

## **Proposal**

Date March 26, 2021

TO: Brian Langille, PE, CEM  
Gas System Assistant Director  
Clearwater Gas System  
777 Maple St.  
Clearwater, FL 33755

And:

City of Clearwater  
Engineering Department  
100 S. Myrtle Avenue  
Clearwater, FL 33756

**RE: Project #21-0010-GA  
Compressed Natural Gas (CNG) Filling Station Upgrades with the CITY OF  
CLEARWATER (d/b/a CLEARWATER GAS SYSTEM)**

As requested, enclosed is the proposal for renovations and construction of the Compressed Natural Gas (CNG) Filling Station Upgrades submitted in accordance with the proposal for the design build of the Compressed Natural Gas (CNG) Filling Station Upgrades from Trillium Transportation Fuels, LLC. dated February 19, 2021 for a Guaranteed Maximum Price of Two Million, Two-Hundred and Sixty-Four Thousand, Four Hundred and Thirty-One Dollars and Zero Cents (2,264,431.00).

### **Scope of Work:**

Provide the renovations and upgrades of the Compressed Natural Gas (CNG) Filling Station Upgrades. The project will include the following:

#### **Equipment & Support by Trillium:**

- One (1) new 275 HP compressor with remote I/O capabilities
- One (1) 5" HyC Hydraulic Compressor
- Two (2) Twin hose CRIND dispenser
- One (1) Trillium Master Control Panel utilizing Allen Bradley PLC Hardware
  - Includes tie-in to existing ANGI's communication panel to retain ANGI's mobile application
  - Includes ESD system
- Valve Panel upgrade to integrate new equipment
- Civil, Mechanical, and Electrical Construction included
  - Includes fulltime onsite CPM during construction

- Includes demo costs for the existing shed/canopy over the existing engine drive compressor
  - Includes salvaging/freight for removing the existing engine drive compressor
- Upgrade existing Electrical Gear
  - Excludes Transformer upgrade. Existing 500kVA Transformer will need to be upgraded by utility to 750kVA for a larger station load.
- Generator Connection Box
- Startup, Commissioning, Project Management, Training, and Outfitting.
- Design, Engineering, Permitting, and Programming included.
- Civil, Mechanical, and Electrical Construction included.
- Freight and Taxes included.

Assumptions by Trillium:

- Permitting fees will be a passthrough cost
- Assumes Transformer upgrade will be provided by others.
- Assumes natural soils have a bearing capacity of 2,000psf and are not contaminated.
- Assumes no underground obstructions, such as utilities and rock.
- Assumes no environmental issues, such as a flood zone.

Exclusions by Trillium:

- Backup Generator and automatic transfer switch
- Upgrades to existing utilities
- Civil Engineering – geotechnical survey, civil survey, dewatering, excessive soil stabilization, and design/installation for stormwater drainage
- Civil Construction – trenching (including excavation, backfill and pavement restoration), additional gravel, foundation, fencing, bollards, 30ft CMU wall, and landscaping
- 3rd party Safety Representative
- Union or Prevailing Wages
- Owner Maintenance Service Agreement Costs

Work by A.D. Morgan Corporation

- Supervision for Construction
- Layout and Surveying for new work
- New Concrete and CMU Wall, including painting
- Ten (10) Concrete Bollards
- Erosion Control and Tree Protection
- Trenching, Excavation, Back-Fill, and Asphalt Repair
- Sod Repairs
- Chain-Link Fencing for new Equipment

## Exclusions by A.D. Morgan Corporation

- Well Point and Sock Drain Dewatering
- Back-Up Generator
- Electrical Service Upgrades

**Cost Detail:**

Description	Amount
Cost of Work (Division 01 to 43)	1,759,533
Permit Allowance	20,000
Preconstruction	18,000
<b>Subtotal</b>	<b>1,719,121</b>
General Conditions/Supervision/Insurance/Bond	207,486
Construction Management Fee 7%	133,603
Contingency 10%	204,221
<b>Guaranteed Maximum Price</b>	<b>2,264,431</b>

See attached detail GMP Summary, GMP Estimate Detail and GMP General Conditions Summary

Project Duration shall be 308 calendar days from the date of the Notice to Proceed. The Schedule includes the following tasks:

- Design – 10-12 Weeks
- Equipment Purchase & Manufacture – 23-24 Weeks
- Upgrade Utilities – 23-24 Weeks
- Permitting – 10- 12 Weeks
- Construction – 12-14 Weeks
- Station Commissioning – 3-4 Weeks
- Building & AHJ Inspections 2-3 Weeks

See attached Preliminary Schedule

**Existing Contract:** This proposal is submitted in conjunction with the existing Construction Manager at Risk Services Continuing Contract entered into with the City of Clearwater on **August 21, 2020**, based on **RFQ #40-20**.

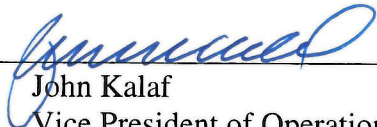
**If GMP Exceeds \$150,000:** Per Section III, Article 5.1 of the Contract Specifications, the contractor shall provide to the public entity a certified copy of the recorded bond. Once the City receives a certified copy of the recorded bond, a Notice to Proceed may be issued. Include the attached bond form as well as the Power of Attorney. *(If GMP is less than \$150,000 a bond is not required.)*

For work performed, invoices shall be submitted to the City of Clearwater (d/b/a Clearwater Gas System), **Attn: Janet Dorrough, Division Controller, 777 Maple St, Clearwater, Florida,**

**33755.** Contingency services may be billed only after written authorization is provided by the City to proceed with those services.

If you have any questions please feel free to contact the A.D. Morgan Corporation, either John Kalaf or Jeremy Warner.

**A.D. Morgan Corporation**

By:   
John Kalaf  
Vice President of Operations  
  
3/26/21  
Date

**CITY OF CLEARWATER, FLORIDA**

**Countersigned:**

\_\_\_\_\_  
Frank V. Hibbard  
Mayor

\_\_\_\_\_  
William B. Horne II  
City Manager

Approved as to form:

Attest:

\_\_\_\_\_  
Owen Kohler  
Assistant City Attorney

By: \_\_\_\_\_  
Rosemarie Call  
City Clerk

\_\_\_\_\_  
Date



## PUBLIC CONSTRUCTION BOND

(1)

This bond is given to comply with § 255.05, Florida Statutes, and any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in subsections (2) and (10).

Pursuant to § 255.05(1)(b), Florida Statutes, “**Before commencing the work** or before recommencing the work after a default or abandonment, **the contractor shall provide to the public entity a certified copy of the recorded bond**. Notwithstanding the terms of the contract or any other law governing prompt payment for construction services, the public entity may not make a payment to the contractor until the contractor has complied with this paragraph.”

### CONTRACTOR

A.D. Morgan Corporation  
716 N. Renellie Drive  
Tampa, Florida 33609  
813.832.3033

### SURETY

Liberty Mutual Insurance Company  
175 Berkeley St., Boston, MA 02116  
(678) 417-3783

### OWNER

City of Clearwater  
Engineering Department  
100 S. Myrtle Avenue  
Clearwater, FL 33756  
(727) 562-4747

**PROJECT NAME:** *Compressed Natural Gas (CNG) Filling Station Upgrades*

**PROJECT NO.:** *RFQ #40-20*

**PROJECT DESCRIPTION:** Provide the renovations and upgrades of the Compressed Natural Gas (CNG) Filling Station Upgrades.

BY THIS BOND, We A.D. Morgan Corporation as Contractor, and Liberty Mutual Insurance Company, a corporation, as Surety, are bound to the City of Clearwater, Florida, herein called Owner, in the sum of \$2,264,431.00, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Contractor:

1. Performs the proposal dated March 26, 2021, between Contractor and Owner for construction of the *Compressed Natural Gas (CNG) Filling Station Upgrades*, the contract documents being made a part of this bond by reference (which include the Advertisement for Bids, Proposal, Contract, Surety Bond, Instructions to Bidders, General Conditions, Plans, Technical Specifications and Appendix, and such alterations as may be made in said Plans and Specifications as therein provided for), at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Contractor with labor, materials, or supplies, used directly or indirectly by Contractor in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Contractor under the contract; and

**PUBLIC CONSTRUCTION BOND**

(2)

4. To the limits of § 725.06(2), Florida Statutes, shall indemnify and hold harmless Owner, their officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of the construction contract; and

5. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

6. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

7. Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond, and Surety does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications.

**IN TESTIMONY WHEREOF**, witness the hands and seals of the parties hereto this 26th day of March, 2021.

*(If sole Ownership or Partnership, two (2) Witnesses required).*

*(If Corporation, Secretary only will attest and affix seal).*

**The A.D. Morgan Corporation**

By: \_\_\_\_\_  
Title: \_\_\_\_\_ Print Name: \_\_\_\_\_

**WITNESS:**

\_\_\_\_\_  
Corporate Secretary or Witness  
Print Name: \_\_\_\_\_

*(affix corporate seal)*

**WITNESS:**

\_\_\_\_\_  
Print Name: \_\_\_\_\_

**Liberty Mutual Insurance Company**

By:   
**ATTORNEY-IN-FACT**  
Print Name: Colette R. Chisholm

*(affix corporate seal)*

*(Power of Attorney must be attached)*

ACKNOWLEDGEMENT OF PRINCIPAL  
IF A CORPORATION

STATE OF \_\_\_\_\_ }  
COUNTY OF \_\_\_\_\_ }

On this \_\_\_\_\_ day of \_\_\_\_\_ before me personally  
appeared \_\_\_\_\_ to me known, who, being by me duly  
sworn, did depose and say; that he/she resides at \_\_\_\_\_, that  
he/she is the \_\_\_\_\_ of  
\_\_\_\_\_, the corporation  
described in and which executed the within instrument; that he/she knows the seal of said  
corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed  
by the Board of Directors of said corporation; and that he/she signed his/her name thereto by like  
order.

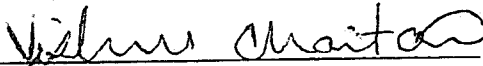
\_\_\_\_\_  
Notary Public

ACKNOWLEDGMENT OF SURETY COMPANY

STATE OF New York }

COUNTY OF New York }

On this March 26, 2021, before me personally came Colette R. Chisholm to me known, who, being by me duly sworn, did depose and say; that he/she resides in New York County, State of New York that he/she is the Attorney-In-Fact of the Liberty Mutual Insurance Company the corporation described in which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that is was so affixed by the Board of Directors of said corporation; and that he/she signed his/her name thereto by like order; and the affiant did further depose and say that the Superintendent of Insurance of the State of New York, has pursuant to Section 1111 of the Insurance Law of the State of New York, issued to Liberty Mutual Insurance Company (Surety) his/her certificate of qualification evidencing the qualification of said Company and its sufficiency under any law of the State of New York as surety and guarantor, and the propriety of accepting and approving is as such; and that such certificate has not been revoked.

