must be clearly labeled and delineated.
- b) All existing and/or proposed, Rights-of-Way, public utility easement(s), LCU easements and property lines.
 - (1) Include recording instrument number(s) if known.
- c) Driveway locations if known.
- d) Legible callouts and labels using proper label placement and text size.
- e) Elevations of conflicting pipes indicating top and bottom pipe elevations.
 - (1) All elevations shall be with respect to NAVD 1988.
 - (2) Pipes shall cross in a perpendicular fashion wherever possible.
- f) Manhole rim and invert elevation.
- g) All paved non-asphalt surfaces (pavers, stamped concrete, etc.) proposed over LCU owned facilities shall be identified on plans.
- h) All meters and BFPD shall be shown including types and sizes.
- i) The location of perimeter walls, fences, gates, hardscape areas, signs, and proposed/existing utilities.
- j) The size, material, and material classification of each main at least once on each sheet and at every transition/change in size, material, etc.
 - (1) Potable water mains, sanitary sewer force mains and reclaimed water mains shall also include:
 - a. vertical alignments (elevations) and coordinates (NAVD 1988 State Plane West (feet) Coordinate System) every 100 feet and at each fire

B. Minimum Drawing Requirements – continued

hydrant, fitting, valve, water meter, first OS & Y valve for fire lines, and pressure cleanouts.

- b. labels in both the plan and profile identifying:
 - 1. The size and angle of each bend,
 - 2. the size and type of each valve,
 - 3. the material of each fitting if different from that of the main's material or unless specified in a note or detail,

(2) Gravity Collections Systems shall also include:

- a. the length of pipe and slope between manholes,
 - b. vertical alignments (elevations) and coordinates (NAVD 1988 State Plane West (feet) Coordinate System) at each manhole and clean-out,
 - c. rim and invert elevations, pipe slopes, and run lengths,
 - d. invert elevations at both ends of gravity main stub-outs,
 - e. the size and material of each service lateral (unless specified in a note or detail),
 - f. whether the service lateral is a double or a single,
 - g. sewer lateral stationing from the nearest downstream manhole (123' = 1+23),
 - h. offset / distance in linear feet, from the centerline of the pipe to the clean-out locations (for example: 32'L or 32'R) and
 - i. location of Grease Traps and / or Grease Interceptors.
- k) Each bend shall be marked with its angle and size.
 - l) Each fitting shall be marked with its material if the material is different than the main's material or unless specified in a note or detail.
 - m) Each valve shall be marked with the size and type.
 - n) Profiles shall show all potable water, sanitary sewer, reclaimed water infrastructure and storm piping systems delineating any conflicts.
 - o) Plans to show any covered parking and all structures (if applicable).
17. The LCU Standard Details Sheet(s):
- a) Shall include only LCU Standard Details that are applicable for the construction of the project.

B. Minimum Drawing Requirements – continued

b) LCU Standard Details may not be altered from their original format unless otherwise approved by LCU Staff.

(1) The borders, LCU Standard Detail Number and revision blocks are not to be deleted or altered.

18. Drawings shall NOT contain:

- a) More than two (2) plan and / or profiles per sheet.
- b) Aerial photography as a background.
- c) Color line work.
- d) Field sketches.
- e) Free-hand modifications.
- f) Proposed terminology.

C. Electronic Drawing Requirements

- 1. Electronic drawing files must be AutoCAD format or compatible (i.e. DWG or DXF file).
- 2. AutoCAD Drawings will only be acceptable if drawn with respect to the NAVD 1988 State Plane Florida West (feet) Coordinate System.
- 3. All fonts and line types shall be from the standard AutoCAD library or be AutoCAD compatible.
- 4. Any ex-referenced (xref) drawings and/or other applicable related records shall be included.
- 5. Drawing files shall utilize the model space and paper space components of AutoCAD as applicable.
- 6. Wherever possible, separate pages shall be created using layout tabs in paper space in a single drawing file.

D. Record Drawings

1. In addition to the items noted in the Minimum Drawing Requirement Section the Record Drawings must include the following:
 - a) 'Record Drawing' marked in bold text on each sheet.
 - b) Record Drawing information in bold text.
 - c) The exact location of all changes in vertical / horizontal alignment and the distance between each major fitting.
 - (1) A major fitting is considered to be anything 11 .25 degree and above.
 - d) Coordinates with respect to NAVD 1988 State Plane Florida West (feet) Coordinate System (x, y, and z) to the nearest hundredth for all fire hydrants, fittings, valves, water meters, first OS & Y valve for fire lines, manholes, and cleanouts. (i.e., E: 698055.12 N: 839365.27)
 - (1) Elevations to the nearest tenth shall also be required at these locations.
 - (2) Coordinates shall not be displayed in tabular form.
 - (3) If labeling is congested, plan and profile sheets may be separated for water and wastewater.
 - e) Sewer lateral locations stationing from the nearest downstream manhole (123' = 1+23) and offset, in linear feet, from centerline of pipe to the cleanout location.
2. No statements shall be made by the certifying PE disclaiming responsibility for accuracy of the Record Drawings.

