UNDERGROUND IRRIGATION SPECIFICATIONS

1.0 GENERAL

1.1 SUMMARY: Includes but not limited to:
- A. Furnishing and installing sprinkler system as described in Contract Documents complete with accessories necessary for proper functioning.

1.2 SYSTEM DESCRIPTION:
- A. Design Requirements:
  1. Layout of Irrigation Heads:
     - a. Location of heads shown on Drawings is approximate. Actual placement may vary slightly as is required to achieve full, even coverage without spraying onto buildings, sidewalks, fences, etc.
     - b. During layout, consult with Landscape Architect to verify proper placement and make recommendations, where revisions are advisable.

1.3 QUALITY ASSURANCE:
- A. Regulatory Requirements:
  1. Work and materials shall be in accordance with latest rules and regulations, and other applicable state or local laws. Nothing in Contract Documents is to be construed to permit work not conforming to these codes.
- B. Pre-Installation Conference:
  1. Meet with Owner and Landscape Architect to discuss and clarify all aspects of job requirements prior to commencing work of this Section.
- C. System Adjustments:
  1. Minor adjustments in system will be permitted to avoid existing fixed obstructions.
  2. Mainline, laterals, and valves are shown for clarity purposes only. All irrigation equipment to be with landscape area. Mainline, laterals and valves to be installed as far away from existing and new specimen trees as possible.
- D. 1. Documentation and submittal of actual water supply performance prior to commencing installation.

1.4 SUBMITTALS:
- A. Record Drawings:
  1. Prepare an accurate as-built drawing as installation proceeds to be submitted prior to final inspection. Drawing shall include:
     - a. Detail and dimension changes made during construction.
     - b. Significant details and dimensions not shown in original Bidding Documents.
  2. Maintain, at job site, one copy of Contract Documents (as defined in General Conditions) and relevant shop drawings.
  3. Clearly mark each document "PROJECT RECORD COPY" and maintain in good condition for use of the Landscape Architect and Owner.
  4. As-built drawing shall be clearly drawn on reproducible mylar.
  5. Submit product literature for all sprinklers, valves, pipe, wire, wire connectors and controller.
  6. Final payment for system will not be authorized until accurate and complete submittals are delivered to the Landscape Architect.
- B. Instruction Manual:
  1. Provide instruction manual which lists complete instructions for system operation and maintenance.

1.5 PRODUCT STORAGE:
- A. During construction and storage, protect materials from damage and prolonged exposure to sunlight.

1.6 WARRANTY:
- A. Standard one (1) year warranty stipulated in General Conditions shall include:
  1. Completed system including parts and labor.
  2. Filling and repairing depressions and replacing plantings due to settlement of irrigation trenches for one (1) year following final acceptance.
  3. System adjustment to supply proper coverage to areas to receive water.

1.7 MAINTENANCE:
- A. Extra Materials:
  1. In addition to installed system, furnish Owner with the following items at close-out:
     - a. Two sprinkler head bodies of each size and type.
     - b. Two nozzles for each size and type.
     - c. Two adjusting keys for each sprinkler head cover type.

2.0 PRODUCTS:

2.1 PIPE, PIPE FITTINGS, AND CONNECTIONS:
- A. Pipe shall be continuously and permanently marked with Manufacturer's name, size, schedule, type, and working pressure.
- B. Pipe:
  1. Pressure Lines: as indicated on plans.
  2. Lateral Lines: as indicated on plans.
  3. Risers: sch. 80 PVC, gray
- C. Fittings:
  1. Schedule 40 PVC.
- D. Sleeving:
  1. Schedule 40 PVC.

2.2 SPRINKLER HEADS:
- A. Conform to requirements shown on Drawings as to type, radius of throw, pressure, and discharge.

2.3 AUTOMATIC SPRINKLER SYSTEM:
- A. Control valves shall be of size and type indicated on Drawings.
- B. Control wire shall be UL listed, color coded copper conductor direct burial size 14. Tape control wire to bottom of main line every ten (10') feet. Where control wire leaves main it shall be enclosed in Class 200 PVC conduit. Use 3M-DBY waterproof wire connectors at splices and locate all splices within valve boxes. Use white or gray color for common wire and other colors for all other wire. Each common wire may serve only one controller.
- C. Add one extra control wire from panel to valves for use if a wire fails and mark it in the control box as an extra wire. This wire shall be of a different color than the others.

2.4 VALVES:
- A. Electric Valves:
  1. Make and model shown on Drawings.
- B. Gate valves:
  1. Bronze construction, angle type, 150 pound class, threaded connections, with cross-type operating handle designed to receive operating key.
- C. Automatic Controller:
  1. Make and model shown on Drawings.
- D. Backflow Preventor:
  1. Make and model shown on Drawings.

