friedman & friedman PA
ATTORNEYS AT LAW

August 11, 2016

VIA E-FILING

Carlotta S. Stauffer, Commission Clerk
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399

RE: Docket No. 110200-WU; In re: Application for increase in water rates in Franklin County by Water Management Services, Inc.
Our File No. 46023.01

Dear Ms. Stauffer:

Water Management Services, Inc. ("WMSI" or "Utility") submits the attached in responses to Staff's Tenth Data Request dated August 3, 2016.

Should you or Staff have any questions concerning this filing, please do not hesitate to give me a call.

Very truly yours,

/s/ Martin S. Friedman

MARTIN S. FRIEDMAN
For the Firm

MSF/

cc: Gene Brown (via e-mail)
Sandy Chase (via e-mail)
Margo Leathers, Esquire (via e-mail)
J. R. Kelly, Esquire (via e-mail)
Amber Norris (via e-mail)

1) **Please refer to WMSI's response to Item 1 of staff's ninth data request, for the following questions.**

a. Referring to subpart (1), please explain why the amount of 12" raw water main was increased by 1,232 linear feet.

Response: After the original contract, WMSI and its engineer determined that it would be more efficient and provide better flow and pressure to the east end of the island if the tie-in at the bridge was done on the end side rather than the west side of the bridge, and if a 12" line was constructed to and across Franklin Blvd. to tie into the two main lines running to the State Park at the extreme east end of the island. This improvement was made to provide better fire flow and pressure at Sunset Beach and 300 Ocean Mile, two higher density areas near the entrance to the Park. (See Exhibit "A" attached.)

b. Referring to subpart (3), please explain why the number of high service pumps was increased from 4 to 6.

Response: The original high service pumps were designed as split case horizontal pumps, which are larger and less efficient than the vertical, centrifugal Grundos CP90 pumps that were finally installed. To save space and to provide a greater fire flow capacity, WMSI and its engineer decided on the 6 smaller, vertical pumps after conferring with several vendors and after looking at other utility plants with high service pumps. The best one was in Walton County, Georgia, which has pumps and a SCADA system similar to the one that WMSI installed. The 6 Grundos CP90 pumps that WMSI bought are rated at 500 gpm. They are set up with 3 variable speed drives in each of two separated, wired cabinets to reduce the chance of an outage if there is a lightning strike affecting one of the cabinets. WMSI has to design for peak days and fires. On a weekend summer day, 2-3 pumps are in use at one time because the flows are in excess of 1,000 gpm. If there is a fire, an additional 1,000-2,000 gpm may be required from multiple hydrants. On a peak day with one or more fires, all 6 pumps will be needed. (See Exhibit "A".) In July, 2015, there were 8 fires on the island. There was a fire last Thursday, one last Friday, and one last Saturday. WMSI receives nothing from Franklin County or any other governmental entity for fire protection, but the island would have no way to fight fires if it were not for the high volume of water at sustained high pressure provided by WMSI. There is no other fire flow system. The 6 pumps cost less than the 4 pumps originally planned, and they came on a smaller skid and are more efficient.

c. Referring to subpart (4), please explain why size of the generator at the new plant was increased to 350 kilowatts.

Response: After the size of the building was increased to include all island operations and personnel, and after the number of AC units was increased to provide several zones for the pumps, drives and other equipment, it was determined that the 250 kw generator would provide back up power for pumping operations, but that it would not be adequate to simultaneously provide back-up power for the entire building. Accordingly, the size of the generator was increased from 250 kw to 350 kw.

d. Referring to subpart (5), please explain why the pump control system was increased by $4,499.

Response: When the number of pumps was increased from 4 to 6, WMSI also decided it would be prudent to separate the 6 variable speed drives into 2 separate locations in enclosed cabinets with entirely separate wiring to reduce the chance of an island-wide water outage in the event of a lighting strike. These separate cabinets with separate wiring and two extra drives cost $4,499 extra, mainly for the additional electrical work

e. Subpart (7) states that: "When change order #1 was signed, the building plans were modified to include 5,160 sq. ft. including a 360 sq. ft. storage area, all with concrete siding." Please explain why the Utility decided to include the described 5,160 sq. ft. modification. Additionally, please provide all documentation supporting or justifying the inclusion of the described 5,160 sq. ft. modification.

Response: The original frame building on pilings at 9" was designed to house just the basic pumping and treatment functions of the utility, including 4 pumps, a chlorination system and a generator. After further consideration, WMSI and its engineer decided it would be prudent and cost effective to increase the size of the building to also house all of WMSI's administrative and billing functions, and to provide storage for all of WMSI's equipment and files. The building was designed and redesigned by WMSI and its engineer several times after the MFR's were filed based upon input from WMSI's operators and employees, as well as consultation with other utilities and examination of their facilities. The two full time operators for WMSI who provided this input have a combined total of 40 years of hands-on experience as water utility operators. The "5,160 sq. ft. modification" includes all of the space planned at the time of the MFR's, plus extra space that was reasonably necessary to accommodate all of WMSI's island personnel, billing and administrative operations, and space for storage of all WMSI's

equipment, parts and files, including approximately 2,100 customer files. This allowed WMSI to keep its equipment out of the weather in a safe, secure location inside the building, and also allowed indoor work benches for meter testing and assembly. There was no written recommendation or documentation for this modification before the decision was made. The decision was based on over 75 years of experience by WMSI's President and Vice President, over 40 years of experience by WMSI's operator and assistant operator, and over 40 years of experience by WMSI's engineer.

f. WMSI's MFR Schedule A-3, page 2 of 2, lists 10 pro forma plant additions. Please identify which of the 10 pro forma plant additions the 5,160 sq. ft. modification, described above, is associated with.

Response: The "5,160 sq. ft. modification" is the gross, total square feet ultimately built as plant addition number 1, Acc. 304, which had an original estimated cost of $336,085. That building addition was always planned to house plant addition number 4, power generation equipment, Acct. 310; plant addition number 5, pumping equipment, Acct. 311; plant addition number 6, water treatment plant (chlorination system), Acc. 320; and plant addition number 9, communication equipment, Acc. 346. As note above, plant addition number 1 on the MFR schedule was modified to include space for all island personnel, all billing and administrative functions, and all storage, in addition to everything that was originally planned for the building.

2) Please refer to WMSI's response to Item 2 of staff's ninth data request, for the following questions.

a. Please provide the costs associated with items 1-33.

Response:
Those costs are as follows:

1. Raising Foundation additional block and labor	$ 1,679
2. Adding 2 Floor Drains	$ 1,276
3. Build up floor in Attic Room	$ 906
4. Garage door upgrade for wind loading	$ 8,248
5. 10" decorative hardie trim around base	$ 1,200
6. Adding 2 exterior doors & emergency release hardware for 3 doors	$ 4,247
7. Angle iron and channel iron added to garage door jam	$ 1,794
8. Adding heavy trusses for attic room	$ 1,399
9. Upgrade of wall sheeting	$ 328

10. Roof sheeting upgrade to 5/8" plywood	$ 529
11. Wall sheeting upgrade to 5/8" plywood	$ 272
12. Added blocking and labor for garage	$ 929
13. Extra labor for blocking all plywood joints on roof	$ 1,624
14. Material for roof blocking	$ 294
15. Sheetrock upgrade from ½" to 5/8"	$ 639
16. 40 extra 2" x 8" x 12" studs in walls	$ 271
17. Extra Labor for adding double studs	$ 271
18. Adding stairs to attic room	$ 812
19. 2" x 6" walls for attic support and tie down	$ 412
20. Adding wall and interior door for conf. room	$ 1,165
21. Added sheetrock for attic room	$ 1,529
22. Wall framing for attic-materials and labor	$ 1,012
23. Additions of heavy plywood & flooring for attic	$ 418
24. Extra labor & materials for adding 10" to walls height	$ 1,176
25. New window to replace door not used	$ 726
26. Cut out and reframe front wall-door to window	$ 471
27. Upgrade to metal roof	$ 12,095
28. Upgrade for 3 phase electrical panel support	$ 600
29. Upgrade to 5/8" plywood for pump room, mech. room, generator room, garage and 2 chlorine rooms	$ 8,949
30. Addition of counter and shelving	$ 2,941
31. Upgrade AC to 5 tons per unit and one additional unit	$ 17,649
32. Upgrade of cabinets and appliances in break room	$ 7,059
33. Upgrade of flooring throughout main bldg.	$ 2,353
Total	$ 85,272

b. Subpart 3 states that "WMSI decided to move its administrative and billing offices to the new plant facility." Please explain why the Utility decided to move its administrative and billing offices. Additionally, please provide all documentation supporting or justifying the Utility's decision to move its administrative and billing offices.

Response: The administrative and billing operations were moved for efficiency and ease of overall operations, including cost savings. WMSI's system operator, who handles all billing and customer relations, is also in charge of all other WMSI operations on the island. That requires her to constantly generate and manage work orders and all of the other island personnel. As the system operator, she has to constantly monitor the control room, located in the new building, to assure that the pumps, wells and chlorination systems are operating properly. She has to monitor and

manage the field personnel, who operate out of the new building. After due consideration and consultation between and among all WMSI employees, it was decided that all WMSI personnel should work out of one location, and that it made no sense to maintain two active offices within two blocks of each other. There is no written documentation from any outside sources. This was a decision made by WMSI's management and employees after verbal consultation with WMSI's engineer.

c. Are the Utility's administrative and billing operations completely switched over to the new facility?

Response: Yes.

d. What does the Utility plan to do with the old administrative and billing offices?

Response: WMSI has rented those offices to Naumann Realty for $1,500 per month, as shown by the lease attached as Exhibit "B."

e. Subpart 15 states that the "structural engineer recommended that all the sheet rock be 5/8" instead of ½"." What was the basis for the structural engineer's recommendation?

Response: After the original contract was signed, a structural engineer, Dave Lansford, determined that the building was being constructed in a category IV hurricane zone, which required it to be built to withstand 140 mph winds, rather than 130 mph as previously planned for a category III building, which was for water treatment facilities for potable water. (See Composite Exhibit "C," on which the engineer notes the 140 mph change.) The engineer insisted the building was in category IV (140 mph) because that category applied to: "Water storage facilities and pump structures required to maintain water pressure for fire suppression." (See the last line of Exhibit "D".) Because that required the building to withstand a 140 mph wind rather than 130 mph, he recommended that the thickness of the sheet rock be increased by 1/8 of an inch based on the category IV classification shown in Exhibit "D".

f. For each item listed in WMSI's response to Item 2, how many are resultant of Change Order No. 1?

Response: None. The 33 items listed in WMSI's response to Item 2 are all related to Change Order No. 1 in that they were all done on the same building described in Change Order No. 1. However, they are all separate, stand alone changes that did not result, and were not a consequence of,

Change Order No. 1. The building was a work in progress, but nothing in Change Order No. 2 resulted from Change Order No. 1.

3) **Please refer to WMSI's response to Item 3, of staff's ninth data request, for the following questions.**

a. Please explain why the length of pipe was increased.

Response: The original contract estimate was based on a map which showed 1,280 feet of 8" PVC pipe. When it was installed, the correct measurement on the ground was 1,295 linear feet, a difference of 15 feet. The change order included those 15 additional feet at $42 plf, or $630. The change order also included a back charge of $7 per linear foot for dewatering related to the original 1,280 linear feet because it had to be installed through several wet areas that do not show on the original map. That came to $8,960 (1280 x 7) for the total charge order of $9,590 (8,960 + 630).

4) **Please refer to WMSI's response to Item 4, of staff's ninth data request, for the following questions.**

a. Please explain why the length of pipe increased.

Response: The map on which the original contract was based showed 5,250 linear feet of 8" pvc in area 6(d). When that pipe was installed, the actual on-the-ground measurement was 5,444 linear feet. Of the 5,444 linear feet, 500 ft. was over a totally wet area which could not be dewatered, so elevated ductile iron pipe had to be used to withstand exposure to the harsh environment. The original contract price for the 5,250 linear feet of 8" pipe was $220,920. After the on-ground measurement of 5,444 linear feet was made, and after 500 linear feet of pvc pipe was deducted for the ductile iron substitution, that left 4,944 linear feet of pvc pipe at $42 per linear feet, or $207,648 for the pvc portion of the job. The 500 feet of ductile iron pipe that was substituted for the pvc pipe was billed at $65 per linear foot, or $32,500, for a total revised price of $240,148 ($32,500 + $207,648). After the original contract price of $220,920 was deducted, that left the change order of $19,228 ($240,148-$220,920).

b. How much of the $19,228 increase was associated with the length of pipe increase?

Response: If you assume that the extra 194 linear feet of pipe (5,444 - 5,250) was all pvc, then the increase associated with the length of pipe

would be $8,148 (194 x $42). That is the more logical assumption, because the 500 ft. wet area was there regardless of the overall length of pipe for the job.

5) **Referring to WMSI's response to Item 5, of staff's ninth data request, WMSI states that it "agreed to purchase a Supervisory Control Data Acquisition (SCADA) system based on a Ladder Logic Control Program."**

a. With whom or what did WMSI specifically agree regarding this decision?

Response: WMSI specifically agreed with its engineer, Les Thomas, and S&S Technical, Inc. of Alpharetta, GA to purchase the SCADA system as part of its overall contract with Withers Coastal Marine Construction, Inc. This was after consultation with other SCADA system vendors and examination of SCADA systems in use by other utilities, including those in the Franklin County area.

b. Please explain why WMSI agreed to purchase the SCADA system.

Response: WMSI's operator lives in Carrabelle and its assistant operator lives in Eastpoint. The water system extends over 18 miles on the island and the 4 wells are across the Bay, and one is over 7 miles from the plant. The Northwest Florida Water Management District requires WMSI to rotate all 4 wells constantly, and restricts the withdrawal rates from the wells in a very specific manner. The water flow and pressure have to be constantly monitored, as well as the rate of chlorination. All of this has to be monitored and coordinated on a 24/7/365 basis, which is almost impossible to do manually. The SCADA system allows WMSI to remotely monitor and control the system to prevent problems and possible outages. It would be irresponsible to try to operate the system without a SCADA system.

c. Please provide any documentation justifying WMSI's decision to purchase the SCADA system.

Response: Attached as Exhibit "E" is a copy of the engineer's specifications on the pump and control system, including the SCADA system, which is an integral part of the pump and control system. These specifications were developed after a great deal of investigation and discussion.

6) **Referring to the Utility's response to Item 6, of staff's ninth data request, WMSI states that it "decided it would be prudent to build the new water line in the state park as requested by the state 10 years earlier while, the funds were available." The Utility's MFR Schedule A-3, page 2 of 2, lists 10 pro forma plant additions. Please identify which of the 10 pro forma plant additions the described new water line is associated with.**

Response: Item 6, relating to the new water line in the state park, is associated with plant addition number 8 in the MFR schedule A-3, entitled "Transmission and Distribution Mains," Acc. 331.