  
Notary Public

NY acknowledgement

**VISHNU CHAITOO**  
Notary Public-State of New York  
No. 01CH6383706  
Qualified in Queens County  
Commission Expires November 26, 2022





This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company  
The Ohio Casualty Insurance Company  
West American Insurance Company

Certificate No. 8200782-969603

## POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint: Colette R. [illegible], Dana Coonice, Susan Lapski, Robert L. Pearson, Katherine Acosta, Thomas Bean, George O. Brewster, Desiree Cardlin, Lee Ferrucci, Peter F. Jones, Rita [illegible], Vincent A. Walsh, Michelle Wannamaker

all of the city of [illegible] in the state of NY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 26th day of March, 2021



Liberty Mutual Insurance Company  
The Ohio Casualty Insurance Company  
West American Insurance Company

By: *David M. Carey*  
David M. Carey, Assistant Secretary

State of PENNSYLVANIA ss  
County of MONTGOMERY

On this 26th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Upper Merion Twp., Montgomery County  
My Commission Expires March 28, 2021  
Member, Pennsylvania Association of Notaries

By: *Teresa Pastella*  
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

### ARTICLE IV – OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

### ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 26th day of March, 2021



By: *Renee C. Llewellyn*  
Renee C. Llewellyn, Assistant Secretary

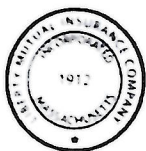
Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



LIBERTY MUTUAL INSURANCE COMPANY  
FINANCIAL STATEMENT — DECEMBER 31, 2019

Assets		Liabilities	
Cash and Bank Deposits	\$778,754,989	Unearned Premiums	\$8,007,146,482
*Bonds — U.S. Government	2,780,808,610	Reserve for Claims and Claims Expense	21,532,853,787
*Other Bonds	12,645,608,792	Funds Held Under Reinsurance Treaties	507,868,920
*Stocks	16,385,435,431	Reserve for Dividends to Policyholders	1,143,826
Real Estate	235,608,378	Additional Statutory Reserve	125,722,000
Agents' Balances or Uncollected Premiums	6,217,983,641	Reserve for Commissions, Taxes and	
Accrued Interest and Rents	102,273,390	Other Liabilities	4,117,460,075
Other Admitted Assets	11,957,106,292	<b>Total</b>	<b>\$34,292,195,090</b>
<b>Total Admitted Assets</b>	<b><u>\$51,103,579,523</u></b>	Special Surplus Funds	\$32,768,443
		Capital Stock	10,000,075
		Paid in Surplus	10,044,978,933
		Unassigned Surplus	6,723,636,983
		<b>Surplus to Policyholders</b>	<b>16,811,384,434</b>
		<b>Total Liabilities and Surplus</b>	<b><u>\$51,103,579,524</u></b>



\* Bonds are stated at amortized or investment value; Stocks at Association Market Values.  
The foregoing financial information is taken from Liberty Mutual Insurance Company's financial statement filed with the state of Massachusetts Department of Insurance.

I, TIM MIKOLAJEWSKI, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the foregoing is a true, and correct statement of the Assets and Liabilities of said Corporation, as of December 31, 2019, to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at Seattle, Washington, this 27<sup>th</sup> day of March, 2020.

*TAMikolajewski*

Assistant Secretary



2929 Allen Parkway  
Ste. 4100  
Houston, TX 77019

December 21, 2020

Matthew D'Amaddio  
Program Manager  
A.D. Morgan  
716 N. Renellie Drive  
Tampa, FL 33609

Dear Mr. D'Amaddio,

We appreciate the work that we have done Clearwater Gas System thus far and appreciate the opportunity to be considered to participate in the upgrade of their CNG station. This proposal includes a new ANGI compression system, replacement of two dispensers with new public access dispensers, demolition/removal of your original engine driven compression system, and Trillium's state of the art control system upgrade. We are also including upgrading the Emergency Shutdown System as well as integrating the capability of utilizing their engine drive compressor as emergency backup in the new system.

What follows is the upgrade scope based on our understanding of Clearwater Gas's CNG fueling station and the associated price.

Please contact Kim Okafor at [Kimberly.Okafor@TrilliumCNG.com](mailto:Kimberly.Okafor@TrilliumCNG.com) or 713-332-5706 if you have any questions or comments.

Thanks again for the opportunity. We hope that we get to work with A.D. Morgan to upgrade Clearwater's station very soon.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Edge", with a stylized flourish at the end.

Joshua Edge  
Managing Director of Trillium  
Trillium Transportation Fuels, LLC dba Trillium  
[Loves.com/Trillium](https://www.Loves.com/Trillium)  
Follow us on: [Facebook](#) | [Twitter](#) | [LinkedIn](#)

## Table of Contents

Cost Proposal	4
Proposed Approach to Tasks	7
Operation & Maintenance Offering	11
Drawings	18
Trillium HY-C Compressor	26
Information Trillium Brochures	31



## Cost Proposal

Thank you for the opportunity to expand Trillium's relationship with Clearwater Gas Systems for the Hercules Avenue station upgrade. The scope of the upgrade includes the following items:

- A new ANGI NG300 Compression Package that will match the capabilities of the existing ANGI compressor. A spec sheet for the NG300 is provided in the attachments.
- Trillium's proprietary hydraulic compressor: The Hy-C. This compressor provides increased capability of the storage vessels in the system. A typical system is only capable of utilizing 30% of high-pressure storage capacity. Trillium's Hy-C increases storage vessel capacity utilization to 85%. Additional information on the Hy-C is included in the attachments. This compressor system allow the Ariel compressors to operate more efficiently while increasing the performance of the station.
- The inclusion of Trillium's state of the art control system. The current fueling station has three different control systems. As you can imagine, three control systems operating separately reduces station efficiency and effectiveness. Trillium will integrate the three systems into one. Among other things, the new control system will retrieve information from the existing natural gas dryer and integrate the new compressor with both the old ANGI and portable compressors. Our objective is to get the system to work together. The seamless control set up will increase station efficiency, improve station performance, and reduce energy consumption.
- The replacement of two existing dispenser with new, ANGI/Gilbarco Encore Series dispensers that include a card reader integrated in the dispenser. The nozzle count it three CT-5000 high range hose/nozzles and one CT-1000 standard hose/nozzle. It is anticipated that these dispensers will be known as "Public Dispensers". This distinction it will remove the need to separately bill the general public for utilizing the station.
- Dismantling and removal of the existing natural gas driven compression system, including the roof adjacent to the current natural gas compression system.
- Five Years of complete Operations & Maintenance Services on Clearwater Gas System's upgraded CNG station. The quote is based on the amount of monthly station throughput fuel volume with a monthly minimum of \$1,500. Clearwater Gas Systems will be billed on a monthly basis and reflects labor, parts, remote monitoring and consumables. This price assumes that all existing equipment has been maintained per equipment OEM and AHJ specifications. The price also assumes the station is upgraded as proposed by Trillium. If the make-up of the station differs, then Trillium will need to provide an updated quote.

The tiered monthly station throughput fuel volume pricing is provided below:

Monthly Throughput (GGE)	Price (\$/GGE)
0-8,332	0.180
8,333-20,832	0.134
20,833-41,666	0.087
41,667 +	0.062

The price for the proposed capital station upgrade is outlined below.

Scope of Work	Cost
Equipment	\$944,100
Design, Engineering, Permitting	\$89,200
Project Management, Automation and Commissioning	\$106,600
Utility Upgrade	Not Included, By Others
Construction and Installation	\$417,660
Misc.: Freight, Permitting, Bond, Taxes	\$40,661
<b>Hercules Station Equipment Upgrade</b>	<b>\$1,598,221</b>

A list of the equipment, assumptions and exclusions for the proposed system is provided below.

#### **Equipment & Support by Trillium:**

- One (1) new 275 HP compressor with remote I/O capabilities
- One (1) 5” HyC Hydraulic Compressor
- Two (2) Twin hose CRIND dispenser
- One (1) Trillium Master Control Panel utilizing Allen Bradley PLC Hardware
  - Includes tie-in to existing ANGI’s communication panel to retain ANGI’s mobile application.
  - Includes ESD system
- Valve Panel upgrade to integrate new equipment
- Civil, Mechanical, and Electrical Construction included.
  - Includes fulltime onsite CPM during construction
  - Includes demo costs for the existing shed/canopy over the existing engine drive compressor
  - Includes salvaging/freight for removing the existing engine drive compressor
- Upgrade existing Electrical Gear
  - Excludes Transformer upgrade. Existing 500kVA Transformer will need to be upgraded by utility to 750kVA for a larger station load.
- Generator Connection Box
- Startup, Commissioning, Project Management, Training, and Outfitting.

- Design, Engineering, Permitting, and Programming included.
- Civil, Mechanical, and Electrical Construction included.
- Freight and Taxes included.

**Assumptions:**

- Permitting fees will be a passthrough cost
- Assumes Transformer upgrade will be provided by others.
- Assumes natural soils have a bearing capacity of 2,000psf and are not contaminated.
- Assumes no underground obstructions, such as utilities and rock.
- Assumes no environmental issues, such as a flood zone.

**Exclusions:**

- Backup Generator and automatic transfer switch
- Upgrades to existing utilities
- Civil Engineering – geotechnical survey, civil survey, dewatering, excessive soil stabilization, and design/installation for stormwater drainage
- Civil Construction – trenching (including excavation, backfill and pavement restoration), additional gravel, foundation, fencing, bollards, 30ft CMU wall, and landscaping
- 3rd party Safety Representative
- Union or Prevailing Wages

Please note, pricing may be affected if any of the above equipment, assumptions and exclusions are inaccurate or need to be modified.

## Proposed Approach to Tasks

Trillium's technical solution for the Clearwater Gas Hercules compressed natural gas (CNG) station demonstrates a commitment to an excellent customer experience with safe and reliable fueling and around-the-clock remote monitoring support from Trillium's experienced staff.

We at Trillium have a proven track record of timely completion of station design and build, with an added advantage of decades of experience installing and operating CNG stations with industry leading equipment. Trillium's network of stations boasts a robust 99.04 percent uptime, ensuring the best-possible customer experience with a staff of on-call expert mechanics and a 24/7 dispatch team ready to address any problem that may arise.

Trillium is the only company that has completed multiple CNG fueling station control system replacements while continuing to fuel vehicles on a daily basis. Trillium understands that your operation is paramount; that's why uptime during control replacements is our top priority. Before the control system replacement, we will develop a work plan that will prioritize station operation and fueling needs. This work plan will also include a strategy to complete utility upgrades with minimal station downtime. Control system replacement and utility upgrades are not new to Trillium. The workplan that we develop will include our experience and lessons learned from other station upgrades.

Our turnkey plan for performing the proposed work is the result of over 25 years of successful station building. During design and construction, we include the following activities and milestones:

**Hold the kickoff meeting** - Trillium will schedule a kickoff meeting between Trillium and your staff that will be responsible for the communications for the duration of the project. This introductory meeting is important as we establish the relationships and expectations for the project. During this meeting, we will discuss the schedule, any concerns, responsibilities, milestone dates, and regular meetings that will occur throughout the project.

**Design** - After this kickoff meeting, we will then develop and submit drawings for review. We fully intend to follow Clearwater Gas' guidance and this is typical of what we do on all projects. Once all drawings are complete and reviewed by Clearwater Gas' project team, they will be submitted to the local Authorities Having Jurisdiction (AHJ) for approval.



**Order equipment** - This milestone represents the most time-consuming aspect of the project, so we start as soon as possible. Once we receive notice to proceed, we will place orders for equipment. Compressor delivery times are the longest that range about 25-27 weeks.

**Utilities** - Early in the design process, Trillium will be in contact with Clearwater Gas and your utility providers for electric and gas utility upgrades and services.

**Interfacing** - Trillium works closely and frequently with all major equipment suppliers on several projects. We have an excellent working relationship with them and their manufacturing teams to ensure all deliverables are manufactured per the project design requirements. All suppliers have already reviewed the provided specifications and delivered a detailed quote based on those requirements.

This proposal assumes that the civil engineering and construction scope will be covered by A.D. Morgan. Because of this scope split, Trillium recognizes interfacing early and often will be necessary to maintain schedule and expectations.

**Commissioning** - This is an exciting phase of the project as the equipment is delivered and placed on site. Our execution of site work means that we will terminate connections to the electrical and mechanical equipment, energize the system, and commission the station. After initial start-up, we will verify that the station meets your requirements and passes the tests required for final permits and approvals to operate.

**Training** - With final approval to operate in hand, Trillium will conduct safety and fueling training for your staff. We will also train first responders such as the Fire Department so they understand the difference between a CNG fueling station and a gasoline/diesel station and can correctly respond to any emergency calls.

During this training, we will cover the safe operation of a CNG station and direct attention to our 24/7 Service Center that is always available to answer any questions, handle concerns, remotely diagnose station faults, mobilize mechanics, remotely re-start equipment, and help respond to urgent situations.

**Anticipating Challenges** - Our successful installation and operational CNG station service experience taught our team members key strategies to reduce project risks and avoid potential problems. We understand effective team communication and proper project planning leads to early identification of potential problems and resolution coordination. The following table is a summary of the most common challenges and how we prepare to manage them.

