

September 5, 2014

**BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA
ADDENDUM NO. 2 / IFB Y14-7035-PH**

**ALLISON OAKS 3893A, GREENVIEW PINES 3887, BRADFORD COVE 3290,
ROUSE AND UNIVERSITY 3365 AND LENA STREET 3309 PUMP STATIONS
IMPROVEMENTS
BID OPENING DATE: September 18, 2014**

This Addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents. Additions are indicated by underlining, deletions are indicated by ~~strikethrough~~.

The bid opening date remains September 18, 2014 at 2:00 P.M.

A. CLARIFICATIONS

1. Q: Who do I speak with regarding the products that are approved in Division 09901 Coatings and Linings of the specs for the referenced project? I am with Madewell Products Corporation, and we manufacture the Mainstay Composite Liner. I would like to submit this system for approval if we are not already specified.

A: Paragraph 2.01 of Section 09901 requires that all material supplied be one of the products specified in Appendix D "List of Approved Products", appended to the technical specifications. The OCU Standards and Construction Specifications Manual, Appendix D, Sheet D101, details the approval process for new products. The submittal requirements state that the appropriate e-mail address to be used for submittal and all communication is: Standards.Committee@ocfl.net. The e-mail subject line should contain the words "Appendix D Submittal" as well as the product name, model number, Utilities Category and manufacturer or representative.

2. Q: Plan Sheets E-103 and E-202 show two (2) sets of sealing fittings on each conduit from the pump control panel to the wet well. Is that correct? And if so, where does the second set of sealing fittings go?

A: Only one (1) set of sealing fittings are required on each conduit. Refer to revised Plan Sheets E-103 and E-202, attached and dated this addendum.

3. Q: Is the Contractor required to provide conduits for SCADA at Greenview Pines, Bradford Cove and Allison Oaks? It is not in the Summary of Work, but the plans show conduits and they seem to

show some type of pole for RTU tower.

A: Yes, the Contractor is required to provide conduits for SCADA at all five (5) pump stations.

At Greenview Pines, Bradford Cove and Allison Oaks, Orange County Utilities will remove the SCADA panels, the Contractor shall remove the existing SCADA poles. Orange County Utilities will install new SCADA poles and will install the SCADA panels on the new panel racks, which are to be installed by the Contractor.

At Lena Street and Rouse/ University, Orange County Utilities will remove the SCADA panels and reinstall them on the new panel racks, which are to be installed by the Contractor. Orange County Utilities will also install new SCADA poles.

The Contractor shall install empty conduits (with pull strings) for the SCADA system at each of the five (5) pump stations as follows:

- 1 – 1” conduit for power and 2 -1” conduits for SCADA controls between the SCADA panel and the pump panel.
- 1 – 1” conduit between the SCADA panel and the valve vault (in the case of University/ Rouse, between the SCADA panel and through the concrete slab at the above ground valve manifold).
- 1 – 2” conduit between the SCADA panel and the SCADA pole. This conduit is to be stubbed up under the SCADA panel and stubbed up beside the SCADA pole on the side of the pole with the antenna wire hole.

Refer to revised Plan Sheets E-100, E-102, E-103, E-200, E-201, E-202, E-300, E-400 and E-500; attached and dated this addendum.

4. Q: Plan Sheets E-300, E-400 and E-500 one-line diagrams show a sealing fitting between the pump control panel and the junction boxes. They do not show a sealing fitting between the junction box and the wet well. Please confirm sealing fittings are not required between the wet well and junction boxes to keep gases from getting into the junction boxes.

A: The junction boxes are not required and there should be only one (1) set of sealing fittings on each conduit. There are Schedule 80 PVC conduits from the wet well with EYSR sealing fittings installed with the aluminum nipple after the sealing fittings which are installed below the control panel. Refer to revised Plan Sheets E-300, E-400 and E-500; attached and dated this Addendum.

5. **Q: Please provide the electrical utility point of service location for Allison Oaks 3893A.**

A: Duke Energy reports the electrical point of service is an existing open delta located behind the sidewalk on Patel Drive between 3138 Patel Drive (Lot 11B) and 3144 Patel Drive (Lot 12A). This is a distance of approximately 180 feet from the proposed electrical panel rack. Refer to notes added to revised Plan Sheet E-300, attached and dated this Addendum.

6. **Q: Please provide the electrical utility point of service location for Greenview Pines 3887.**

A: Duke Energy reports they will provide 3-phase power to this pump station site from the base of the existing power pole located one pole west of the pump station site on University Blvd. Refer to the location and notes added to revised Plan Sheet E-400, attached and dated this Addendum.

7. **Q: Some manholes in this project are scheduled to be rehabilitated. Of these manholes, some are scheduled to be coated and some are to be lined. Please confirm that liners are described in Specification Section 09901- paragraphs 2.02 through 2.04, and are listed in Appendix D – Page 11 of 17 within the description column “Liners”. Please also confirm that coatings are described in Specification Section 09901- paragraph 2.06, and are listed in Appendix D – page 10 of 17 within the category column “Coatings”.**

A: The location of the specifications for “liners” and “coatings” in the Project Manual described above is correct.

8. **Q: Should Standard Detail Figure A-602 on Sheet D-2 also include “FRP (fiberglass reinforced polyester)” liners in Note 1?**

A: Yes, Note 1 on this detail should include FRP liners. The Detail has been revised in accordance with this addendum.

9. **Q: There is no specification for asphalt removal and replacement – what materials are required for asphalt roadway replacement?**

A: Type S-1 asphalt is required for asphalt roadway replacement. “Specification Section 02573 – Asphalt Pavement Removal and Replacement” (footnoted Addendum No. 2) has been added to this Addendum. In addition, Standard Detail Figure A-609 on Sheet D-2 and Standard Detail Figure A702 on Sheet D-4 have both been amended accordingly in this Addendum.

10. Q: Is there open access to the aerial crossing that is to be removed as shown on Sheets C-201 and C-202? If not, can that be arranged?

A: There is open access to the east side of the aerial crossing (the east side of the Little Econlockhatchee River) via an unlocked chain link gate located on the north east side corner of the bridge over the river. Also refer to revised Plan Sheets C-201 and C-202, attached and dated this Addendum.

B. PROJECT MANUAL

TABLE OF CONTENTS

Page i, DIVISION 2 – SITEWORK

Add: Add “Specification Section 02573 – Asphalt Pavement Removal and Replacement” to the Table of Contents.

SPECIFICATION SECTION 01010 – SUMMARY OF WORK

Page 01010-, Paragraph 1.01 A.2, second to last sentence:

Delete: Delete the second to last sentence that reads ~~“Raise the top elevation of the existing sanitary manhole to the elevation shown on the Drawings and coat the interior of the manhole”~~.

Add: Add in its place the following sentence: “Raise the top elevation of the existing sanitary manhole to the elevation shown on the Drawings and install a protective liner in the interior of the manhole”.

SPECIFICATION SECTION 02573 – ASPHALT PAVEMENT REMOVAL AND REPLACEMENT

Add: Add “Specification Section 02573 – Asphalt Pavement Removal and Replacement”, which is attached to this addendum and footnoted “Addendum No. 2”.

C. PROJECT DRAWINGS

SHEET C-201

Delete: SHEET C-201 in its entirety.

Add: Add in its place SHEET C-201, attached and dated this Addendum.

SHEET C-202

Delete: ~~SHEET C-202~~ in its entirety.

Add: Add in its place SHEET C-202, attached and dated this Addendum.

SHEET D-2, STANDARD DETAIL – FIGURE A-602

Delete: ~~Note 4~~ of the Detail in its entirety.

Add: Add in its place the following: 1. Liners shall be HDPE, FRP or reinforced plastic and shall be installed in accordance with Specification Section 09901 and the Manufacturer's recommendations.

SHEET D-2, STANDARD DETAIL – FIGURE A-609

Delete: ~~Note 2~~ of the Detail in its entirety.

Add: Add in its place the following: 2. Asphaltic concrete surface material shall be replaced with Type S-1 asphaltic concrete.

SHEET D-4, STANDARD DETAIL – FIGURE A702

Delete: ~~Note 2~~ of the Detail in its entirety.

Add: Add in its place the following: 2. Asphaltic concrete surface material shall be replaced with Type S-1 asphaltic concrete.

SHEET E-100

Delete: ~~SHEET E-100~~ in its entirety.

Add: Add in its place SHEET E-100, attached and dated this Addendum.

SHEET E-102

Delete: ~~SHEET E-102~~ in its entirety.

Add: Add in its place SHEET E-102, attached and dated this Addendum.

SHEET E-103

Delete: ~~SHEET E-103~~ in its entirety.

Add: Add in its place SHEET E-103, attached and dated this Addendum.

SHEET E-200

Delete: ~~SHEET E-200~~ in its entirety.

Add: Add in its place SHEET E-200, attached and dated this Addendum.

SHEET E-201

Delete: ~~SHEET E-201~~ in its entirety.

Add: Add in its place SHEET E-201, attached and dated this Addendum.

SHEET E-202

Delete: ~~SHEET E-202~~ in its entirety.

Add: Add in its place SHEET E-202, attached and dated this Addendum.

SHEET E-300

Delete: ~~SHEET E-300~~ in its entirety.

Add: Add in its place SHEET E-300, attached and dated this Addendum.

SHEET E-400

Delete: ~~SHEET E-400~~ in its entirety.

Add: Add in its place SHEET E-400, attached and dated this Addendum.

SHEET E-500

Delete: ~~SHEET E-500~~ in its entirety.

Add: Add in its place SHEET E-500, attached and dated this Addendum.

D. ACKNOWLEDGEMENT OF ADDENDA

- a. The Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of proposal.
- b. All other terms, conditions and specifications remain the same.
- c. Receipt acknowledged by:

Authorized Signature

Date Signed

Title

Name of Firm

SECTION 02573

ASPHALT PAVEMENT REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Mill or remove existing asphalt pavement and base materials and install asphalt paving on a prepared base or as an overlay to existing asphalt pavement sections. Provide Maintenance of Traffic and coordinate and install temporary and permanent replacement of traffic signalization and pavement striping and markings.

1.02 REFERENCES

- A. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, 2000 and 2004 editions.
 1. Section 300 – Prime and Tack Coats for Base Courses (2000 and 2004 Editions)
 2. Section 320 – Hot Bituminous Mixtures – Plant, Methods, and Equipment (2000 and 2004 Editions)
 3. Section 327 – Milling of Existing Asphalt Pavement (2000 and 2004 Editions)
 4. Section 330 – Hot Bituminous Mixtures – General Construction Requirements (2000 and 2004 Editions)
 5. Section 331 – Type S Asphalt Concrete (2000 Edition)
 6. Section 334 – Superpave Asphalt Concrete (2004 Edition)
 7. Section 901 – Coarse Aggregate (2000 and 2004 Editions)
 8. Section 902 – Fine Aggregate (2000 and 2004 Editions)
 9. Section 916 – Bituminous Materials (2000 and 2004 Editions)
 10. Section 917 – Mineral Filler (2000 and 2004 Editions)
- B. Florida Department of Transportation (FDOT) Design Standards, 2000 and 2004 editions.

1.03 QUALITY ASSURANCE

- A. Asphalt pavements shall be plant-mixed hot bituminous mixtures. Plant operations shall not begin unless all weather conditions are suitable for laying operations. A prime and tack coat shall be first applied to newly constructed bases. A tack coat shall be applied on existing pavements that are to be overlaid with an asphalt mix and between successive layers of asphalt mix. Apply prime and tack coats when ambient or base surface temperature is above 40°F, and when temperature has been above 35°F for 12-hours immediately prior to application. Construct asphaltic concrete paving when ambient temperature is above 45°F. Do not apply when base is wet, contains excess moisture, or during rain. Establish and maintain required lines and elevations.

- B. Do not spread the mixture when the wind is blowing to such an extent that proper and adequate compaction cannot be maintained or when sand, dust, etc., are being deposited on the surface being paved to the extent that the bond between layers will be diminished.
- C. Field compaction density and thickness testing frequencies of the asphalt shall be tested once every 300-linear feet of paving per 24-foot wide strip, staggered left, center, and right of centerline. Where less than 300-linear feet of asphalt is placed in 1-day, provide minimum of 1 test for each per day's construction at a location designated by the County.
- D. Asphalt extraction gradation shall be tested from grab samples collected once every 1,800-square yards of asphalt delivered to the site, or a minimum of once per day. Obtain the results in a timely manner (no later than the end of the day) so that adjustments can be made if necessary.
- E. On initial use of a Type S mix design at a particular plant, as a minimum, run an additional extraction gradation analysis if more than 500-tons [450-metric tons] of mixture are produced on the first day of production.
- F. Tolerances for Quality Control Tests (Extraction Gradation Analysis) shall be in accordance with FDOT Specification Section 331.

1.04 SHOP DRAWINGS AND SUBMITTALS

- A. Submittals shall be submitted to the County for review and acceptance prior to construction in accordance with the General Conditions and specifications Section 01300 "Submittals."
 - 1. Submit for each proposed design mix the Gradation analysis; Grade of asphalt cement used; and Marshall Stability in pounds flow.
 - 2. Provide a single percentage of asphalt by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%. For structural mixes (S-1, S-3) establish the optimum asphalt content at a level corresponding to a minimum of 4.5% air voids. Provide the laboratory density of the asphalt mixture for all mixes except Open-Graded Friction Courses.
 - 3. Identify source and description of the materials to be used.
 - 4. Provide certification that the mix design conforms to specification requirements.
 - 5. Field compaction density and thickness testing.
 - 6. Field asphalt extraction gradation.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All material supplied shall be one of the products specified in Appendix D "List of Approved Products" appended to these technical specifications.

- B. Type S Asphalt Concrete (Type S-1 or S-3) is required. The equivalent fine Type SP (Superpave) Asphalt Concrete mixture (Traffic Level C) meeting the requirements of FDOT Specification Section 334 may be selected as an alternate at no additional cost to the County. The equivalent mixes are as follows:
 1. Type S-1: Type SP-12.5
 2. Type S-3: Type SP-9.5
- C. Asphalt plant and equipment shall meet the requirements in FDOT Specification Section 320.

