METRO BUS
the people picker-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

BID PACKAGE No.2 CNG EQUIPMENT INSTALLATION

SEPTEMBER 13, 2013

PROJECT DRAWING LIST

PHASING

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
PH100	FIRST FLOOR PHASING PLAN					

CNG ELECTRICAL

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
CNG E100	ELECTRICAL SITE PLAN		X			
CNG E201	REFUELING & COMPRESSOR COMPOUND POWER & SYSTEMS PLAN		X			
CNG E601	ELECTRICAL SYMBOLS, ABBREVIATIONS, AND NOTES		X			
CNG E200	REFUELING & COMPRESSOR COMPOUND GROUNDING		X			
CNG E202	REFUELING & COMPRESSOR COMPOUND HAZZARDOUS LOCATIONS PLAN		X			
CNG E300	FUELING GROUNDING		X			
CNG E301	FUELING POWER & SYSTEMS PLAN		X			
CNG E302	FUELING HAZZARDOUS LOCATIONS PLAN		X			
CNG E600	ONE LINE DIAGRAM		X			
CNG E601	ELECTRICAL RACEWAY & WIRING DIAGRAM		X			
CNG E700	ELECTRICAL DETAILS		X			

CNG MECHANICAL

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
CNG M101	CNG PLAN		X			
CNG M102	ENLARGED CNG SITE PLAN		X			
CNG M103	ENLARGED CNG FUELING LANES PLAN		X			
CNG M01	P&ID INSTRUMENTATION DIAGRAM		X			

CIVIL

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
C1	GENERAL NOTES AND SPECIFICATIONS					
C2	SECTIONAL DETAILS					
C3	SECTIONAL DETAILS					
C4	GRADING & EROSION CONTROL PLAN					
C5	PAVING PLAN					

ARCHITECTURAL / STRUCTURAL

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
D-101A	MAIN BUS STORAGE FIRST FLOOR PARTIAL DEMOLITION PLAN - AREA A					
D-101B	MAIN BUS STORAGE FIRST FLOOR PARTIAL DEMOLITION PLAN - AREA B					
D-101C	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL DEMOLITION PLAN - AREA C					
D-101D	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL DEMOLITION PLAN - AREA D					
S001	STRUCTURAL NOTES, ABBREVIATIONS AND TYPICAL DETAILS					
S002	TYPICAL DETAILS					
S100	OVERALL FLOOR PLAN					
S101	MAIN BUS STORAGE FIRST FLOOR PARTIAL PLAN - AREA A					
S102	MAIN BUS STORAGE FIRST FLOOR PARTIAL PLAN - AREA B					
S103	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL PLAN - AREA C					
S104	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL PLAN - AREA D					
S110	CANOPY FOUNDATION AND FRAMING PLAN					
S111	CANOPY SECTIONS AND DETAILS					
S200	OVERALL ROOF PLAN					
S201	MAIN BUS STORAGE ROOF PARTIAL PLAN - AREA A					
S202	MAIN BUS STORAGE ROOF PARTIAL PLAN - AREA B					
S203	DIAL-A-RIDE STORAGE ROOF PARTIAL PLAN - AREAS C & D					
S210	FRAMING PLAN AND ELEVATIONS					
S300	TYPICAL DETAILS					
S301	SECTIONAL DETAILS					
S302	RAISING / LIFTING MECHANISM DETAILS					
L100	SITE PLAN					
A100	CANOPY ROOF PLAN, ROOF PLAN, AND ELEVATION					
A101	CANOPY SECTIONS AND DETAILS					
A102	CANOPY DETAILS					
A103	PRECAST CONCRETE					