7) **Referring to WMSI's response to Item 8, of staff's ninth data request, the Utility states that it "decided to add a new, state of the art security system." How many security systems did WMSI evaluate prior to deciding on the described security system?**

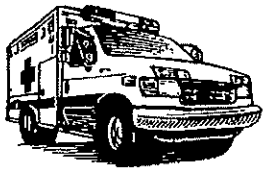
Response: WMSI did not specifically evaluate other security systems.

a. Please provide the cost associated with the other security systems evaluated by the Utility.

Response: N/A

b. If WMSI did not evaluate other security systems, please explain why not.

Response: WMSI relied on its engineer and its contractor regarding the security system. WMSI's management and operators worked with the electrical company which did all of the work on the plant and the SCADA to custom design the security system, which were interconnected. For example, WMSI's operator and assistant operator can view any and all activity insider and outside the building on a real time basis from remote locations using the laptops provided as part of the SCADA system. The function and price of the system appeared proper and reasonable based upon experience with other systems, so no other systems were specifically evaluated for this project.



Emergency
911

Saint George Island
Volunteer Fire Department
First Responders

P.O. Box 682
Eastpoint, FL 32328

Business
850-927-2753

August 10th, 2016

To whom it may concern:

On Saint George Island, we have a unique firefighting situation as we encompass 15 linear miles.

On Saint George Island, our water supply requirements are as follows:

1. Fire hydrants in single-family subdivision areas shall be:
   a. Placed no more than 1000 travel feet from each residence; and
   b. Each capable of delivering a minimum fire flow of 500 gpm with required pressure.
2. Fire hydrants in commercial, multi-family areas shall be:
   a. Spaced no more than 500 travel feet from each structure; and
   b. Each capable of providing a minimum fire flow of 1000 gpm with required residual pressure.

At any given time, we require the ability to utilize fire hydrants at multiple locations while maintaining an approved water supply capable of supplying the required fire flow for fire protection.

With the current pumping capabilities provided to us by Water Management Systems, we are now able to perform our firefighting duties in a safe and efficient manner.

If you have any questions, please do not hesitate to call me at

850-653-6462.

Regards,

Jay Abbott,

Fire Chief. Chief Jay Abbott

EXHIBIT "A"

COMMERCIAL LEASE

THIS LEASE AGREEMENT (the "Lease") made and entered into effect on the first day of April, 2016 by and between **Water Management Services, Inc. ("Landlord")** and **The Naumann Group Real Estate, Inc. ("Tenant").**

WITNESSETH:

1. Premises. Landlord, in consideration of the covenants to be performed by Tenant, and upon the terms and conditions stated, does hereby rent and lease to Tenant, and Tenant does hereby rent and lease from Landlord the following described property:

> **139 W. Gulf Beach Drive, 1st Floor as more particularly described as commercial space consisting of approximately 900 square feet, as shown by the plan attached as Exhibit "A", which shall control if there is a conflict as to the square footage.**

2. Term. To have and to occupy the Premises for a term (the "Lease Term") beginning on the earlier of (i) the **1st day of April 2016** (the "Commencement Date") and ending at midnight on the **31st day of March 2018**, unless sooner terminated; or (ii) ten (10) days after Landlord delivers possession of the Premises to Tenant (the "Commencement Date") Tenant takes and accepts the Premises from Landlord upon the terms and conditions contained in this Lease and as suited for the use intended by Tenant. Before possession is given to Tenant, the Landlord will construct a small hallway and door to the control panel in the area shown as "Not Part of Lease" on Exhibit "A."

The term "Lease Term" shall mean a period of twenty four (24) consecutive full calendar months. The first Lease Term shall commence on the Commencement date if the Commencement date shall occur on the first day of the calendar month; if not, then the first Lease Term shall commence upon the first day of calendar month next following the Commencement Date and shall include the period between the Commencement Date and the first day of the next following calendar month.

3. Option; Renewal Term. The Tenant shall have one (1) option to renew this Lease for an additional term of three (3) years, (the "Renewal Terms"), provided that:

a. Tenant notifies Landlord, in writing, of Tenant's desire to exercise the option, by certified mail, at least 180 days prior to the expiration date of the then-effective term. Tenant's failure to timely exercise any option of renewal shall cause the automatic extinguishment of such option, and all succeeding options, time being of the essence; and

b. Tenant is not then in default under any of the terms and conditions of this Lease provided, however, that if Landlord contends that Tenant is in default at the time Tenant attempts to exercise this option, Tenant shall have the time permitted under this

Lease within which to cure such default, and if cured within that time, Tenant's notice of exercise shall be deemed timely given; and

c. The Renewal Terms shall be consistent with all terms, covenants and conditions of this Lease, except that Annual Fixed Rent shall be increased by five percent (5%) during the last three years of the lease if the Lease is extended. All additional renewal terms will be negotiated between Tenant and Landlord.

4. Notices. Notices or other communications that may be or are required to be given under this Lease shall be in writing and shall be deemed to have been properly given if delivered in person, or sent by overnight commercial courier, or by registered or certified mail, return receipt requested, to the address set out below, or such other address as may be specified by written notice:

Landlord:	**Water Management Services, Inc.** **250 John Knox Road, #4** **Tallahassee, FL 32303**
Tenant:	**The Naumann Group Real Estate, Inc.** **2050 Capital Circle NE** **Tallahassee, FL 32308**

For purposes of this Lease, the time of actual delivery, if delivery should be made in person or by overnight commercial courier, or three days after the date of postmark, if by mail, shall be deemed the date of receipt of any notice or delivery. Rejection or other refusal to accept or inability to deliver because of changed address for which no notice was given shall be deemed to be receipt of such notice or delivery.

5. Monthly Rental.

5.1 Rent. Tenant agrees to pay Rent the amount shown on the **Information Sheet**. Rent shall be payable in advance on the first day of each full calendar month for which rent is due, or on the day Tenant is first obligated to pay rent if not the first day of a calendar month, in which case the monthly payment shall be prorated for the number of days in the month. If Rent is not paid by the fifth day of the month such installment is due, Tenant shall pay a late charge of five percent of the installment to defray Landlord's added expense of bookkeeping and collection.

5.2 Real Property Taxes. Landlord shall be responsible for Franklin County Real Property Taxes.

5.3 Lease Sales Tax. Tenant shall pay State Sales Tax.

5.4 Merchants' Association. N/A

5.5 Deposit. As indicated on the information sheet Tenant shall deposit with Landlord an amount equal to one month's Rent, which shall be a security deposit and not a prepayment of rent. Any deposit held by Landlord may be applied by Landlord to any sums owed by Tenant to Landlord in the event of default; however, such application of the deposit shall not cure the default but is intended only to reduce Landlord's damages. Deposit shall be refunded to the Tenant within 30 days of the termination of the Lease, provided Tenant is not in default of the Lease. In the event ownership of the Premises changes during the term of the Lease, the Deposit shall be assigned to the new Owner and the Landlord shall be released from liability for the return of same.

5.6 Collection. Any rent or other payments to Landlord not paid when due shall be subject to interest at the statutory rate annually. Tenant shall be responsible for all costs of collection, including attorney's fees, whether or not suit is brought. Tenant acknowledges that the late payment by Tenant to Landlord of monthly rental, or other sums due under this Lease, will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult to ascertain. Accordingly, if any installment of rent, or of a sum due from Tenant, shall not be received by Landlord within five (5) days of the date when due, then Tenant shall pay to Landlord a late charge equal to five (5%) percent of such overdue amount. The parties agree that such late charges represent a fair and reasonable estimate of the cost that Landlord will incur by reason of the late payment by Tenant. Acceptance of late charges by Landlord shall in no event constitute a waiver of Tenant's default with respect to any overdue amount, nor prevent Landlord from exercising any of the other rights and remedies granted in this Lease. Tenant acknowledges that no notice is required for assessment by Landlord of late charges.

5.7 The first month's rent shall be paid simultaneously with the execution of this Lease. Thereafter, each monthly rental installment will be due and payable without demand in advance on or before the first day of each succeeding calendar month during the Lease Term. If the Commencement Date shall be a date other than the first day of a calendar month, rental for the portion of that month shall be prorated. Rental shall be deemed paid only when received at the office of Landlord.

Tenant acknowledges that the late payment by Tenant to Landlord of monthly rental, or other sums due under this Lease, will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult to ascertain. Accordingly, if any installment of rent, or of a sum due from Tenant, shall not be received by Landlord within five (5) days of the date when due, then Tenant shall pay to Landlord a late charge equal to five (5%) percent of such overdue amount. The parties agree that such late charges represent a fair and reasonable estimate of the cost that Landlord will incur by reason of the late payment by Tenant. Acceptance of late charges by Landlord shall in no event constitute a waiver of Tenant's default with respect to any overdue amount, nor prevent Landlord from exercising any of the other rights and remedies granted in this Lease. Tenant acknowledges that no notice is required for assessment by Landlord of late charges.

6. Use of Premises. The Premises shall be used for any and all real estate related activities including, but not limited to real estate sales office, real estate investments and/or development, and for no other purpose without express consent of Landlord, and shall not be used for any illegal purposes, or in violation of any regulation of any governmental body having

jurisdiction, nor in any manner to create a nuisance to other tenants. Tenant agrees to obtain at Tenant's expense any and all licenses and permits necessary for its use and occupancy of the Premises. Tenant agrees not to receive, store or otherwise handle any product, material or merchandise which is explosive or highly inflammable, nor in any manner to vitiate the insurance on the Premises. In no event shall any activity be carried out on the Premises which shall emit smoke, noxious odors, dust, or loud noises, unless the Premises are properly designed and approved by Landlord in writing to provide adequate protection for same. Tenant will return the keys and deliver possession of the Premises to Landlord at expiration of this Lease in the same condition as on the Commencement Date, reasonable wear and tear excepted.

7. Use Restrictions. Tenant agrees not to operate a restaurant.

8. Utility Charges. Tenant shall promptly pay as and when due and payable, all rents, rates and charges for electricity, gas and other utilities supplied to the Premises or used by Tenant in connection with the Premises. Charges shall be prorated based on Tenant's usage of building and will be payable within 15 days notification from Landlord in writing of prorated amount. Water and sewer is provided by the landlord.

9. Real Estate Taxes. Landlord will pay all real estate taxes, assessments or other governmental charges (collectively the "Assessments") which may be levied or assessed by any lawful authority against the Premises.

10. Alterations. Landlord consents to Tenant's initial proposed improvements to the space, including but not limited to removal and upgrade of interior wall, flooring, paint, and trim. Otherwise, no alterations, additions, or improvements in or to the Premises shall be made without the prior written consent of Landlord. Unless Landlord agrees in writing to the contrary, all alterations, additions or improvements made in or upon the Premises by the Tenant shall become the sole property of Landlord, and shall remain in or upon the Premises at the expiration of the Lease Term. Provided Tenant is not in default under this Lease at the expiration of the Lease Term, Tenant shall have the right to remove any of Tenant's fixtures, machines, or equipment from the Premises, provided, however, that Tenant shall repair and restore any damage caused to the Premises by the installation, removal and/or use of said fixtures, machines or equipment.

11. Repairs and Maintenance. Tenant shall, at Tenant's expense, maintain, protect and preserve the Premises in good, clean, order and condition and shall make all required repairs and replacements to the Premises in order to effectuate same. Additionally, Tenant shall be responsible for compliance with any law, statute, ordinance, rule, regulation or governmental authority or insurance carrier for all additions and improvements to the property made by the Tenant. Landlord shall be responsible for all structural repairs and replacements (including any repairs, replacements, additions or alterations required by any law, statute, ordinance, rule, regulation or governmental authority or insurance carrier) as and when needed, including, but not limited to, air conditioning, heating equipment, plumbing equipment, and electrical installations. All repairs and replacements shall be to code, equal in quality to the original work and shall be completed in a good and workmanlike manner.

Covenant against Liens. Tenant shall do all things necessary to prevent the filing of any mechanic's or other lien against the Premises, or any portion of the Premises, by reason of any work, labor, services or materials performed or supplied, or claimed to have been performed or supplied to Tenant or anyone holding the Premises or any part thereof through or under Tenant. If any such lien shall at any time be filed, Tenant shall either cause the same to be vacated and cancelled of record within thirty (30) days after the filing, or if Tenant in good faith determines that such lien should be contested, Tenant shall furnish such security as may be necessary or prescribed by law to release the same as a lien against the Premises and to prevent any foreclosure of any such lien during the pendency of such contest. Tenant agrees to indemnify, defend, and hold Landlord harmless from and against any and all loss, cost, or expense, including reasonable attorney's fees, based upon or arising out of such liens caused by the Tenant. Although Landlord shall not be required to discharge any such lien, should Landlord choose after giving Tenant thirty (30) days notice, Landlord is authorized, in its sole discretion, to take such actions as are necessary to vacate or cancel such lien, and Tenant shall immediately pay Landlord all sums reasonably expended by Landlord in so doing, as additional rent.

12. Damage or Destruction.

a. If the Premises are totally destroyed, or are so substantially damaged as to be untenantable, by fire, lightning, earthquake, windstorm, or other casualty, Landlord shall repair or restore the Premises within a reasonable time, after receipt of written notice of the damage, but only to the extent and availability of insurance proceeds; provided, however, the Landlord shall not be required to rebuild, repair or replace any part of the alterations, additions, improvements, equipment or machinery which may have been placed on the Premises by Tenant. Until such repairs are made, rent shall abate from the date of casualty until the date that Landlord's repairs or restoration is complete. In no event shall rent abate, however, if damage or destruction of the Premises is the result of the negligence of Tenant, or its representatives, agents, employees, or invitees.

b. If the Premises, or any part, are damaged but not rendered untenantable by any casualty, Landlord shall repair the Premises within a reasonable time after receipt of written notice thereof, but only to the extent and availability of insurance proceeds; provided, however, that Landlord shall not be required to rebuild, repair or replace any part of the alterations, additions, improvements, equipment or machinery which may have been placed on the Premises by Tenant. Until such repairs are made, the rent shall be reduced in proportion to the area of the Premises which cannot be used or occupied by Tenant as a result of such casualty. In no event shall rent abate nor shall any termination occur if damage to or destruction of the Premises is the result of negligence of Tenant, or its representatives, agents, employees or invitees.

c. Tenant shall not make any use of the Premises which would make void or voidable any policy of fire or extended coverage insurance insuring the Premises, and if by reason of any use by Tenant of the Premises the premiums on the insurance policies maintained by Landlord shall be increased over normal rates for this type of building, the amount of the increase in the premium shall be paid by Tenant to Landlord upon receipt of a statement from Landlord and verification of the increased premiums.

13. Eminent Domain. If all or substantially all of the Premises are taken by any legally constituted authority for public or quasi-public use, eminent domain or by private purchase in lieu thereof, then in either of said events, this Lease shall terminate at Landlord's option on the date that actual possession is taken by public authorities, and rental shall be accounted for between Landlord and Tenant as of that date. If the portion of the Premises remaining after such condemnation proceedings shall be suitable for Tenant's use the rent payable by Tenant after the taking shall be reduced by the same percentage as the rentable area of the space taken bears to the total rentable area originally in the Premises. It is agreed that Tenant shall not have any right or claim to any part of any award of compensation made to or received by Landlord for such taking. This Lease provision shall not be construed to preclude Tenant from prosecuting any claim directly against the condemning authority for loss; provided, however, that no such claim shall diminish or adversely affect Landlord's award.