2.5 VALVE ACCESSORIES:
- A. Valve Boxes:
  1. Ametek or Brooks rectangular heavy duty valve box with locking lid or Landscape Architect approved equal.
  2. Do not install more than one (1) valve in a single box.
  3. Valve boxes shall be large enough for easy removal or maintenance of valves.

3.0 EXECUTION:

3.1 PREPARATION:
- A. Protection:
  1. Work of others damaged by this Section during course of its work shall be replaced or repaired by original installer at this Section's expense.

3.2 INSTALLATION:
- A. Trenching and Backfilling:
  1. Over-excavate trenches by two (2") inches and bring back to indicated depth by filling with fine, rock-free soil or sand.
  2. Cover pipe both top and sides with two (2") inches of material specified in paragraph above. In no case shall there be less than two (2") inches of rock-free soil or sand surrounding pipe.
- B. Installation of Plastic Pipe:
  1. Install plastic pipe in a manner to provide for expansion and contraction as recommended by Manufacturer.
  2. Unless otherwise indicated on Drawings, install main lines with a minimum cover of eighteen (18") inches based on finish grade. Install lateral lines with a minimum cover of twelve (12") inches based on finish grade.
  3. Install pipe and wires under driveways or parking areas in specified sleeves a minimum of eighteen (18") inches below finish grade or as shown on Drawings.
  4. Locate no sprinkler head closer than twelve (12") inches from building foundation. Heads immediately adjacent to mowing strips, walks or curbs shall be one (1") inch below top of mowing strip, walk or curb and have a minimum of one (1") inch clearance between head and mowing strip, walk or curb.
  5. Drawings show arrangement of piping. Should local conditions necessitate rearrangement, obtain approval of Landscape Architect prior to proceeding with work.
  6. Cut plastic pipe square. Remove burrs at cut ends prior to installation so unobstructed flow will result.
  7. Make solvent weld joints in the following manner:
     - a. Clean mating pipe and fitting with clean, dry cloth and apply one (1) coat of P-70 primer to each.
     - b. Apply uniform coat of 711 solvent to outside of pipe.
     - c. Apply solvent to fitting in similar manner.
     - d. Reapply a light coat of solvent to pipe and quickly insert into fitting.
     - e. Give pipe or fitting a quarter turn to insure even distribution of solvent and make sure pipe is inserted to full depth of fitting socket.
     - f. Hold in position for fifteen (15) seconds minimum or long enough to secure joint.
     - g. Wipe off solvent appearing on outer shoulder of fitting.
     - h. Do not use an excessive amount of solvent thereby causing an obstruction to form on the inside of pipe.
     - i. Allow joints to set at least 24 hours before applying pressure to PVC pipe.
  8. Tape threaded connection with teflon tape.
  9. Install concrete thrust blocks wherever change of direction occurs a PVC main pressure lines unless otherwise detailed on Drawings.
- C. Control Valves and Controller:
  1. Install controller, control wires, and valves in accordance with Manufacturer's recommendations and according to applicable electrical code.
  2. Install valves in plastic boxes with reinforced heavy duty plastic covers. Locate valve box tops at finish grade.
  3. Install remote control valves in valve boxes positioned over valve so all parts of valve can be reached for service. Set cover of valve box even with finish grade.
  4. Install all valve boxes over nine (9") inches of gravel for drainage.
- D. Sprinkler Heads:
  1. Prior to the installation of sprinkler heads, open control valves and use full head of water to flush out system.
  2. Set sprinkler heads perpendicular to finish grade.
  3. Set lawn sprinkler heads adjacent to existing walks, curbs, and other paved areas to grade.

3.3 ADJUSTMENT AND CLEANING:
- A. Adjust heads to proper grade when turf is sufficiently established to allow walking on it without appreciable harm. Such lowering or raising of of heads shall be part of the original contract with no additional charge to the Owner.
- B. Adjust sprinkler heads for proper distribution and trim to ensure spray does not fall on building.
- C. Adjust watering time of valves to provide proper amounts of water to all plants.

3.4 DEMONSTRATION:
- A. After system is installed and approved, instruct Owners Representative in complete operation and maintenance.

END OF SECTION

Buford Davis + Associates
landscape architects site planners
2406 NW 43rd Street
Gainesville, Florida 32606
352.335.1896 tel
352.373.6407 fax

PROJECT TITLE & LOCATION:
CLAY ELECTRIC
HWY 47
COLUMBIA COUNTY, FLORIDA

SHEET TITLE:
IRRIGATION PLAN

SEAL:

DRAWN BY: JAC
CHECKED BY: EJB3
DATE: 02-03-12
REVISIONS: 02-17-12
02-20-12

DRAWING SCALE: 1"=40'
PROJECT NUMBER: 11-009
SHEET: IR-2