

GENERAL NOTES:

1. SCOPE OF WORK: The Contractor shall furnish all labor, machinery, tools, supplies, and equipment as necessary to construct and provide an operating system, as indicated in the Plans. The work shall include, but not be limited to, furnishing materials (pipe, valves, sprinkler heads, fittings, controllers, electrical, wire and fittings, primer, glue, etc.), layout, protection to the public, excavation, assembly, installation, backfilling, compaction, repair of road or pavement surfaces, controller and low voltage lead to the valves, clean-up, maintenance and guarantee, and as-built plans.

2. Contractor shall coordinate with General Contractor or other pertinent Contractors on the job to insure that sleeves are provided and installed under hard surfaces to allow access to all areas to be irrigated. All sleeves shall be constructed of Class 200 PVC. Bury all sleeves a minimum of 18" below the surface. Sleeve to be double the size if the pipe running through it. Sleeve shall extend 24" past the edge of pavement into the area to be irrigated.

3. GUARANTEE: The irrigation system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

4. REPAIR UTILITIES: The Contractor shall be responsible to verify the location of all utilities by hand excavation or other appropriate measures before performing any work that may result in damage to utilities structures, or property. The Contractor shall take immediate steps to repair, replace, or restore all services to any utilities which are disrupted due to his operations. All costs involved in disruption of service and repairs due to negligence on part of the Contractor shall be his responsibility.

5. AS-BUILT DRAWINGS: Prints of the plans will be supplied to the Contractor for recording "as-built" information. Immediately upon installation of any work which deviates from what is shown on the Plans, the Contractor shall clearly indicate such changes in red pencil on the prints. Such changes shall include, but not be limited to, changes in (1) materials; (2) sizes of material; (3) location; and (4) quantities.

6. The entire installation shall fully comply with all applicable local and state codes and ordinances. The Contractor shall take out all required plumbing and electrical applications and permits, arrange for all necessary inspections and shall pay all fees and expenses in connection with same as part of work under the contract.

7. UNIT PRICES: The successful bidder shall furnish, to the Owner, a unit price breakdown for all materials. The Owner may at his own discretion, add to or delete from the materials, using the unit price breakdown submitted to and accepted by the Owner.

8. MAINTENANCE PERIOD: The irrigation system shall be maintained for a period of 90 days after final acceptance of installation. Maintenance shall include checking of the system 2 times per week. Contractor shall be responsible to replace/repair any broken or malfunctioning parts of the system including those damaged by accidents or vandalism. Repairs shall be made immediately at the time of inspection or when notified by the Landscape Architect.

9. The irrigation system shall provide 100% coverage with a minimum of 90% overlap of water spray.

10. The system is designed to provide sprinkler precipitation rates that are nearly equal in each zone. Mixing of sprinklers with widely-varying precipitation rates in a zone will not be accepted.

11. Irrigation mainline shall be made of Class 200 PVC and all laterals shall be Class 200 PVC, except flexible PVC (or Toro funny pipe) for flexible swing joint and Schedule 40 PVC risers for spray heads in shrub areas. Schedule 80 galvanized steel pipe is to be used for all above ground fittings. Pipe locations shall be adjusted in the field. When laying out mains and laterals, locate pipe near edges of pavement or against buildings wherever possible, to allow space for plant rootballs. Coordinate pipe locations with plantings. Bury all mains and laterals 18" min. below surface. Depth shall be measured to top of pipe.

12. Keep pop-up sprinkler heads a minimum of 8" from edges of pavement and curbing, and heads on risers a minimum of 18", or as indicated in the plans.

13. All heads located in shrub or groundcover beds shall be installed on a riser as per details in the plans. All other heads shall be installed on a swing joint as per details in the plans.

14. Place irrigation control wire in conduit in the same trench as mains and under the main. ASI wire shall be #14 or larger solid copper UL approved underground direct burial cable and shall be continuous with no splices from controller to solenoid valve.

15. Valve locations are schematic and shall be adjusted in the field. Each valve shall be in a separate valve box (10" x 16" min.). When grouping valve boxes in grass or groundcover areas, set boxes a minimum of 12" apart to allow grass or groundcover to grow between them. When possible, hide valve boxes in shrub beds, a minimum of 12" from edge of beds. Set all valve boxes, concrete or plastic, in ground with cover flush with finish grade, and level, with a minimum of 6" of pea gravel at the bottom of the box, with at least 2" of clearance from the bottom of the valve to the top of the gravel.