HVAC

DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
DH101	MAIN BUS STORAGE FIRST FLOOR PARTIAL HVAC DEMOLITION PLAN AREA - A					
DH102	MAIN BUS MAINTENANCE FIRST FLOOR PARTIAL HVAC DEMOLITION PLAN AREA -B					
DH103	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL HVAC DEMOLITION PLAN AREA - C					
DH104	DIAL-A- RIDE MAINTENANCE FIRST FLOOR PARTIAL HVAC DEMOLITION PLAN AREA -D					
DH105	MAIN BUS STORAGE ROOF PARTIAL HVAC DEMOLITION PLAN AREA - A					
DH106	MAIN BUS MAINTENANCE ROOF PARTIAL HVAC DEMOLITION PLAN AREA -B					
DH107	DIAL-A-RIDE STORAGE ROOF PARTIAL HVAC DEMOLITION PLAN AREA - C					
DH108	DIAL-A- RIDE MAINTENANCE ROOF PARTIAL HVAC DEMOLITION PLAN AREA -D					
H001	HVAC ABBREVIATIONS, SYMBOLS, AND LEGENDS					
H101	MAIN BUS STORAGE FIRST FLOOR PARTIAL HVAC PLAN AREA A					
H102	MAIN BUS MAINTENANCE FIRST FLOOR PARTIAL HVAC PLAN AREA B					
H103	DIAL-A-RIDE STORAGE FIRST FLOOR PARTIAL HVAC PLAN AREA C					
H104	DIAL-A-RIDE MAINTENANCE FIRST FLOOR PARTIAL HVAC PLAN AREA D					
H105	MAIN BUS STORAGE ROOF PARTIAL HVAC PLAN AREA - A					
H106	MAIN BUS MAINTENANCE ROOF PARTIAL HVAC PLAN AREA -B					
H107	DIAL-A-RIDE STORAGE ROOF PARTIAL HVAC PLAN AREA - C					
H108	DIAL-A- RIDE MAINTENANCE ROOF PARTIAL HVAC PLAN AREA -D					
H201	HVAC DETAILS-1					
H202	HVAC DETAILS-2					
H301	HVAC SCHEDULES					
H401	HVAC CONTROL DIAGRAMS-1					
H402	HVAC CONTROL DIAGRAMS-2					

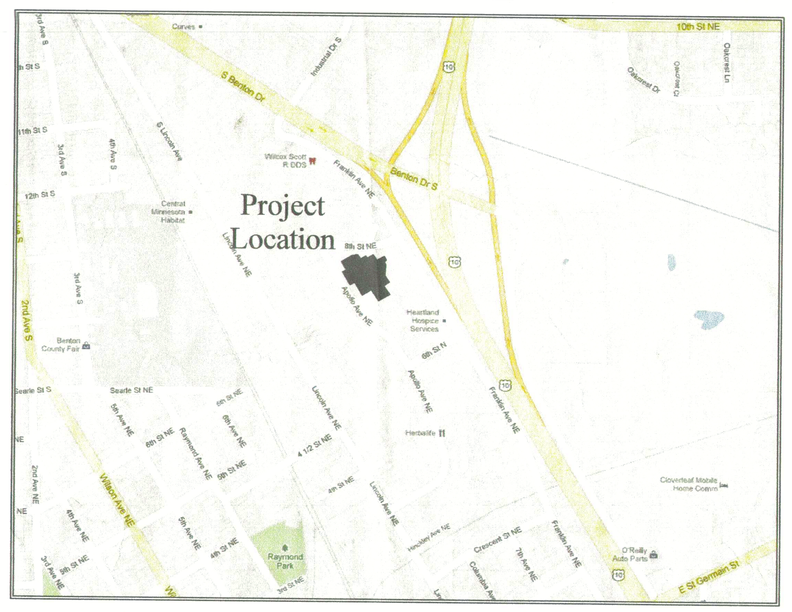
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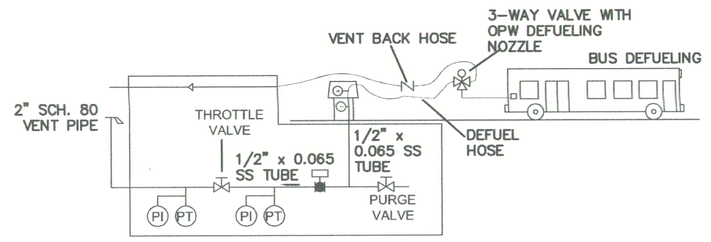
DWG No.	DWG TITLE	BID PACKAGES #1	#2	#3	#4	#5
E601	ELECTRICAL SYMBOLS, ABBREVIATIONS, AND NOTES					
ED101	AREA A GROUND FLOOR PLAN ELECTRICAL DEMOLITION WORK					
ED102	AREA B GROUND FLOOR PLAN ELECTRICAL DEMOLITION WORK					
ED103	AREA C GROUND FLOOR PLAN ELECTRICAL DEMOLITION WORK					
ED104	AREA D GROUND FLOOR PLAN ELECTRICAL DEMOLITION WORK					
ED105	AREA A - ROOF PLAN ELECTRICAL DEMOLITION WORK					
ED106	AREA B - ROOF PLAN ELECTRICAL DEMOLITION WORK					
ED107	AREA C - ROOF PLAN ELECTRICAL DEMOLITION WORK					
ED108	AREA D - ROOF PLAN DEMOLITION WORK					
E100	ELECTRICAL SITE PLAN					
E101	AREA A - GROUND FLOOR PLAN - POWER & SYSTEMS					
E102	AREA B - GROUND FLOOR PLAN - POWER & SYSTEMS					
E103	AREA C - GROUND FLOOR PLAN - POWER & SYSTEMS					
E104	AREA D - GROUND FLOOR PLAN - POWER & SYSTEMS					
E105	AREA A - GROUND FLOOR PLAN - LIGHTING					
E106	AREA B - GROUND FLOOR PLAN - LIGHTING					
E107	AREA C - GROUND FLOOR PLAN - LIGHTING					
E108	AREA D - GROUND FLOOR PLAN - LIGHTING					
E109	AREA A - ROOF PLAN - POWER & SYSTEMS					
E110	AREA B - ROOF PLAN - POWER & SYSTEMS					
E111	AREA C - ROOF PLAN - POWER & SYSTEMS					
E112	AREA D - ROOF PLAN - POWER & SYSTEMS					
E300	CANOPY LIGHTING PLAN					
E301	CANOPY POWER & SYSTEMS PLAN					
E500	ELECTRICAL SCHEDULES					
E700	ELECTRICAL DETAILS					
E701	CCTV SYSTEM & FLAME/FIRE DETECTION SYSTEMS DETAILS					