2.02 AGGREGATE

- A. Coarse Aggregate, Stone, Slag, or Crushed Gravel shall meet the requirements in FDOT Specification Section 901.
- B. Fine Aggregate shall meet the requirements in FDOT Specification Section 902.
- C. Aggregate gradation shall meet the following:

**Table 02573-1
Bituminous Concrete Mixtures
(Gradation Design Range)**

Type	Total Aggregate Passing Sieves ¹							
	3/4-inch [19.0 mm]	1/2-inch [12.5 mm]	3/8-inch [9.5 mm]	No. 4 [4.75 mm]	No. 10 [2.0 mm]	No. 40 [425 μm]	No. 80 [180 μm]	No. 200 [75 μm]
S-1 ⁴	100	88-98	75-93	47-75	31-53	19-35	7-21	2-6
S-3 ⁴		100	88-98	60-90	40-70	20-45	10-30	2-6
ABC-1		100						0-12
ABC-2		100			55-90			0-12
ABC-3 ²	70-100			30-70	20-60	10-40		2-10
FC-2 ³		100	85-100	10-40	4-12			
FC-3 ⁴		100	88-98	60-90	40-70	20-45	10-30	2-6
1. In inches [mm] or sieves [μm]. 2. 100% passing 1-1/2-inch [37.5 mm] sieve. 3. The County may increase the design range for the No. 10 [200 mm] sieve for lightweight aggregates. 4. The County may retain up to 1% on the maximum sieve size.								

- D. Use clean aggregate containing no deleterious substances. Do not use coarse or fine aggregate which contains more than 0.5% of phosphate.
- E. In laboratory tests, and for the purpose of proportioning the paving mixture, consider all material passing the No. 10 [2.00-mm] sieve and retained on the No. 200 [75 μm] sieve as fine aggregate, and the material passing the No. 200 [75 μm] sieve as mineral filler.

- F. Do not use any screenings in the combination of aggregates containing more than 15% of material passing the No. 200 [75 µm] sieve. When two screenings are blended to produce the screening component of the aggregate, one of such screenings may contain up to 18% of material passing the No. 200 [75 µm] sieve, as long as the combination of the two does not contain over 15% material passing the No. 200 [75 µm] sieve. Screenings may be washed to meet these requirements.

2.03 ASPHALT CEMENT

- A. Superpave PG Asphalt Binder or Recycling Agent shall meet the requirements in FDOT Specification Section 916.
- B. Mineral Filler shall meet the requirements in FDOT Specification Section 917.
- C. Marshall design mix shall be in accordance with the following:

**Table 02573-2
Marshall Design Properties For Bituminous Concrete Mixes**

Mix Type	Minimum Marshall Stability (lbs.)	Flow* (0.01 in)	Minimum VMA (%)	Air Voids (%)	Minimum Effective Asphalt Content (%)	VFA Voids Filled with Asphalt (%)
S-1	1,500	8-13	14.5	4-5	**	65-75
S-3	1,500	8-13	15.5	4-6	**	65-75
ABC-1	500	7-15	15	5-16	6.0	-
ABC-2	750	7-15	15	5-14	5.5	-
ABC-3	1,000	8-13	14	4-7	**	65-78
FC-2	-	-	-	-	-	-
FC-3	1,500	8-13	15.5	4-6	**	65-75

* The maximum Flow value during production shall not exceed one point more than shown in the Table.
 ** The ratio of the percentage by weight of total aggregate passing the No. 200 sieve to the effective asphalt content expressed as a percentage by weight of total mix shall be in the range of 0.6 to 1.2.

2.04 BITUMINOUS MIXTURE

- A. Use a bituminous mixture composed of a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and bituminous material. Ensure that no more than 20% by weight of the total aggregate used is silica sand or local materials as defined in FDOT Specification Section 902. Size, grade, and combine the several aggregate fractions in such proportions that the resulting mixture meets the grading and physical properties of the verified mix design.

PART 3 - EXECUTION

3.01 GENERAL

- A. Set up, install and maintain temporary traffic control devices and detours as necessary in accordance with Specification Section 1570 "Maintenance of Traffic."
- B. Asphalt pavements, including all surface courses and base courses, where shown to be open cut and removed on the Drawings or specified in the Project Manual, shall be removed to a line back from each edge of the trench, other excavation, or to the limits indicated on the Drawings. Pavements shall be cut straight, clean and square with a power saw or other tools and equipment suitable for the Work.
- C. Asphalt pavements, where shown to be milled on the Drawings or specified in the Project Manual, shall be milled according to FDOT Specification Section 327.
- D. Asphalt mixtures shall meet the general construction requirements specified in FDOT Specification Section 330.
- E. Spread the mixture only when the surface upon which it is to be laid has been previously prepared, is intact, firm, and properly cured, and is dry. Do not spread mixture that cannot be finished and compacted during daylight hours.
- F. Deliver the asphalt cement from the asphalt plant at a temperature not to exceed 350°F and equip the transport tanks with sampling and temperature sensing devices meeting the requirements of FDOT. Maintain the asphalt cement in storage within a range of 230°F to 350°F in advance of mixing operations. Maintain constant heating within these limits, and do not allow wide fluctuations of temperature during a day's production.
- G. Produce a homogeneous mixture, free from moisture and with no segregated materials, that meets all specification requirements for the mixture, including compliance with the Marshall Properties. Also apply these requirements to all mixes produced by the drum mixer process and all mixes processed through a hot storage or surge bin, both before and after storage.

3.02 PREPARATION OF APPLICATION SURFACES

- A. Prior to the laying of the mixture, clean the surface of the base or pavement to be covered of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.
- B. Where an asphalt mix is to be placed on an existing pavement or old base that is irregular, and wherever the plans indicate, bring the existing surface to proper grade and cross-section by the application of patching or leveling courses.
- C. Where an asphalt mix is to be placed over a newly constructed surface treatment, sweep and dispose of all loose material from the paving area.

- D. Paint all structures which will be in actual contact with the asphalt mixture, with the exception of the vertical faces of existing pavements and curbs or curb and gutter, with a uniform coating of asphalt cement to provide a closely bonded, watertight joint.
- E. Apply a prime and tack coat on newly constructed bases and apply a tack coat, as specified in FDOT Specification Section 300, on existing pavement structures that are to be overlaid with an asphalt mix and between successive layers of all asphalt mixes.

3.03 PLACING MIXTURE

- A. Lay all asphaltic concrete mixtures, including leveling courses, other than adjacent to curb and gutter or other true edges, by the string line method to obtain an accurate, uniform alignment of the pavement edge.
- B. For each paving machine operated, use a separate crew, each crew operating as a full unit. The Contractor's Certified Paving Technician in charge of the paving operations may be responsible for more than one crew but must be physically accessible to the County at all times when placing mix.
- C. Check the depth of each layer at frequent intervals, and make adjustments when the thickness exceeds the allowable tolerance. When making an adjustment, allow the paving machine to travel a minimum distance of 32-feet to stabilize before the second check is made to determine the effects of the adjustment.
- D. In limited areas where the use of the spreader is impossible or impracticable, the Contractor may spread and finish the mixture by hand.
- E. Straightedge and back-patch after obtaining initial compaction and while the material is still hot.
- F. Upon arrival, dump the mixture in the approved mechanical spreader, and immediately spread and strike-off the mixture to the full width required, and to such loose depth for each course that, when the Work is completed, the required weight of mixture per square yard [square meter], or the specified thickness, is secured. Carry an excess amount of mixture ahead of the screed at all times. Hand-rake behind the machine as required.
- G. Construct each course in layers of the thickness as shown on FDOT Design Standards Index No. 513.
- H. Before starting any rolling, check the surface; correct any irregularities; remove all drippings, fat sandy accumulations from the screed, and fat spots from any source; and replace them with satisfactory material. Do not skin patch. When correcting a depression while the mixture is hot, scarify the surface and add fresh mixture.

3.04 APPLICATION OF LEVELING COURSES

- A. Before spreading any leveling course, fill all depressions in the existing surface more than 1-inch deep by spot patching with leveling course mixture, and then compact them thoroughly.
- B. Place all courses of leveling by the use of two (2) motor graders; equip one with a spreader box. Use other types of leveling devices after they have been approved by the County.
- C. When the total asphalt mix provided for leveling exceeds 50-lb/yds² [27-kg/m²], place the mix in two or more layers, with the average spread of any layer not to exceed 50-lb/yd² [27-kg/m²]. When using Type S-3 Asphaltic Concrete for leveling, do not allow the average spread of a layer to be less than 50-lb/yd² [27-kg/m²] or more than 75-lb/yd² [40-kg/m²]. The Contractor may vary the rate of application throughout the Project as directed by the County. When leveling in connection with base widening, the County may require placing all the leveling mix prior to the widening operation.

3.05 COMPACTING MIXTURE

- A. The coverage is the number of times the roller passes over a given area of pavement. Regardless of the rolling procedure used, complete the final rolling before the surface temperature of the pavement drops below 160°F.
- B. Seal Rolling: Provide two (2) coverages with a tandem steel-wheeled roller (either vibratory or static), weighing 5 to 12-tons, following as close behind the spreader as possible without pick-up, undue displacement, or blistering of the material. Use vibratory rollers in the static mode for layers of 1-inch or less in thickness.
- C. Intermediate Rolling: Provide five (5) coverages with a self-propelled pneumatic-tired roller, following as close behind the seal rolling operation as the mix will permit.
- D. Final Rolling: Provide one (1) coverage with a tandem steel-wheeled roller (static mode only), weighing 5 to 12-tons, after completing the seal rolling and intermediate rolling, but before the surface pavement temperature drops below 160°F.
- E. Operate the self-propelled, pneumatic-tired roller at a speed of 6 to 10-mph. For each roller, do not exceed an area of coverage of 4,000 yd²/hour; if rolling Type S Asphaltic Concrete, do not exceed an area of coverage of 3,000 yd²/hour.
- F. Use a sufficient number of self-propelled pneumatic-tired rollers to ensure that the rolling of the surface for the required number of passes does not delay any other phase of the laying operation and does not result in excessive cooling of the mixture before completing the rolling. In the event that the rolling falls behind, discontinue the laying operation until the rolling operations are sufficiently caught up.

- G. Use hand tamps or other satisfactory means to compact areas which are inaccessible to a roller, such as areas adjacent to curbs, headers, gutters, manholes, etc.
- H. Use self-propelled pneumatic-tired rollers to roll all patching and leveling courses. Where placing the initial leveling course over broken concrete pavement, use a pneumatic-tired roller that weighs at least 15-tons. For Type S-3 Asphaltic Concrete leveling courses, use a steel-wheeled roller to supplement the traffic rollers. On other leveling courses, use a steel-wheeled roller to supplement the traffic rollers on all passes after the first pass.
- I. Do not allow the rollers to deposit gasoline, oil, or grease onto the pavement. Remove and replace any areas damaged by such deposits as directed by the County. While rolling is in progress, test the surface continuously, and correct all discrepancies to comply with the surface requirements. Remove and replace all drippings, fat or lean areas, and defective construction of any description. Remedy depressions that develop before completing the rolling by loosening the mixture and adding new mixture to bring the depressions to a true surface. Should any depression remain after obtaining the final compaction, remove the full depth of the mixture, and replace it with sufficient new mixture to form a true and even surface. Correct all high spots, high joints, and honeycombing as directed by the County. Remove and replace any mixture remaining unbonded after rolling. Correct all defects prior to laying the subsequent course.
- J. Use a self-propelled pneumatic-tired roller on the first structural layer placed on a milled surface. Compact with a minimum of three passes.

3.06 JOINTS

- A. Place the mixture as continuously as possible. Do not pass the roller over the unprotected end of the freshly laid mixture except when discontinuing the laying operation long enough to permit the mixture to become chilled. When thus interrupting the laying operation, construct a transverse joint by cutting back on the previous run to expose the full depth of the mat.
- B. For all layers of pavement except the leveling course, place each layer so that longitudinal construction joints are offset 6-inches to 12-inches laterally between successive layers.
- C. When laying fresh mixture against the exposed edges of joints (trimmed or formed as provided above), place it in close contact with the exposed edge to produce an even, well-compacted joint after rolling.

3.07 SURFACE REQUIREMENTS

- A. Obtain a smooth surface on all pavement courses placed, and then straightedge all intermediate and final courses with a 15-foot rolling straightedge. Furnish a 15-foot [4.572-m] manual straightedge, and make it available at the job site at all times during the paving operation for checking joints and surface irregularities.

- B. Produce a finished surface of uniform texture and compaction with no pulled, torn, or loosened portions and free of segregation, sand streaks, sand spots, or ripples.

3.08 ACCEPTANCE REQUIREMENTS

- A. Upon completion of the final surface or friction course, the County will test the finished surface with a 15-foot rolling straightedge. Correct all deficiencies in excess of 3/16-inch.
- B. If correction is made by removing and replacing the pavement, remove the full depth of the course and extend at least 50-feet on either side of the defective area for the full width of the paving lane.
- C. If correction is made by overlaying, cover the length of the defective area and taper uniformly to a featheredge thickness at a minimum distance of 50-feet on either side of the defective area. Extend the overlay the full width of the roadway. Maintain the specified cross slope. The County may adjust, as necessary, the mix used for the overlay for this purpose.
- D. The maximum deficiency from the specified thickness as follows:
 - 1. For pavement of a specified thickness of 2-1/2-inches or more: 1/2-inch
 - 2. For pavement of a specified thickness less than 2-1/2-inches: 1/4-inch
- E. Where the deficiency in thickness is: (1) in excess of 3/8-inch for pavement of less than 2-1/2-inches in specified thickness, or (2) in excess of 3/4-inch for pavement of specified thickness of 2-1/2-inches or more, correct the deficiency either by replacing the full thickness for a length extending at least 50-feet from each end of the deficient area.
- F. For any case of excess deficiency of the pavement, if approved by the County for each particular location, correct the deficient thickness by adding new surface material, and compact it to the same density as the adjacent surface. The County will determine the area to be corrected and the thickness of new material added.