16. TESTING: Notify the Landscape Architect in writing when testing will be conducted. Conduct test in the presence of the Landscape Architect. After all PVC assembly is completed the lines shall be flushed to insure that no rocks, sand, or other foreign debris remains in the lines. The mains shall be filled with water and all outlets shall be capped and plugged. The main shall be pressurized to 100 PSI for a minimum of one hour. No section of the main will be approved if the pressure drops more than 5 PSI at the end of the one hour period. Leaks shall be repaired immediately and the system shall be re-tested until found satisfactory by the Landscape Architect.

1. 1/2" SCH. 40 STREET "I"

2. P.V.C. LATERAL

3. FLEXIBLE P.V.C. OR TORO FUNNY PIPE (MIN. 18" LONG)

FLEXIBLE SWING JOINT DETAIL

N.T.S.

DETAIL OF STUB-OUT FOR FUTURE USE

N.T.S.

1. 6" ABOVE TOP OF PLANT AT TIME OF PLANTING

2. 2" BELOW TOP OF PLANT IF 12" POP-UPS ARE USED

3. #5 REBAR STAKED WITH BLACK PLASTIC TIES TOP AND BOTTOM (PAINT REBARS BLACK)

4. SCHEDULE 40 PVC RISER (BLACK COLOR)

5. 18" MAX.

6. FINISH GRADE

1. ELEC. SOLENOID VALVE (in plastic valve box)

2. GATE VALVE (same size as meter)

3. BACKFLOW PREVENTION (as specified)

4. WATER METER

5. PVC MAIN

6. UL APPROVED CONTROL WIRE

7. ELECTRIC CONTROLLER

8. MINI-CLIK II RAIN SENSOR (install where rainfall is unrestricted)

1. AMETEK VALVE BOX OR EQUAL

2. FINISH GRADE

3. GATE VALVE

4. SOLENOID VALVE

5. P.V.C. LATERAL

6. 6" PEA GRAVEL

1. 1/2" SCH. 40 GALV. STEEL PIPE END

2. RAIN SENSOR MOUNTED TO PIPE

3. 1-1/4" SCH. 40 GALV. STEEL PIPE POST

4. 1/2" WIDE MIN. NYLON "LOCK TIGHT" BANDS 24" O.C.

5. UL APPROVED GROUND CLAMP ATTACH PRIOR TO PAINTING

6. FINISH GRADE

7. 18" MIN. ABOVE FINISH GRADE

8. UL APPROVED NON METALLIC WEATHERPROOF FULL BOX

9. #6 SOLID COPPER CONDUCTOR (BARE OR WITH GREEN COLORED INSULATION)

10. 10' LONG X 8" DIA. COPPER CLAMP GROUND ROD

11. 12" MIN. DIA.

12. SMOOTH FINISHED CONIC FOOTING SLOPED TO DRAIN

13. TO CONTROLLER

RAIN SENSOR DETAIL

N.T.S.

1. 2" - 4"

2. 1. EASY FIT COMPRESSION TEE: RAIN BIRD MDCTFEE

3. 2. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

4. 3. INLINE DRIP EMITTER

5. 4. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)

6. 5. TURF/FINISH GRADE OR SHRUB BED WITH MULCH

NOTES:

1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.

2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

3. INSERTION FLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

XFS SUBSURFACE DRIPLINE BURIAL

N.T.S.

1. 2" - 4"

2. 1. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

3. 2. INLINE DRIP EMITTER OUTLET

4. 3. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)

5. 4. TURF/FINISH GRADE OR SHRUB BED WITH MULCH

6. 5. RATCHET CLAMP (INCLUDED WITH ADAPTER)

7. 6. INSERT ADAPTER FOR PVC PIPE: RAIN BIRD XFD-INVPC

8. 7. PVC LATERAL PIPE MINIMUM 1 1/2" IN DIAMETER DEPTH PER SPECIFICATION

NOTES:

1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.

2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

3. INSERTION FLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

XFS SUBSURFACE DRIPLINE ADAPTER FOR PVC

N.T.S.

1. 1. FINISH GRADE

2. 2. FLUSH CAP FOR EASY FIT COMPRESSION FITTINGS: POTABLE: RAIN BIRD MDCTFEE NON-POTABLE: RAIN BIRD MDCTFPCAP

3. 3. EASY FIT COUPLING: RAIN BIRD MDCTCFAP

4. 4. SUBTERANEAN EMITTER BOX: RAIN BIRD SEB 718

5. 5. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

6. 6. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL BRICK (1" OF 2)

7. 7. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL BRICK (1" OF 2)

NOTE:

1. ALLOW A MINIMUM OF 6-INCHES OF DRIPLINE TUBING IN VALVE BOX IN ORDER TO DIRECT FLUSHED WATER OUTSIDE VALVE BOX.

XFS DRIPLINE FLUSHPOINT WITH COMPRESSION FITTINGS

N.T.S.