Potential Challenges	Proposed Mitigation Measures
<b>Code Compliance</b>	<ul style="list-style-type: none"> <li>• Work closely with jurisdictional authorities and Clearwater Gas' project team throughout the permit process</li> <li>• Keep them up to date on the project as it progresses</li> </ul>
<b>Inclement Weather</b>	<ul style="list-style-type: none"> <li>• Review the schedule against seasonal expectations</li> <li>• Build contingency days</li> <li>• Plan tasks to keep the project moving forward during inclement weather</li> </ul>
<b>Utility Coordination</b>	<ul style="list-style-type: none"> <li>• Coordination meetings early in the process to clearly define gas and power needs of the equipment system</li> <li>• Establish a firm schedule for delivery of utility services to the site</li> </ul>
<b>CNG Equipment Manufacturing Lead Time</b>	<ul style="list-style-type: none"> <li>• Equipment orders will be placed soon after approval to avoid delivery delays</li> <li>• Trillium has good relationships with our suppliers, who have proven on-time delivery histories</li> </ul>
<b>Disruptions to Site Operations</b>	<ul style="list-style-type: none"> <li>• Proactive planning and approval with management and facility supervisors</li> </ul>
<b>Facility Personnel Safety</b>	<ul style="list-style-type: none"> <li>• Use of barricades and warning devices</li> <li>• Proper training and lockout/tagout procedures</li> <li>• Regular safety meetings with construction teams</li> </ul>

Our team can deal effectively with a wide range of potential scenarios and still deliver your station as planned by identifying the risks early and preparing workaround strategies.

**Design Elements** - Trillium takes every step possible to provide contaminant-free gas without sacrificing equipment reliability or longevity. High-quality gas is essential to NGV engine performance.

**Filtering and Cooling** - Clean, high-quality fuel is paramount to the operation and long-term health of CNG vehicles. Therefore, we design our CNG fueling station systems to have oil filters after every compression stage.

A key factor in minimizing the amount of oil that can become entrained in the gas stream is cooling the gas during compression. Heat prevention is a key element of our process because filtration works best at colder temperatures. Trillium requires our compressor manufacturers to use a “20 degree” approach; meaning there are coolers to keep the gas temperature within degrees above ambient. Even though this practice is more rigorous than the industry standard it improves overall fuel quality.

### **Administration**

Trillium has an in-house engineering, design and construction team that exclusively works on the development of high performing CNG fueling stations. They have a combined experience of over 100 years, with lead individuals each having over 20 years of experience on the development of more than 200 CNG fueling stations.

Trillium keeps a watchful eye on the latest applicable federal, state and local regulations. Our engineers and public policy managers are the best in their field, attend pertinent industry conferences and frequently communicating with regulators and legislators impacting the CNG industry.

Trillium only uses equipment from the most experienced U.S. manufacturers that specialize in the CNG industry and they confirm that the equipment we provide meet the very latest requirements and contains the latest updates from “lessons learned” in the field.

## Trillium Operation & Maintenance Offering

Our CNG station Operations and Maintenance (O&M) program includes scheduled preventative maintenance of the CNG equipment and all additional services under on a non-scheduled-repair basis.

Clearwater Gas System can be confident about the safety, reliability and cost effectiveness of Trillium's station. Our Turnkey Operations and Maintenance program includes scheduled preventative maintenance, unplanned service, all consumables, parts, and labor on non-scheduled-repair basis. The following is an overview of Trillium's CNG Clearwater Gas System station operation and maintenance package:

### Routine Maintenance



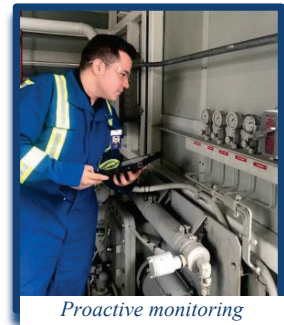
Trillium's O&M program is centered on regular maintenance to prevent expensive repairs and for daily station operational reliability. In addition to being observant and attentive, we trend equipment performance statistics to forecast failures. **Trillium enforces a strict plan to stay current on routine maintenance for every station component, reducing the need for unplanned work and maximizing station reliability.**

Routine maintenance includes activities such as inspection, calibration and adjustments. Routine maintenance schedules are based on manufacturer's recommendations as well as our own best practices. The maintenance schedules will be reviewed and updated after contract award for inclusion in the O&M Program. **Trillium will provide Clearwater Gas System with a Summary List of scheduled maintenance within one month of commencing a new contract.**

The list of routine maintenance items is created, reviewed and programmed into our maintenance tracking system. The system will alert mechanics in advance of maintenance needs. Routine maintenance is typically performed outside of regular fueling hours as to not inconvenience Clearwater Gas System's fueling experience.

In addition to performing proactive/routine maintenance, Trillium will perform emergency maintenance which will be subject to the non-scheduled repairs costing submitted with this proposal.

In summary, Trillium will perform routine preventative maintenance services to keep the CNG fueling facility equipment in the best possible working order and in compliance with all Clearwater Gas System performance and fueling requirements. All activities will be coordinated and documented in our management system and shared with Clearwater Gas System.



*Proactive monitoring maximizes reliability.*

### Remedial Maintenance

In addition to performing routine maintenance, Trillium will perform remedial maintenance based on a non-scheduled-repair basis. Locally based mechanics will respond quickly to ensure limited station downtime. If a component or system fails repetitively or affects safety or critical operations, Trillium will file the issue to the manufacturer for an agreed solution.

### Coordination with Authorities

All maintenance and upgrade work will be coordinated appropriately with the permitting and governing authorities. We will arrange for required inspections and ensure that all required licenses are in place and kept up to date.



## Qualified Team of Mechanics



Practices and procedures are important, but people make the difference. Trillium prides itself on having the highest customer satisfaction in the industry and that is due to the dedication of our team on the ground who work with our clients each day. Trillium invests over **\$40,000** in each team member for completion of training programs designed by

Trillium and our vendor partners. Trillium enrolls each of our mechanics into Basic Ariel compressor training; this is a Trillium job requirement.

We provide our mechanics with the tools they need to succeed in their jobs; such as specialty tools for equipment repairs, tablets and computers for reporting work activities and company vehicles that are stocked with critical spare parts and tools.



*Trillium invests over \$40,000 in each mechanic.*

Trillium's mechanics also are required to complete Trillium's Safety Program. These courses cover the following topics to ensure public and Trillium staff safety:

✓ Arc Flash/Arc Blast Awareness & Safety	✓ CNG system controls	✓ Defensive Driving for Light & Medium Duty Vehicles
✓ Distracted Driving	✓ Driving Safety	✓ Driving Techniques: Straight Truck Series
✓ Electrical Safety: Training for Unqualified Employees	✓ Fall Protection Safety	✓ Fire detection and suppression systems
✓ Fire extinguisher use	✓ Fire prevention & response	✓ Hand and Power Tool Safety
✓ HazCom: What you need to Know (including GHS provisions)	✓ Hazardous Waste Generator Coras	✓ Lockout/Tagout: Put a Lock on Hazardous Energy
✓ Materials Handling Safety	✓ OSHA Electrical Safety & Arch Flash	✓ Personal Protective Equipment
✓ Smoke, heat and gas detection systems	✓ Trillium Equipment Maintenance	✓ Emergency Shutdown Systems

Trillium also conducts monthly safety meetings on the following topics:

✓ LOTO	✓ HAZMAT labeling	✓ Defensive driving
✓ Situational Awareness, Compressed air safety and Natural Gas Injection	✓ Dehydration, Hot Weather	✓ Electrical Hazards
✓ Site Safety, Housekeeping and Trip Hazards	✓ Trip Hazards	✓ Cold weather
✓ Lifting	✓ Ladders and harness	

## Trillium/Ariel Partnership

Trillium is a long-standing partner with Ariel, the largest manufacturer of separable reciprocating gas compressors world-wide. Since 1966, Ariel has shipped over 60,000 compressors, with the majority still running today. Ariel maintains a reputation for safe, rugged and long-lasting equipment in over 100 countries.



Ariel compressors are designed, manufactured, and packaged to exceed customer expectations and Ariel leads the world in the development of modern compression technology, with gas-cooled cylinders, high-speed, driver-rated design and market driven innovation.

Trillium is an authorized Ariel distributor of parts and service. We exclusively work with Ariel compressors for heavy-duty applications unless otherwise specified by our clients. Ariel's longevity and reliability are reasons why Trillium continually provides Ariel-based training to all our mechanics on a yearly basis.

## Maintenance Management System



Trillium's mechanic staff is always equipped with the latest technological tools that ultimately ensures uninterrupted customer station functionality. We take pride providing our mechanic staff with new company trucks stocked with tools and spare parts and with company iPads pre-loaded with Salesforce to accurately file all maintenance activities.

The implementation of a custom maintenance management in Salesforce allows Trillium to continue to be an industry leader in station operations and maintenance. **Each Trillium CNG station has its own Salesforce account to warehouse all mechanic work tickets and preventative maintenance checklists that promotes transparency with customers and Trillium operations.**

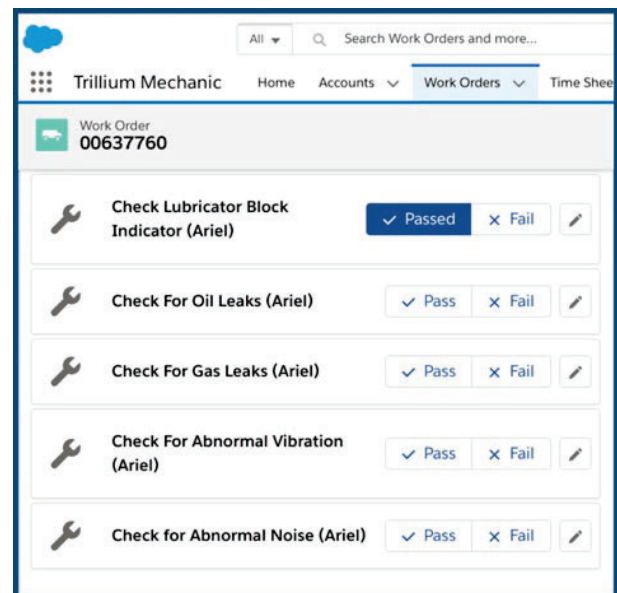
Each mechanic has their own Salesforce profile to browse the nearby CNG station accounts that have pre-loaded case and maintenance checklists to be completed with simple **Pass** or **Fail** tiles. Our mechanics are then able to claim work orders to efficiently service the CNG stations, close out trouble tickets, open new work orders and timestamp their efforts.

The Trillium iPads all share a company data plan to ensure our mechanics can update station work activities in real time for our station monitoring team. All issued iPads and mobile phones are loaded with FleetSafer software that automatically detects vehicle movement, silences all notifications, alerts, incoming calls, texts, emails and blocks keyboard access during drive time.

The ability to create a trouble ticket and link it to the client's account history is a key feature of Trillium's pledge to continue service improvements. Incident reports are manually entered into the system to create a *case*, a detailed snapshot of an issue or repair request. The case includes a description of the issue, client contact information and notes. The case is then assigned to a mechanic and is time-stamped to track response time. A *reoccurring case* is used for work to be performed at future time intervals.

Maintenance requests are addressed fully before they are closed. Each case has a specified *task list* that is a checklist of items that must be completed, a *notes* field that allows the mechanic to document all work and an *attachment* field for the mechanic to upload site photos or other documents to the applicable Salesforce station account. Preventative maintenance schedules with daily, weekly and monthly tasks are also pre-loaded to the CNG station Salesforce accounts.

Closely monitoring all active customer trouble tickets is an important part of Trillium's dedication to customer service. It is this transparency, documentation and database that make the Trillium maintenance management system an integral part of customer service.



The screenshot shows the Salesforce interface for a Trillium Mechanic. At the top, there's a navigation bar with 'Trillium Mechanic', 'Home', 'Accounts', 'Work Orders', and 'Time Sheet'. Below this, a 'Work Order' card displays the number '00637760'. The main section contains a checklist of five tasks, each with a wrench icon and a status button (Pass/Fail) and an edit icon:

- Check Lubricator Block Indicator (Ariel) - Status: Passed
- Check For Oil Leaks (Ariel) - Status: Pass
- Check For Gas Leaks (Ariel) - Status: Pass
- Check For Abnormal Vibration (Ariel) - Status: Pass
- Check for Abnormal Noise (Ariel) - Status: Pass

*Trillium's mechanic work orders are easily accessible in Salesforce*

## 24/7 Monitoring and Support



Trillium's network of national CNG operations is monitored and supported by our daily around-the clock service coordinator team. The department is based in Houston and is staffed by highly trained personnel that visually monitor Trillium stations. This team personally answers calls to the service line, promptly responds to equipment faults, and communicates with in-the-field service teams to resolve issues.