14. Insurance and Liability.

a. Tenant does hereby agree to indemnify and save Landlord harmless from and against liability for injury to any person or persons, or damage to property, in any way arising out of, or connected with Tenant's use or occupancy of the Premises, or in any way caused in whole or in part by an act or omission of Tenant, its agents, employees, licensees, or invitees, and from all costs, expenses and liabilities, including but not limited to, reasonable attorneys fees incurred by Landlord in connection therewith, unless caused by the affirmative negligence or wilful misconduct of Landlord or Landlord's agents.

b. Landlord shall not be liable to Tenant in any manner whatsoever for damage to person or property caused by defects in the cooling, heating, electric, water or other apparatus or systems at the Premises; nor for the theft, disappearance or loss of any property of Tenant from the Premises.

c. During the term of this Lease Tenant shall carry fire and extended coverage insurance insuring Tenant's interest in its improvements to the Premises and any and all furniture, equipment, supplies and other property owned, leased, held or possessed by Tenant, and contained within the Premises, in an amount equal to the full insurable values thereof.

d. During the term of this Lease, Tenant shall keep in effect with insurance companies satisfactory to Landlord, legally authorized to transact business in the State of Florida, property & casualty, public liability insurance, on an occurrence basis, including personal injury coverage, for the benefit of Landlord and Tenant, with limits for personal injury or death of not less than $100,000.00 for any accident affecting any one person; and not less than $100,000.00 for any accident affecting more than one person; and not less than $100,000.00 for property damage. A **Certificate of Insurance** shall be furnished to Landlord which shall provide that all of the Landlord's losses to the limit of the policy will be reimbursed by any insurance proceeds, and all liability claims against Landlord resulting from Tenant's business will be defended by Tenant or its insurance carrier at no cost to Landlord. Tenant agrees that it will not cancel any of the above-mentioned policies, or allow any policy to lapse without delivering to Landlord a

certificate indicating equal or greater coverage written by an insurance company acceptable to Landlord. Tenant, prior to occupancy of the Premises, shall cause to be delivered to Landlord the certificates of insurance required by this paragraph.

15. Waiver of Subrogation. In the event either Landlord or Tenant sustains a loss by reason of fire or other casualty which is or could have been covered by a fire and extended coverage insurance policy, and such fire or other casualty is caused in whole or in part by acts or omissions of the other party, its agents, employees, licensees, or invitees, then the party incurring such loss agrees to look solely to its fire and extended coverage insurance proceeds (if any), and such party shall have no right of action against the other party to this Lease, its agents, employees, licensees, or invitees of such other party, and no third party shall have any right by way of assignment, subrogation or otherwise. If the inclusion in this Lease of this "Wavier of Subrogation" results in an increase in the fire insurance premiums of either party, then the other party, within ten (10) days after written request, will either pay the amount of such increase or be deemed to have waived the benefits of this provision.

16. Subordination.

a. This Lease and all rights of Tenant under this Lease are and shall be subject and subordinate to the lien of any mortgage, deed to secure debt, deed of trust or other security instrument which may now or hereafter affect Landlord's or its successor's interest in the fee title or leasehold estate to the Premises. In confirmation of such subordination, Tenant shall upon request execute, acknowledge and deliver to Landlord without expense to Landlord, all instruments that may be requested by Landlord to evidence the subordination of this Lease and all rights of Tenant under this Lease to the lien of any such mortgage, deed to secure debt, deed of trust or other security instrument.

b. If the holder of any deed to secure debt, or other security instrument, or any purchaser at a sale, whether such sale shall be pursuant to the exercise of any power of sale contained in any security deed or security instrument or through judicial proceedings, or otherwise, shall hereafter succeed to the rights of Landlord under this Lease, at the option of such purchaser, purchaser may deliver a new lease containing the same terms and conditions as this Lease except that the Commencement Date of such new lease shall be the date of execution of such new lease by all parties. In the event any such purchaser does not request execution of a new lease, then and in that event Tenant shall attorn to and recognize such successor as Tenant's landlord under this Lease, and shall promptly execute and deliver any instrument that may be necessary to evidence such attornment. Upon attornment provided herein, this Lease shall continue in full force and effect as a direct lease between such successor landlord and Tenant, subject to all of the terms, covenants and conditions of this Lease, and Tenant's terms and conditions shall not be changed, modified, or amended due to subordination or attornment.

17. Subletting or Assignment. Tenant may assign or sublet the Premises only with the prior written consent of Landlord. Notwithstanding any permitted assignment or subletting, Tenant shall at all times remain fully responsible and liable for the payment of the rent and other charges, and for compliance with all of Tenant's obligations under the terms and conditions of this Lease. "Assignment and Subletting" shall include (i) any voluntary or involuntary transfer

of Tenant's interest; (ii) any merger, consolidation or liquidation involving the Tenant; and (iii) any substantial sale of assets. As to any proposed assignments, Tenant shall provide Landlord, at the time any consent is requested, the name of the proposed assignee, the terms of the assignment, information regarding the net worth of the assignee and current financial statements, and information regarding the experience and qualifications of the assignee.

18. Holding Over. If Tenant remains in possession of the Premises at the expiration of the term of this Lease, without a written extension or a renewal lease agreement between the parties, Tenant shall be deemed to be a tenant at will from month to month. Rental during the hold over period shall be at a rental rate equal to one hundred fifty percent (150%) of the effective rental rate at the end of the Lease term, and there shall be no renewal of this Lease by operation of law.

19. Defaults and Remedies.

a. The following events shall be deemed to be events of default by Tenant under this Lease ("Event(s) of Default"):

i. Tenant shall fail to pay any installment of monthly rental, additional monthly rental or any other charge or assessment against Tenant pursuant to the terms of this Lease within five (5) days after the date when due;

ii. Tenant shall fail to comply with any term, provision, covenant or warranty made under this Lease by Tenant, other than the payment of monthly rental or additional monthly rental or any other charge or assessment payable by Tenant, and shall not cure such failure within fifteen (15) days after notice thereof to Tenant;

iii. Tenant or any guarantor of this Lease shall become insolvent, or shall make a transfer in fraud of creditors or shall make an assignment for the benefit of creditors;

iv. Tenant or any guarantor of this Lease shall file a petition under any Section or Chapter of the National Bankruptcy Act, as amended, or under any similar law or statute of the United States or any State, or there shall be filed against the Tenant or any guarantor of this Lease a petition in bankruptcy or insolvency or a similar proceeding, or Tenant or any guarantor shall be adjudicated bankrupt or insolvent in proceedings filed against Tenant or any Lease guarantor;

v. A receiver or trustee shall be appointed for the Premises or for all or substantially all of the assets of Tenant or any guarantor of this Lease;

vi. Tenant shall abandon or vacate all or any portion of the Premises or fail to take possession as provided in this Lease; or

vii. Tenant shall do or permit to be done anything which creates a lien upon the Premises.

b. Upon the occurrence of any Event of Default, Landlord shall have the option to pursue any one or more of the following remedies without any notice or demand whatsoever:

i. Terminate this Lease, in which event Tenant shall immediately surrender the Premises to Landlord and, if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying said Premises or any part thereof, without being liable for prosecution or for any claim of damages, Tenant hereby agreeing to pay to Landlord, on demand, the amount of all loss and damage which Landlord may suffer by reason of such termination, whether through inability to relet the Premises on satisfactory terms or otherwise;

ii. Enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying said Premises or any part thereof, without being liable for prosecution or for any claim for damages, and if Landlord so elects, relet the Premises on such terms as Landlord may deem advisable and receive the rent, Tenant hereby agreeing to pay to Landlord, on demand, any deficiency that may arise by reason of such reletting;

iii. Enter upon the Premises without being liable for prosecution or for any claim of damages, and do whatever Tenant is obligated to do under the terms of this Lease, and Tenant agrees to reimburse Landlord, on demand, for any expenses, including, without limitation, reasonable attorneys' fees, which Landlord may incur in thus effecting compliance with Tenant's obligations under this Lease, and Tenant further agrees that Landlord shall not be liable for any damages resulting to Tenant for such action, whether caused by the negligence of Landlord or otherwise.

c. Pursuit by Landlord of any of the above remedies shall not preclude pursuit of any other remedy provided in this Lease or any other remedy provided by law or at equity, nor shall pursuit by Landlord of any remedy in this Lease constitute:

i. An election of remedies thereby excluding the later election for an alternate remedy; or

ii. Forfeiture or waiver of any monthly rental, additional monthly rental or other charges and assessments payable by Tenant and due to Landlord or of any damages accruing to Landlord by reason of the violation of any of the terms, covenants, warranties and provisions of this Lease. No action taken by or on behalf of Landlord shall be construed to be an acceptance or a surrender of this Lease. Forbearance by Landlord to enforce one or more of the remedies provided upon an Event of Default shall not be deemed or construed to constitute a waiver of such default. In determining the amount of loss or damage which Landlord may suffer by reason of termination of this Lease or the deficiency arising by reason of any reletting of the Premises by Landlord as above provided, allowance

shall be made for expense of repossession and any repairs or remodeling undertaken by Landlord following repossession. Tenant agrees to pay to Landlord all costs and expenses incurred by Landlord in the enforcement of this Lease, including reasonable attorney's fees where attorneys are employed by Landlord to effect collection of any sums due hereunder or to enforce any right or remedy of Landlord.

d. Tenant hereby appoints as its agent to receive service or notices of all dispossessory or distress proceedings, the person in charge of the Premises at that time. If no person is then in charge of the Premises, then such service or notice may be made by attaching same to the entrance of the Premises, provided that copy of such service, proceedings or notices, shall be mailed to Tenant at the address as indicated above.

20. Covenants of Tenant. Tenant covenants at its expense, and at all times during the Lease Term and such further time as Tenant occupies the Premises or any part thereof pursuant to the terms of this Lease:

a. To promptly comply with and cause the Premises and Tenant's employees to comply in all material respects with all laws, rules, ordinances and regulations of the municipality, county and state in which the Premises are located, of the federal government, of any department of bureau of any of them, and of any other governmental authority having jurisdiction over the Premises, which shall impose any duty on Landlord or Tenant with respect to the use, occupancy or alteration of the Premises, or Tenant's business conducted therein.

b. Not to abandon or vacate the Premises during the Lease Term.

c. With respect to the period beginning on the Commencement Date, and extending throughout the Lease Term, to defend, indemnify and hold Landlord harmless of and from any and all losses, damages, claims, costs, fees, penalties, fines and expenses, including reasonable attorney's fees, arising out of any claim asserted by any person, organization, or body against Landlord or the Premises, as a result of the handling, generation, treatment, storage, disposal, release, spill or omission of any hazardous or toxic substances or wastes or contaminants on, at or about the Premises, which occurs after the Commencement Date.

d. To allow Landlord, at any time upon reasonable notice, to inspect the Premises during normal business hours to determine compliance with the terms of this Lease.

21. Covenants of Landlord. Landlord covenants at its expense and at all times during the Lease Term as follows:

a. So long as Tenant pays the rent provided in this Lease and perform the covenants on his part to be performed, Tenant shall and may peaceably have, hold and enjoy the Premises throughout the Lease Term.

b. With respect to the period prior to the Commencement Date, Landlord will defend and hold Tenant harmless of and from any and all losses, damages, claims, costs, fees, penalties, fines and expenses, including reasonable attorney's fees, arising out of any claim asserted by any person, organization, or body against Landlord or the Premises, as a result of the handling, generation, treatment, storage, disposal, release, spill or omission of any hazardous or toxic substances or wastes or contaminants on, at or about the Premises, which occurred prior to the Commencement Date.

22. Miscellaneous Provisions.

a. Tenant agrees that all personal property brought into the Premises shall be at the risk of the Tenant only, and that the Landlord shall not be liable for theft or damage.

b. If Tenant fails to remove all goods, wares, equipment, fixtures, furniture, inventory, records, files or other personal property situated on the Premises at the termination of this Lease, Landlord may, at its option, remove all or part of said property in any manner that Landlord shall choose and store or dispose of same without liability for loss. Tenant shall be liable to Landlord for all expenses incurred in such removal and/or storage of said property.

c. All rights, powers and privileges conferred upon the parties shall be cumulative but not restrictive of those given by law.

d. The captions used in this Lease are for convenience only and do not in any way to limit or amplify any terms and provisions.

e. One or more waivers of any covenant, term or condition of this Lease by either party shall not be construed as a waiver of any subsequent breach of the same covenant, term or condition. The consent or approval by either party to or of any act by the other party requiring such consent or approval shall not be deemed to waive or render unnecessary consent to or approval of any subsequent similar act.

f. This Lease contains the entire agreement of the parties and no representation or agreements, oral or otherwise, between the parties not embodied in this Lease shall be of any force or effect.

g. Time is of the essence of this Lease.

h. This agreement shall create the relationship of Landlord and Tenant between the parties. No estate shall pass out of Landlord; Tenant has only a usufruct, not subject to levy and sale.

i. Tenant agrees, at its own expense, to promptly comply with all requirements of any legally constituted public authority made necessary by reason of tenant's occupancy of said Premises.

j. Tenant represents and warrants to Landlord that no broker, agent, commission salesman or other person has represented Tenant in the negotiations for procurement of this Lease and of the Premises and Tenant does and shall agree to indemnify and hold Landlord harmless from and against any and all loss, cost, damage, claim and demand, meritorious or otherwise, for or from any fees, commissions, payments or expenses due or alleged to be due to any broker, agent, commission salesman or other person purporting to represent Tenant in connection with this Lease, the Premises, or the negotiations therefor.

k. This Lease is made and intended as a contract under and pursuant to the laws of the State of Florida, and the parties consent to the jurisdiction and venue of Franklin County, Florida.

l. If any clause or provision of this Lease is or becomes illegal, invalid or unenforceable because of present or future laws, rules or regulations of any governmental body, or becomes unenforceable for any reason, the intention of the parties is that the remaining parts of this Lease shall not be thereby affected.

m. In the event of a sale or conveyance by Landlord of the Premises, the same shall operate to release Landlord from any future liability upon any of the covenants or conditions, express or implied, herein contained in favor of Tenant, and in such event Tenant agrees to look solely to the successor in interest of Landlord in and to this Lease. Tenant agrees to attorn to the purchaser or assignee in any such sale.

n. Tenant reserves the right to terminate this agreement within 30 days from the execution of this agreement. Full refund of any deposit or rents paid will be granted. Tenant will not make any alterations to the premises until this contingency period has been satisfied.

o. Tenant will be granted four (4) designated parking spaces directly in front of leased space.

23. Signage. Tenant is entitled to signage using existing monument sign on W. Gulf Beach Drive and is hereby granted permission to put signage on the rear of the building pursuant to Franklin County sign ordinances. All signage will be at the expense of the Tenant.