1. 1. TURF GRASS

2. 2. SUBTERANEAN EMITTER BOX: RAIN BIRD SEB 718

3. 3. FINISH GRADE

4. 4. 1/2" AIR RELIEF VALVE: RAIN BIRD ARV050 TO BE INSTALLED AT HIGH POINTS IN DRIP ZONE

5. 5. 1/2" x 1/2" PVC REDUCER BUSHING

6. 6. BARB X FEMALE THREAD CONNECTOR: RAIN BIRD XFD-TFA FITTING

7. 7. 1/2" BLANK DRIPLINE TUBING: RAIN BIRD XF SERIES

8. 8. BARB X MALE THREAD CONNECTOR: RAIN BIRD XFF-MA FITTING

9. 9. PVC TEE CONNECTED TO PVC HEADER PIPE

10. 10. 3" MINIMUM DEPTH OF 3/4" WASHED GRAVEL BRICK (1" OF 2)

11. 11. 3" MINIMUM DEPTH OF 3/4" WASHED GRAVEL BRICK (1" OF 2)

XFS AIR/VACUUM RELIEF

N.T.S.

1. 1. PVC EXHAUST HEADER

2. 2. PVC SCH 40 TEE OR EL (TYPICAL)

3. 3. BARB X MALE FITTING: RAIN BIRD XFF-MA FITTING (TYPICAL)

4. 4. FLUSH POINT (TYPICAL) SEE RAIN BIRD DETAIL "XFS FLUSH POINT" OR "XFS FLUSH POINT WITH BALL VALVE"

5. 5. PERIMETER OF AREA

6. 6. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2'-4" FROM PERIMETER OF AREA

7. 7. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)

8. 8. PVC SUPPLY MANIFOLD

9. 9. CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL): SEE INSET A

NOTES:

1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XF-SDI DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.

2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.

3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.

4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

XFS SUBSURFACE DRIPLINE CENTERFEED LAYOUT

N.T.S.

1. 1. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)

2. 2. PERIMETER OF AREA

3. 3. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2'-4" FROM PERIMETER OF AREA

4. 4. PVC SUPPLY MANIFOLD

5. 5. PVC SCH 40 TEE OR EL (TYPICAL)

6. 6. BARB X MALE FITTING: RAIN BIRD XFF-MA FITTING (TYPICAL)

7. 7. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE (TYPICAL) POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

8. 8. BARB X BARB INSERT TEE: RAIN BIRD XFF-TTE (TYPICAL)

9. 9. TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE

10. 10. PVC FLUSH HEADER

11. 11. PVC RISER PIPE

12. 12. TURF OR MULCH

13. 13. FINISH GRADE

14. 14. 1/2" AIR RELIEF VALVE: RAIN BIRD MODEL: ARV050 SEE RAIN BIRD XFS DETAILS FOR AIR RELIEF INSTALLATION

NOTES:

1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE INSTALLATION SPECIFICATIONS ON RAIN BIRD WEB SITE (WWW.RAINBIRD.COM) FOR SUGGESTED SPACING.

2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.

3. INSTALL AIR RELIEF VALVE AT HIGH POINTS IN DRIP LATERAL.

4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

XFS SUBSURFACE DRIPLINE ODD CURVES LAYOUT

N.T.S.

1. 1. PVC EXHAUST HEADER

2. 2. PVC SCH 40 TEE OR EL (TYPICAL)

3. 3. BARB X MALE FITTING: RAIN BIRD XFF-MA FITTING (TYPICAL)

4. 4. FLUSH POINT (TYPICAL) SEE RAIN BIRD DETAIL "XFS FLUSH POINT" OR "XFS FLUSH POINT WITH BALL VALVE"

5. 5. PERIMETER OF AREA

6. 6. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2'-4" FROM PERIMETER OF AREA

7. 7. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE (TYPICAL) POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

8. 8. BARB X BARB INSERT TEE OR CROSS: RAIN BIRD XFF-TTE OR CROSS (TYPICAL)

9. 9. AIR RELIEF VALVE: RAIN BIRD MODEL: ARV050 SEE RAIN BIRD XFS DETAILS FOR AIR RELIEF INSTALLATION

10. 10. PVC SUPPLY HEADER

11. 11. PVC DWP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)

12. 12. PVC SCH 40 RISER PIPE

NOTES:

1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XF DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACING.

2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.

3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.