3.09 REPAIR AND RESTORATION

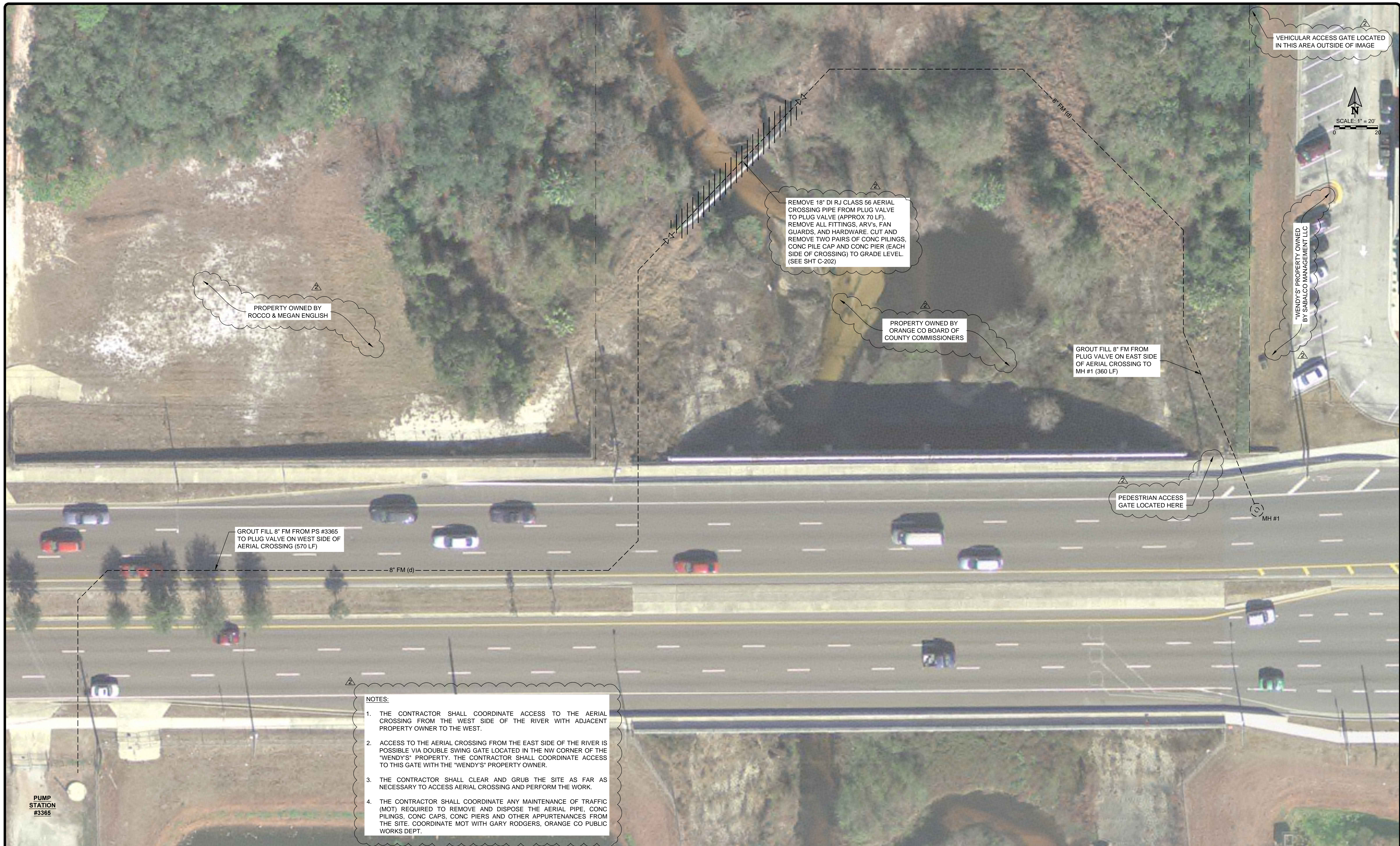
- A. Replace asphalt pavement or roadway surfaces cut or damaged to equal or better condition than the original, including stabilization, base course, surface course, curb and gutter, and other appurtenances.

3.10 SIGNALIZATION, PAVEMENT STRIPING AND MARKING

- A. The Contractor shall be responsible for coordinating, repairing or replacing all traffic signalization devices and traffic loops damaged during the pavement milling, removal and replacement process.

- B. The Contractor shall be responsible for coordinating, inventorying, and replacing all temporary and permanent pavement striping and markings damaged during the asphalt pavement milling, removal, and replacement process.
- C. Temporary pavement striping and markings shall be paint or reinforced retro-reflective removal tape. Foil back tape is not acceptable. Permanent pavement striping and markings shall be alkyd thermoplastic tape and raised reflective pavement markers.

END OF SECTION



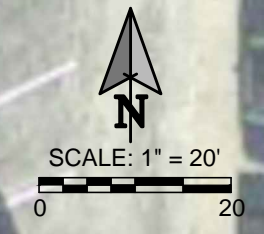
PROPERTY OWNED BY
ROCCO & MEGAN ENGLISH

REMOVE 18" DI RJ CLASS 56 AERIAL
CROSSING PIPE FROM PLUG VALVE
TO PLUG VALVE (APPROX 70 LF).
REMOVE ALL FITTINGS, ARV's, FAN
GUARDS, AND HARDWARE. CUT AND
REMOVE TWO PAIRS OF CONC PILINGS,
CONC PILE CAP AND CONC PIER (EACH
SIDE OF CROSSING) TO GRADE LEVEL.
(SEE SHT C-202)

PROPERTY OWNED BY
ORANGE CO BOARD OF
COUNTY COMMISSIONERS

GROUT FILL 8" FM FROM
PLUG VALVE ON EAST SIDE
OF AERIAL CROSSING TO
MH #1 (360 LF)

VEHICULAR ACCESS GATE LOCATED
IN THIS AREA OUTSIDE OF IMAGE



WENDY'S PROPERTY OWNED
BY SABALCO MANAGEMENT LLC

PEDESTRIAN ACCESS
GATE LOCATED HERE

GROUT FILL 8" FM FROM PS #3365
TO PLUG VALVE ON WEST SIDE OF
AERIAL CROSSING (570 LF)

- NOTES:**
1. THE CONTRACTOR SHALL COORDINATE ACCESS TO THE AERIAL CROSSING FROM THE WEST SIDE OF THE RIVER WITH ADJACENT PROPERTY OWNER TO THE WEST.
 2. ACCESS TO THE AERIAL CROSSING FROM THE EAST SIDE OF THE RIVER IS POSSIBLE VIA DOUBLE SWING GATE LOCATED IN THE NW CORNER OF THE "WENDY'S" PROPERTY. THE CONTRACTOR SHALL COORDINATE ACCESS TO THIS GATE WITH THE "WENDY'S" PROPERTY OWNER.
 3. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AS FAR AS NECESSARY TO ACCESS AERIAL CROSSING AND PERFORM THE WORK.
 4. THE CONTRACTOR SHALL COORDINATE ANY MAINTENANCE OF TRAFFIC (MOT) REQUIRED TO REMOVE AND DISPOSE THE AERIAL PIPE, CONC PILINGS, CONC CAPS, CONC PIERS AND OTHER APPURTENANCES FROM THE SITE. COORDINATE MOT WITH GARY RODGERS, ORANGE CO PUBLIC WORKS DEPT.

PUMP
STATION
#3365

No.	REVISIONS	BY	DATE
1	ADDENDUM No 2	GJH	9-03-14
2			
3			
4	BID SET	GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

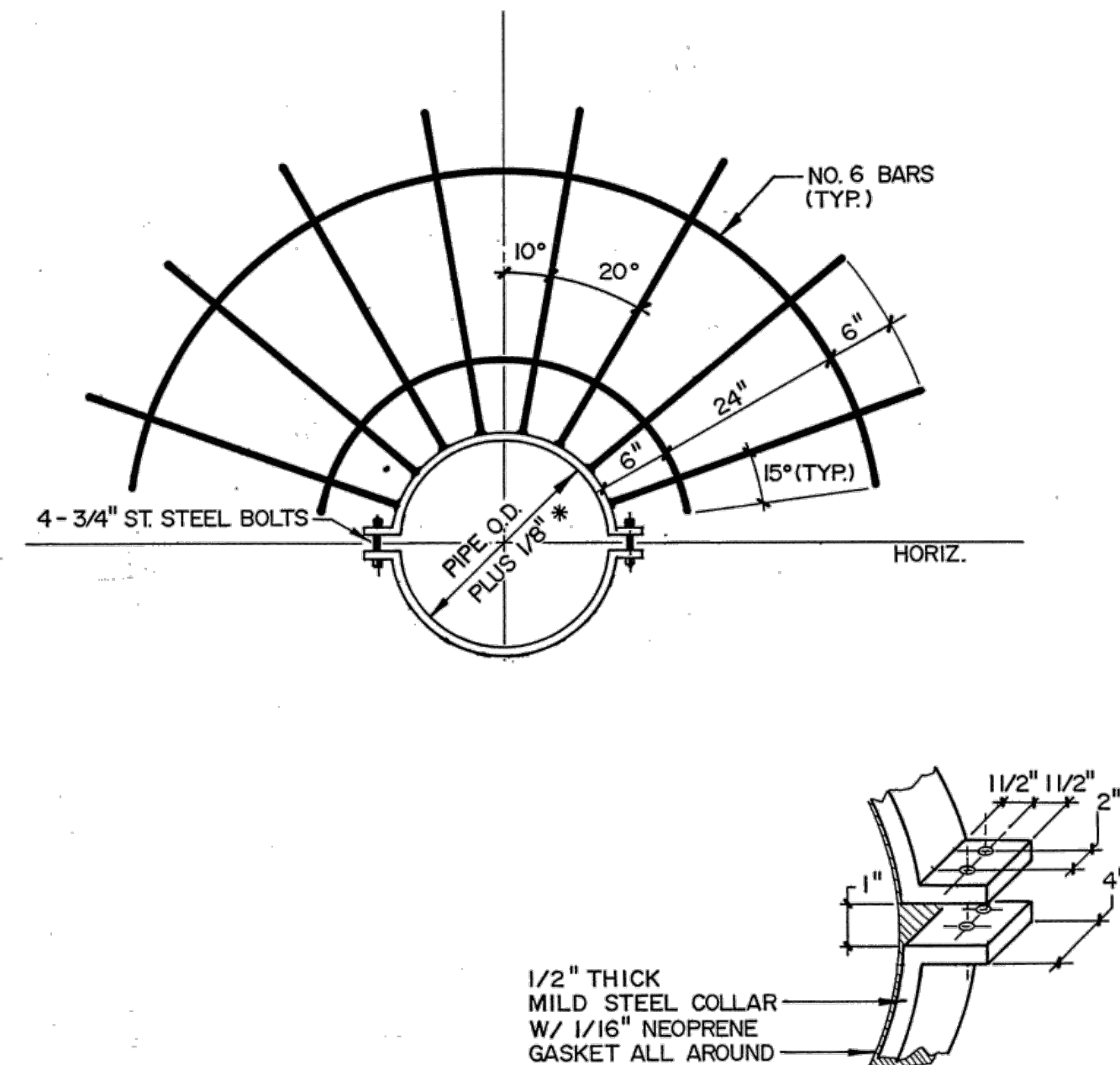
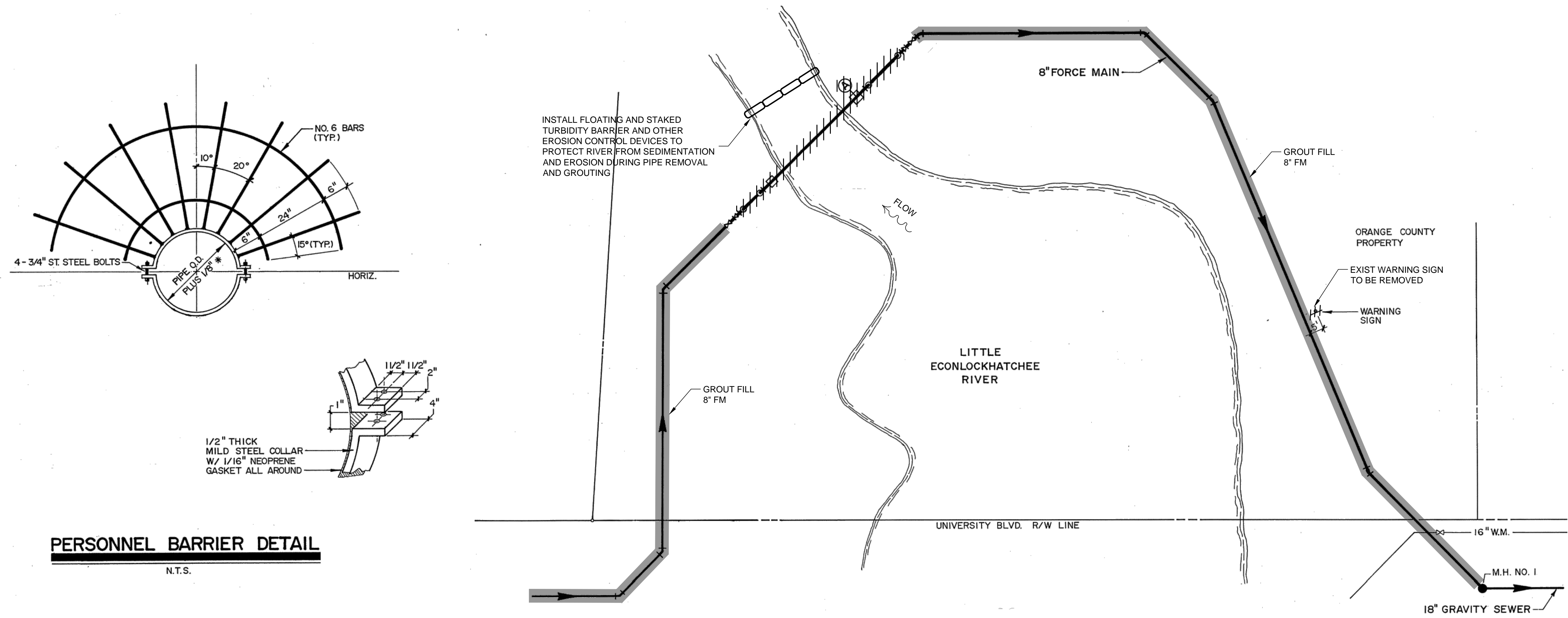
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
PH: (407) 896-8628 FAX: (407) 896-1822
ENGINEERING BUSINESS No. 6899