GUARANTY

FOR VALUE RECEIVED, and in consideration for and as an inducement to:

Water Management Services, Inc., as Lessor, for entering into the lease (the "Lease") dated as of the 11th day of February, 2016, with **The Naumann Group Real Estate, Inc.**, as Lessee, the undersigned (the "Guarantors") hereby agree as follows:

1. Guarantors hereby unconditionally and irrevocably guarantee the full and complete performance by Lessee of Lessee's obligations under the Lease during the Lease term.

2. Guarantors hereby waive demand, protest, notice of any indulgence or extensions granted to Lessee, any requirements of diligence or promptness on the part of Lessor in the enforcement of the Lease, and any notice thereof.

3. The liabilities of Guarantors shall in no way be affected by: (i) the release or discharge of Lessee in any receivership or bankruptcy proceeding; (ii) any alteration or amendment to the Lease which alteration or amendment has been consented to in writing by Guarantors; (iii) any permitted sale, assignment or sublease; or (iv) any application or release of any security or guaranty given for the performance and observance of the covenants and conditions of the Lease on Lessee's part to be performed and observed.

4. This Guaranty shall inure to the benefit of the Lessor and its successors and assigns, and any assignee of the Lessor's interest in the Lease, and shall be binding upon Guarantors and their successors and assigns.

5. This Guaranty may not be changed or terminated orally, but only by written amendment thereto.

IN WITNESS WHEREOF, Guarantors have executed this Guaranty under their hand and seal this 16th day of February, 2016

Kate Fuller

Alison Strait

TENANT:

The Naumann Group Real Estate, Inc.

Signature

Jason Naumann

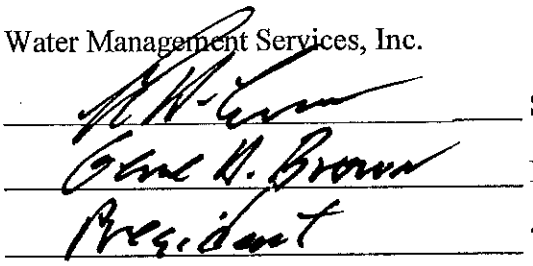
Print name

President

Title

LANDLORD:

Water Management Services, Inc.



_____ Signature

_____ Print Name

_____ Title

INFORMATION SHEET

Landlord: Water Management Services, Inc.

Tenant: <u>The Naumann Group Real Estate, Inc.</u>

1. Name of Business: The Naumann Group Real Estate, Inc.

2. Type of Business and Use of Premises: Any and all real estate activities including, but not limited to real estate sales office, real estate investments and/or development.

3. Description of Leased Premises: 1st Floor of 139 W. Gulf Beach Drive, approximately 900 square feet.

4. Date of Permitted Occupancy "Commencement Date" Landlord shall deliver the Premises to the Tenant on or before commencement date completed and fully operational as to the Landlord's specifications

5. Tenant improvements to the Premises include, but are not limited to: removal of interior wall, flooring, paint, and trim. Improvements to be made at Tenant's expense.

6. Initial Term of Lease is Twenty-Four months (2) Lease Years(s)

7. Option to Renew: Landlord allow for one (3) three year options on renewal. This may be arbitrarily withheld upon terms to be determined at the end of the initial term. Rent shall be negotiated at the time of renewal.

8. Charges: **<u>Total annual/monthly payment:</u>**

a) Current Rent on Premises is **$18,000.00** for Year #1 and paid in monthly installments of **$1,500.00 (One Thousand, Five Hundred Dollars and 00/100).**

b) The first full month's rent shall be due and payable upon execution of the Lease.

c) The Rent for the last 3 years of the Lease Term shall increase 5% if the lease is extended. If tenant exercises their right to extend said lease term, the base rent will be negotiated.

d) Current Deposit, (Equal to one month of rent) shall be due and payable upon execution of the Lease. Total deposit required upon execution **$1,500.00.**

e) State Sales Tax: Tenant will pay an additional $1,350 annually or $112.50 per month for state sales tax. The Landlord will be responsible for making sure it is paid on time and in accordance with state law.

f) Total Payment: Total monthly payment including State Sales Tax and Base Rent is $1,612.50.

Tenant hereby agrees to the terms of said lease and therefore duly executes as indicated below:

TENANT:

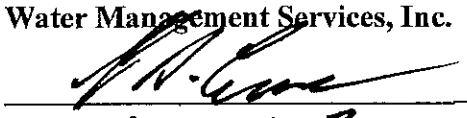
The Naumann Group Real Estate, Inc.

_____ **Signature**

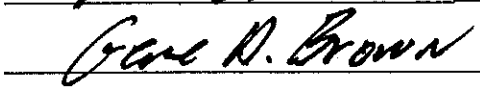
_____ **Print name**

LANDLORD:

Water Management Services, Inc.



_____ **Signature**



_____ **Print Name**

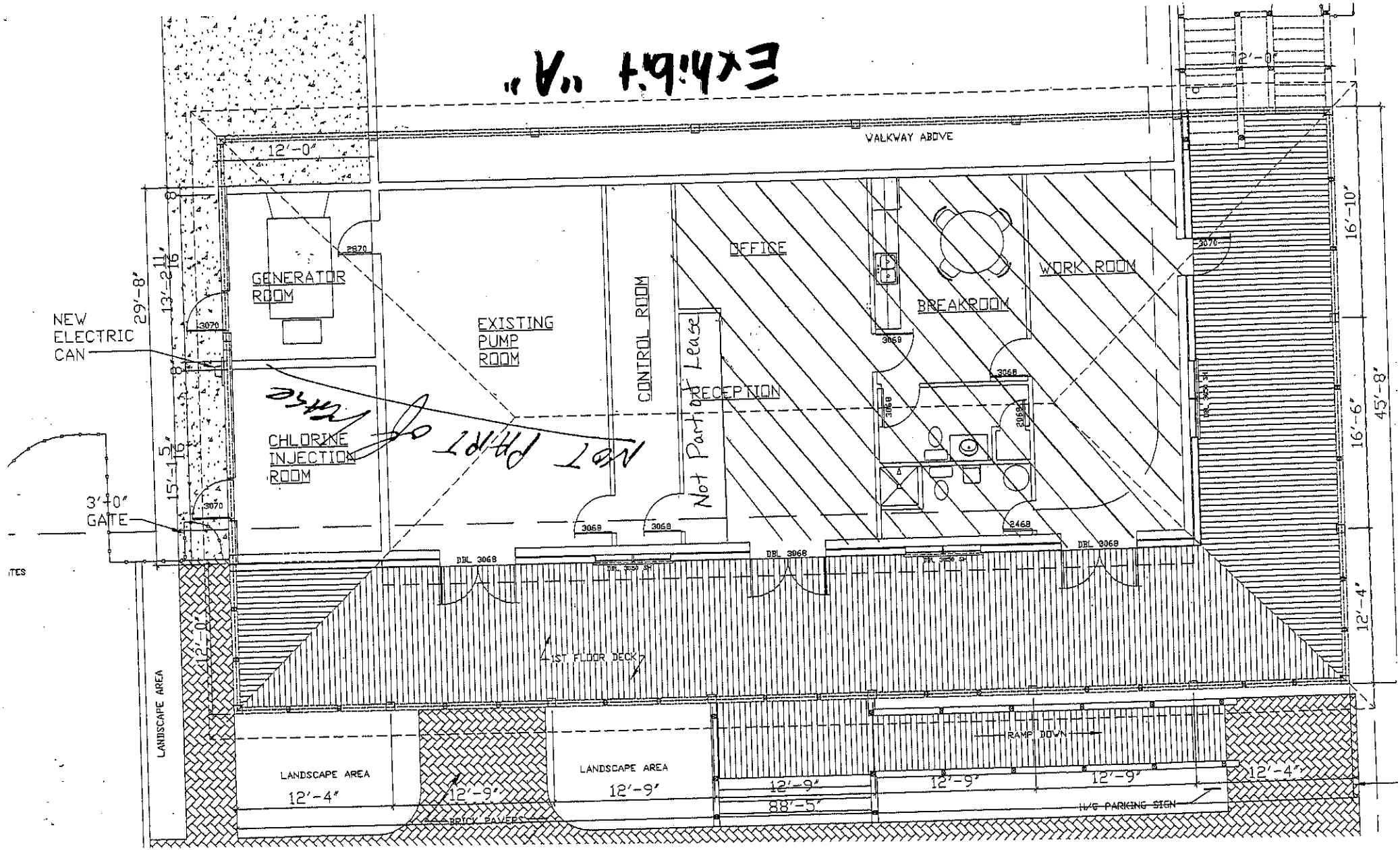


Exhibit "A"
WALKWAY ABOVE
12'-0"
GENERATOR ROOM
EXISTING PUMP ROOM
CONTROL ROOM
OFFICE
WORK ROOM
BREAKROOM
RECEPTION
Not Part of Lease
Not Part of Lease
CHLORINE INJECTION ROOM
NEW ELECTRIC CAN
3'-0" GATE
29'-8"
13'-2 11/16"
15'-1 5/16"
16'-10"
16'-6"
45'-8"
12'-4"
1ST FLOOR DECK
LANDSCAPE AREA
LANDSCAPE AREA
12'-4"
LANDSCAPE AREA
12'-9"
12'-9"
12'-9"
12'-9"
12'-4"
88'-5"
BRICK PAVERS
RAMP DOWN
H/C PARKING SIGN
DBL 3068
3068
3070
2068
2468

XFINITY Connect

gdb5@comcast.net
+ Font Size -

Questions

From : DAVID LANSFORD <dklansford@embarqmail.com> Thu, Aug 11, 2016 11:21 AM

Subject : Questions

To : Gene Brown <gdb5@comcast.net>

Cc : Ben Withers <ben2361@aol.com>

To whom it may concern,
questions have been raised concerning the change from 1/2" sheet rock to 5/8" sheet rock and roof decking from 5/8" to 3/4". When the Category Rating was changed from Cat. III to Cat. IV this changed the fire rating requirement and the wind load requirement. These changes resulted in increased thicknesses as noted.
William David Lansford, P.E. #59970

Composite Exhibit "C"

William David Lansford, #59970
26 Crum Dr.
Panacea, Fl 32346
850 984 4435

DAT IV

JOB TITLE SGI Water System Modification
Revised ~~3 Jan 2015~~
JOB NO. 4 FEB 2015 SHEET NO.
CALCULATED BY WDL DATE 9/13/14
CHECKED BY DATE

www.struware.com

CODE SUMMARY

Code: ASCE 7 - 10

Live Loads:

Roof	0 to 200 sf:	20 psf
	200 to 600 sf:	24 - 0.02Area, but not less than 12 psf
	over 600 sf:	12 psf
Typical Floor		50 psf
Partitions		N/A

Dead Loads:

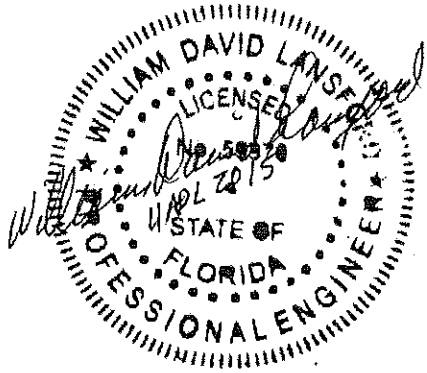
Floor	215.0 psf
Roof	20.0 psf

Wind Design Data:

Ultimate Design Wind Speed	140 mph
Nominal Design Wind Speed	108.44 mph
Risk Category	IV
Mean Roof Ht (h)	
Exposure Category	C
Enclosure Classif.	
Internal pressure Coef.	+/-0.18
Directionality (Kd)	0.85

Roof Snow Loads:

Design Uniform Roof Snow load	=	0.0 psf
Flat Roof Snow Load	Pf =	0.0 psf
Balanced Snow Load	Ps =	0.0 psf
Ground Snow Load	Pg =	0.0 psf
Importance Factor	I =	1.20
Snow Exposure Factor	Ce =	1.00
Thermal Factor	Ct =	1.00
Sloped-roof Factor	Cs =	0.79



Earthquake Design Data:

Risk Category	=	IV
Importance Factor	I =	1.50
Mapped spectral response acceleratic	Ss =	160.00 %g
	S1 =	50.00 %g
Site Class	=	D
Spectral Response Coef.	Sds =	1.067
	Sd1 =	0.500
Seismic Design Category	=	D
Basic Structural System	=	Bearing Wall Systems
Seismic Resisting System	=	Ordinary reinforced concrete shear walls
Design Base Shear	V =	0.070W
Seismic Response Coef.	Cs =	0.070
Response Modification Factor	R =	4
Analysis Procedure	=	Equivalent Lateral-Force Analysis

William David Lansford, #59970
26 Crum Dr.
Panacea, Fl 32346
850 984 4435

JOB TITLE SGI Water System Modification
Revised 5 Jan 2015
JOB NO. 4 FEB 2015 SHEET NO.
CALCULATED BY WDL DATE 9/13/14
CHECKED BY DATE

CODE SUMMARY- continued

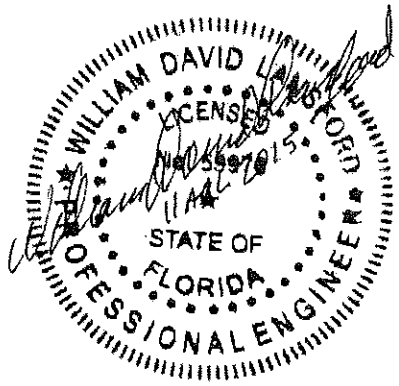
Component and cladding ultimate wind pressures

Roof	Surface Pressure (psf)		
Area	10 sf	50 sf	100 sf
Negative Zone 1	-44.6	-41.7	-40.5
Negative Zone 2	-77.6	-63.2	-57.0
Negative Zone 3	-77.6	-63.2	-57.0
Positive All Zones	28.1	22.3	19.8
Overhang Zone 2	-90.8	-90.8	-90.8
Overhang Zone 3	-90.8	-90.8	-90.8

Overhang soffit pressure equals adjacent wall pressure reduced by internal pressure of 7.4 psf

Parapet	Solid Parapet Pressure (psf)		
Area	10 sf	100 sf	500 sf
CASE A: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0
CASE B: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0

Wall	Surface Pressure (psf)		
Area	10 sf	100 sf	500 sf
Negative Zone 4	-52.8	-45.5	-40.5
Negative Zone 5	-65.2	-50.6	-40.5
Positive Zone 4 & 5	48.7	41.4	36.3



William David Lansford, #59970
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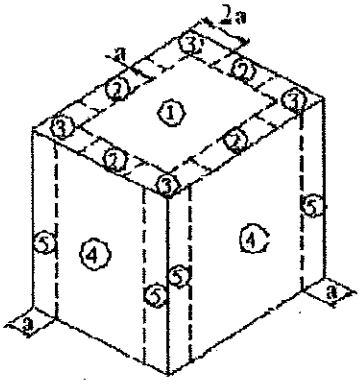
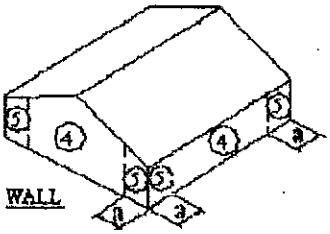
Panacea, Fl 32346
850 984 4435