E. As-Built Drawings

1. In instances where LCU is accepting existing infrastructure, surveyed As-Built Drawings shall be required addressing the following:
 - a) The drawings shall adhere to the requirements outlined above in the Minimum Drawing Requirements and Record Drawings sections above.
 - b) All sheets must be signed and sealed by a Florida Licensed Surveyor and Mapper (PSM) and must comply with applicable Florida Statutes.
2. No statements shall be made by the certifying PSM disclaiming responsibility for accuracy of the As-Built Drawings.

1.4 APPROVAL TO CONSTRUCT PROCESS

- A. Upon Development Order stipulation or approval, the engineer shall submit:
1. The master utility plan along with LCU's [Manhole Numbering Request Form](#) to LCU GIS staff for manhole and/or lift station numbering. The approved numbering shall appear on the construction plans to be submitted to LCU.
 2. An LCU [New Project: Project Information/Submittal Form](#), Engineer's Opinion of Cost ([Potable Water](#), [Sanitary Sewer](#), [Lift Station\(s\)](#)) and/or [Reclaimed Water](#)) and master utilities plan to LCU Development Review staff so that a fee quote and submittal check lists appropriate for the proposed project may be prepared.
- B. Once the manhole and/or lift station numbering has been provided to the Engineer of Record, the engineering documents noted in Section C below, shall be submitted for review to LCU's office located in the Lee County Public Works/Community Development Building, 1500 Monroe Street, Fort Myers, Florida 33901. All submittal documents must be approved LCU Forms.
- C. Approval to Construct Documents:
1. [New Project: Project Information/Submittal Form](#) utilizing LCU's Standard Form
 2. Engineer's Opinion of Probable Cost utilizing LCU's Standard Form(s) for the following as may be applicable:
 - a) [Potable Water and Fire Protection](#)
 - b) [Sanitary Sewer](#)
 - c) [Lift Station](#)
 - d) [Reclaimed Water](#)
 3. Applicable Review Fees
 4. 50% of Applicable Connection Fees
 5. Two Sets of Specifications (If Deemed Necessary By LCU)
 6. Hydraulic Calculations (If Deemed Necessary By LCU)
 7. [Letter of Intent](#) Signed and Sealed by the Engineer of Record utilizing LCU's Standard Form or [Letter of Intent \(Private Infrastructure\)](#)
 8. Six Original Permit Applications for:
 - a) LCDOH (Potable Water)
 - b) FDEP (Sanitary Sewer)
 - c) FDEP (Reclaimed Water)
 9. Construction Plans

- a) Six sets if the above permits are required
- b) Four sets should no permits be required
- c) One CD in AutoCAD Format of the Utility Plans and Profiles

10. Shop Drawings

- a) For Developer Contributed Asset Projects shop drawings are only required when requests are made to deviate from LCU's approved material list and must be approved prior to any construction.

11. [Small Business Waste Survey](#) utilizing LCU's Standard Form

12. Rebatable Agreement and associated 'Exhibit' (if applicable) utilizing LCU's Standard Forms. Appropriate forms may be found via the following link:

[2014 Developer Project Forms](#)

- a) Should the developer request reimbursement for main extensions, a Rebatable Agreement Form and associated 'Exhibit' shall be submitted. All requests for rebatable agreements must be requested during the Approval to Construct process and included in the Letter of Intent. The terms must be finalized prior to or along with the Final Acceptance process.

D. LCU will make every effort to have submittals reviewed within ten (10) working days, but shall be a minimum of five (5) working days for review, approval, rejection and / or any recommended revisions.

E. Upon receipt of a complete Approval to Construct Submittal Package, LCU staff will review for compliance with the standards set forth within this Design Manual.

1. Once approved, LCU will then schedule the project for Approval to Construct by the Director of Lee County Utilities per the criteria set forth by [Administrative Code 10-5](#).

- a) Single potable water services, fire hydrants, fire lines, water main relocations, single sanitary sewer services and sanitary sewer force main relocations are exempt from Director Approval to Construct even though they may require LCDOH and/or FDEP permits.