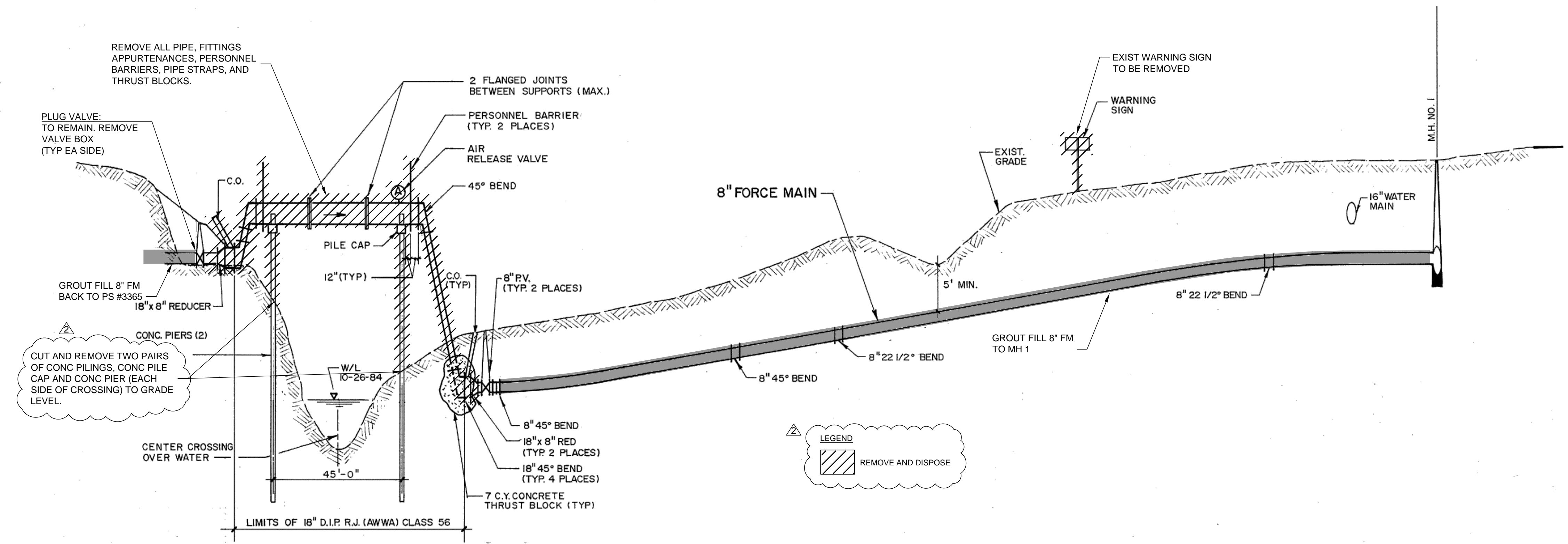
R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

ROUSE / UNIVERSITY PS #3365
OFFSITE FORCE MAIN DEMOLITION SITE PLAN

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2011-11-13 PROJECT DATE: JULY 2014	DRAWING No. C-201
FLORIDA REGISTRATION No. 58637	DESIGNED BY: GJH DRAWN BY: JAB CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 16 OF 63



PERSONNEL BARRIER DETAIL
N.T.S.



No.	REVISIONS	BY	DATE
ADDENDUM No 2		GJH	9-03-14
BID SET		GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
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P: (407) 896-8638 F: (407) 896-1822
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

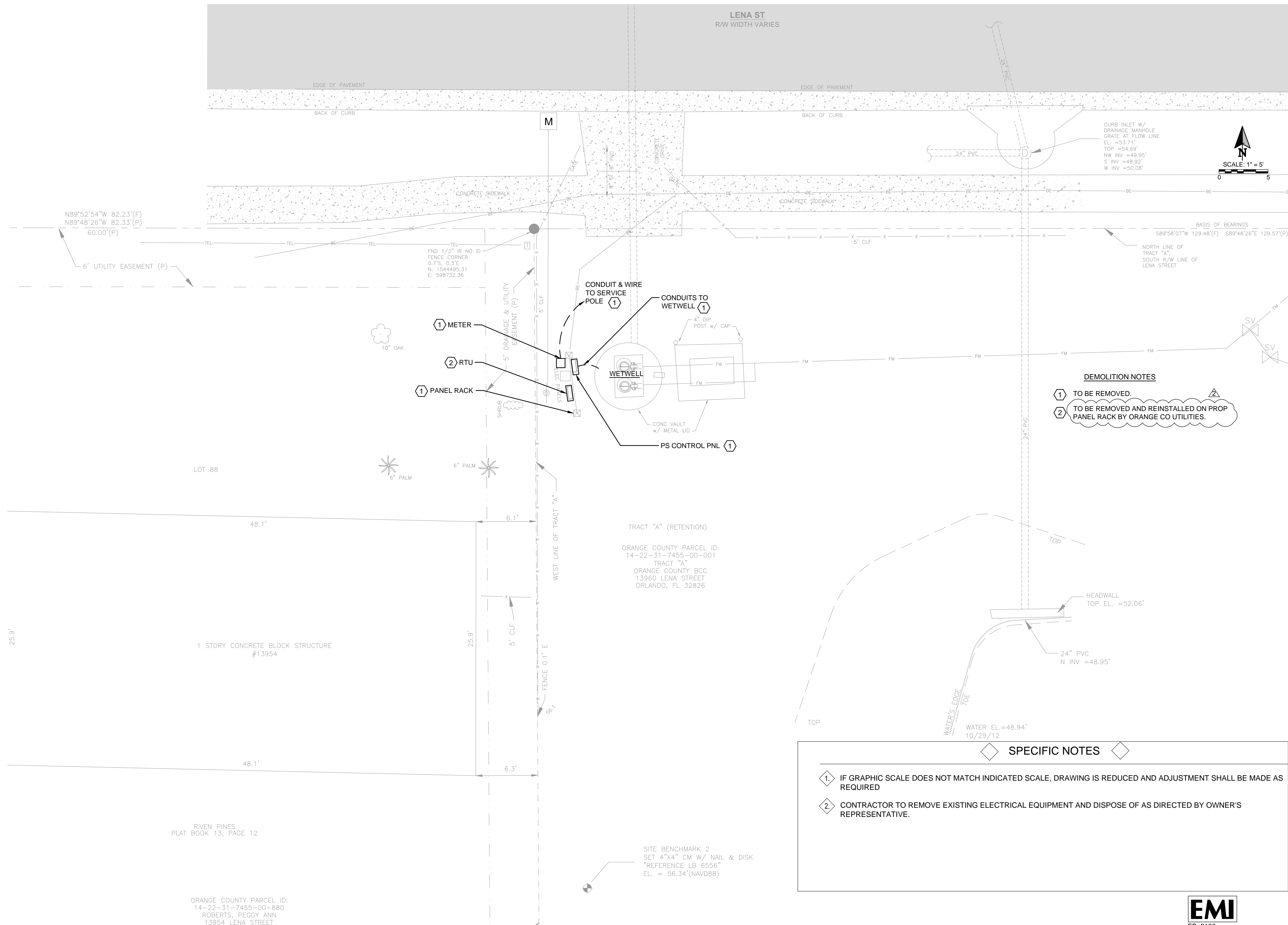
ROUSE / UNIVERSITY PS #3365
OFSITE FORCE MAIN DEMOLITION DETAILS

DESIGN ENGINEER
GEOFFREY J. HENNESSY, P.E.

PROJECT No.: 2011-11-13
PROJECT DATE: JULY 2014
DESIGNED BY: GJH
DRAWN BY: JAB
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

FLORIDA REGISTRATION No.
58637

DRAWING No.
C-202
SHEET
17 OF 63



DEMOLITION NOTES

1 TO BE REMOVED.

2 TO BE REMOVED AND REINSTALLED ON PROP PANEL RACK BY ORANGE CO UTILITIES.

SPECIFIC NOTES

1. IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED

2. CONTRACTOR TO REMOVE EXISTING ELECTRICAL EQUIPMENT AND DISPOSE OF AS DIRECTED BY OWNER'S REPRESENTATIVE.



EB: 6160

No.	REVISIONS	BY	DATE
ADDENDUM No 2		GJH	9-03-14
BID SET		GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

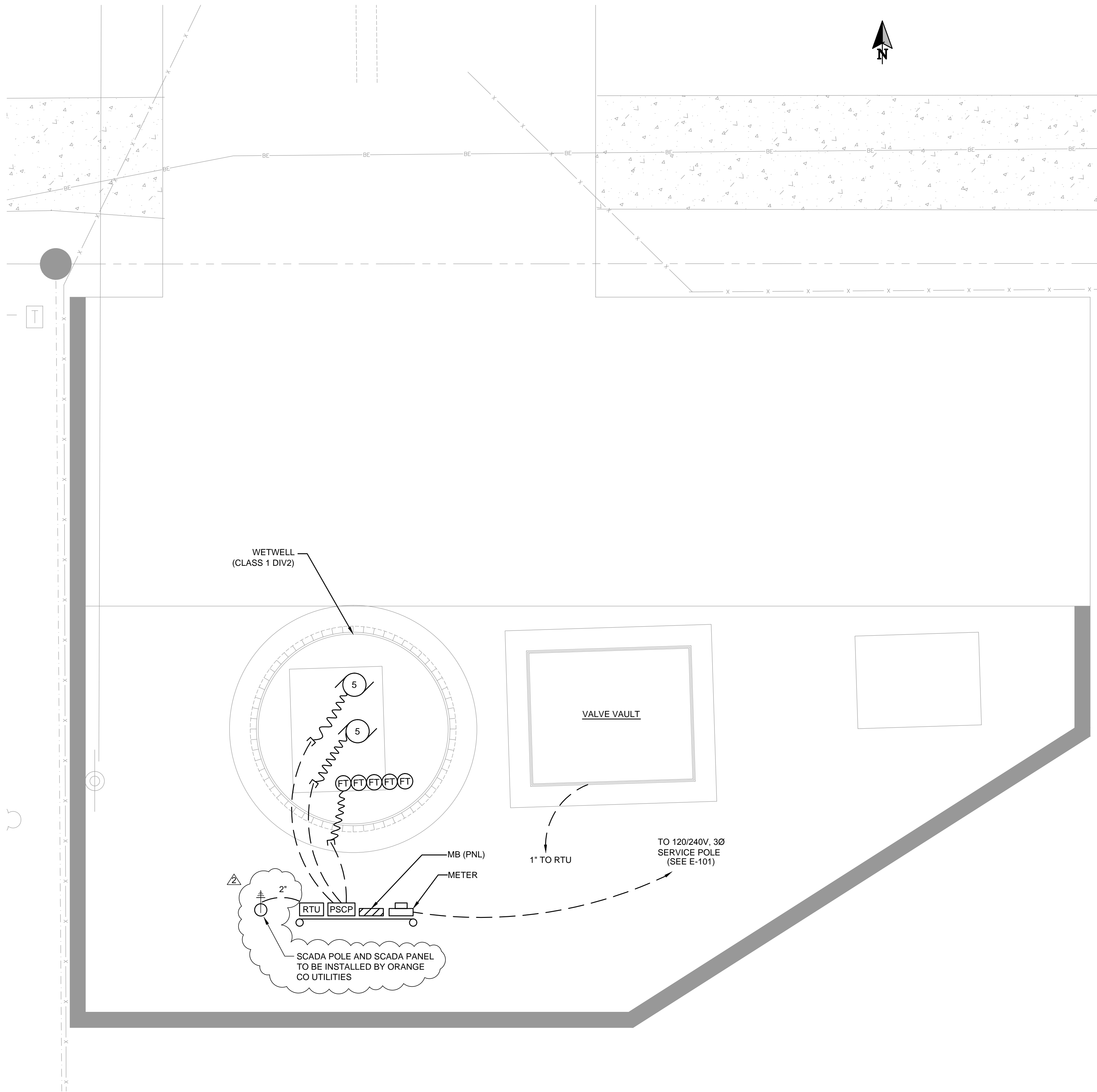
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
P.O. Box 1896-8638
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

LENA ST PS #3309
ELECTRICAL DEMOLITION PLAN

DESIGN ENGINEER WILLARD HOANSHELT P.E.	PROJECT No.: 2011-11-13 PROJECT DATE: JULY 2014	DRAWING No. E-100
FLORIDA REGISTRATION No. 42593	DESIGNED BY: WCH DRAWN BY: DJK CHECKED BY: WCH DRAWING FILE: SEE MARGIN	SHEET 43 OF 63



◇ SPECIFIC NOTES ◇

1. IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED
2. SEE ELECTRICAL DETAILS 240 VAC FOR ELEVATIONS OF EQUIPMENT RACK.
3. EXISTING SCADA PANEL TO BE MOUNTED ON PANEL RACK BY ORANGE COUNTY UTILITIES. THE CONTRACTOR SHALL RUN EMPTY CONDUITS WITH PULL STRINGS AS FOLLOWS:
 - A. 1 - 1" CONDUIT FOR POWER, 2 - 1" CONDUITS FOR SCADA CONTROL BETWEEN THE PUMP PANEL AND THE SCADA PANEL.
 - B. 1 - 1" CONDUIT BETWEEN THE SCADA PANEL AND THE VALVE VAULT.
 - C. 1 - 2" CONDUIT BETWEEN THE SCADA POLE AND THE SCADA PANEL. THIS CONDUIT SHALL BE STUBBED UP UNDER THE SCADA PANEL AND STUBBED UP BESIDE THE SCADA POLE ON THE SIDE THE ANTENNA WIRE HOLE IS LOCATED.