JOB TITLE SGI Water System Mods
#REF!
JOB NO. SHEET NO.
CALCULATED BY WDL DATE 9/5/14
CHECKED BY DATE

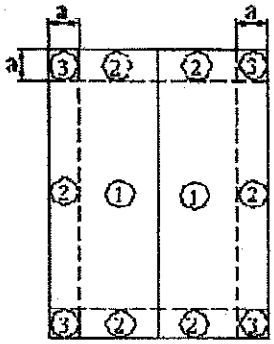
Location of C&C Wind Pressure Zones



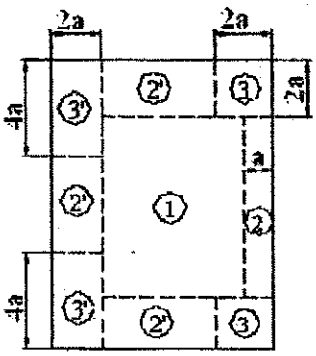
Roofs w/ $\theta \leq 10°$ and all walls
h > 60'



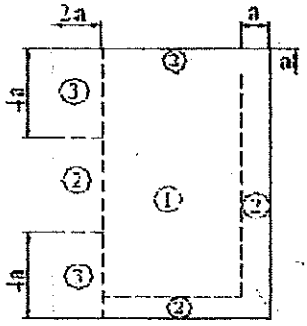
Walls h ≤ 60' & alt design h<90'



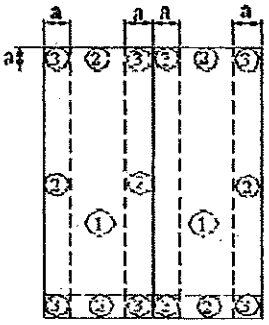
Gable, Sawtooth and Multispan Gable $\theta \leq 7$ degrees & Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



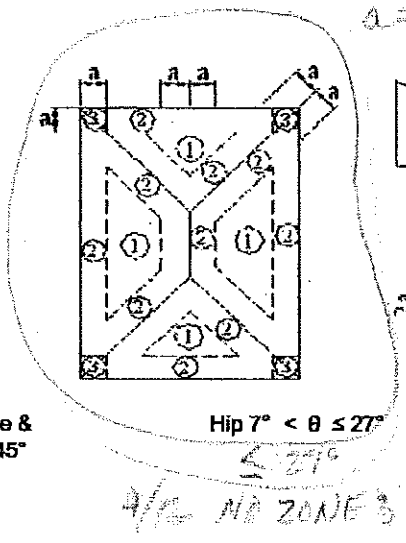
Monoslope roofs $3° < \theta \leq 10°$
h ≤ 60' & alt design h<90'



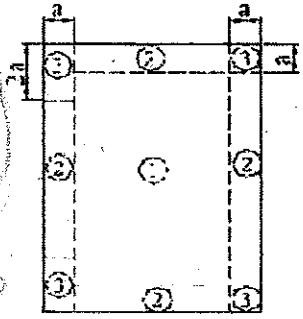
Monoslope roofs $10° < \theta \leq 30°$
h ≤ 60' & alt design h<90'



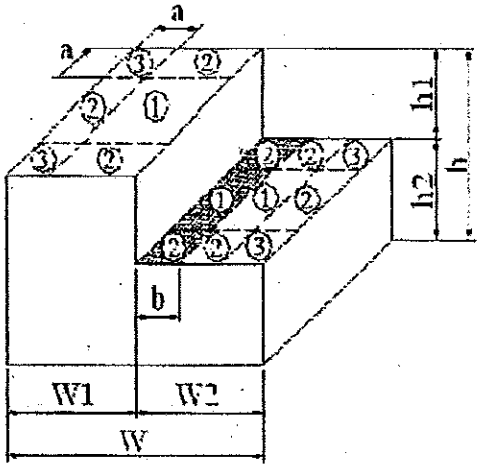
Multispan Gable & Gable $7° < \theta \leq 45°$

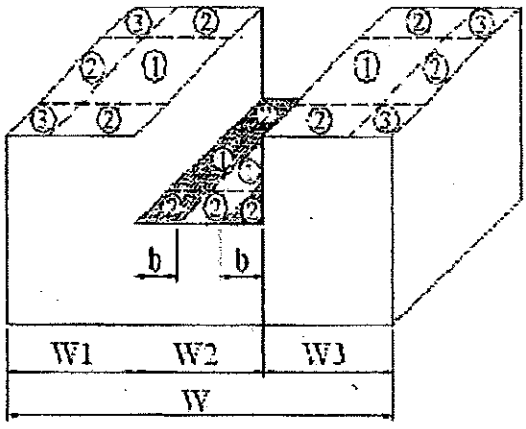


Hip $7° < \theta \leq 27°$

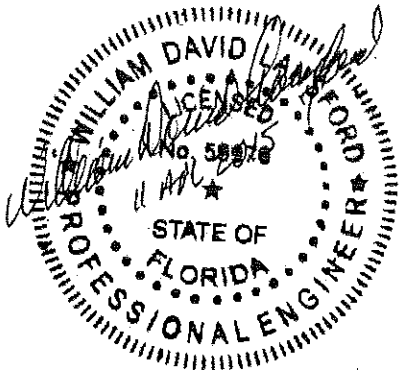


Sawtooth $10° < \theta \leq 45°$
h ≤ 60' & alt design h<90'





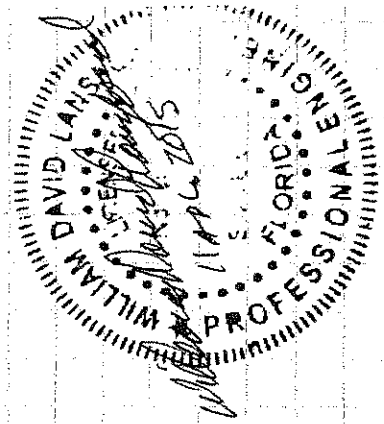
Stepped roofs $\theta \leq 3°$
h ≤ 60' & alt design h<90'

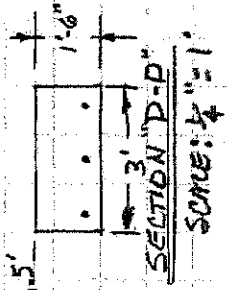


SGI WTP MODIFICATIONS
ST. GEORGE ISLAND, FL

WILLIAM DAVID LANSFORD, PE
59470
26 CALLIN DRIVE
PANACEA, FL 32346
850-984-4435

NOTES: INTERIOR WALLS SHALL BE FASTENED TO FLOOR WITH LEDGER HEAD, EPOXY ANCHORED ALL-THREAD ROD, & EQUAL FASTENERS AFTER LAYOUT COMPLETED, IN THE MIDDLE OF, & 2'O.C. FOR EXTERIOR WALL, ½" ϕ MIN





9 MAR 2015
REVISED
PAGE 1 OF 3

BUILDING WALLS OUTLINE

ELEV. T' THIS SLAB END

ALTERNATE: 12"X12"X3/16" WW MESH; 2'X2' #2 REBAR GRID. TIE INTO FOUNDATION REBAR @4 SIDES, 2" ABOVE BOTTOM OF 6" CONCRETE SLAB.

CL2

FUEL

GEN.

GARAGE

ALL FLOORS SHALL BE 6" CONCRETE WITH 6X6X#10 MESH REINFORCEMENT IN BOTTOM ½ OF DEPTH, UNLESS OTHERWISE NOTED. ½" ϕ J-BOLTS SHALL BE INSTALLED 2'O.C. AROUND BLDG PERIMETER EXCEPT BLDG EAST WALL WHERE J-BOLTS SHALL BE PLACED 6" FROM LOADING DOCK STEM WALL. J-BOLTS SHALL BE INSTALLED TO TIE INTO REBAR/MESH & CENTER FOR 2X8 SILL PLATE.

1.5 X 3 FOUNDATION

BLDG EAST WALL

LOADING DOCK

THIS FOUNDATION MAY BE 1'X 3' IF NO STRUCTURAL LOADING IS ANTICIPATED.

SGI WTP FOUNDATION

NTS

SGI WTP MODIFICATIONS
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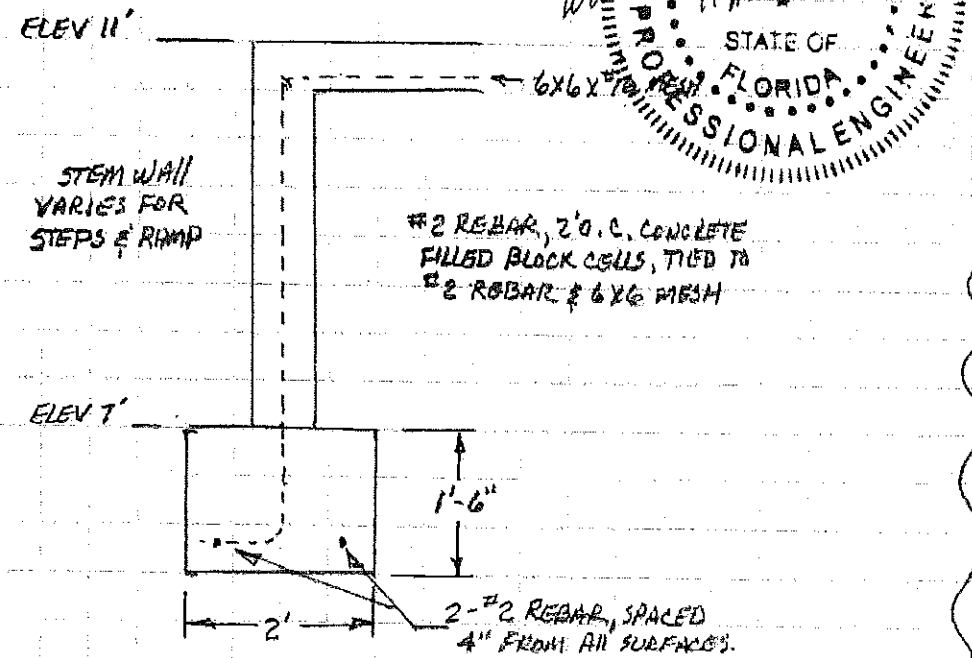
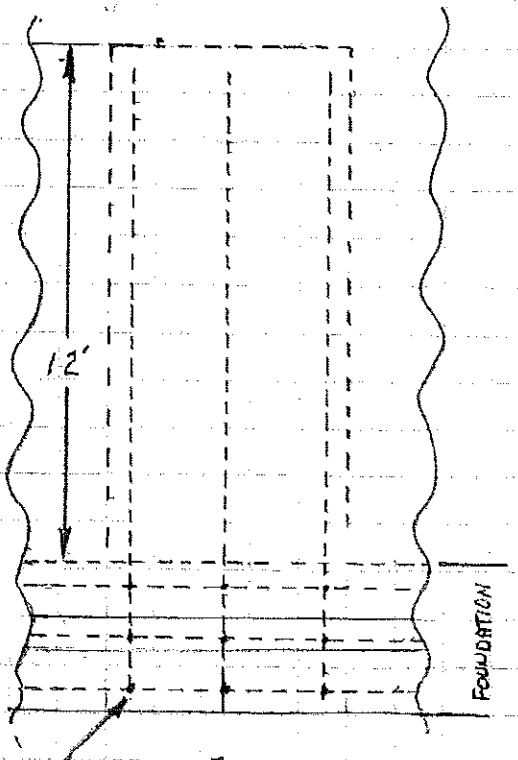
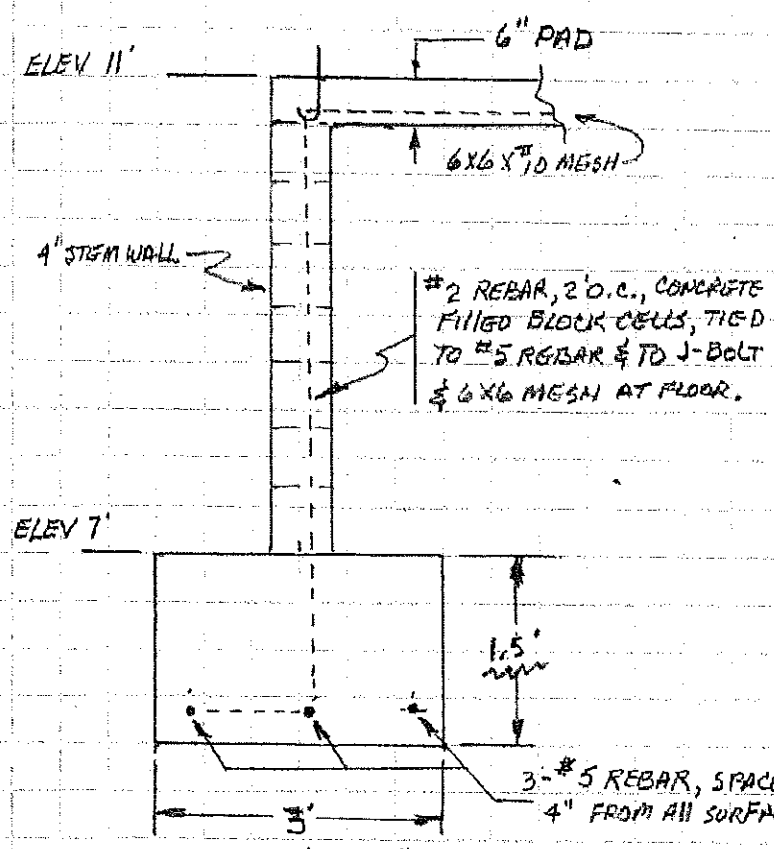


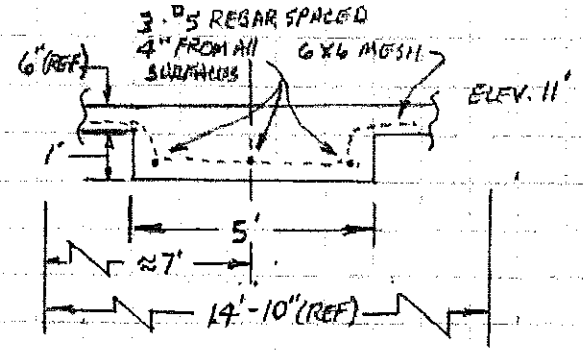
SECTION "B-B"
SCALE: 1/2" = 1'



TOP VIEW
SECTION "C-C"
SCALE: 1/4" = 1'



SECTION "A-A"
SCALE: 1/2" = 1'



SECTION "C-C"
SCALE: 1/2" = 1'