Trillium's service center boasts impressive availability and responsiveness. In 2020 our 24/7 Dispatch and Field Operations teams took over 14,000 calls and reset over 63,000 alarms, keeping our stations online and in working order 99 percent of the time. Additionally, the Dispatch team answered 94 percent of calls in less than 60 seconds and with an average answer time of 15 seconds.

Our data shows 96.25 percent of our alarms can be reset remotely within five minutes or less, and only 3.75 percent of alarms require physical attention by a Trillium mechanic with the full automation package installed on the compressors. Trillium's swift response times means Clearwater Gas System can reach a trained person in less than one minute at any time.

This supports the Trillium pledge to maintain safe and reliable fueling performance for Clearwater Gas System. Any request for service, whether it is an emergency request or normal repairs can be made by calling Trillium's Toll-Free number at 800.920.1166. All requests are tracked and forwarded to the necessary service personnel. Signs identifying Trillium as the proper party to contact, with our Toll-Free number, will be in high visibility areas around the fueling dispensers and in the equipment area.

We, at Trillium, are always available and prepared because our regionalized staff and on-site spare parts allow us to quickly respond to future Clearwater Gas System trouble tickets. Remote Monitoring

Trillium's **Client Connect** online portal allows our Automation Team to access Clearwater Gas System's CNG station performance and equipment. Housed on the Trillium website, the City can login to view station statistics such as flow rates, temperature, number of vehicles fueled daily, fill times, compressor functionality, and station alarms.

### Safety Training

Trillium will provide CNG refueling station training at no additional cost to Clearwater Gas System. These sessions will be conducted on site to educate Clearwater Gas System employees in the use, operation, and maintenance of the refueling station.

### Reporting



*Always Available: Trillium's Service Team is on call 24/7 monitoring our national O&M station operations.*



*Client Connect: Trillium clients can always view their station operations via the online customized access portal.*

Our Trillium mechanics and managers log in to a single secure interface to view current station conditions, maintenance logs, maintenance calendars, spare parts inventory levels, manuals, drawings, photos, contact information for site personnel and emergency contacts. By hosting all this information in one place, our staff has convenient access to resources.

In addition to the real-time activity of the station, Trillium employs a full-time “historian” to provide a monthly report of all maintenance and fueling activities to its customers upon request.

In addition, our system can email updates of the service logs to staff at **Clearwater Gas System** that include:

- Skid Statistic Reports – records key information such as equipment hours, operating temperatures, pressures and quantity of oil added and drained.
- Station Statistic Reports – records general station information such as gas meter readings, fill times, numbers of times the equipment started, dryer status and dispenser status. We refer this report as a “Health Check Summary.”
- Work Order Reports – captures record of each equipment issue or repair, includes mechanic who is responsible, the status of the task, the priority of the task, and notes regarding the work to be performed.

Station Statistics Statistic-0000008925	
Information	
Station Statistics Name Statistic-0000008925	Asset <a href="#">Trillium Station</a>
Date and Time Collected 10/17/2019 8:01 AM	Work Order <a href="#">00739164</a>
General Information	
Analog Gas Meter Reading 16,426	Average Fill Time (seconds) 267
Digital Gas Meter Reading 77,633	Number of Fills 8
Air Compressor Oil	Number of Starts 6
Gas Dew Point +/- -10G	Number of Underfills 4
Decibel Reading 89.00	
Dispenser GGE Readings	
Dispenser 1 Reading (GGE) 313.00	Dispenser 7 Reading (GGE) 0.00
Dispenser PSI Readings	
Dispenser 1 PSI (Hose #1) 3,541.00	Dispenser 1 PSI (Hose #2) 3,383.00
Other PSI Readings	
Light Duty PSI 88	Vessel PSI 3,855
Other Information	
A Loaded % 88%	A Productive % 99%

***Stats:** Trillium’s online station statistics provide real-time performance information.*



## Trillium Qualifications of Staff

Trillium is proud to present the following personnel that will be on-hand to administer Clearwater Gas System station service changes and ongoing support throughout our partnership:

### Trillium Customer Care

- **Joshua Edge, Chief Operating Officer:** Mr. Edge oversees all of Trillium's divisions that includes engineering, compliance, construction, project management, operations, automation and customer care. Specifically, he directs the mechanic, the customer care and the automation staffs that will support Clearwater Gas System alternative fueling station. All of Trillium 216 CNG refueling stations, of which 59 are for transit agency, are under Mr. Edge's care. Mr. Edge will regularly check in with the Trillium transition and customer care teams to ensure we exceed Clearwater Gas System expectations.
- **Jason Jenkins, GM - Operations:** Mr. Jenkins oversees all four Trillium mechanic operational regions that service our 216 Trillium alternative fueling stations, 59 of them transit stations, throughout the country. He checks in regularly with his divisional managers and visits the majority of the Trillium stations in a calendar year. Mr. Jenkins joined Trillium in 2010 and spent nine years working in the field leading CNG station maintenance and repair activities. Mr. Jenkins completed Ariel online training.
- **Ben Chane, Southern Regional Manager:** Mr. Chane supervises all Trillium regional mechanical staffs in the southern region. He will closely monitor station service transitions and be in constant communication with his Clearwater Gas System station mechanic crew. Mr. Chane works in the field and will personally visit Clearwater Gas System's site.
- **Val Gueorguiev, Customer Care Manager:** Mr. Gueorguiev has worked for Trillium since 2014 and handles several Trillium accounts. He is the Trillium point of contact for clients such as Orange County Transit Authority, Riverside Transit Authority and Utah Transit Authority, and he will also be the Trillium Clearwater Gas System care manager. Mr. Gueorguiev has a Master of Business Administration and a Bachelor of Arts Degree.





### Trillium Clearwater Gas System Mechanics

Trillium has mechanics that are local to Clearwater Gas System CNG station. Additional mechanics and managers will support them and can be brought in as needed to cover time off or provide additional support to Clearwater Gas System. As mentioned, all of our Trillium mechanics have at least basic Ariel certification.

### Trillium Automation

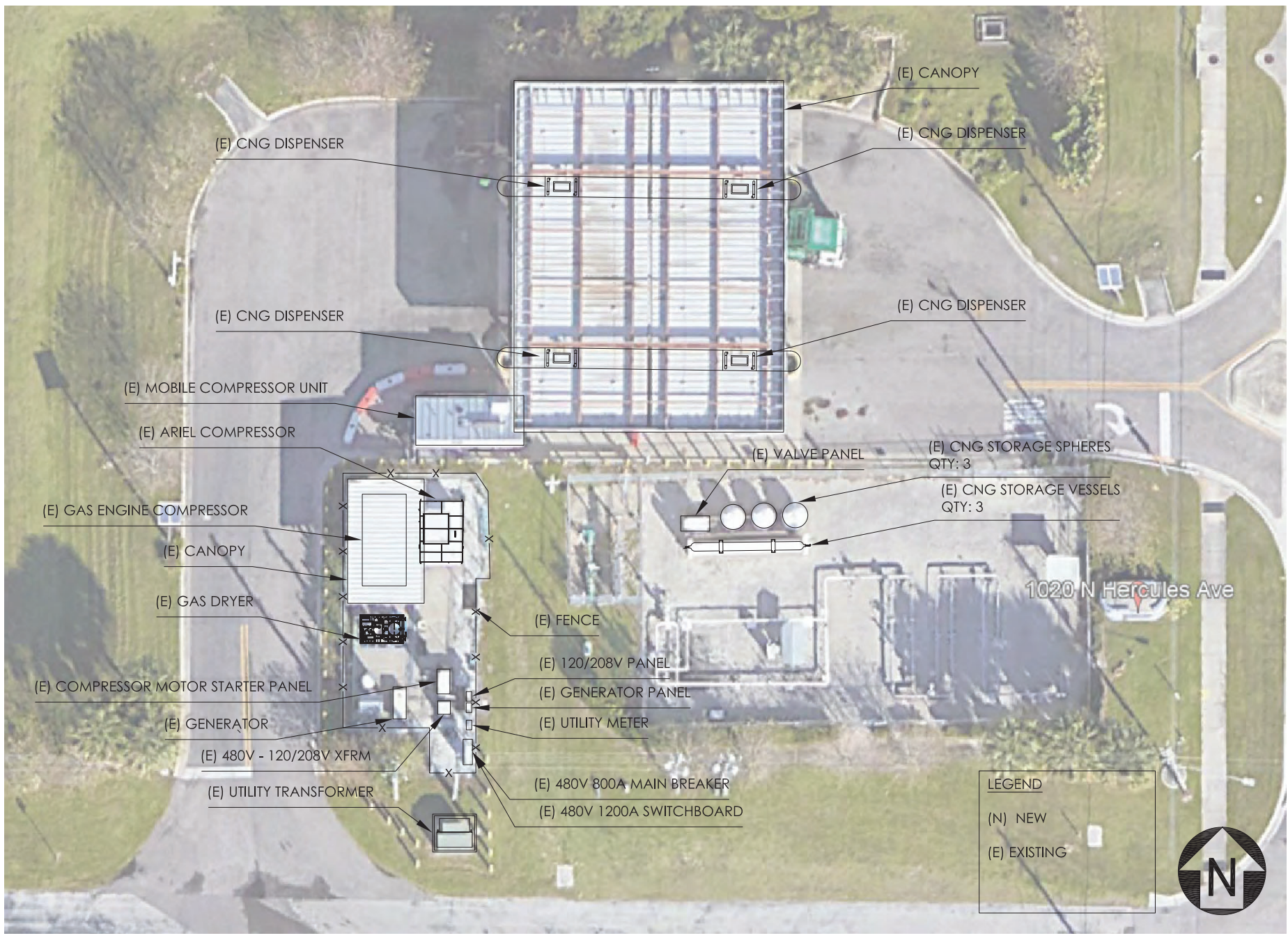
Trillium's network of national CNG operations is monitored and supported by our 24/7 service coordinator team. Please note the following individuals that headline our Automation team:

- **Jason Terry, General Manager Automation & Support:** Mr. Terry oversees our Terminal Automation Department that includes our Customer Relationship Management Division. Along with his station on-site managerial duties, he supervises the Trillium 24/7 customer call center that proactively monitors station functionality and resolves all trouble ticket issues. Mr. Terry has been with Trillium since 2008, providing networking and IT support for our stations in every part of the country. He is directly involved in the station development, providing automation control programming for all installations, upgrades, setup and support for HMI programming, networks, security cameras and internet connectivity.
- **Maria Toscan, Supervisor of Support Team:** Mrs. Toscan has been with Trillium since 2012 and oversees the Support team based in Houston. She and her staff of highly trained personnel visually monitor Trillium stations, personally answer service calls, promptly respond to equipment faults, and continually communicate with our field mechanics to address and close all service issues.



## **Drawings**

Please note the Clearwater Gas System station drawings on the following pages.