No.	REVISIONS	BY	DATE
1	ADDENDUM No 2	GJH	9-03-14
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LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
Ph: (407) 856-8609 Fax: (407) 856-1822
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

LENA ST PS #3309
ELECTRICAL PLAN



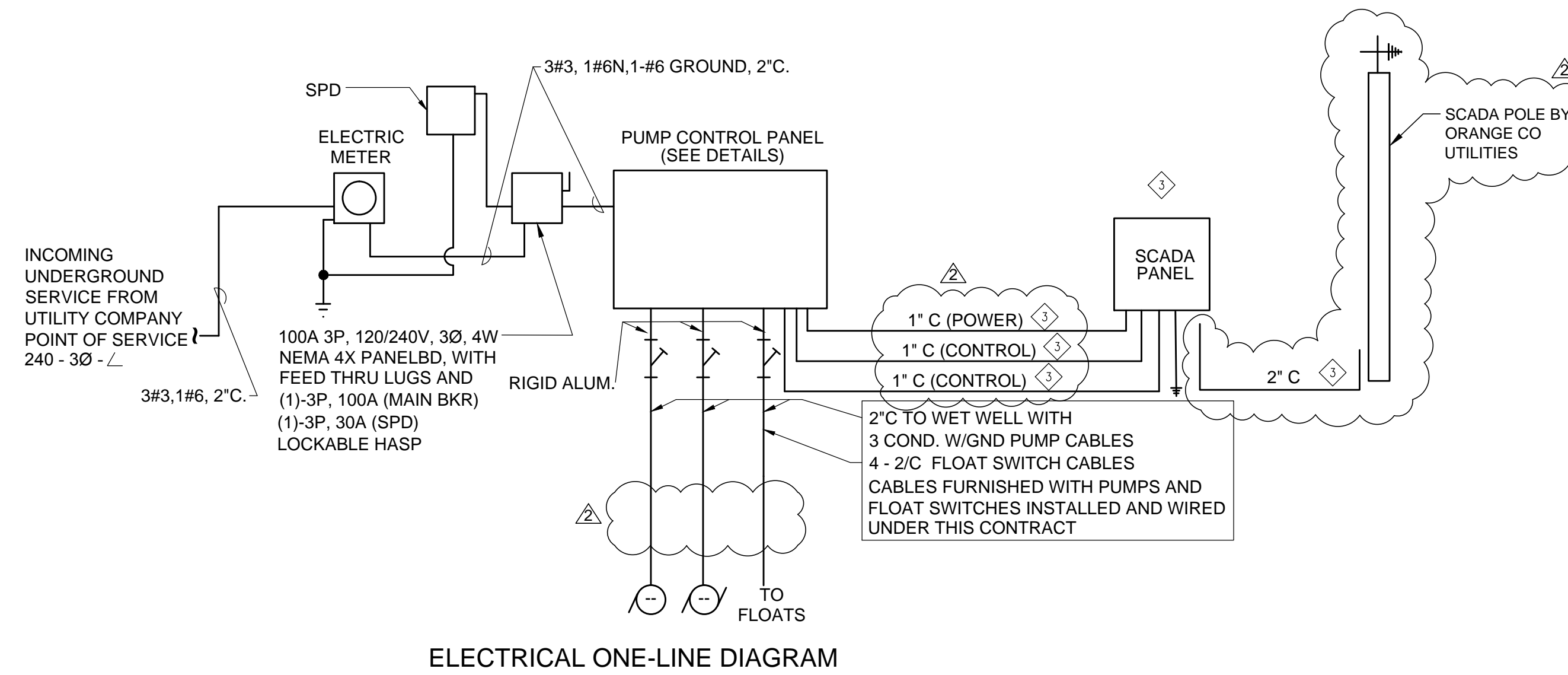
DESIGN ENGINEER
WILLARD HOANSHELT P.E.

FLORIDA REGISTRATION No.
42593

PROJECT No.: 2011-11-13
PROJECT DATE: JULY 2014
DESIGNED BY: WCH
DRAWN BY: DJK
CHECKED BY: WCH
DRAWING FILE: SEE MARGIN

DRAWING No.
E-102

SHEET
45 OF 63



BAHI HAI			
Electrical Load Calculations			
Available Voltage 120/240V - 3 Phase, 4W, Solid Ground			
Maximum Available Fault Current = 4600 Amperes at Transformer Secondary			
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-5.0 HP	15	15	15
Pump #2-5.0 HP	15	15	15
Misc. Controls (At 240 Volts)	1	1	
25% Largest Motor	4	4	4
	-	-	-
Total	35	35	34
NEC Service Size = 100 Amperes			



EB: 6160

No.	REVISIONS	BY	DATE
ADDENDUM No 2		GJH	9-03-14
BID SET		GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

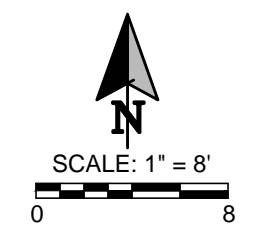
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
P.O. Box 1809, Orlando, FL, 32816
PHONE: (407) 856-8625 FAX: (407) 856-1822
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

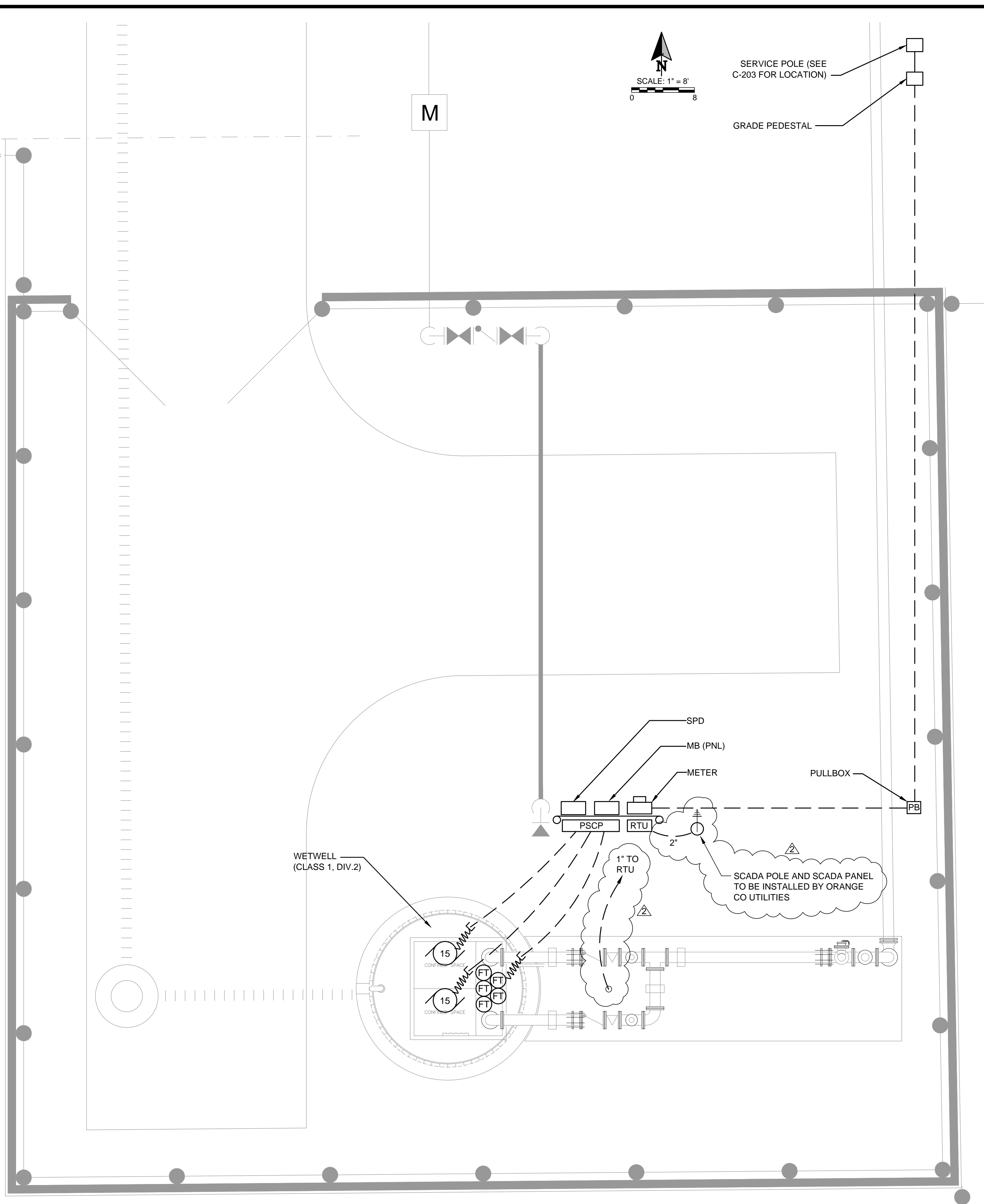
LENA ST PS #3309
SINGLE LINE DIAGRAM

DESIGN ENGINEER WILLARD HOANSHELT P.E.	PROJECT No.: 2011-11-13 PROJECT DATE: JULY 2014	DRAWING No. E-103
FLORIDA REGISTRATION No. 42593	DESIGNED BY: WCH DRAWN BY: DJK CHECKED BY: WCH DRAWING FILE: SEE MARGIN	SHEET 46 OF 63



SERVICE POLE (SEE C-203 FOR LOCATION)
GRADE PEDESTAL

M



◇ SPECIFIC NOTES ◇

1. IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED
2. SEE ELECTRICAL DETAILS 240 VAC FOR ELEVATIONS OF EQUIPMENT RACK.
3. EXISTING SCADA PANEL TO BE MOUNTED ON PANEL RACK BY ORANGE COUNTY UTILITIES. THE CONTRACTOR SHALL RUN EMPTY CONDUITS WITH PULL STRINGS AS FOLLOWS:
 - A. 1 - 1" CONDUIT FOR POWER, 2 - 1" CONDUITS FOR SCADA CONTROL BETWEEN THE PUMP PANEL AND THE SCADA PANEL.
 - B. 1 - 1" CONDUIT BETWEEN THE SCADA PANEL AND THROUGH THE CONC SLAB FOR THE VALVE PIPING MANIFOLD.
 - C. 1 - 2" CONDUIT BETWEEN THE SCADA POLE AND THE SCADA PANEL. THIS CONDUIT SHALL BE STUBBED UP UNDER THE SCADA PANEL AND STUBBED UP BESIDE THE SCADA POLE ON THE SIDE THE ANTENNA WIRE HOLE IS LOCATED.



EB: 6160

No.	REVISIONS	BY	DATE
1	ADDENDUM No 2	GJH	9-03-14
2			
3			
4	BID SET	GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

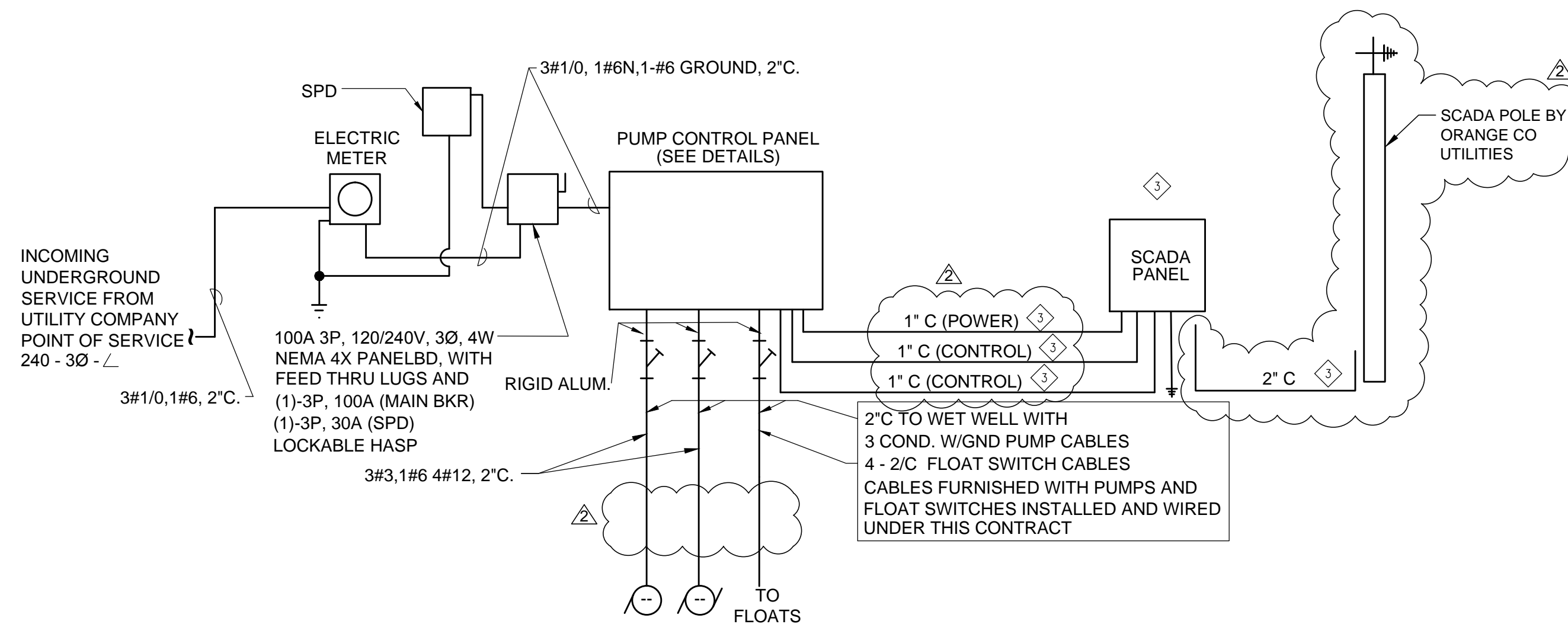
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
Ph: (407) 836-8625 Fax: (407) 836-1822
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