11 APR '19
~~8 JAN '19~~

WIND SPEED: ~~130~~ 140 MPH

EXPOSURE: C

MAX ROOF PRESS: ~~-49.1 PSF~~ -57 PSF

MAX OVERHANG PRESS: ~~-78.3 PSF~~ -96.8 PSF

MAX WALL PRESS: ~~-34.9 PSF~~ -40.5 PSF

JGL WITH MODIFICATIONS
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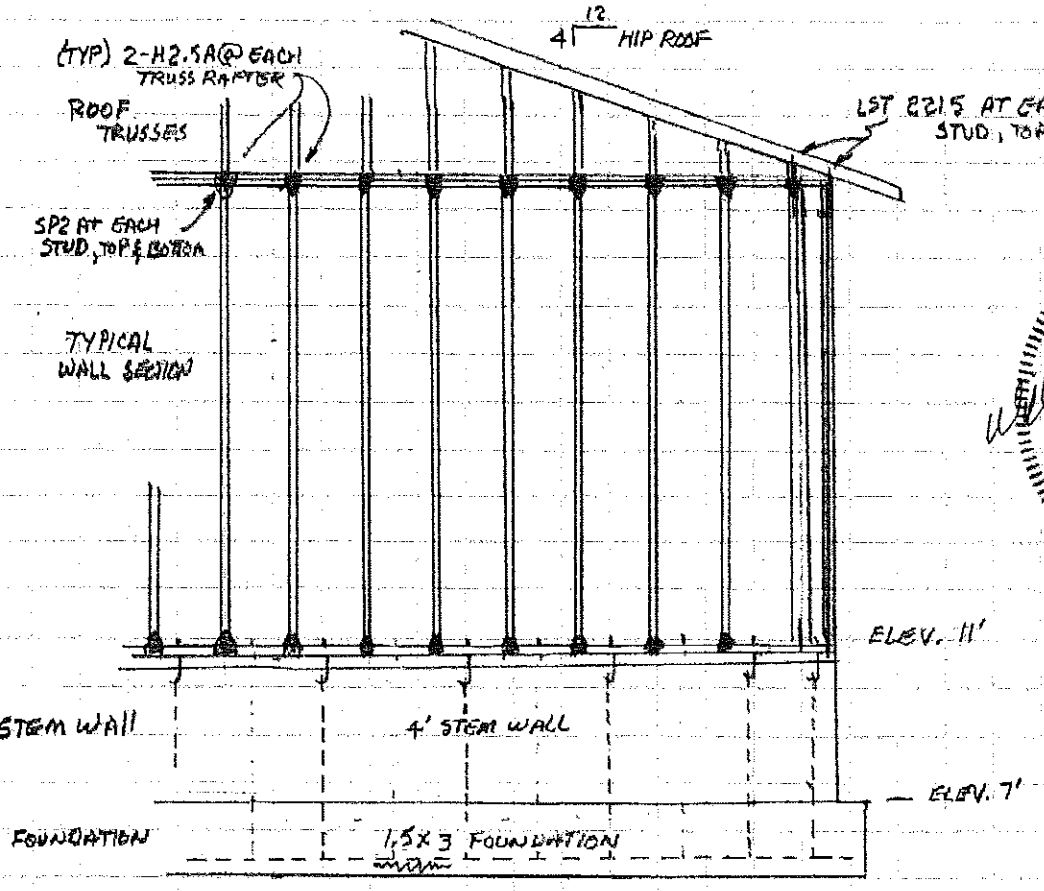
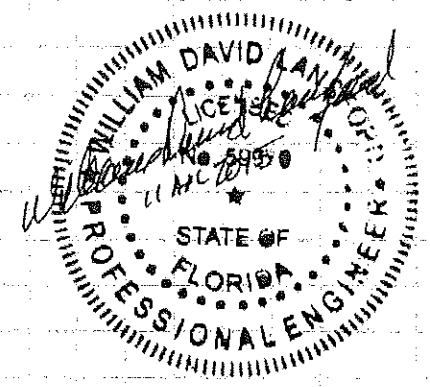
PANACEA, FL 32346
850-984-4435

1. WALLS SHALL BE CONSTRUCTED OF 2X8 WITH 2X8 PTYP FLOOR PLATE, ANCHORED TO FLOOR SLAB WITH ½"ϕ J-BOLTS, 4' O.C., AT OUTSIDE WALLS; AND ½"ϕ ALL THREAD ROD EPOXYED INTO FLOOR OR LED-HEAD, OR EQUAL ANCHORS FOR INSIDE WALLS, AFTER LAYOUT IS COMPLETE, 4' O.C., WALLS LESS THAN 4' SHALL HAVE 2 J-BOLTS OR EQUAL ANCHORS SPACED AT ENDS OF WALLS. ALL STUDS SHALL BE TIED TO PLATES, AT ENDS, WITH SP2 CLIPS AT SINGLE STUDS OR LST2215 AT DOUBLE STUDS.
2. WHERE TRUSS RAFTERS TOUCH PLATES OF INTERIOR AND EXTERIOR WALLS, 2-H2.5A CLIPS SHALL BE FIXED TO RAFTER/PLATES AT EACH LOCATION.
3. ROOF SHEATHING SHALL BE ATTACHED TO ROOF TRUSSES PER CURRENT FBC.
4. ROOF SHINGLES SHALL BE INSTALLED PER MFGS SPECIFICATION FOR ~~130~~ 140 MPH WIND LOAD.
5. MODIFY TYPICAL WALL SECTION WHERE DOOR OR WINDOWS OCCUR PER CURRENT FBC.
6. FOR DOORS OVER 12' WD, AND SAWS OVER 12' NOT COVERED BY TRUSS DESIGN, CONTACT ENGINEER.





TYPICAL WALL SECTION

NTS

~~9 JAN '15~~ 11 APR '15

CATEGORY NATURE OF OCCUPANCY

Cat I

Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to:

• Agricultural facilities.

• Certain temporary facilities.

• Minor storage facilities.

Cat II Buildings and other structures except those listed in Occupancy Categories I, III and IV

Cat III

Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:

• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.

• Buildings and other structures containing elementary school, secondary school or day care facilities with an occupant load greater than 250.

• Buildings and other structures containing adult education facilities, such as colleges and universities, with an occupant load greater than 500.

• Group I-2 occupancies with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities.

• Group I-3 occupancies.

• Any other occupancy with an occupant load greater than 5,000a.

• Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in

Occupancy Category IV.

• Buildings and other structures not included in Occupancy Category IV containing sufficient quantities of toxic or explosive substances to be dangerous

to the public if released.

IV

Buildings and other structures designated as essential facilities, including but not limited to:

• Group I-2 occupancies having surgery or emergency treatment facilities.

• Fire, rescue, ambulance and police stations and emergency vehicle garages.

EXHIBIT "D"

• Designated earthquake, hurricane or other emergency shelters.

• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.

• Power-generating stations and other public utility facilities required as emergency backup facilities for Occupancy Category IV structures.

• Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of

Table 307.1(2).

• Aviation control towers, air traffic control centers and emergency aircraft hangars.

• Buildings and other structures having critical national defense functions.

• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

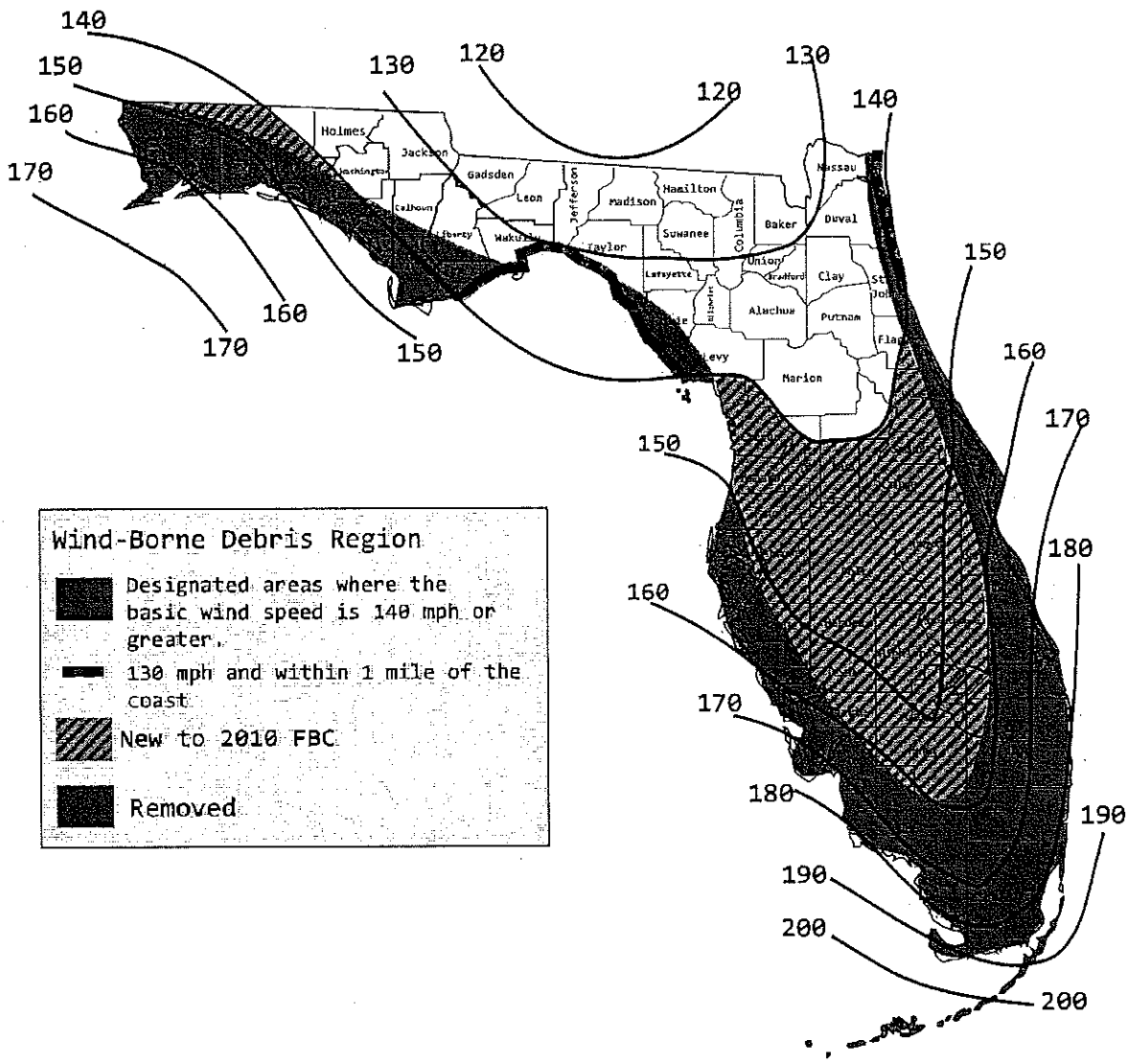


Figure 1609B Risk Category IV Buildings and Structures and Category III healthcare facilities

Section 1200
System Integration for Well Pumps, Ground Storage Tank, High Service Pumping and SCADA

Part 1 - General

Description: The Contractor shall perform all work necessary to furnish, install, commission, test, document, and start up the high service pump station including the pumps, motors, instrumentation and control system; modify the existing well pump control system with a new PLC RTU system; and furnish a text monitoring and alarm callout system. The Contractor shall provide all materials, labor, equipment, incidentals, and services required for a complete and operational system.

The Contractor shall acquire the services of a single supplier with experience in pumping, instrumentation, and control systems, specifically trained in the type of equipment to be provided. The provider shall assume responsibility for satisfactory operation of the process, instrumentation and controls as an integrated system.

The System Supplier shall:

1. Provide the new Skid Mounted High Service pumping units including pumps, motors, control panel, couplings and baseplates.
2. Provide all necessary cabinetry, Programmable Logic Controls (PLC's), Human Machine Interfaces (HMI's) and field instruments.
3. Provide Integrated Control Panel for High Service Pump Variable Frequency Drives and Programmable Logic Controller unit similar to SCI-TEXT Plus as manufactured by Sanders Company, Inc Stuart. Florida, or approved equal.
4. Provide a new well pump control system integrated with the new main control panel, new PLC controllers for each well pump site, and integrate into the existing well control panels.
5. Be responsible for communication between the new High Service Pump Facility, existing well pumps, and the existing treatment plant.
6. Provide programming and configuration of all local controls to relay data back to the Treatment Plant operations center.
7. Provide graphical screens to depict field status on the touch screen HMI.
8. Provide alarm system updates for field fault conditions.
9. Provide historical data collection system updates.
10. Provide graphical trending system updates.

The integrated skid mounted pumping system shall provide the system demand for water within the pressure and flow range listed. The skid mounted control system shall communicate to the remote well sites for control and monitoring, provide alarm callout, system querying, and remote control all via text messaging. The manufacturer of the system shall provide a single source responsibility for the manufacture and service of the system. This specification covers the minimum requirements; however, it does not cover all details, which may vary in accordance with the requirements of the offered equipment.

Qualifications: Bidding manufacturers shall have the necessary organization, experience, capital, and equipment to carry out the manufacturing and start-up of the equipment. Each bidder shall have produced similar pumping systems located in Florida for similar applications a minimum of five (5) times over the past five (5) years. The Owner and/or Engineer reserve the right to reject any bid that cannot satisfactorily demonstrate successful experience and competence with similar pumping systems.

Submittals: Submittals shall include copies of all materials required to establish compliance with these specifications. At a minimum, they shall include the following:

- Shop drawings showing important details of construction and dimensions.
- Descriptive literature, bulletins, and/or catalogs of the equipment.
- A detailed description of the system operation, including pressure and flow ranges, pump sequencing, and controller functionality.
- Guaranteed performance curves and data sheets on the pumps showing head, capacity, efficiency, NPSHR, and design and maximum horsepower.
- Complete Bill of Materials for the system.
- Electrical information, including control schematic and panel layout to scale.
- Network topology indicating IP addressing and tagging.
- Manufacturer's UL 508A / NITW certificate for Industrial Control Panels.
- Manufacturer's UL 698A / NRBX certificate for Industrial Control Panels Relating to Hazardous Locations (if applicable).
- AWS D1.1 welding certificates for those employees working on the project.

Suppliers: The pumping system shall be provided by Metron, Inc. Denver, Colorado, U.S.A., represented by Sanders Company, Inc. Stuart, Florida; Barney's Pumps, Lakeland Fl., Barrett Supply of Jacksonville, or approved equal, approved by the engineer prior to the bid opening.

To receive consideration as an alternate, a complete set of shop drawings including all of the information listed in the Submittal section above must be submitted to the Engineer before the scheduled bid date to allow sufficient time for addenda. In addition to the shop drawings, the manufacturer wishing to receive consideration shall furnish references from five (5) existing firms or municipalities to which bidder has provided these types of services in the past or with which bidder is under Contract for such services presently and the names of company representatives. The Engineer and Owner reserve the right to reject any and all submissions/bids, to waive any and all informalities or irregularities, and to accept or reject all or any part of any submission/bid as it may deem to be in the best interest of the Owner.

Warranty: The equipment and operation shall be covered against defects in material and workmanship for a period of twenty four (24) months from start-up.