2. Once LCU Staff has approved the plans and Approval to Construct has been granted, LCU staff will execute any necessary LCDOH, FDEP and/or FDOT permit applications.

- a) The Engineer of Record will be notified that the executed documents are ready for pick-up and submittal to applicable agencies in order to obtain actual permits.
- 3. Upon receipt of all necessary permits, the Engineer of Record or the Underground Contractor may contact LCU staff to schedule a pre-construction conference.
 - a) LCU requires a minimum of 72 hours notification prior to conducting the pre-construction conference.
 - b) Pre-construction conferences are conducted by LCU Staff and must be attended by the Engineer of Record or his designee and the Underground Contractor.

Approval to construct is valid for a one-year period. If construction has not begun within this one-year period, new approvals must be requested and shall meet LCU standards in effect at that time.

1.5 CONSTRUCTION PROCESS

- A. At the appropriate stage of construction, the following shall occur:
1. Pressure Test(s) witnessed by LCU Staff, Engineer of Record or his designee and the Underground Contractor. The Underground Contractor must pre-test the pipeline prior to scheduling the Pressure Test. A minimum of 48 hours notice must be provided to all parties.
 2. Pipeline Flushing to be coordinated with LCU Inspection Staff.
 3. Bacteriological Tests (Two [2] consecutive days of satisfactory tests approved and signed by LCDOH Staff).
 - a) All bacteriological test results must be approved by LCDOH Staff regardless of whether an independent laboratory collects samples and performs the tests.
 4. Invoice for Water Usage for flushing and testing of pipelines will be generated by LCU Inspection Staff, and then billed to the underground contractor.
 - a) This invoice must be paid prior to Final Acceptance of the infrastructure.
 5. Concrete Test Results (when applicable).
 - a) All concrete strength test reports shall be signed, sealed, and submitted by a Florida Registered, Professional Engineer from a qualified Testing Laboratory.
 6. Compaction Test Reports
 - a) Compaction Test Reports shall be signed and sealed by a Florida Registered, Professional Engineer from a qualified Testing Laboratory.
 - b) They are to be submitted by the Engineer of Record prior to the Closed Circuit Television Inspection and the Low Air Pressure Testing.
 - c) Passing Compaction Test Reports shall be included for all locations where testing is performed.
 7. Closed Circuit Television Inspection including Mandrel and Low Air Pressure Testing of all Gravity Mains.
 - a) LCU Inspection Staff must be present during the television inspection.
 - b) The Engineer of Record or his designee, LCU Inspection Staff and the Underground Contractor must be present for the Low Air Pressure Testing.
 - c) For sanitary sewer gravity lines, the Owner/Developer or Contractor shall obtain the services of a private firm to perform a video inspection of the newly completed gravity sewer mains.

- (1) Gravity Main Inspections shall be performed in accordance with the National Association of Sewer Service Companies (NASSCO) standards for Pipeline Assessment and Certification Program (PACP).
 - (2) All televising shall include a 1", 2" and a 3" reference guide to indicate water depth.
- d) One (1) complete copy of the video inspection in DVD format shall be furnished to LCU.
- (1) The report shall include any observations noted in the field.
 - (2) LCU requires all CCTV inspection databases and video files be submitted in a format so that the information may be imported and/or attached to the Utilities GIS.
 - (3) The video shall be submitted in a format that can be opened and viewed by the most recent version of Windows Media Player (i.e. jpeg, mpeg, wmv).
- e) LCU GIS and CMMS imports and links with the databases and videos based on the asset identification number (number assigned by LCU as shown on the maps).
- (1) The Contractor needs to ensure that the correct asset identification number is being used for the inspections.
 - (2) If a line segment or manhole inspection is submitted without the correct number and LCU cannot determine where the inspection was performed, the Contractor will be responsible to re-CCTV inspect that pipe segment or manhole at no additional cost to LCU.
- f) All videos and databases will be submitted in electronic format to LCU.
- (1) Each line segment and video log sheet will be a separate electronic file, identified by using the asset number as part of the file name.
 - (2) Submittals will be on CD's, DVD's, or portable hard drives.
 - (3) VHS tapes will not be accepted.
 - (4) If submittals are made with videos grouped in one electronic file name, the submittal will be rejected and the contractor will correct and make a new submittal at no cost to LCU.
- g) LCU shall have the right to conduct its own, independent video inspection of the new gravity sewer system.