ROUSE / UNIVERSITY PS #3365
ELECTRICAL PLAN

DESIGN ENGINEER WILLARD HOANSHELT P.E.	PROJECT No.: 2011-11-13 PROJECT DATE: JULY 2014 DESIGNED BY: WCH DRAWN BY: DJK	DRAWING No. E-201
FLORIDA REGISTRATION No. 42593	CHECKED BY: WCH DRAWING FILE: SEE MARGIN	SHEET 48 OF 63



ELECTRICAL ONE-LINE DIAGRAM

ROUSE PS			
Electrical Load Calculations			
Available Voltage 120/240V - 3 Phase, 4W, Solid Ground			
Maximum Available Fault Current = 4600 Amperes at Transformer Secondary			
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-15.0 HP	42	42	42
Pump #2-15.0 HP	42	42	42
Misc. Controls (At 240 Volts)	1	1	
25% Largest Motor	4	4	4
Total	89	89	88
NEC Service Size = 150 Amperes			



EB: 6160

No.	REVISIONS	BY	DATE
ADDENDUM No 2		GJH	9-03-14
BID SET		GJH	7-16-14

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Orlando, FL, 32803
P.O. Box 1896-8625
ORLANDO, FLORIDA 32816
ENGINEERING BUSINESS No. 6899

R & R PACKAGE 1 PUMP STATION IMPROVEMENTS

ROUSE / UNIVERSITY PS #3365
SINGLE LINE DIAGRAM

DESIGN ENGINEER WILLARD HOANSHELT P.E.	PROJECT No.: 2011-11-13 PROJECT DATE: JULY 2014	DRAWING No. E-202
FLORIDA REGISTRATION No. 42593	DESIGNED BY: WCH DRAWN BY: DJK CHECKED BY: WCH DRAWING FILE: SEE MARGIN	SHEET 49 OF 63

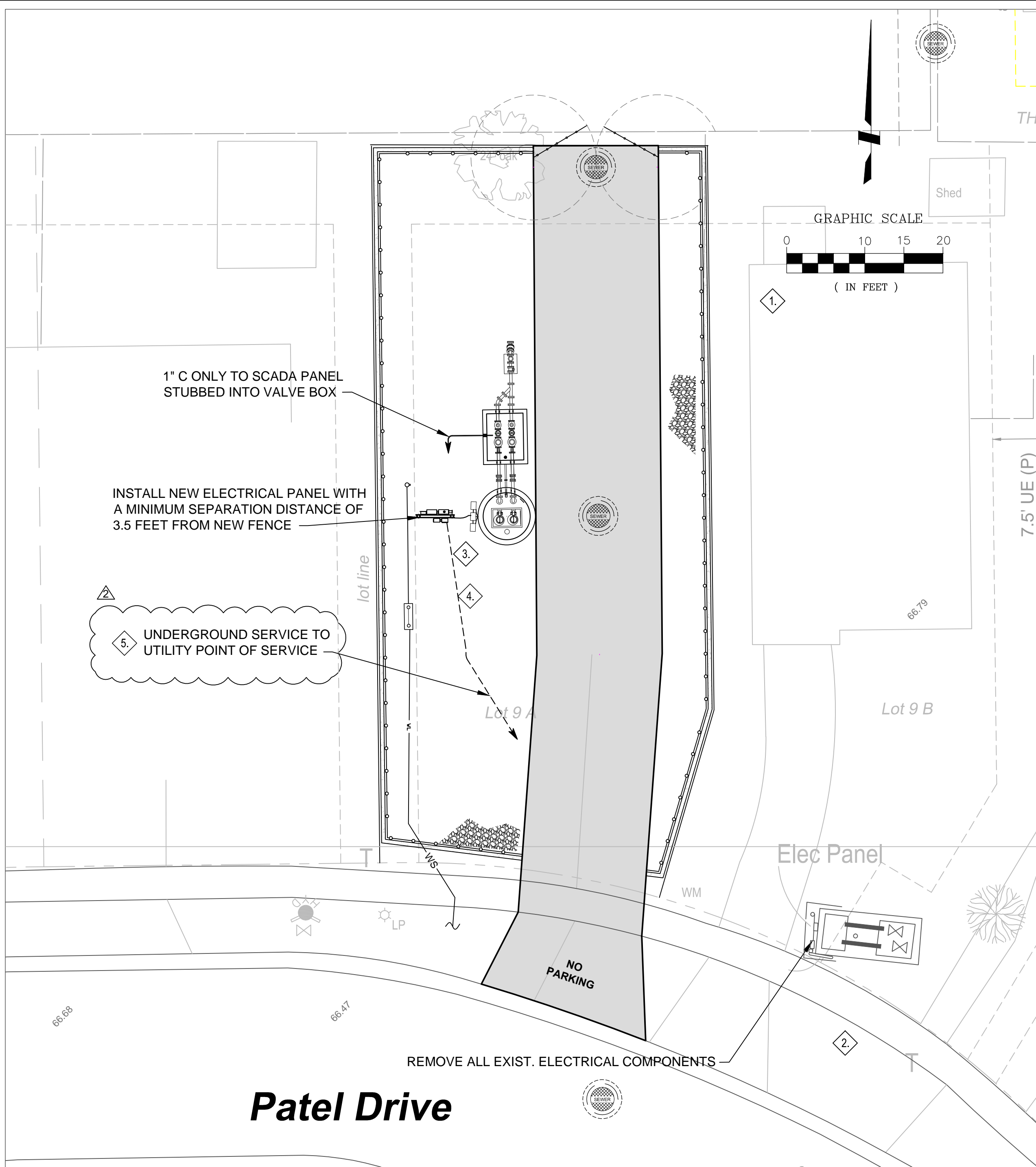
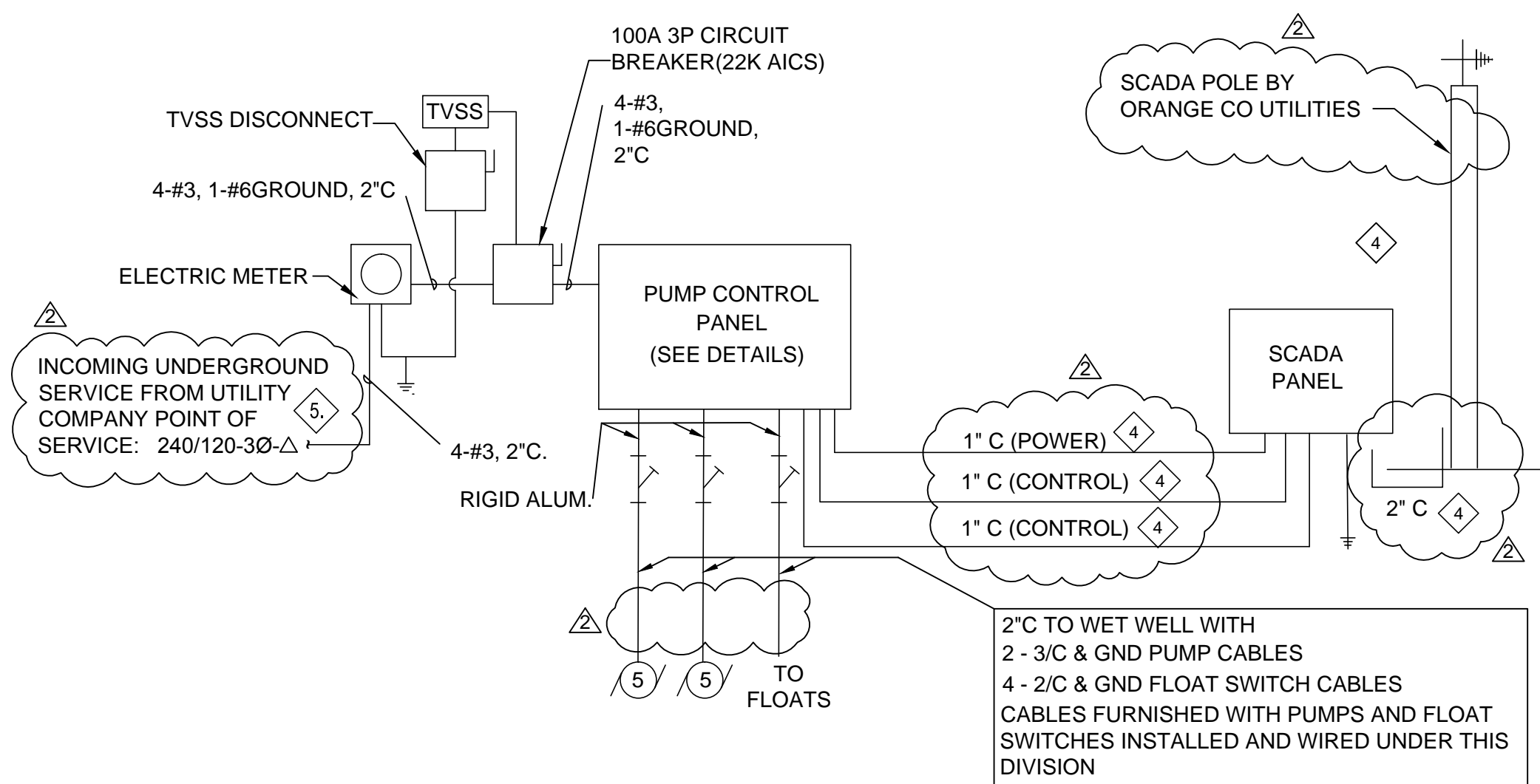
ELECTRICAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NFPA-70. ALL APPLICABLE REQUIREMENTS OF ALL LOCAL, COUNTY, AND STATE CODES AND STANDARDS, AND ALL REQUIREMENTS OF THE SERVICING ELECTRIC UTILITY.
2. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EXACT LOCATIONS OF EQUIPMENT OR ALL REQUIRED FITTINGS AND HARDWARE. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE OPERATING SYSTEM. COORDINATE EQUIPMENT LOCATIONS AND WIRING WITH ACTUAL FIELD CONDITIONS AND EQUIPMENT ACTUALLY PROVIDED.
3. CIRCUIT BREAKER SHALL BE SQ-D, OR EQUAL (AS LISTED IN APPENDIX D).
4. UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC BELOW GRADE. MINIMUM CONDUIT SIZE SHALL BE 0.75" ABOVE GRADE, AND 1.00" BELOW GRADE. UNDERGROUND CONDUIT SHALL BE RUN A MINIMUM OF 24" BELOW GRADE.
5. CABLE AND WIRE SHALL BE COPPER, DUAL RATED, TYPE THNN/THWN, EXCEPT GROUND CONDUCTORS SHALL BE SOFT DRAWN COPPER.
6. GROUND RODS SHALL BE COPPER CLAD STEEL, 0.75" BY 10 FT., DRIVEN SO TOP OF ROD IS 12" BELOW GRADE ALL GROUNDING CONDUCTORS ARE 30" BELOW GRADE. ALL CONNECTIONS TO GROUND RODS SHALL BE EXOTHERMIC WELDS, ERICO "CADWELD" OR EQUAL, UNLESS OTHERWISE NOTED.
7. INSTALL AND CONNECT ALL ELECTRICAL EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
8. WARRANTEE ENTIRE ELECTRICAL INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE FINAL ACCEPTANCE DATE. PROMPTLY REPLACE AND/OR REPAIR ANY EQUIPMENT OR WIRING PROVIDED UNDER DIVISION 16 DURING THE WARRANTEE PERIOD WITH NO ADDITIONAL COSTS TO THE OWNER.
9. PUMP CONTROL PANEL WILL BE FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. CIRCUIT DIAGRAM AND DETAILS ARE PROVIDED FROM DATA RECEIVED FROM THE VENDOR, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. ACTUAL CIRCUITRY AND SPECIFIC DETAILS OF EQUIPMENT PROVIDED MAY VARY.

ALLISON OAKES P. S. #3893A
 Electrical Load Calculations
 Ref: NEC 70 Article 220-4, Table 430.150
 Available Voltage 240/120 - 3 Phase Delta
 Maximum Available Fault Current = 100 Amperes

Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-5 HP	15.2	15.2	15.2
Pump #2-5 HP	15.2	15.2	15.2
Misc. Controls	10.0	-	-
Future Scada	-	-	10.0
25% Largest Motor	3.8	3.8	3.8
Total	44.2	34.2	44.2

Service Size Selected = 100 Amperes (Minimum Orange County Service)



- SCADA POLE COORDINATION**
1. ORANGE CO WILL REMOVE SCADA PANEL FROM POLE.
 2. CONTRACTOR SHALL REMOVE EXIST. POLE.
 3. ORANGE CO WILL MOUNT SCADA PANEL ON NEW PANEL RACK AND INSTALL NEW SCADA POLE.
 4. CONTRACTOR SHALL INSTALL NEW CONDUITS AS NOTED IN SPECIFIC NOTES.
 5. CONTRACTOR SHALL COORDINATE WITH ORANGE CO SCADA SECTION PH (407) 836-6811.

- SPECIFIC NOTES**
1. IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED
 2. CONTRACTOR TO REMOVE EXISTING ELECTRICAL EQUIPMENT AND DISPOSE OF AS DIRECTED BY OWNER'S REPRESENTATIVE.
 3. SEE ELECTRICAL DETAILS 240 VAC FOR ELEVATIONS OF EQUIPMENT RACK.
 4. EXISTING SCADA PANEL TO BE MOUNTED ON PANEL RACK BY ORANGE COUNTY UTILITIES. THE CONTRACTOR SHALL RUN EMPTY CONDUITS WITH PULL STRINGS AS FOLLOWS:
 - A. 1 - 1" CONDUIT FOR POWER, 2 - 1" CONDUITS FOR SCADA CONTROL BETWEEN THE PUMP PANEL AND THE SCADA PANEL.
 - B. 1 - 1" CONDUIT BETWEEN THE SCADA PANEL AND THE VALVE VAULT.
 - C. 1 - 2" CONDUIT BETWEEN THE SCADA POLE AND THE SCADA PANEL. THIS CONDUIT SHALL BE STUBBED UP UNDER THE SCADA PANEL AND STUBBED UP BESIDE THE SCADA POLE ON THE SIDE THE ANTENNA WIRE HOLE IS LOCATED.
 5. UTILITY POINT OF SERVICE IS EXISTING OPEN DELTA LOCATED BETWEEN 3138 PATEL DR (LOT 11B) AND 3144 PATEL DR (LOT 12A). A DISTANCE OF APPROX 180' FROM PROP ELECTRICAL PANEL RACK.