REVISIONS:		
REV	DATE	REVISION
1	10/23/20	PROPOSAL DRAWING

**PROPOSAL**

**ADDRESS:**  
1020 N. HERCULES AVE.  
CLEARWATER, FL 33765

**CHECKS:**  
DRAWN BY: P. PUMAGALLI  
DRAWN DATE: 10/23/2020  
CHECKED BY:  
CHECKED DATE:

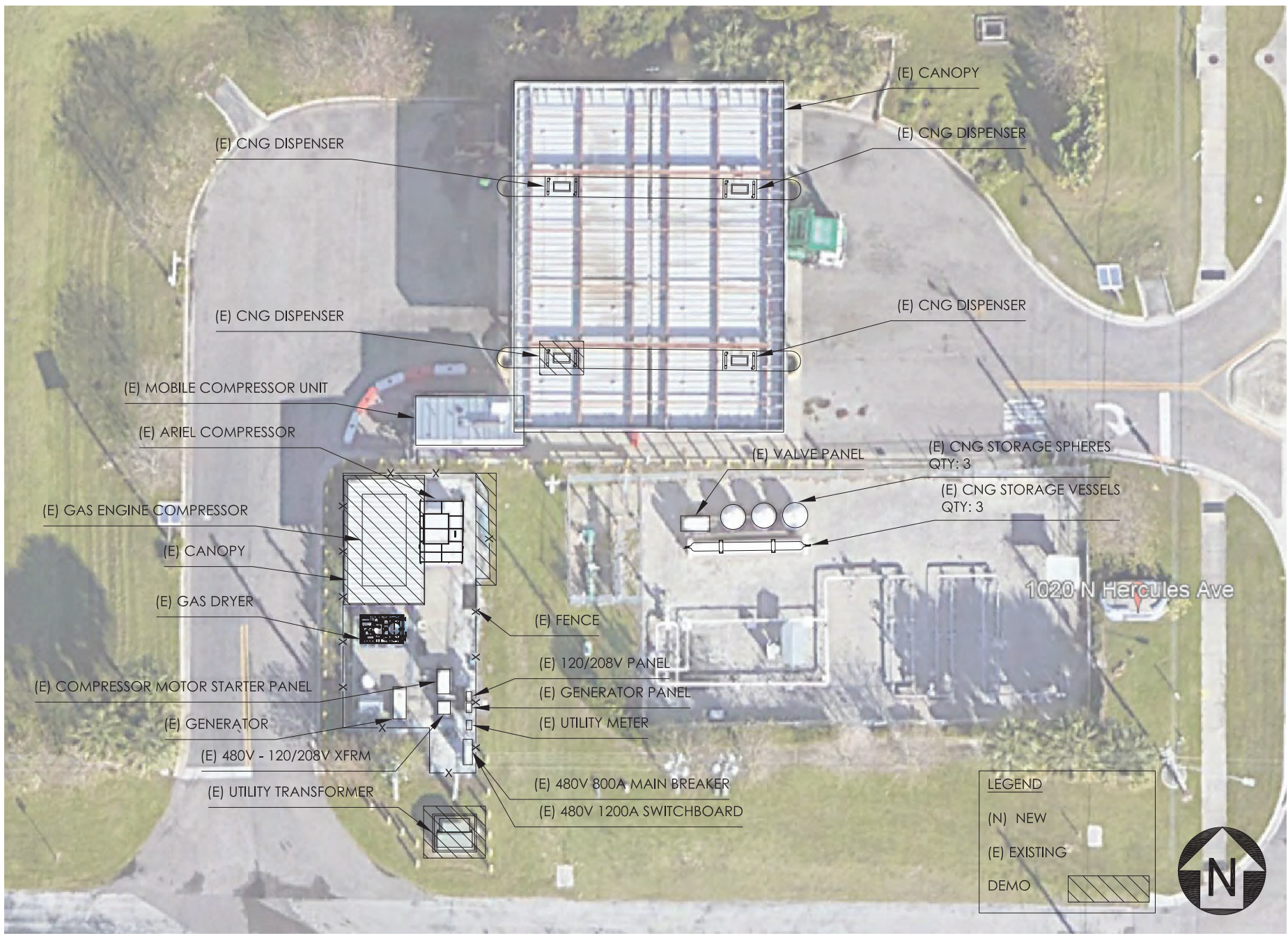
**PROJECT NAME:**  
FL CLEARWATER  
CNG STATION  
UPGRADE PROJECT

**DRAWING NAME:**  
EXISTING  
SITE LAYOUT

**SHEET:**  
**PR-0**

**REVISION:**





REVISIONS:		
REV	DATE	REVISION
1	10/23/20	PROPOSAL DRAWING

**PROPOSAL**

ADDRESS:  
1020 N. HERCULES AVE.  
CLEARWATER, FL 33765

CHECKS:  
DRAWN BY: P. PUMAGALLI  
DRAWN DATE: 10/23/2020  
CHECKED BY:  
CHECKED DATE:

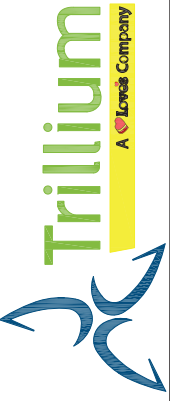
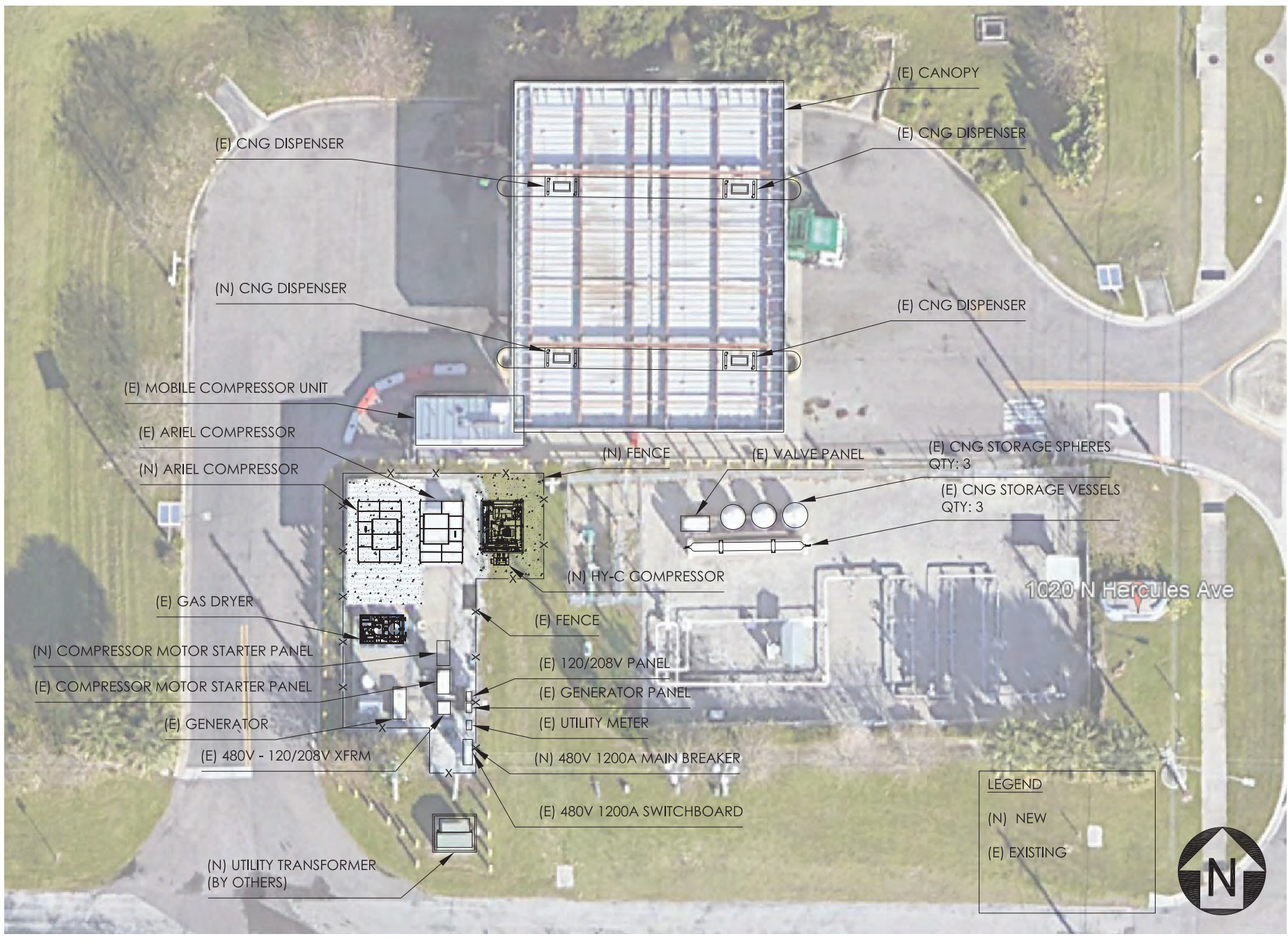
PROJECT NAME:  
FL CLEARWATER  
CNG STATION  
UPGRADE PROJECT

DRAWING NAME:  
DEMO  
SITE LAYOUT

SHEET:  
**PR-1**

REVISION:





REVISIONS:		
REV	DATE	REVISION
Δ	10.23.20	PROPOSAL DRAWING

PROPOSAL

ADDRESS:  
1020 N. HERCULES AVE.  
CLEARWATER, FL 33765

CHECKS:  
DRAWN BY: P. FUMAGALLI  
DRAWN DATE: 10/23/2020  
CHECKED BY:  
CHECKED DATE:

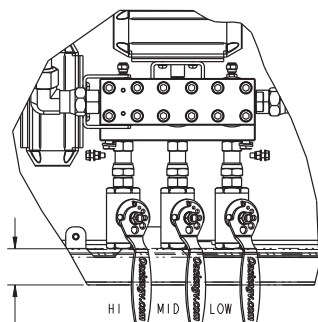
PROJECT NAME:  
FL CLEARWATER  
CNG STATION  
UPGRADE PROJECT

DRAWING NAME:  
UPGRADE  
SITE LAYOUT

SHEET:  
PR-2  
REVISION: Δ

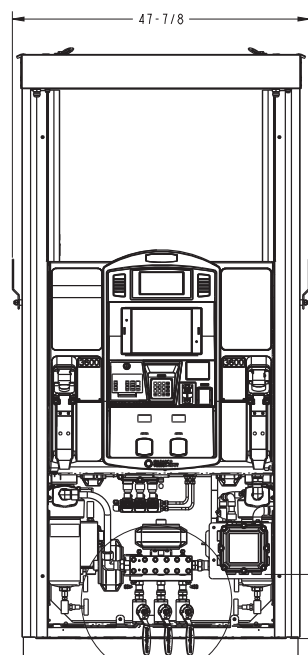
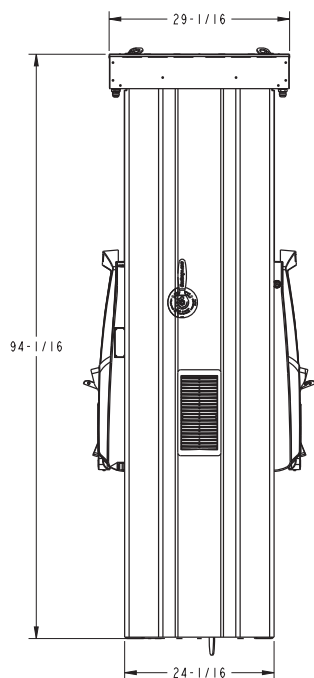
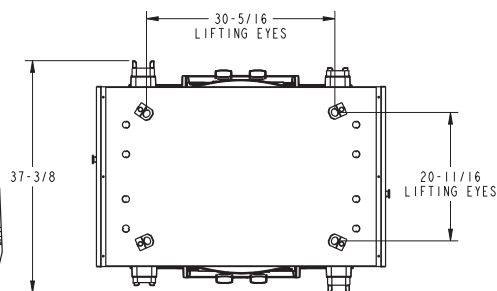


1. ALLOW 18 INCHES ON THE SIDES OF THE DISPENSER TO ALLOW PROPER SERVICE ACCESS.



2-3/8  
GAS INLET CONNECTIONS (3)  
3/4" FEMALE SAE (SAE-12)

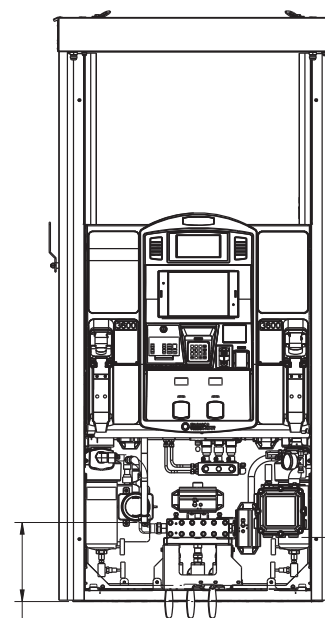
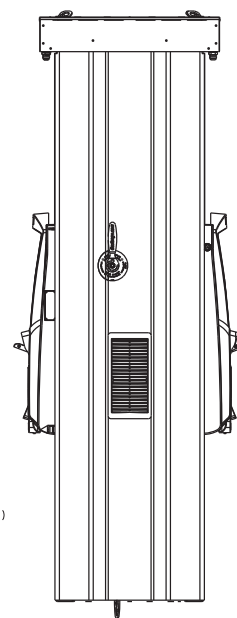
DETAIL A  
SCALE 0.250