Product Support: The System Integrator shall provide factory-direct service personnel for the set, start-up, preventative maintenance and general service of the system. A factory direct, service technician must be located within 200 miles of the project site. The System Integrator must have service technicians on-call twenty-four hours per day, seven days a week.

Part 2 - Mechanical Equipment

1. Pump station shall be a completely skid mounted station built by a single manufacturer. All equipment including, but not limited to pumps, motors, valves, instrumentation and controls shall be mounted on a common structural stainless steel (316) or Aluminum base to form a complete operating pump station.

    a. The plate 316 stainless steel employed throughout the equipment base shall meet or exceed the requirements for ASTM A-793.
    b. The structural shapes (channels and angles) 316 stainless steel shall be of the thickness/weight as shown on the plans for this item and shall meet or exceed the requirements for ASTM A-358
    c. The structural rectangular or square tubing shall be of the wall gauge as shown on the plans for this item and shall meet or exceed the requirements for ASTM A-358.
    d. Field welding to complete the skid, structure or attach the internal piping system will not be allowed.
    e. The design of all members shall be in accordance with the recommended practice for design as specified in the MANUAL OF STEEL and STAINLESS STEEL CONSTRUCTION, published by the American Institute of Steel Construction, Inc.
    f. The steel plate and structural shapes used must be adequate to meet the purpose for which they are intended plus the additional stresses from the lifting and setting of the equipment.
    g. All welds shall be completed by an AWS and ASME certified welder. Pump station manufacturer shall provide copies of the welding certificates of the employees who are to perform the pipe welds.
    h. The equipment base design shall accommodate lifting the unit from above by a crane without undue bending or stress.

2. Structural Skid

    a. The packaged system's skid shall be designed, fabricated and assembled to provide proper structural support for all attached equipment entirely from 316 SS.
    b. The skid shall provide sufficient rigidity to withstand the stresses of reasonable and competent transportation to site, off loading, installation, and operation that is compatible with the pad design. Main structural members shall be constructed with 316 Stainless Steel square tube, channel or I-beam steel, as identified in the Technical Data Sheet. The base structural members shall not interfere with or obstruct the areas designated for routing of power cables or control wiring.
    c. Structural grid base shall be designed with a deflection no greater than 1/360 of the distance between floor stiffener members, when the packaged system is in its normal operating position, installation, off-loading or during shipment.
    d. The floor shall be designed to accommodate the required insulation R value and material as outlined in the Data Sheet.
    e. The base shall have removable lifting devices to facilitate handling and installation. The normal lifting for transportation and installation shall be by

f. Floor - The floor shall be a minimum of 3/16 inch 316 stainless steel deck plate and have a continuous weld, skip welding is not acceptable, to the perimeter and to the longitudinal and/or transverse structural members of the base.
g. The skid shall be designed for laying flat on a structural pad. The pad design and anchoring shall not be the packaged pumps system manufacturer's responsibility.

3. Piping

a. All piping shall be made from carbon steel and include coatings on the inside and outside as defined in section 2.2.G - Corrosion Protection / Paint - Ferrous Surfaces
b. In all cases, short circuit transfer, spray transfer or pulse-arc transfer modes of the gas metal arc welding process shall be applied semi-automatically.
c. When utilizing the short circuit mode, shielding gas consisting of 50% carbon dioxide and 50% argon gas shall be used.
d. When utilizing the spray or pulse-arc transfer modes, a shielding gas consisting of 5% carbon dioxide and 95% argon shall be used.
e. In all cases, welding wire with a minimum tensile strength of 70,000 psi shall be utilized.
f. All flange welds and butt welds of equal size pipe shall be a single continuous non-stop weld around the complete circumference of the pipe.
g. Whenever possible, vertical up weld passes will be applied to all pipe welds. No vertical down weld passes will be allowed.
h. Completed welding assemblies shall create no internal obstruction, restriction or create any unintended sources of water deflection.
i. Piping of six (6) inch diameter and larger shall require a minimum of two (2) weld passes to complete each weld.
j. The first pass, or root pass, shall he applied at the bottom of the bevel cut using the short circuit transfer welding mode, and the second pass, or cap pass, shall be applied over the root pass using the spray or pulse arc transfer welding modes to insure that at a minimum the total weld thickness shall be equal to thinnest of the two pieces being welded together.

4. Pipe Fittings – Elastomer Pipe Connectors

a. The inlet side of each pump (up to 12" pipe) shall include an elastomer connector to help isolate vibration and noise in the piping system. This does not apply to vertical turbine pumps with buried suction connections.
b. The elastomer connector shall be of single sphere design, constructed of EPDM or neoprene with bias-ply tire reinforcing cord to provide a 225 PSI working pressure at a minimum of 120 degrees F.

c. The elastomer connector shall pass through the plate steel flanges designed to grip the connector so the connector seals without gaskets when the flange bolts are tightened.
d. A control joint or cable shall be included to limit the movement of the pipe connector.
e. Elastomer Pipe Connectors shall be Metraflex's Cablesphere model.

5. Butterfly Valves, Flanged - AWWA C504

a. Where shown on the drawings lug style butterfly valves shall be provided.
b. The butterfly valves shall be designed, manufactured and tested in accordance to ANSI/AWWA C504 standards and certified to ANSI/NSF 61 Drinking Water Components – Health Effects.
c. The butterfly valves will have class 150B valve bodies made from grade B gray iron. The valves' discs shall be ASTM A536 grade 65-45-12 ductile iron. The shafts shall be ASTM A276 type 304, or ASTM A564, Type 640 stainless steel. The seats shall be Buna-n on the valve disc and have 316 stainless steel retaining hardware.
d. The valves' interiors will include an ANSI/NSF 61 epoxy coating approved for potable water service.
e. Valves eight (8) inch, and smaller shall have a 10-position locking handle. Valves ten (10) inch, and larger shall have gear operator with hand wheel. All valves shall be rated at 250 PSIG bubble shut off.
f. Flanged AWWA C504 Butterfly Valves shall be Val-matic model American-BFV.

6. Swing Check Valves w/ Surge Reduction - AWWA C508

a. Check Valves shall be furnished with a sensor and transmitter which shall communicate with the control system to confirm flow or no flow.
b. Check valves shall be provided for each pump discharge and anywhere else as indicated on the drawings.
c. The check valve shall comply with AWWA C508
d. The swing check valves shall be of the full body type, with a domed access cover and two moving parts, the flexible disc and the disc accelerator.
e. Valves shall be provided with flanges in accordance to the ANSI B16.1, Class 125.
f. Body and cover: Grade 65-45-12 Ductile Iron.
g. Disc: precision molded Buna- N.
h. Disc Accelerator: 302 SS.
i. Design Requirements:

i. The valve body shall be full flow equal to the nominal pipe diameter at all points through the valve. The seating surface shall be on a 45 degree angel to minimize disc travel. A threaded port with pipe plug shall be provided on the bottom of the valve to allow for field installation of the backflow actuator without special tools or removing the valve from the line.

ii. The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content. A threaded port with pipe plug shall be provided in the access cover to allow for field installation of a mechanical disc position indicator.
iii. The disc shall be of one-piece construction, precision molded with an integral o-ring type sealing surface, and contain alloy steel and nylon reinforcement in the flexible hinge area. Non-slam closing characteristics shall be provided through a short 35 degree disc and a disc accelerator.
iv. The disc accelerator shall be of one piece construction and provide rapid closure of the valve. The disc accelerator shall be enclosed within the valve and shall be field adjustable and replaceable without removal of the valve from the line. The disc accelerator shall be securely held in place by be captured between the cover and disc.
v. The exterior and interior of the valve shall be coated with fusion bonded epoxy coating.

i. Swing check valve(s) shall be a Valmatic Series 7200 Surgebuster.

7. Pressure Relief Valves

a. The relief valve shall be pilot controlled, hydraulically operated, diaphragm type automatic control valve.
b. The main valve shall include a resilient, replaceable seat and have potable epoxy coatings on wetted valve parts, have a ductile iron body and bronze trim.
c. The control pilot shall be a direct-acting, spring loaded, normally closed pilot designed to close the main valve whenever the sensed pressure is below the pilot spring setting.
d. The relief valve shall function to limit the discharge header pressure to the pressure value set into the control pilot.
e. The valve shall be sized and configured as shown on the plan and will include ANSI Class 125 flanges and a maximum pressure rating of 250 psi. If system pressure is to be greater than this value, valves shall be appropriately sized for the proper pressure ratings.
f. The valve shall have a replaceable spring that allows for a setpoint setting ranging from 20-200 PSIG.
g. Relief valve(s) shall be Cla-Val Model 50-01BKC.

8. Pressure Gauges

a. Pressure gauges shall include a built-in pressure snubber and 4 ½" minimum face diameter. Gauge to be turret style, black phenolic case with clear glass face.
b. The bourdon tube and tip material are made from grade A phosphor bronze tube, brass tip and silver brazed.

c. Movement shall be rotary, of 400 series stainless steel with Teflon coated pinion gear and segment.
d. The gauge shall be bottom connected with ¼" NPT male thread. Gauges to be liquid glycerin filled for vibration dampening purposes.
e. Pressure gauge range and scale graduations shall be in PSI.
f. One gauge will be provided with each manifold. All gauges are to be panel mounted off the skid piping and flexible connected to their respective sensing points. The gauge trim tubing shall be complete with both isolating and vent valves. The gauges shall be so arranged to easily vent air and facilitate gauge removal. Gauges mounted directly to the pipeline or sensing point will not be accepted.
g. A single, right angle outlet, smooth nose, brass sample tap shall be affixed to the manual vent valve for the low suction lockout and suction pressure gauge assembly.
h. Gauge(s) shall be Ashcroft 63W3005HL.

9. Air Release Valves with Vacuum Check

a. A properly sized air release valve shall be installed where identified on the drawing or at the highest point on the discharge pipe manifold.
b. The air release shall allow for the release of air, generated by the starting of the pump.
c. The valve shall have a cast iron body, and cover, with stainless steel internal trim, and a viton orifice button to prevent malfunctions due to corrosion.
d. The valve shall include an NSF/ANSI 61 certified. The check valve shall include a vacuum check to prevent the inflow of air into the piping system.
e. Air release valve(s) shall be a Val-Matic 101S.

10. Hardware

a. Hardware requiring special tools shall not be used. In the assembly of the pump system, all machine bolts, nuts and cap screws shall be of the hex head type.
b. All hardware shall be 316 stainless steel.

11. Pipe Supports

a. 8" and smaller piping shall be 2" x 3" x 3/16" wall rectangular tubing.
b. 10" and larger piping shall be 3" x 4" x 1/4" wall rectangular tubing.
c. 6" and larger piping shall be provided with "kick" bracing projecting fully from the underside of the pipe to the floor at an angle of no less than 15 degree from vertical out at right angle to the run of the pipe being supported. These "kick" braces shall be in addition to the vertical pipe supports called out above.
d. Pipe supports are to be fully welded at both end points to the pipe and steel floor where required.

e. Simple pipe stands made of pipe welded only at the floor and upholding a yoke or bracket with or without a threaded jack bolt or a U-bolt are not acceptable, as no lateral or transverse support is provided.

12. Corrosion Protection / Paint - Ferrous Surfaces

a. Exterior Pipe and Skid
b. All surfaces of the entire structure shall be sandblasted equal to commercial blast cleaning to SSPC-SP6.
c. Following grit blasting, all weldments will be pretreated by hand with brush using Tnemec Series 69 epoxy coating to provide additional corrosion protection.
d. The full protective coating shall take place immediately after surface preparation.
e. The protective coating shall be Tnemec Series 69 Hi-Build Epoxoline 11 consisting of a two-component, high solids, epoxy system formulated for high build application for protection and finishing and having excellent chemical and corrosion resistant properties.
f. The epoxy system shall be self-priming and require no intermediate coatings.
g. The protective coating shall provide to a total dry mil thickness of 8.0 mils for the pipe exterior and a total dry mil thickness of 14 mils for the skid. Color shall be Safety blue – SC06
h. All walking areas that do not have diamond plate shall include a AS-250 skid resistant adder to the coating.
i. In applications where the skid will be exposed to UV, the coatings in those areas should be top coated as follows:

i. Type: gloss aliphatic polyurethane topcoate
ii. Series: Amercoat 450H
iii. Manufacturer: Ameron
iv. Thickness: total dry mil thickness of 3-4 mils

13. Interior of pipe – Wet Coat

a. The pipe surfaces to be coated shall be blast cleaned to achieve a near white surface conforming to SSPC-SP10.
b. The epoxy product shall be National Sanitation Foundation (NSF) Standard 61 certified material. The polyamidoamine epoxy shall be Series 140 Pota-Pox Plus from Tnemec. Total dry mil thickness of 12-15 mils. Color shall be white.

14. Control Panel

a. The control panel shall be spray cleaned, acid etched and neutralized, and powder coated with a finish coat of ANSI 61 grey hammer 2-4 mil baked-on polyester powder.

15. High Service Pumps – See Section 11240 End Suction Pump

Part 3 - Electrical Equipment

Standard Human-Machine Interface (HMI) controls shall include:
The HMI shall use a combination of function keys and/or touch-screen controls to change screens and to modify system setpoints. At a minimum the following separate screens shall be provided:

1. System Monitoring: Displays current pressure, current flow rate and totalized flows. Totalized flows shall include a resettable total and a grand total for system operation. This screen shall also indicate the run status of each pump.
2. Pump Status and Monitoring: Display includes parameters including run status, VFD or constant speed operation, run time, and alternator status.
3. VFD Parameters: Displays VFD/VFD BYPASS mode, VFD speed control (MANUAL/AUTO), VFD run status, VFD speed feedback. Manual speed control of the VFD shall be performed on this screen.
4. Pressure and Flow Configuration: Displays the current system operating pressure setpoint, low pressure alarm setpoint, high pressure alarm setpoint, pump start pressure setpoint(s), high flow alarm setpoint, etc. User configurable pressure and flow rate setpoints may be changed from this screen.
5. Daily Alternation Times: Displays time periods for which the system is prevented from operating and/or the time at which the pumps are forced to alternate. Both daily alternation and lockout can be turned on and off from this screen.
6. Backup Mode: Displays the current mode of operation. These modes of operation shall include: normal, pressure transmitter fail, and flow transmitter fail. Displays the current pump start/stop flow rate setpoints for use when system is not operated using the VFD. All setpoints related to the backup operation of the station shall be displayed and configured from this screen.
7. Timers: Displays the current timer setpoints. These shall include power fail lock out delay, phase fail lockout delay, and pump on/off timers. All timers shall be adjustable from this screen.
8. Alarm History: Displays an alarm history. This history shall include a log of all active and past alarms.
9. Data Logging: Provides a quick and easy method of downloading a log of system data to removable media.
10. Help and Information Screen: Displays pertinent information about the system including information about the pumps, VFD's, PLC, HMI, and the software used to program the system. Contact information shall also be displayed on this page.
11. Time of Day Setpoints (optional): Displays time periods for which different operating pressures may be defined. The pressure setpoints, cut-in pressure and times may be changed from this screen. The current setpoints shall be passed to the Pressure Configuration screen.
12. Lockout Times (optional): Displays time periods for which the system is prevented from operating. Lockout operation can be enabled or disabled from this screen.
13. System Overview (optional): For systems with multiple pieces of equipment, especially those with non-adjacent locations, an interactive screen showing a system layout and flow diagram shall be provided.