UTILITY: PROGRESS ENERGY (EXISTING)
 METER #: 6633014
 ADDRESS: 3124 PATEL DRIVE
 VOLT: 240V

UTILITY: PROGRESS ENERGY (NEW P. S.)
 METER #: N/A
 ADDRESS: 3120 PATEL DR
 VOLT: N/A

REV	DATE	DESCRIPTION
Δ	9-03-14	ADDENDUM No 2
	7-16-14	BID SET



ALLISON OAKES P.S. 3893A (fka 3893)
 GREENVIEW PINES P.S. #3887
 BRADFORD COVE P.S. #3890
 PUMP STATION IMPROVEMENTS

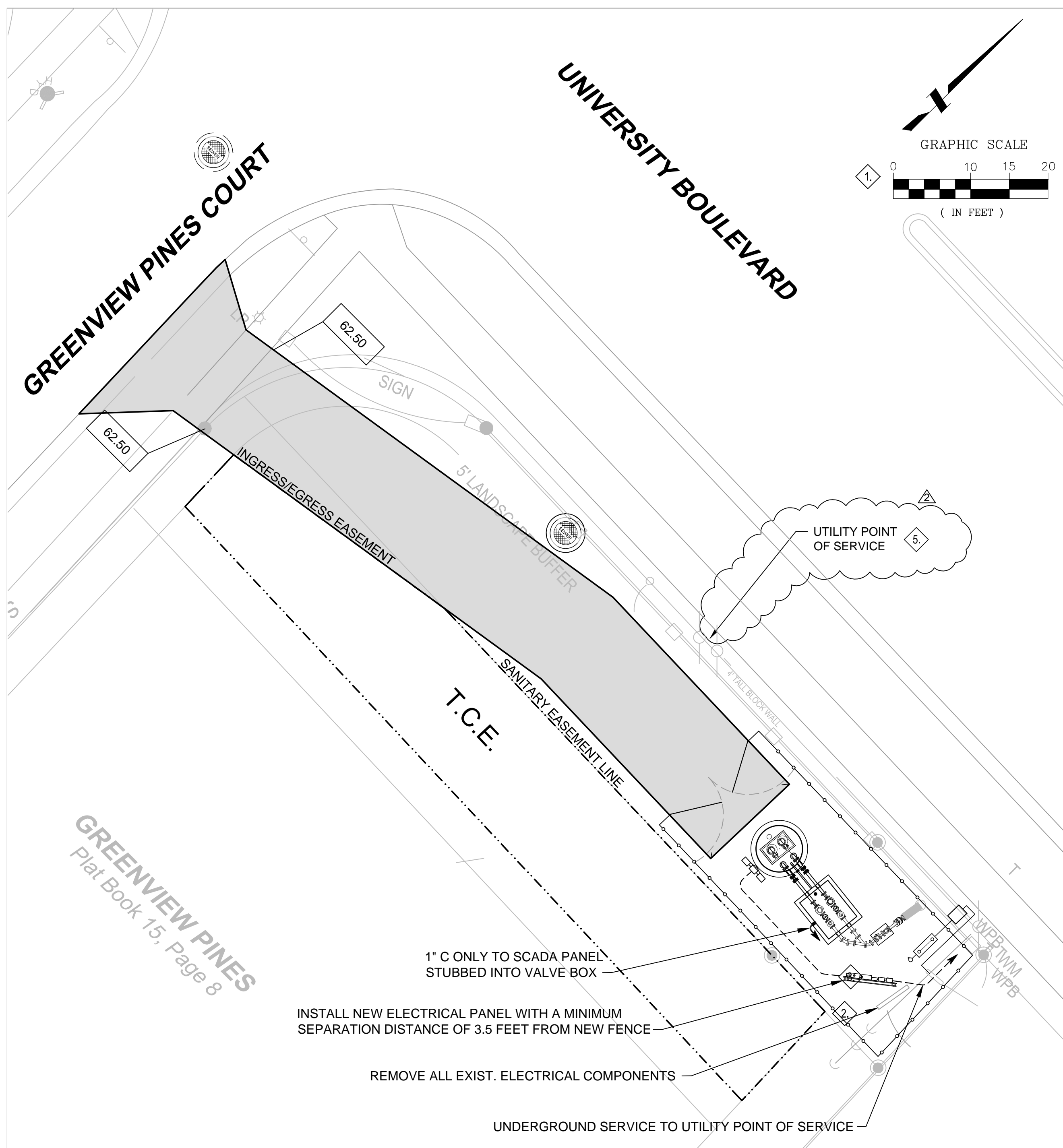
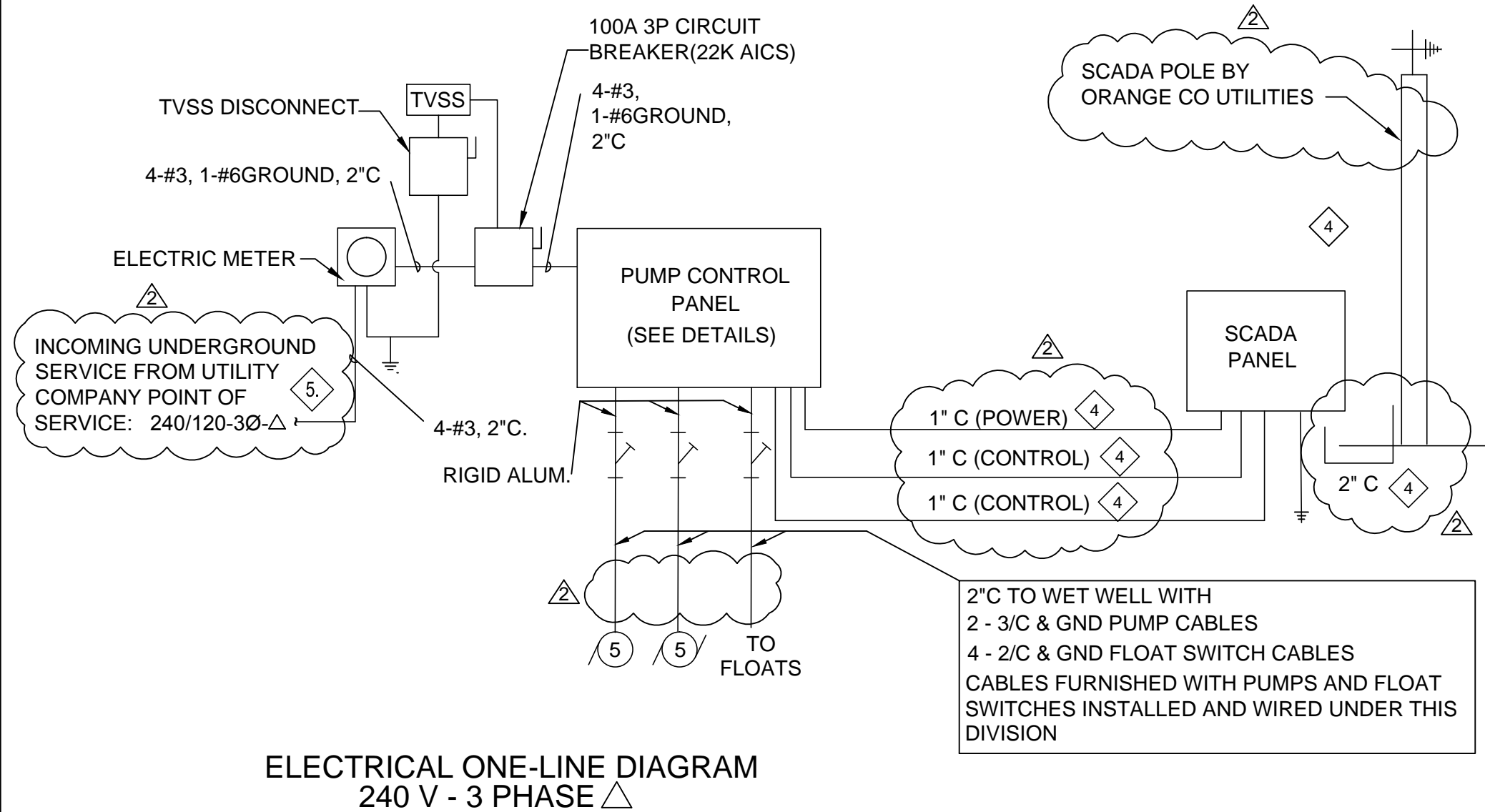
ALLISON OAKES P. S. #3893A (fka 3893)
 ELECTRICAL PLAN

OCU FILE NO.:	53305	SCALE: "AS NOTED"
DESIGNED BY:	RM	DRAWING NO.:
DRAWN BY:	JN	E-300
CHECKED BY:	TP	SHEET: 54 OF 63
CADD FILE:	E100	

ELECTRICAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NFPA-70, ALL APPLICABLE REQUIREMENTS OF ALL LOCAL, COUNTY, AND STATE CODES AND STANDARDS, AND ALL REQUIREMENTS OF THE SERVICING ELECTRIC UTILITY.
- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EXACT LOCATIONS OF EQUIPMENT OR ALL REQUIRED FITTINGS AND HARDWARE. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE OPERATING SYSTEM. COORDINATE EQUIPMENT LOCATIONS AND WIRING WITH ACTUAL FIELD CONDITIONS AND EQUIPMENT ACTUALLY PROVIDED.
- CIRCUIT BREAKER SHALL BE SQ-D, OR EQUAL (AS LISTED IN APPENDIX D).
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC BELOW GRADE. MINIMUM CONDUIT SIZE SHALL BE 0.75" ABOVE GRADE, AND 1.00" BELOW GRADE. UNDERGROUND CONDUIT SHALL BE RUN A MINIMUM OF 24" BELOW GRADE.
- CABLE AND WIRE SHALL BE COPPER, DUAL RATED, TYPE THNN/THWN, EXCEPT GROUND CONDUCTORS SHALL BE SOFT DRAWN COPPER.
- GROUND RODS SHALL BE COPPER CLAD STEEL, 0.75" BY 10 FT., DRIVEN SO TOP OF ROD IS 12" BELOW GRADE. ALL GROUNDING CONDUCTORS ARE 30" BELOW GRADE. ALL CONNECTIONS TO GROUND RODS SHALL BE EXOTHERMIC WELDS, ERICO "CADWELD" OR EQUAL, UNLESS OTHERWISE NOTED.
- INSTALL AND CONNECT ALL ELECTRICAL EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- WARRANTEE ENTIRE ELECTRICAL INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE FINAL ACCEPTANCE DATE. PROMPTLY REPLACE AND/OR REPAIR ANY EQUIPMENT OR WIRING PROVIDED UNDER DIVISION 16 DURING THE WARRANTEE PERIOD WITH NO ADDITIONAL COSTS TO THE OWNER.
- PUMP CONTROL PANEL WILL BE FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. CIRCUIT DIAGRAM AND DETAILS ARE PROVIDED FROM DATA RECEIVED FROM THE VENDOR, AND ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE. ACTUAL CIRCUITRY AND SPECIFIC DETAILS OF EQUIPMENT PROVIDED MAY VARY.

GREENVIEW PINES P. S. #3887			
Electrical Load Calculations			
Ref: NEC 70 Article 220-4, Table 430.150			
Available Voltage 240/120 - 3 Phase Delta			
Maximum Available Fault Current = 100 Amperes			
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-5 HP	15.2	15.2	15.2
Pump #2-5 HP	15.2	15.2	15.2
Misc. Controls	10.0	-	-
Future Scada	-	-	10.0
25% Largest Motor	3.8	3.8	3.8
Total	44.2	34.2	44.2
Service Size Selected = 100 Amperes (Minimum Orange County Service)			



SCADA POLE COORDINATION

- ORANGE CO WILL REMOVE SCADA PANEL FROM POLE.
- CONTRACTOR SHALL REMOVE EXIST POLE.
- ORANGE CO WILL MOUNT SCADA PANEL ON NEW PANEL RACK AND INSTALL NEW SCADA POLE.
- CONTRACTOR SHALL INSTALL NEW CONDUITS AS NOTED IN SPECIFIC NOTES.
- CONTRACTOR SHALL COORDINATE WITH ORANGE CO SCADA SECTION PH (407) 836-6811.

SPECIFIC NOTES

- IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED
- CONTRACTOR TO REMOVE EXISTING ELECTRICAL EQUIPMENT AND DISPOSE OF AS DIRECTED BY OWNER'S REPRESENTATIVE.
- SEE ELECTRICAL DETAILS 240 VAC FOR ELEVATIONS OF EQUIPMENT RACK.
- EXISTING SCADA PANEL TO BE MOUNTED ON PANEL RACK BY ORANGE COUNTY UTILITIES. THE CONTRACTOR SHALL RUN EMPTY CONDUITS WITH PULL STRINGS AS FOLLOWS:
 - 1 - 1" CONDUIT FOR POWER, 2 - 1" CONDUITS FOR SCADA CONTROL BETWEEN THE PUMP PANEL AND THE SCADA PANEL.
 - 1 - 1" CONDUIT BETWEEN THE SCADA PANEL AND THE VALVE VAULT.
 - 1 - 2" CONDUIT BETWEEN THE SCADA PANEL AND THE SCADA POLE. THIS CONDUIT SHALL BE STUBBED UP UNDER THE SCADA PANEL AND STUBBED UP BESIDE THE SCADA POLE ON THE SIDE THE ANTENNA WIRE HOLE IS LOCATED.
- UTILITY POINT OF SERVICE WILL BE PROVIDED BY DUKE ENERGY AT BASE OF POLE INDICATED ON THIS DRAWING.