4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

XFS SUBSURFACE DRIPLINE END FEED LAYOUT

N.T.S.

1. 1. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE (TYPICAL) POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

2. 2. VAN NOZZLE MAY BE SET TO CLOSED, OR IF IT IS DESIRED TO SEE SPRAY FROM THE NOZZLE, SET THE ARC TO "Y" PATTERN. THE FLOW FROM THE NOZZLE, 0.3 GPM, SHOULD BE ACCOUNTED FOR IN THE SYSTEM DESIGN.

3. 3. FINISH GRADE/TURF

4. 4. OPERATION INDICATOR: RAIN BIRD MODEL: OPERIND

5. 5. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

NOTE:

1. INSERT BARB TRANSFER FITTING DIRECTLY INTO DRIPLINE TUBING.

2. VAN NOZZLE MAY BE SET TO CLOSED, OR IF IT IS DESIRED TO SEE SPRAY FROM THE NOZZLE, SET THE ARC TO "Y" PATTERN. THE FLOW FROM THE NOZZLE, 0.3 GPM, SHOULD BE ACCOUNTED FOR IN THE SYSTEM DESIGN.

XFS SUBSURFACE DRIPLINE OPERATION INDICATOR

N.T.S.

1. 1. ON-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE

2. 2. INLINE DRIP EMITTER OUTLET: SEE PLANS FOR DRIPLINE OUTLET SPACING.

3. 3. BARB TEE 17x17x17mm RAIN BIRD XFF-TTE

4. 4. BARB COUPLING 17x17mm RAIN BIRD XFF-COUP

5. 5. BARB ELBOW 17x17mm RAIN BIRD XFF-ELBOW

6. 6. BARB MALE ADAPTER 17mm x 1/2" MPT RAIN BIRD XFF-MA-050 17mm x 3/4" MPT RAIN BIRD XFF-MA-075

7. 7. PVC TEE 5x5x1

8. 8. PVC LATERAL SUPPLY HEADER

9. 9. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)

10. 10. FINISH GRADE

11. 11. RAIN BIRD XF SERIES BLANK TUBING LENGTH AS REQUIRED

MAINTENANCE NOTES FOR DRIPPER IRRIGATION:

A. ALL DRIPPER LINE SHALL BE CHECKED WEEKLY TO ENSURE THAT IT IS COVERED BY MULCH AND FLOWING PROPERLY.

B. ANY BREAKS ENCOUNTERED ARE TO BE FIXED IMMEDIATELY.

C. DRIPPER LINE FILTERS SHALL BE MAINTAINED TO ENSURE THEY ARE ALWAYS CLEAN.

\*NOTE:

All main, lateral, and valve locations are shown schematically and shall be adjusted in the field. Locate mains and laterals in landscape areas (preferably at edges of curbs or walks.) Coordinate pipe locations with existing and proposed rooftop locations. Group and locate valve at edges of shrub beds where feasible.

XFS Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)
15	0.6	0.9	0.6	0.9	0.6	0.9
20	273	155	314	250	424	322
30	318	169	353	294	508	368
40	360	230	413	350	586	414
50	417	285	528	420	720	488
60	460	290	596	455	780	514

XFS Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)	Nominal Flow (gph)
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60	460	290	596	455	780	514

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SEAL

KEN GARDNER FLA 1589

TO THE BEST OF MY KNOWLEDGE, THE PLANS AND SPECIFICATIONS HEREBY PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND CONTROL ARE A TRUE AND CORRECT REPRESENTATION OF THE DESIGN CONCEPTS ACCORDING WITH THE DESIGN PROFESSIONAL'S RESPONSIBILITIES.

Professionals

idea Architect

30 YEARS OF EXPERIENCE FLYNN ENGINEERING

GS DESIGN

REV.	DATE	DESCRIPTION
01	XX-XX-2024	D.R.C SUBMITAL

ALL MEASUREMENTS MUST BE VERIFIED BEFORE BEGINNING THE WORKS. NO MEASUREMENTS ARE TO BE SCALED DIRECTLY FROM THIS DRAWING.

Key section

Client

VERA FUND NICK POLYUSHKIN & YURI KHARITONENKOV TEL: 305.833.3303

Project

1600 S FEDERAL HIGHWAY (MIXED-USE PROJECT) 1600 SOUTH FEDERAL HIGHWAY, POMPANO BEACH, FL 33062

Title

IRRIGATION DETAILS & SPECIFICATIONS

Drawn by: GSLSA Field: LANDSCAPE ARCH

Scale: as shown

Date: 10-09-2024

Dwg. no.: L-307

Project Manager: PZB 11/19/2025

24-838