- (1) LCU's video inspection does not replace the Owner/Developer's video inspection, nor does it relieve the Owner/Developer of the video inspection responsibilities above.
8. Testing of Reduced Pressure Backflow Prevention Devices and/or Double Detector Check Valve Assemblies is to be performed by a Certified Tester who is included in LCU's list of approved testers.
 9. Lift Station Start Up to be performed by the Underground Contractor with the Engineer of Record or his designee and LCU Inspection Staff.
 - a) A minimum of five (5) working days notice must be provided.
 10. Pre-Final Inspections are required if the water main constructed needs to be placed into service for Fire Protection prior to project completion.
 - a) The Engineer of Record or his designee, LCU Inspection Staff and the Underground Contractor must be present.
 11. Final Inspection upon completion of the project.
 - a) The Engineer of Record or his designee, LCU Inspection Staff and the Underground Contractor must be present.
 - b) LCU Inspection Staff will perform two Final Inspections at no additional charge, however, if additional inspections are necessary, the underground contractor will be billed for re-inspections.

1.6 FINAL ACCEPTANCE PROCESS:

A. Upon completion of construction the following documents shall be submitted by the Engineer of Record for review to LCU's office located in the Lee County Public Works/Community Development Building, 1500 Monroe Street, Fort Myers, Florida 33901. Only complete Final Acceptance Packages including applicable fees, all documents identified in the LCU Final Submittal Checklist provided to the Engineer of Record and a satisfactory Final Inspection will be accepted for review. Incomplete packages will be returned to the Engineer of Record.

1. Pressure Test Reports
 - a) Water Mains
 - b) Force Mains
 - c) Reclaimed Water Mains
 - d) Gravity Mains (low air pressure test reports)
2. Satisfactory Bacteriological Test Reports
 - a) two [2] consecutive days, dated within the last 60 days
3. Closed Circuit Television Inspection Report that includes the Mandrel of all Gravity Mains
 - a) Digital format
 - b) Hard copy reports including field observations
4. Pre-Final Inspection Report (if applicable) submitted by LCU Inspection Staff
5. Final Inspection Report submitted by LCU Inspection Staff
 - a) LCU will perform two (2) Final Inspections at no cost. For additional re-inspections, the owner, developer or contractor will be charged a \$100 re-inspection fee. The project shall not be processed for final acceptance until re-inspection fee(s) have been paid in full.
6. [Letter of Completion](#) From Engineer of Record utilizing LCU's Standard Form
7. One Draft Set of Record Drawings for Review Purposes
8. One Signed and Sealed Set of Record Drawings (upon approval of draft set)
9. CD of Record Drawings in AutoCAD format
10. Two Original FDEP Certification of Completion Forms
 - a) Upon receipt of a Final Acceptance Package, LCU Staff will execute any applicable FDEP Certifications of Completion Forms

- b) The Engineer of Record will be notified that they are ready for pick-up and submittal to the applicable regulatory agencies to obtain permission to place the constructed infrastructure into operation:
 - (1) LCDOH (Potable Water)
 - (2) FDEP (Sanitary Sewer)
 - (3) FDEP (Reclaimed Water)
- 11. LCU Easement Grant(s) (if required) utilizing LCU's Standard Form
 - a) Please see 'General Requirements' section for specific LCU Easement criteria.
- 12. Contractor's Certification(s) of Contributory Assets utilizing LCU's Standard forms which shall include the cost of all constructed infrastructure and related appurtenances intended to be dedicated to LCU:
 - a) [Potable Water](#)
 - b) [Sanitary Sewer](#)
 - c) [Lift Station\(s\)](#)
 - d) [Reclaimed Water](#)
- 13. [One Year Warranty](#) utilizing LCU's Standard Form
 - a) All applicable utility infrastructure intended to be dedicated to LCU is subject to an unconditional warranty.
 - b) The warranty shall cover all materials and labor for a minimum of one (1) year starting on the date of acceptance by the County Manager or his designee.
- 14. [Waiver and Release of Lien upon Final Payment](#) utilizing LCU's Standard Form
 - a) The contractor waives any rights to claim liens for the cost of all infrastructures intended to be dedicated to LCU.
- 15. Lift Station Start- Up Report with the Pump(s) Operations and Maintenance Manual
- 16. Reduced Pressure and/or Double-Detector Check Valve Assembly Test Report(s)
- 17. Remaining 50% of Applicable Connection Fees
- B. LCU reserves the right to comment and request changes on all aspects of the Final Acceptance Package and shall withhold final acceptance of the project until all requirements set forth within this Design Manual have been met.
- C. Once LCU Staff has completed review of the Final Acceptance Package and found to be in compliance with this Design Manual, LCU will schedule the project for Final Acceptance by the County Manager or his designee.

- D. Once the applicable FDEP Certification(s) of Completion have been received and the project has been accepted by the County Manager or his designee, LCU Staff will authorize the system(s) to be placed into service.