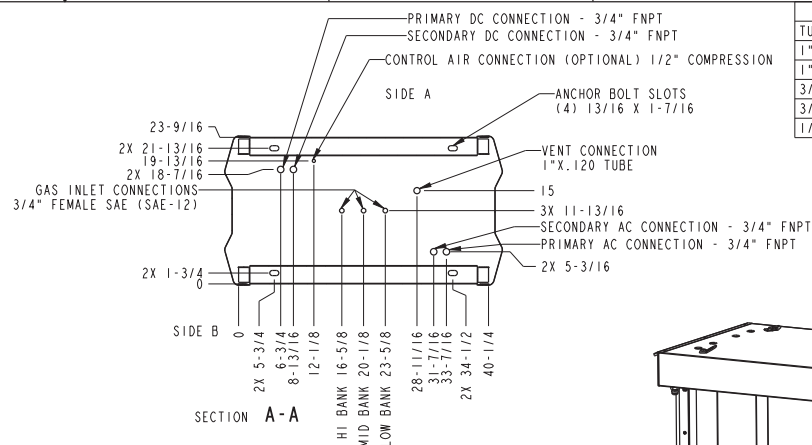
10-5/16  
AC CONNECTIONS (2)  
3/4" FNPT

SEE DETAIL A

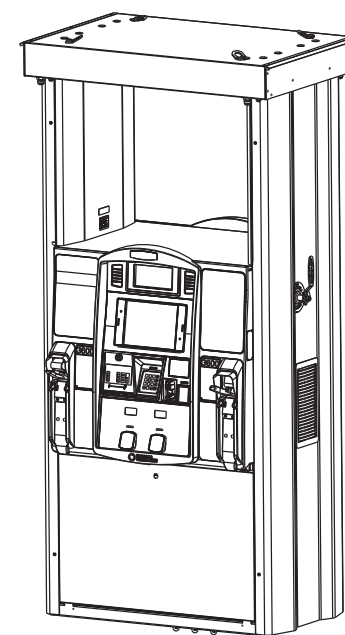
SIDE




12-3/4  
VENT CONNECTION  
1"X.120"W SS TUBE

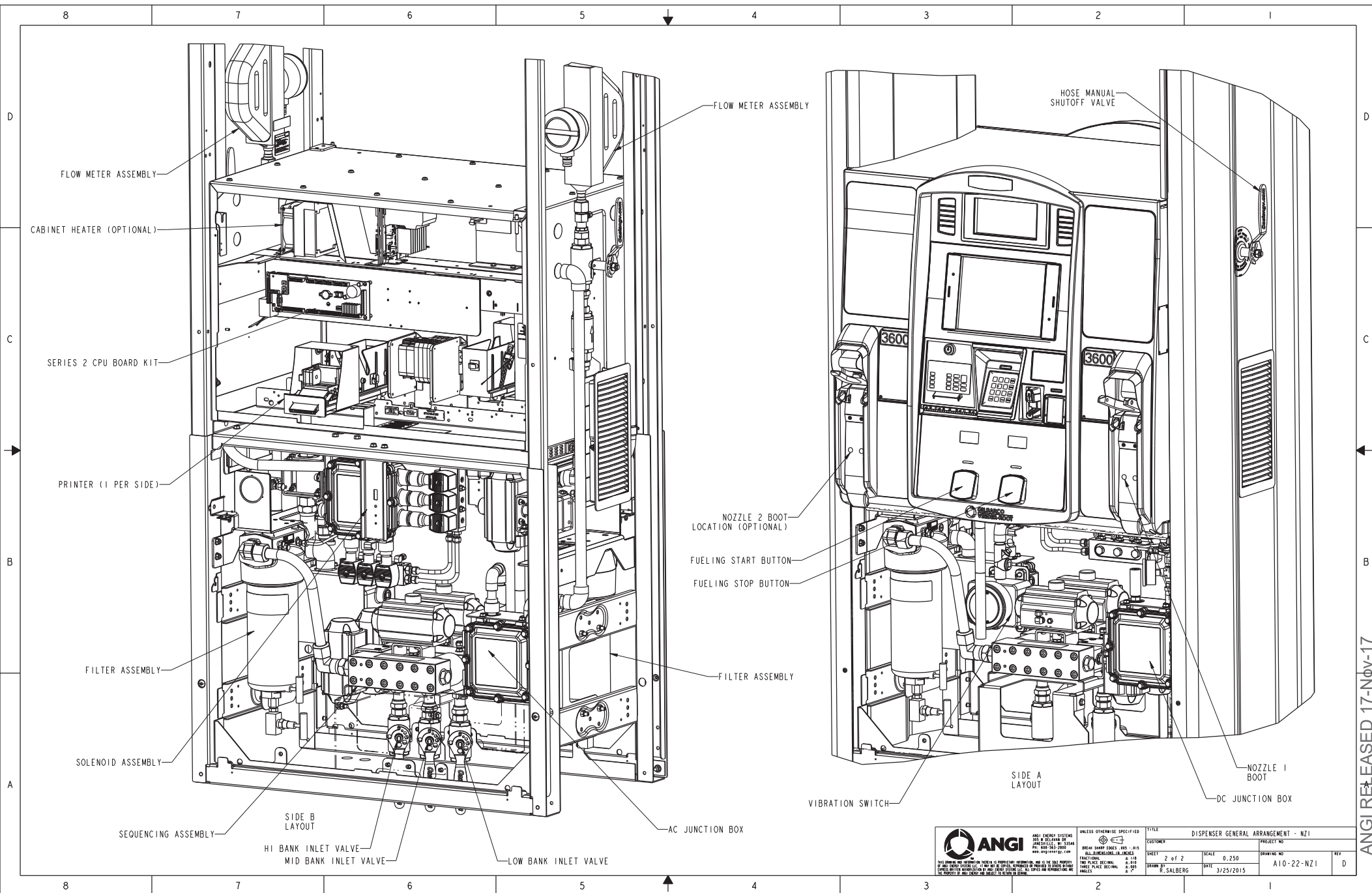


TUBING SCHEDULE	
TUBE	LOCATION
1"X.125"MW SS	MAIN SUPPLY
1"X.120"W SS	MAIN VENT
3/4"X.109"W SS	HOSE SUPPLY
3/8"X.065"W SS	VENT, PILOT SOLENOIDS
1/4"X.049"W SS	GAUGE,ACTUATOR SUPPLY



D	10/13/2016	R. SALBERG	ADDED NOTE STACK. ACN1003653.
C	4/18/2016	R. SALBERG	MOVED AC BOX, DC BOX. ADDED TUBING SCHEDULE.
B	8/18/2015	R. SALBERG	ADDED VIBRATION SWITCH - STANDARD.
A	4/27/2015	R. SALBERG	UPDATED DIMENSIONS.
DATE		APPROVED	DESCRIPTION
UNLESS OTHERWISE SPECIFIED		TITLE	DISPENSER GENERAL ARRANGMENT - NZI
		CUSTOMER	PROJECT NO
DESIGN START DATES 1605 - 015 DESIGN COMPLETE 1605 - 015 FUNCTIONAL DESIGN 1605 - 015 3D MODEL 1605 - 015 2D PLANS 1605 - 015 3D PRINTING 1605 - 015		SHEET 1 of 2 DRAWN BY R. SALBERG DATE 3/25/2015	DRAWING NO A10-22-NZI





<b>ANGI</b> <small>ANGI ENERGY SYSTEMS          333 W. DELAWARE ST.          ANTONIO, TX 78104          TEL: 214-241-2000          FAX: 214-241-2000          WWW.ANGIENERGY.COM</small>		UNLESS OTHERWISE SPECIFIED		TITLE	
		<small>ANGI ENERGY SYSTEMS, ANG - ANG          ALL DIMENSIONS IN INCHES          DIMENSIONS IN PARENTHESIS ARE IN MILLIMETERS          FIRST PLACE DECIMALS: 0.000          SECOND PLACE DECIMALS: 0.00          THIRD PLACE DECIMALS: 0.000          FOURTH PLACE DECIMALS: 0.0000          ANGLES: 1/2°</small>		DISPENSER GENERAL ARRANGEMENT - NZ1	
CUSTOMER		SHEET		SCALE	
R. SALBERG		2 of 2		0.250	
DATE		DRAWN BY		PROJECT NO.	
3/25/2015		R. SALBERG		A10-22-NZ1	
REV		D		REV	

ANGI RELEASED 17-Nov-17

# NOTES:

1. DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-2009.
2. ALL HINGED DOORS SWING OUT 36" FROM THE ENCLOSURE.
3. ALLOW 48" ON THE MOTOR SIDE TO ALLOW FOR COOLER REMOVAL SEE SHEET 2.
4. THIS DRAWING IS AN ELECTRICAL SIDE CONDUIT CONFIGURATION, UNUSED SIDE ELECTRICAL PENETRATIONS ARE PLUGGED.
5. DRAIN VALVES EXTEND APPROXIMATELY 6 INCHES OUT FROM THE ENCLOSURE.

# COMPRESSOR DATA

WEIGHT: 15,000 LBS.

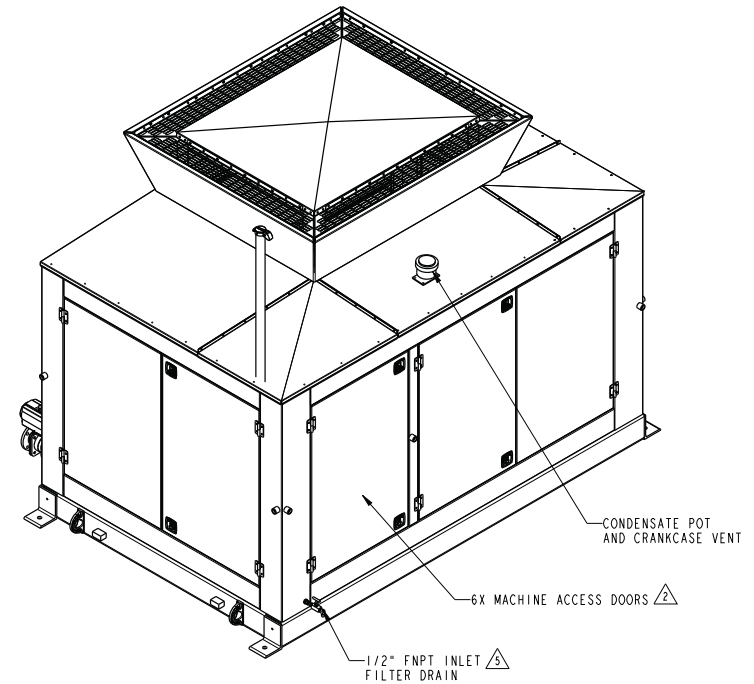
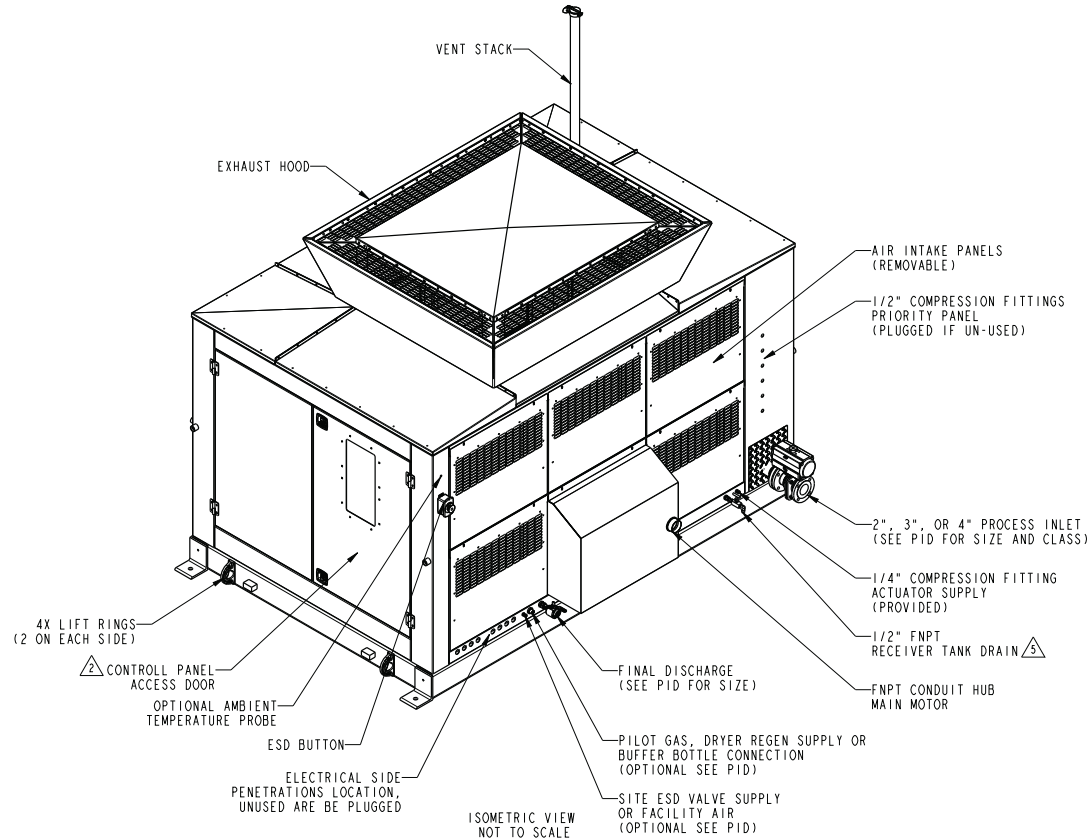
TYPE: ARIEL RECIPROCATING COMPRESSOR, CYLINDERS MAY VARY FROM THOSE SHOWN.