UTILITY: PROGRESS ENERGY
 METER #: 6649319
 ADDRESS: 3955 GREENVIEW PINES CT
 VOLT: 240V

REV	DATE	DESCRIPTION
1	9-03-14	ADDENDUM No 2
	7-16-14	BID SET

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
 9150 CURRY FORD ROAD ORLANDO, FL. 32825

ALLISON OAKES P.S. 3893A (fka 3893)
 GREENVIEW PINES P.S. #3887
 BRADFORD COVE P.S. #3890
 PUMP STATION IMPROVEMENTS

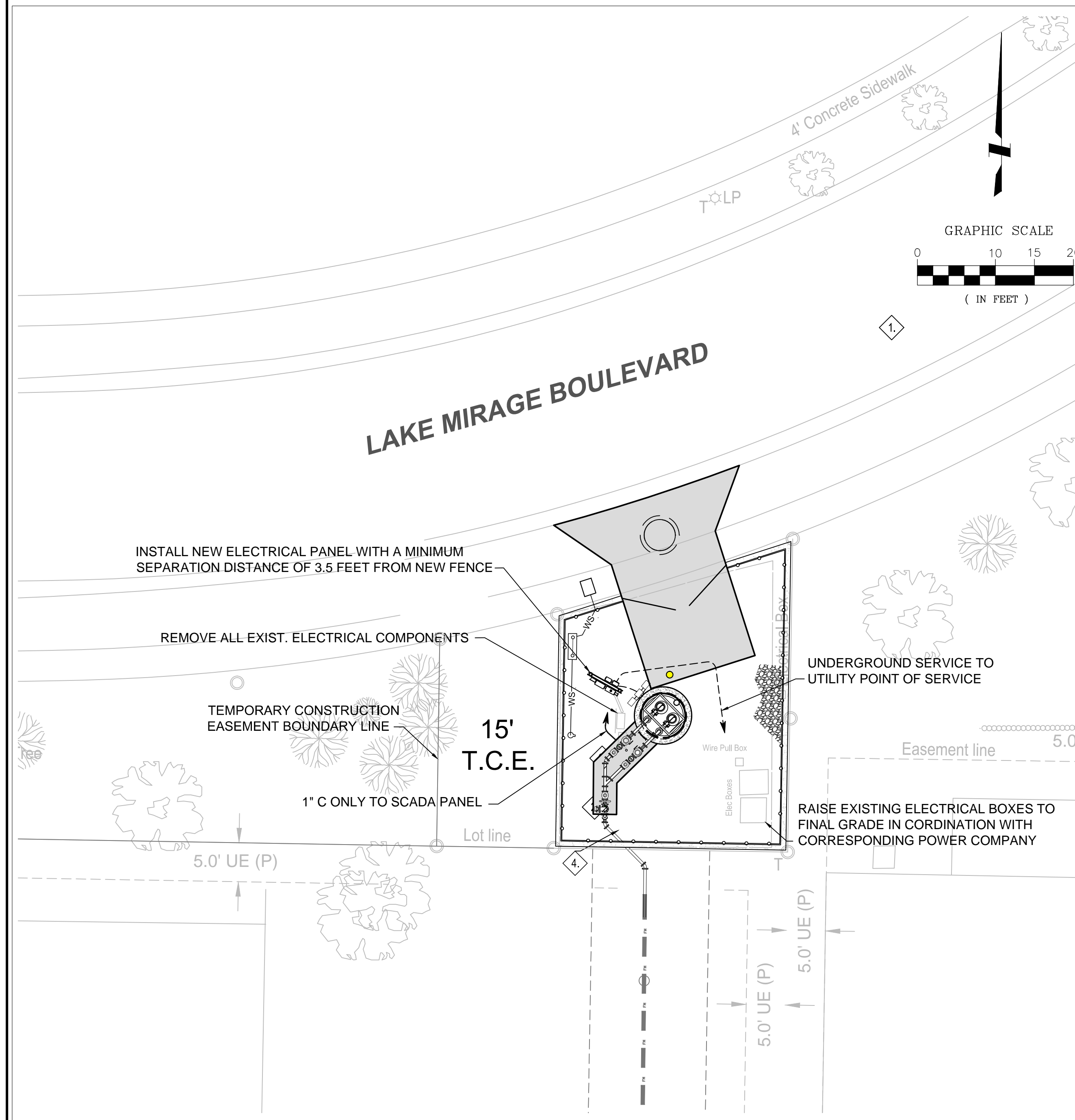
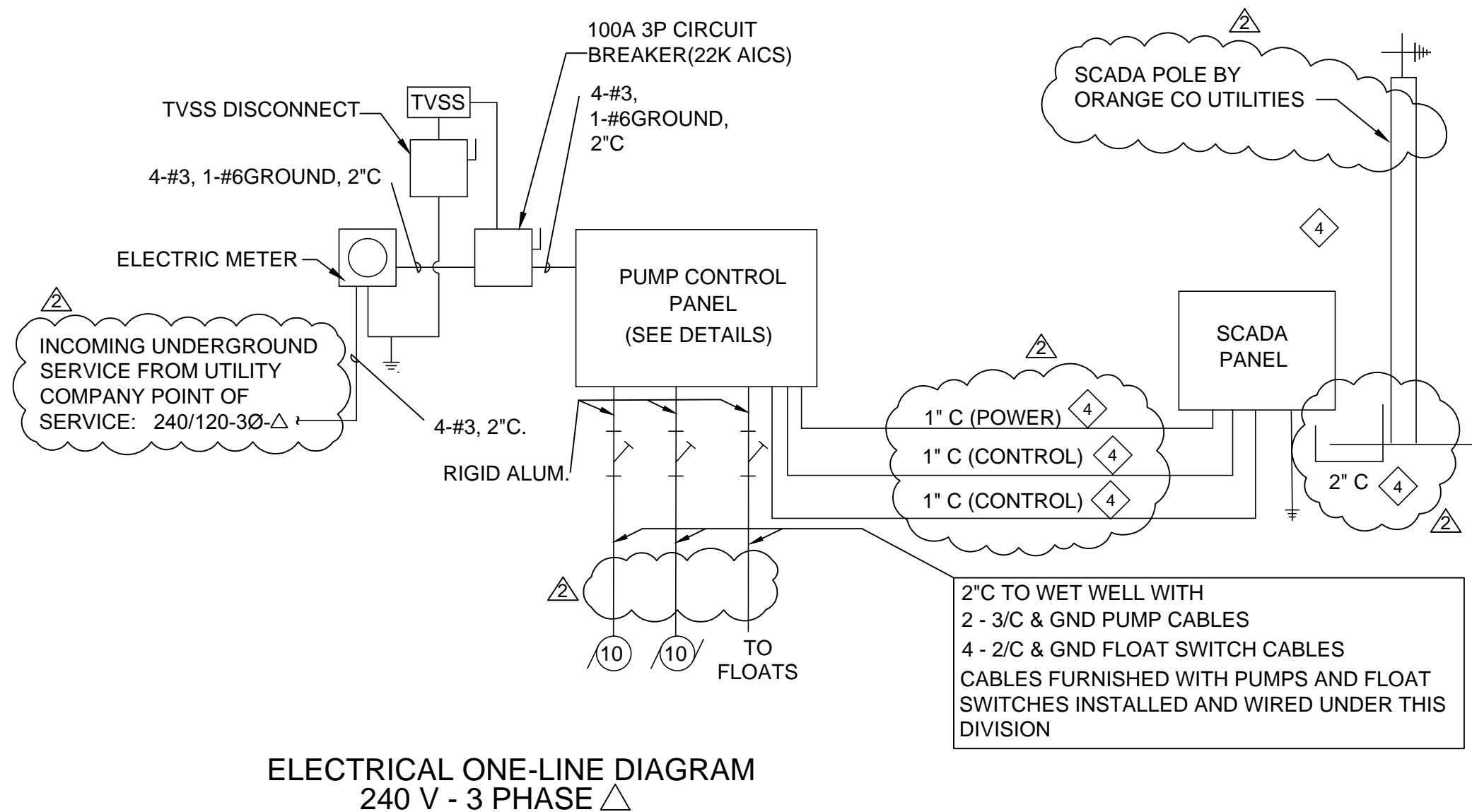
GREENVIEW PINES P. S. #3887
 ELECTRICAL PLAN

OCU FILE NO.: 58345	SCALE: "AS NOTED"
DESIGNED BY: RM	DRAWING NO.:
DRAWN BY: JN	E-400
CHECKED BY: TP	SHEET: 55 OF 63
CADD FILE: E200	

ELECTRICAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NFPA-70, ALL APPLICABLE REQUIREMENTS OF ALL LOCAL, COUNTY, AND STATE CODES AND STANDARDS, AND ALL REQUIREMENTS OF THE SERVICING ELECTRIC UTILITY.
- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EXACT LOCATIONS OF EQUIPMENT OR ALL REQUIRED FITTINGS AND HARDWARE. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE OPERATING SYSTEM. COORDINATE EQUIPMENT LOCATIONS AND WIRING WITH ACTUAL FIELD CONDITIONS AND EQUIPMENT ACTUALLY PROVIDED.
- CIRCUIT BREAKER SHALL BE SQ-D, OR EQUAL (AS LISTED IN APPENDIX D).
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC BELOW GRADE. MINIMUM CONDUIT SIZE SHALL BE 0.75" ABOVE GRADE, AND 1.00" BELOW GRADE. UNDERGROUND CONDUIT SHALL BE RUN A MINIMUM OF 24" BELOW GRADE.
- CABLE AND WIRE SHALL BE COPPER, DUAL RATED, TYPE THNN/THWN, EXCEPT GROUND CONDUCTORS SHALL BE SOFT DRAWN COPPER.
- GROUND RODS SHALL BE COPPER CLAD STEEL, 0.75" BY 10 FT., DRIVEN SO TOP OF ROD IS 12" BELOW GRADE ALL GROUNDING CONDUCTORS ARE 30" BELOW GRADE. ALL CONNECTIONS TO GROUND RODS SHALL BE EXOTHERMIC WELDS, ERICO "CADWELD" OR EQUAL, UNLESS OTHERWISE NOTED.
- INSTALL AND CONNECT ALL ELECTRICAL EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- WARRANTEE ENTIRE ELECTRICAL INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE FINAL ACCEPTANCE DATE. PROMPTLY REPLACE AND/OR REPAIR ANY EQUIPMENT OR WIRING PROVIDED UNDER DIVISION 16 DURING THE WARRANTEE PERIOD WITH NO ADDITIONAL COSTS TO THE OWNER.
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BRADFORD COVE P. S. #3890			
Electrical Load Calculations			
Ref: NEC 70 Article 220-4, Table 430.150			
Available Voltage 240/120 - 3 Phase Delta			
Maximum Available Fault Current = Amperes			
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-10HP	28.0	28.0	28.0
Pump #2-10HP	28.0	28.0	28.0
Misc. Controls	10.0	-	-
Future SCADA	-	-	10.0
25% Largest Motor	7.0	7.0	7.0
Total	73.0	63.0	73.0
Service Size Selected = 100 Amperes (Minimum Orange County Service)			



SCADA POLE COORDINATION

- ORANGE CO WILL REMOVE SCADA PANEL FROM POLE.
- CONTRACTOR SHALL REMOVE EXIST POLE.
- ORANGE CO WILL MOUNT SCADA PANEL ON NEW PANEL RACK AND INSTALL NEW SCADA POLE.
- CONTRACTOR SHALL INSTALL NEW CONDUITS AS NOTED IN SPECIFIC NOTES.
- CONTRACTOR SHALL COORDINATE WITH ORANGE CO SCADA SECTION PH (407) 836-6811.

SPECIFIC NOTES

- IF GRAPHIC SCALE DOES NOT MATCH INDICATED SCALE, DRAWING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS REQUIRED
- CONTRACTOR TO REMOVE EXISTING ELECTRICAL EQUIPMENT AND DISPOSE OF AS DIRECTED BY OWNER'S REPRESENTATIVE.
- SEE ELECTRICAL DETAILS 240 VAC FOR ELEVATIONS OF EQUIPMENT RACK.
- EXISTING SCADA PANEL TO BE MOUNTED ON PANEL RACK BY ORANGE COUNTY UTILITIES. THE CONTRACTOR SHALL RUN EMPTY CONDUITS WITH PULL STRINGS AS FOLLOWS:
 - 1 - 1" CONDUIT FOR POWER, 2 - 1" CONDUITS FOR SCADA CONTROL BETWEEN THE PUMP PANEL AND THE SCADA PANEL.
 - 1 - 1" CONDUIT BETWEEN THE SCADA PANEL AND THE VALVE VAULT.
 - 1 - 2" CONDUIT BETWEEN THE SCADA POLE AND THE SCADA PANEL. THIS CONDUIT SHALL BE STUBBED UP UNDER THE SCADA PANEL AND STUBBED UP BESIDE THE SCADA POLE ON THE SIDE THE ANTENNA WIRE HOLE IS LOCATED.

UTILITY: PROGRESS ENERGY
METER #: 2633033
ADDRESS: 3787 LAKE MIRAGE BLVD
VOLT: 240V

REV	DATE	DESCRIPTION
1	9-03-14	ADDENDUM No 2
	7-16-14	BID SET

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION

9150 CURRY FORD ROAD ORLANDO, FL. 32825

ALLISON OAKES P.S. 3893A (fka 3893)
GREENVIEW PINES P.S. #3887
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PUMP STATION IMPROVEMENTS

BRADFORD COVE P. S. #3890
ELECTRICAL PLAN

OCU FILE NO.: 58345	SCALE: "AS NOTED"
DESIGNED BY: RM	DRAWING NO.: E-500
DRAWN BY: JN	SHEET: 56 OF 63
CHECKED BY: TP	
CADD FILE: E300	