Fiber Optic Communication Subsystem: A fiber-optic communication subsystem (FOCS) specified elsewhere shall be installed to connect the existing treatment facility to the new High

Service Pump Station. The FOCS subcontractor shall coordinate closely with the System Integrator to ensure proper communication.

Well pump panels: Each well pump site shall be provided with a new PLC to control, monitor and transmit data back to the existing treatment facility. The new PLC shall replace the existing control system. The System Integrator shall provide complete interconnection diagrams to the existing power equipment and instrumentation. Existing phone lines shall be decommissioned and a text message communications system shall be employed. Each well pump control panel shall be modified to include the following:

Programmable Logic Controller: The PLC shall be capable of receiving a 4-20 mA signal from the existing flowmeter and controlling the VFD either locally or remotely through SCADA. The PLC shall be similar to a SCI-TEXT RTU, manufactured by Sanders Company, Inc Stuart, Florida, capable of text message and serial communication. Communications shall be via "text" messaging.

Human Machine Interface: The HMI shall be integral to the SCI-TEXT unit with capabilities of displaying the flow rate, totalized flow, run time per day and time of day settings.

Package Pumping System Electrical and Instrumentation Design – ALL NEW

1. Provide complete instrumentation and controls to automatically start, stop and modulate pump speed(s) to smoothly, efficiently and reliably deliver variable flow rates at a constant discharge pressure. To provide alarms, and safety features needed to protect the equipment, personnel, and water piping system.

2. The control panel design, assembly, and installation along with integration of component parts will be the responsibility of the pump station manufacturer.
    a. The pump station manufacturer shall maintain at his regular place of business, a complete electrical design, assembly and test facility to assure continuity of electrical design with equipment application.
    b. Control panels designed, assembled or tested at any facility other than the pump station Manufacturer's facility or by anyone other than regular production employees of the pump station manufacturer will not be approved or accepted.
    c. The control panel door shall be complete with stick-on schematics containing the "as-built" drawings for the pump system control panel.
    d. The end user's engineer shall have completed a harmonics survey that includes the components of this system and all other associated components to ensure that the following control panel and electrical system shall meet the requirements of IEEE 519.

3. Control Panels
    a. Controls shall be housed in a listed NEMA 1 enclosure with integral door latches. . The control enclosure shall be constructed of 12 gauge steel, and the back plate assembly shall be constructed of 12 gauge steel.
        i. Control panel shall include a hinged door with thumb screw hardware for each for circuit breaker and control device compartment.

ii. Control panel shall be compartmentalized, with internal steel barriers separating front and sides of breaker and control compartments.

b. The enclosure shall be painted as specified. All indicating lights, reset buttons, speed potentiometers, selector switches and the operator interface device shall be mounted on enclosure door and have the same or stricter NEMA classification as the enclosure.

c. All internal components shall be mounted and secured to the removable back plate assembly. Pilot devices shall run from secondary, control voltage (24 VDC or 120 VAC). The short circuit interrupt rating of the panel shall be 5 KAIC.

4. Main Disconnect
   a. A non-fusible main disconnect shall be provided to completely isolate controls, and motor starting equipment from incoming power. The main disconnect shall have an interlocked, through-the-door, operator, and shall be sized appropriately for the complete pump system. The Main disconnect shall be as manufactured by Square D.

5. Hand Switches and Indicator Lights
   a. Each panel shall include: One (1) hand-off-automatic (HOA) hand switch for each pump; one (1) green light indicating the pump is in operation; and one (1) red general system fault light.

6. Control Panel Cooling
   a. A fan and filter with proper NEMA classification shall be included on the control panel and be properly sized in order to provide adequate cabinet cooling for all the components in the panel.
   b. This shall be achieved while working in conjunction with the pump house's cooling system and taking into account all heat loads in the pump house and the panel.
   c. **Heat exchangers and open type cooling systems allowing outside ambient air to enter the panel is not acceptable.** No water line connections shall be permitted inside of the control enclosure.

7. The system manufacturer shall provide transient voltage and surge suppression for all PLC data communication devices whenever the communications cable is located outside the building in which the panel resides. This also applies to all outdoor panels with communications cables exiting the PLC panel enclosure.
   a. The TVSS unit shall be UL 497B listed.
   b. The TVSS unit shall have a maximum DC operating voltage of 9.6 VDC, a clamping voltage of 81V, and an 8 x 20 US surge current rating of 1000 amps.
   c. Transient voltage and surge suppression shall also be provided for 10-32 VDC instrumentation signal systems.
   d. The TVSS units shall be employed when the signal cable extends beyond the boundaries of the building in which the PLC panel is located.

e. TVSS units must be as manufactured by Leviton, Inc., of Little Neck, New York, Model 3803-485/DHP for PLC communications and Model 3420-009/035 for 10-32 VDC signal wiring, or approved equal.

8. Lightning & Surge Arrestor
    a. All electrical equipment shall be protected by a UL approved category "C" surge arrestor to suppress voltage surges on incoming power. The surge arrestor should be intended for use on three-phase, 600 VAC systems and designed to discharge the following amperages: 1.5kA @ 1640 V; 5 kA @ 2340 v; 5 kA @ 2510 V; 10 kA @ 2920V. The Lightning and Surge Arrestor shall be an Intermatic AG6503.

9. Incoming Power Requirements & UPS Enclosure
    a. Controls shall operate from a source of 120 volts, 1 phase, 60 Hz. Each panel shall be accompanied with an uninterruptible power supply (UPS) enclosure.
    b. The UPS shall condition the power as well as provide 500 VA of power during outages.
    c. A 6-amp control power circuit breaker shall be employed as both a method of equipment protection and as a means of power disconnection.
    d. The circuit breaker shall be a single pole, thermal, magnetic type with a 10,000 Amp interrupt rating. The circuit breaker shall be UL listed.

10. Control Power
    a. Power for the controls shall be provided by a control power transformer (CPT), which will provide 120 volt, single-phase power for the pumping system control operation. The CPT shall not be used for any other external load.
    b. It shall be protected on the primary side by current limiting fuses of adequate size and voltage rating. All controls will be protected by time delay circuit breakers of adequate size.

11. Phase Monitor
    a. A phase monitor shall be included to provide protection of all three-phase equipment against phase loss, under voltage, and phase reversal; when fault is sensed the monitor output relay opens to turn the equipment off and/or cause an alarm; automatic reset; LED indicator light.

12. Motor Starting Equipment
    a. Unless specified otherwise, all motor starters for the pumping station shall be mounted on a back pan in the control panel enclosure.
    b. Motor starters shall meet I.E.C. Standards, be UL Listed, and shall be rated for a minimum of 1,250,000 operations.
    c. Motor overload relays shall be I.E.C. rated class 10 ambient compensated.
    d. Fuses shall supply short circuit protection to each motor, and shall be rated for a minimum 200,000 amp interrupting capacity.
    e. Motor starters and overload relays shall be UL Listed.
    f. The Motor Starting Equipment shall be as manufactured by Square D.

13. Variable Frequency Drive
    a. A variable frequency drive shall be included for each main pump.
    b. The variable frequency drive (VFD) shall be digital, pulse width modulation (PWM) with IGBT transistors.
    c. The VFD shall be 98% efficient or better at full speed and load and shall be rated to operate at the specified system voltage +10/-10, 48 to 63 HZ. The overvoltage trip level shall be a minimum of 30% over nominal, and the undervoltage trip level shall be a minimum 35% under the nominal voltage.
    d. Any VFD error messages shall be displayed on a 4 x 20 character LCD readout in English and any one of eight (8) other languages.
    e. The following fault protection circuits shall be included: Over-current (200%), Over-voltage (130%), Under-voltage 65%, Over-temperature (70 DEG. C), Ground fault, and Motor-overload.
    f. The VFD shall have automatic extended power loss ride through circuit that will utilize the inertia of the pump to keep the drive powered.
    g. Minimum power loss ride-through shall be one cycle based on full load and no inertia.
    h. The VFD shall be configured for a 3 kHz carrier frequency to reduce motor noise. The VFD shall provide a "tripless" operation.
    i. The following operating information shall be displayed on the VFD's LCD: kWh, elapsed time, output frequency (Hz), motor speed (RPM), motor current (amps), and voltage.
    j. DC swinging choke will be installed on input of VFD to protect against voltage transients. Each main pump shall include it's own individual variable frequency drive.
    k. Any system jockey or pressure maintenance pump will not include a VFD unless otherwise specified.
    l. A manually adjustable speed potentiometer shall be included on the control panel for each VFD. All motors that operate from a VFD shall be inverter rated.
    m. The VFD shall be a Danfoss VLT Aqua Series Adjustable Speed Drive.

14. Pressure Transducer, High Accuracy
    a. The pump system shall be provided with suction and discharge pressure transducers. The specific pressure ranges for each of these transducers shall be as appropriate for the specific conditions for the pump system.
    b. The pressure transducer shall provide 4-20 mA pressure signals for the PLC.
    c. The accuracy shall be ±.15% of full scale, and constructed of 316 SS wetted parts.
    d. It shall provide gauge pressure output with the following ranges: suction manifold, -14.7 to 150 PSIG; discharge manifold, -14.7 to 800 PSIG.
    e. The Pressure Transducer shall be a Rosemount 3051T.

15. Magnetic Flow Meter
    a. Electromagnetic flow meter to include polyurethane liner, ANSI B16.5 flanged ends, 316L SS electrodes, and includes 0.5% calibration.

b. Meter shall also include NEMA 4X housing and require a 24 VAC power supply. Output of meter to be 4-20mA based on full scale range.
c. Meter to include grounding rings mounted in each end of the meter. Grounding rings are not necessary if internal potable coatings have been removed from this specification.
d. Meter shall be sized as indicated on the drawings. Meter output shall be displayed on the pump system OID.
e. The magnetic flow meter shall be an Krohe Enviromag

16. Control System with Redundant PLC
a. All control logic shall be handled by an industrial grade programmable logic controller (PLC) with an integrated Touch Screen 10.5" HMI providing data entry and display. PLC shall provide demand controlled variable frequency drive start, shutdown and safety features through its pressure sensing, flow sensing and voltage sensing devices.
b. PLC shall have LED indicators for input, output, and diagnostic read outs showing PC Run, CPU Fault, and two communications ports. An LED visual status light is provided for each I/O to indicate on/off status.
c. PLC shall be provided with a built in EEPROM, and capacitor for memory backup. A separate set point controller is not acceptable.
d. The PLC shall have a built in clock calendar.
e. A standard PLC program shall be as provided and maintained by the pump manufacturer only. This PLC program will be customized to meet the specific performance conditions of the pump application.
f. Control software shall be parameter driven, fully documented, and allow user to easily change all operator parameters.
g. Standard control features, and equipment that need to be included as a minimum are as follows:
1. Alarms and Shutdowns
i. Low suction pressure
ii. Low discharge pressure (with a means of override if desired)
iii. High discharge pressure
iv. Phase Loss (attempts restart)*
v. Low voltage (attempts restart)*
vi. Phase reversal (attempts restart)*
vii. Individual motor overload/phase loss (indicates which individual motor was shut down)
viii. VFD fault (shuts down VFD faulted pump only and attempts restart)*
2. Panel Face Switches and Lights
Individual pump run lights
Individual pump Hand/Off/Automatic switches
System Hand/Off/Automatic switch
Controls in OID to automatically alternate main pumps based on run hours
h. System HOA works with PLC bypass switch and allows user to manually operate pumps should PLC fail.
i. The PLC shall be a SCI-TEXT Plus as manufactured by Sanders Company, Inc Stuart, Florida with a Siemens PLC as redundant controller.

17. The control panel with controls shall be built in accordance to N.E.C. and UL standards. All equipment and wiring shall be mounted within the control panel enclosure, and labeled for proper identification. All user-required adjustments shall be made from the front of the control enclosure. A wiring schematic complete with legend, terminals, components, and wiring identification shall be provided. The main disconnect shall be interlocked with door. All control panels shall be constructed and installed in strict accordance with Underwriters Laboratories (UL) standard 508 "Industrial Control Equipment". Panels must bear the UL serialized label indicating acceptance under Standard 508 and must be manufactured and assembled at the pump station manufacturer's facility only. Any control panel manufactured at a facility other than the pump system manufacturer will be immediately rejected. A photocopy of the pump system manufacturer's UL file # shall be provided with the pump station submittals.

18. Equipment Grounding
    a. Each electrical equipment item in the station shall be properly grounded per section 250 of the National Electric Code. Items to be grounded include, but are not limited to, pump motor frames, control panel, transformers, and pressure transducers.
    b. All ground wires from installed equipment shall be in conduit and shall lead back to the control panel to a plated ground buss specific for grounding purposes.
    c. The ground buss shall be complete with a lug large enough to accept the installing electrician's bare copper earth ground wire. The bus shall serve as the bond between the earth ground and the equipment ground wires.

Part 4 - Execution

Installation: Unloading and installation is the responsibility of the owner, not the manufacturer. All materials, including lubricants and anchor bolts, equipment, and labor to install the equipment shall be performed by others.

Factory Testing: Non-witness factory hydrostatic and performance testing of each pump shall be performed prior to shipment. Customer approval of the testing prior to shipment is not required.

Field Testing: A minimum of five (5) eight-hour days of start-up service shall be provided. Field tests will not be conducted until such time as the entire installation is complete and ready for operation. This includes the completion of all piping, electrical connections and inspections, and availability of supply water. During start-up the system integrator shall run the pumps through normal start and stop, and full load conditions. The pump supplier shall make any adjustments and correct any defects at no cost to the owner. Tests shall be performed until satisfactory results are obtained. A training session shall be performed at the time of start-up.

Spare Parts: The following spare parts shall be provided:

- Two flexible coupling elements.

- One pressure transmitter.
- Two PLC discrete I/O modules.
- Two PLC analog I/O modules.

Operation and Maintenance Manuals: Two (2) complete sets of operation and maintenance manuals shall be provided. At a minimum, the manuals shall include:

- Shop drawings showing important details of construction and dimensions.
- Descriptive literature, bulletins, and/or catalogs of the equipment.
- A detailed description of the system operation, including pressure and flow ranges, pump staging, and controller functionality.
- Guaranteed performance curves and data sheets on the pumps showing head, capacity, efficiency, NPSHR, and design and maximum horsepower.
- Total weight of the equipment.
- Complete Bill of Materials for the system.
- Electrical information, including control schematic and panel layout.
- Manufacturer's Operation and Maintenance Manuals with parts cross-sections.
- Recommended spare parts.
- Contact phone numbers for troubleshooting and service.