CLEARANCE: ALLOW 36" MINIMUM ON ALL SIDES FOR ACCESS UNLESS OTHERWISE INDICATED.

MOUNTING: REQUIRES SIX (6) 1" DIAMETER ANCHOR BOLTS (NOT PROVIDED BY ANGI). GROUTING THE COMPRESSOR TO THE CONCRETE PAD IS NOT RECOMMENDED.

LIFTING: MINIMUM 13" SPREADER BAR IS REQUIRED. UTILIZE FOUR (4) LIFT RINGS.

SHIPPING: VENT STACK IS REMOVED FOR SHIPPING.



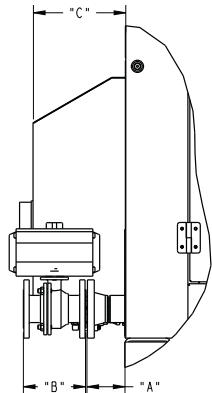
ISOMETRIC VIEW  
NOT TO SCALE



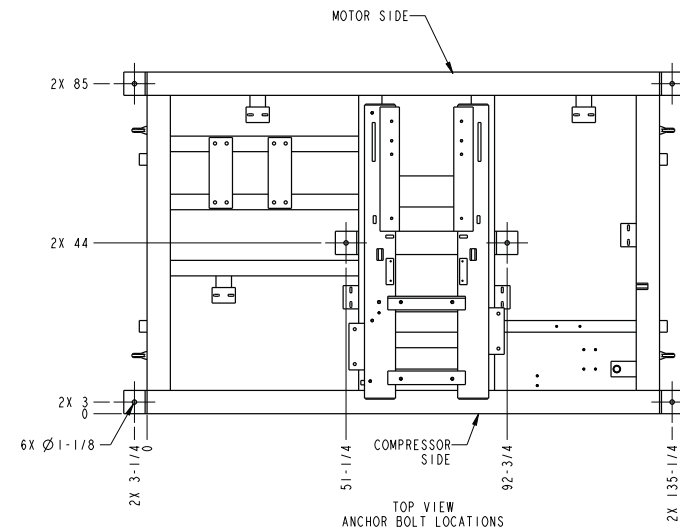
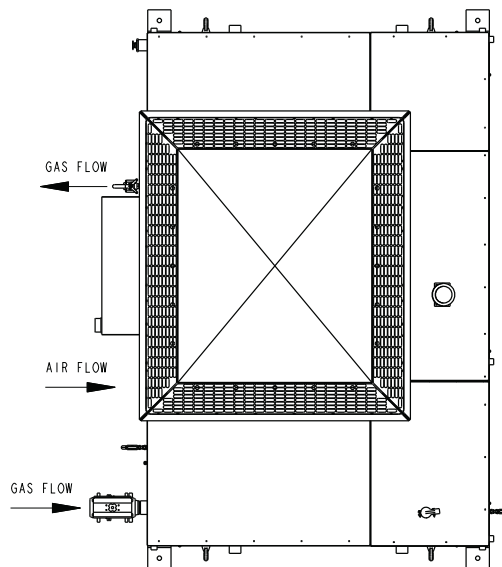
REV	DATE	APPROVED	TITLE	CUSTOMER	PROJECT NO.
B	01/31/2018	JFO	ADDED AMBIENT TEMP PROBE LOCATION; ACN1005539		
A	11/13/2017	JFO	NEW GAD; ACN1003900		
GENERAL LAYOUT-NG300E SIMPLEX-SIDE PENETRATION					
UNLESS OTHERWISE SPECIFIED			DRAWING NO.		
DRAWN: JERRY L. GADSDEN - JLS			SHEET 1 of 2		
ALL DIMENSIONS IN INCHES			SCALE 0.063		
TWO PLACE DECIMALS			DATE 11/09/2017		
THREE PLACE DECIMALS			DRAWN BY JFO		
FOUR PLACE DECIMALS			PROJECT NO. A05-10-ES-SIDE		
ANGLES			REV B		

INLET VALVE CHARTED DIMENSIONS			
SIZE INLET Ø	CLASS	DIM "A" ± 1/2"	DIM "B"
2	150	5.00	7.00
2	300	5.00	8.50
2	600	5.00	8.50
3	300	5.00	11.12
3	300	5.00	11.12
3	150	5.00	8.00
4	150	5.00	9.00

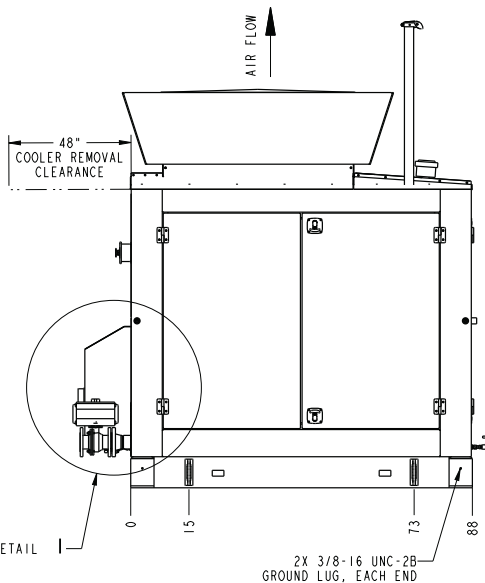
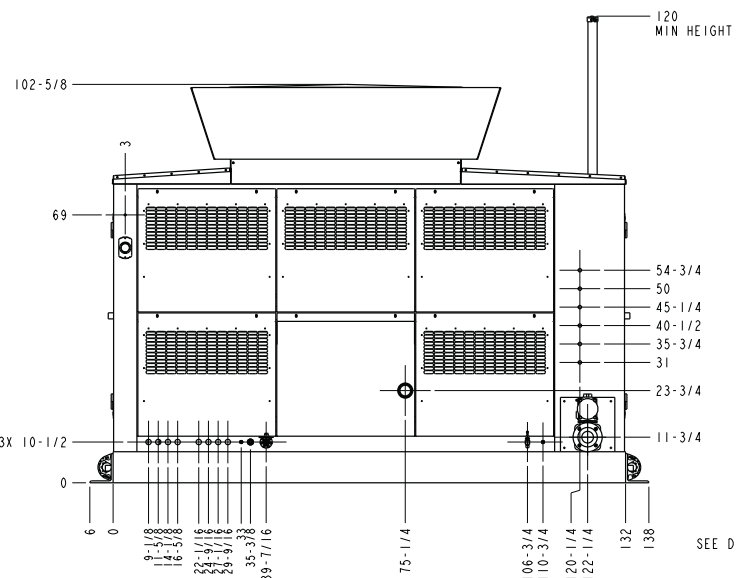
ENCLOSURE BUMP OUT WIDTH - SEE SITE PID TO DETERMINE DIM "C"		
ENGINE HP	BUMP OUT STYLE	DIM "C"
100 HP	E1	0.00
125 HP	E1	0.00
150 HP	E1	0.00
200 HP	E2	5.19
250 HP	E2	5.19
300 HP	E3	10.39
300+ HP	E4	11.89



DETAIL I  
INLET AND ENCLOSURE  
BUMP OUT DETAIL  
SCALE 0.125

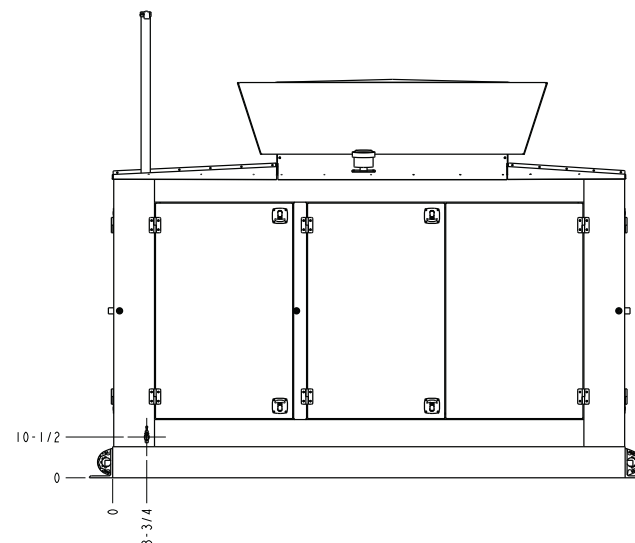


TOP VIEW  
ANCHOR BOLT LOCATIONS



SEE DETAIL I

2X 3/8-16 UNC-2B  
GROUND LUG, EACH END



<b>ANGI</b> <small>ANGI ENERGY SYSTEMS          333 W. DELAWARE ST.          ANGELES, TX 75204          POC: 800-541-2888          WWW.ANGI-ENERGY.COM</small>		<small>UNLESS OTHERWISE SPECIFIED</small> 1/2" THICK PLATE SECTION 1/4" THICK PLATE SECTION <small>ALL DIMENSIONS ARE IN INCHES</small>		<b>TITLE</b> GENERAL LAYOUT-NG300E SIMPLEX-SIDE PENETRATION	
<b>CUSTOMER</b> SHEET 2 of 2		<b>SCALE</b> 0.063		<b>PROJECT NO.</b> A05-10-ES-SIDE	
<b>DRAWN BY</b> JFG		<b>DATE</b> 11/09/2017		<b>REV</b> B	

## **Trillium HY-C Compressor Information**

Please note the Trillium HY-C Compressor information is located on the following pages.

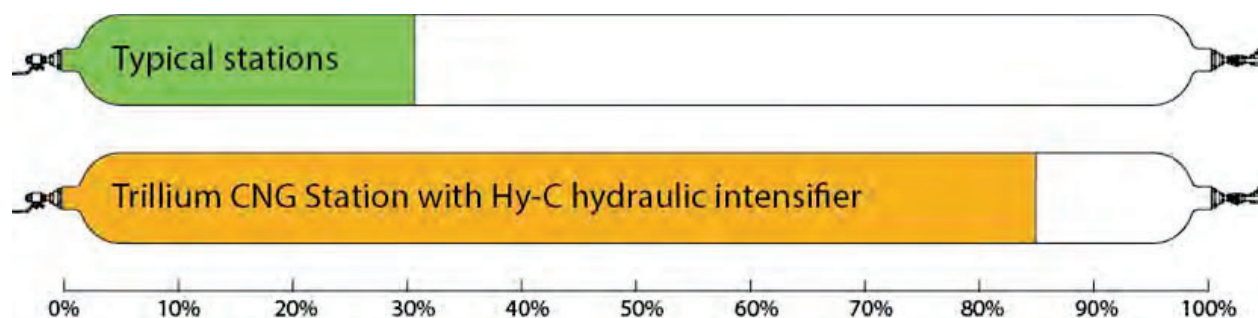


## Trillium's Hydraulic Intensifier Compressor

Trillium's proprietary hydraulic intensifier compressor (Hy-C) provides benefits and resulting cost savings not possible with other compression systems. These include lower electrical costs, better utilization of stored CNG, and faster fill rates. Trillium likes to include our Hy-C in as many capacity CNG stations as possible.

Typical CNG stations are built using a three-bank cascade fueling system separated into high, medium, and low banks. When vehicles connect to refuel, they receive low bank gas until the vehicle and storage pressure is equalized. The CNG system then switches to medium bank until the medium bank pressure is equalized and then transfers to the high bank until the high bank pressure is equalized. After the three-bank pressurization, the compressors turn on and finish the fueling with "topping off" the vehicle.

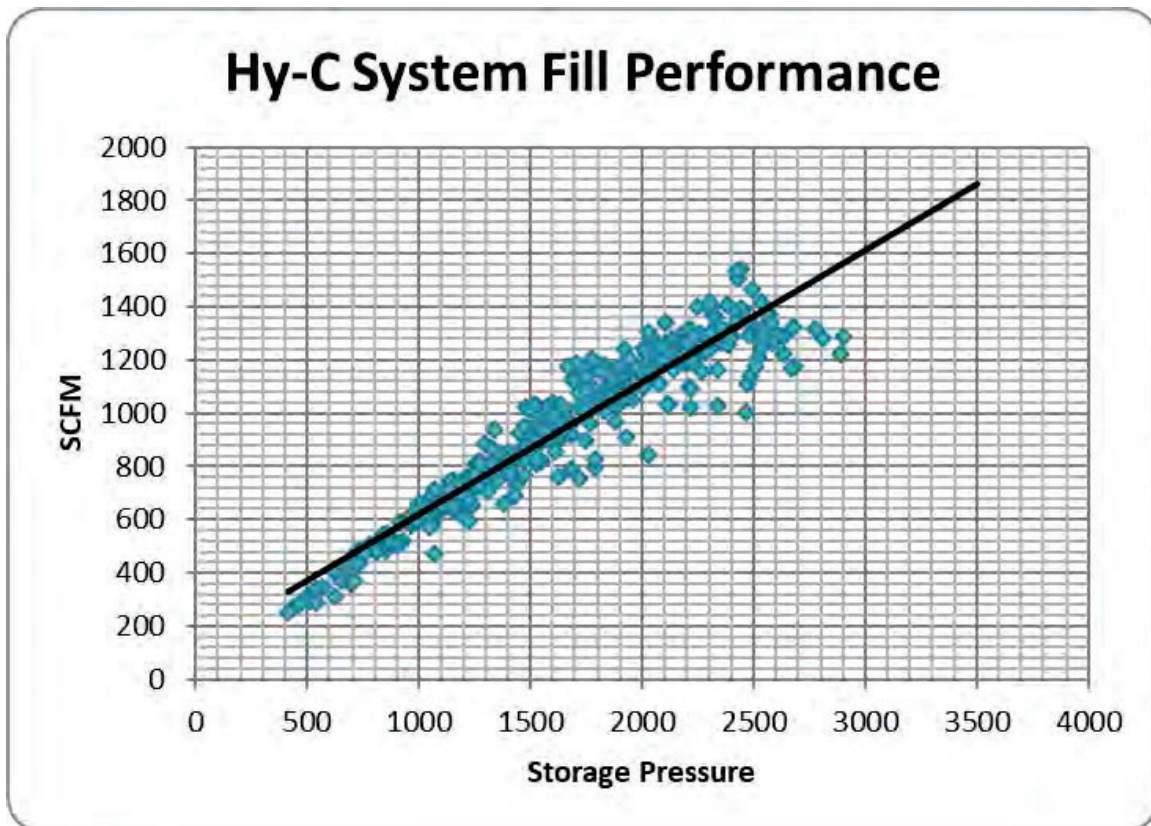
The Trillium Hy-C makes better use of the valuable stored gas than the cascade fueling system as illustrated below. A typical cascade system can utilize 1 GGE's of the available 270 GGE at 4,200 psi or about 0. The Trillium system combines all the on-site storage vessels into a single bank. Thus, the Trillium Hy-C utilizes 2.0 GGE's of the 270 GGE total or approximately 5% of the fuel. This is a 2.5% increase in storage pressure utilization over the cascade system that ultimately results in savings. The Hy-C's ability to use more of the available on-site gas storage lowers the number of compressor starts and stops and reduces power consumption and maintenance costs.



*A Trillium equipped HY-C station utilizes approximately 85% of the fuel versus a traditional CNG Cascade System*

Having this capability ensures high speed refueling performance "throughout the fill process" not just initially. The illustration on the following page shows the delivery rate at various suction pressures for a 5" H-C system. Trillium also offers a 7" H-C with delivery rates as high as 20 GGE/minute.

Speed of fill is critically important because it impacts labor costs. When drivers or refuelers are waiting around due to extended fueling times, it costs our clients money. Optimizing your fueling experience with a H-C for high capacity refueling is just smart. It saves time and money.



*The black line illustrates the rate for performance from a 5" HY-C when connected high pressure CNG storage*

The H-C compressor, unlike most CNG systems, reduces the electricity consumption of the CNG station and saves money during peak power periods. In a typical CNG cascade style station configuration equipped with one or two reciprocating compressors, the station must run the compressor(s) to fill vehicles with an acceptable flow rate. With a H-C it is possible to fill a vehicle at the flow rates illustrated above without turning on any additional compressors. Savings are realized because the H-C uses only one 75 HP motor (or 125 HP depending on piston size), versus 200-400 HP required for a cascade compression system. Savings during peak rate periods will vary based on the local utility power rates but add up quickly.



Hy-C compressor installed at a public fueling station

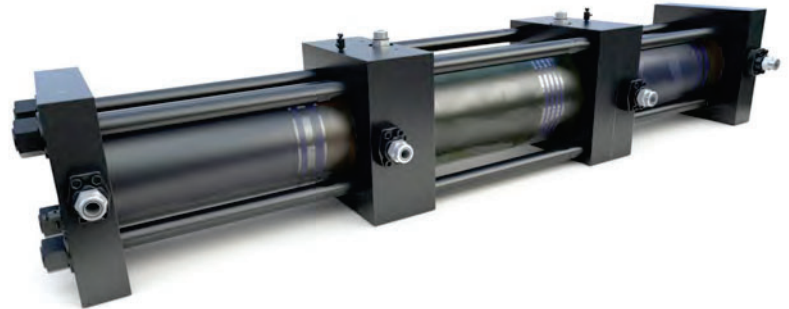
# 5" AND 7" HY-C COMPRESSORS



SIMPLIFYING  
SUSTAINABILITY

## Advantages of the HY-C

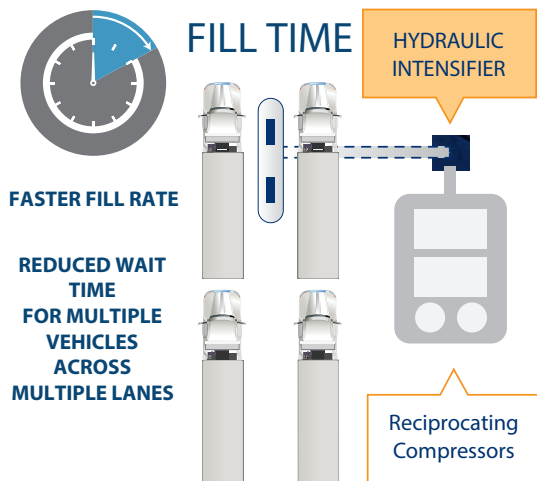
- Reduces driver fueling time
- Faster fueling across multiple lanes
- Fast-fill fuel delivery with low horsepower



Hydraulic Intensifier Compressor (HY-C)

## Fueling CNG Vehicles Fast Than Ever

OUR HYDRAULIC INTENSIFIER COMPRESSOR (HY-C) CAN CUT REFUELING TIME IN HALF



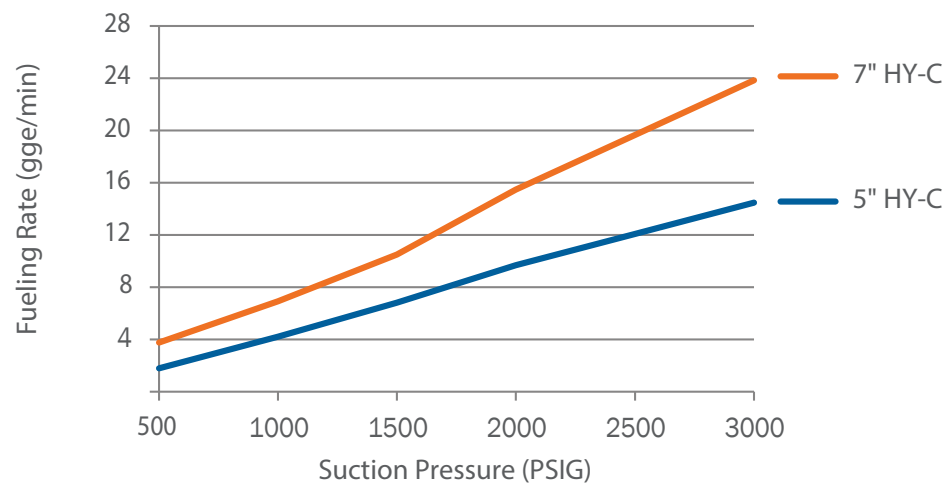
Today's heavy-duty fleets require high CNG delivery rates across multiple fueling lanes to reduce fueling downtime and improve driver productivity. To accomplish that, Trillium CNG has developed the next generation fast-fill refueling technology which helps customers wait less and drive more.

## EQUIPMENT SPECIFICATIONS

COMPRESSOR	5" HYDRAULIC INTENSIFIER	7" HYDRAULIC INTENSIFIER
MAIN MOTOR	75 HP	125 HP
PACKAGE SIZE	LENGTH*: 126" WIDTH: 102"	LENGTH*: 156" WIDTH: 102"
POWER REQUIREMENTS	150 A @ 480VAC	250 A @ 480VAC
GAS SUPPLY	300 PSI - 3500 PSI	300 PSI - 3500 PSI
MAX DISCHARGE PRESSURE	4500 PSI	4500 PSI

\*Excluding lift lugs and control panel

### HY-C Displacement



Trillium CNG is the market leader in fast-fill CNG refueling innovation, providing CNG solutions for over 20 years with a focus on customer service and station reliability.



## THE TRILLIUM ADVANTAGE

- Two Decades of Alternative Fueling Systems Design and Construction
- No Shortcuts
- On Time, On Budget
- Customized Design Solutions
- 30% - 40% Faster Fill Times
- Improved Energy Efficiency



## SIMPLIFYING SUSTAINABILITY

### FROM THE GROUND UP

No matter what stage you're in with alternative fuels adoption, Trillium provides trusted experts with the knowledge to take you through the design and construction of your fueling station. Our expert team of engineers begins by examining the Customer's daily schedule and fueling needs. The next step includes designing cost and energy-efficient fueling systems, using only the highest-quality products and parts. After construction and installation are complete, our team conducts rigorous quality and performance tests to ensure the station will continue to run at the peak of efficiency.

### THE STANDARD OF SAFETY

Throughout the Design and Build process, safety is always our primary concern. We design our systems in such a way that the equipment won't be pushed to the edge daily. This ensures that operating temperatures and other stressors stay within standard operating parameters. Overall, Trillium-built stations last longer – saving you money and providing peace of mind.



## EQUIPMENT

When you compare a Trillium fueling station to one of our competitors, some differences are clear while others are hidden in the details, but all of them pay off in the long run.

What does our “no shortcuts” approach to engineering mean? It means our equipment can last up to 20 years or longer when properly installed and maintained.

### Here's what sets us apart:

- Fueling systems equipment can go through a lot – constant vibration, pressure, harmonic damage – and this can lead to expensive repairs. Our proprietary and proven smart controls optimize fueling, balance equipment loads, and reduce the number of starts to decrease wear on the compressors. This prevents unforeseen equipment breakdowns and extends the life of your station. We couple this technology with compressors that have been
- specially engineered to handle the rigors of heavyduty work, giving you the peace of mind that comes with a reliable station.
- Due to Trillium's buying power, we can often acquire parts and equipment at wholesale price and are able to pass that discount on to our customers. This way your station can run on quality equipment without breaking the bank.
- All of our designs include quality components and materials that are designed to save you money across the life cycle of your station. Whenever possible, Trillium uses commonly manufactured parts with standard specifications, allowing them to be easily replaced.
- All told, Trillium stations typically operate 10% – 20% more efficiently than other alternative fueling systems. That's the Trillium Advantage.



TO LEARN MORE ABOUT TRILLIUM, CALL OR VISIT:  
1-800-920-1166 | [www.loves.com/trillium](http://www.loves.com/trillium)