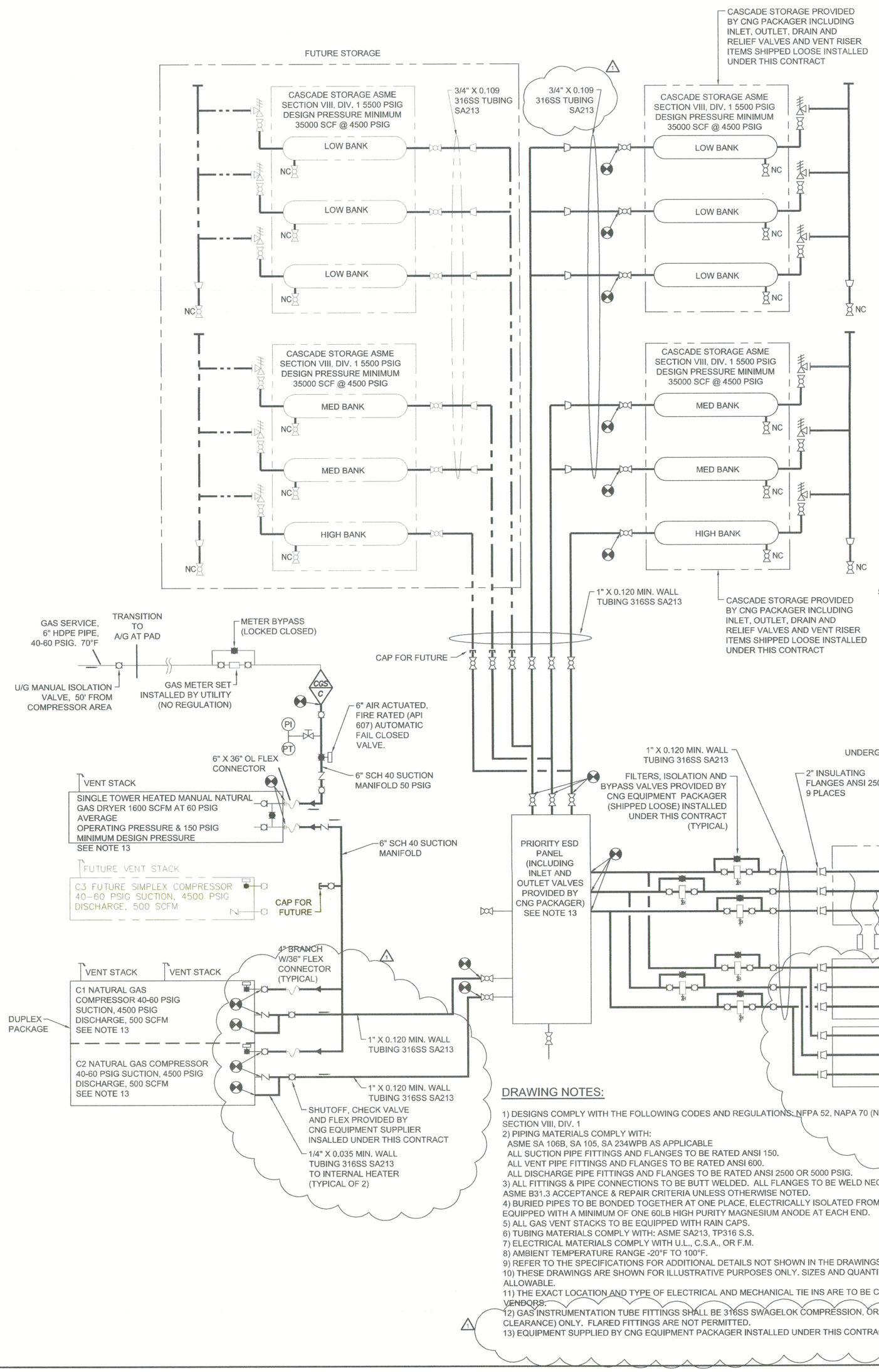
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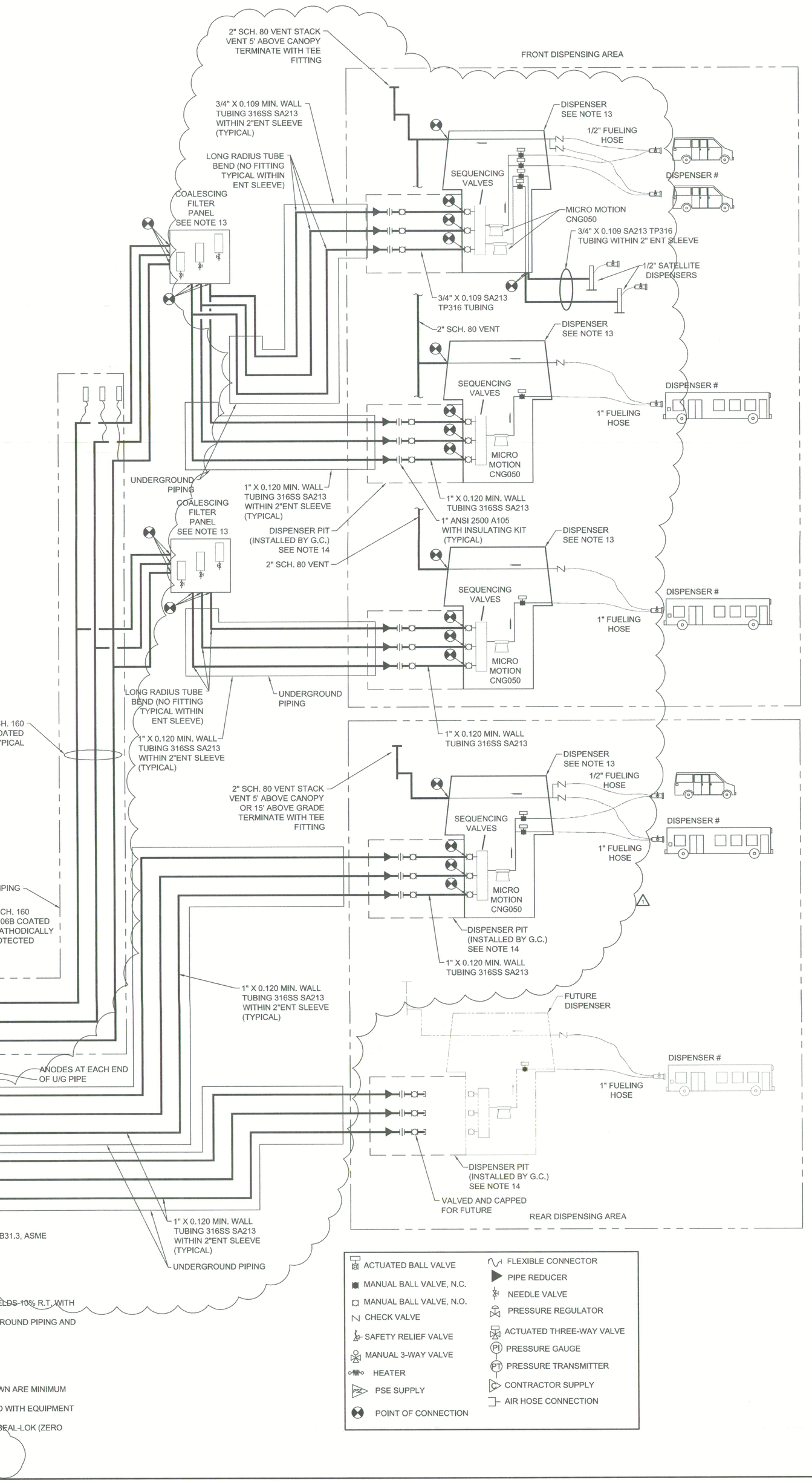
WD PROJECT # 462301

LOCATION MAP









DRAWING NOTES:

1) DESIGNS COMPLY WITH THE FOLLOWING CODES AND REGULATIONS: NFPA 52, NAPA 70 (NEC), ANSI B31.3, ASME SECTION VIII, DIV. 1
2) PIPING MATERIALS COMPLY WITH:
ASME SA 106B, SA 105, SA 234WPB AS APPLICABLE
ALL SUCTION PIPE FITTINGS AND FLANGES TO BE RATED ANSI 150.
ALL VENT PIPE FITTINGS AND FLANGES TO BE RATED ANSI 600.
ALL DISCHARGE PIPE FITTINGS AND FLANGES TO BE RATED ANSI 2500 OR 5000 PSIG.
3) ALL FITTINGS & PIPE CONNECTIONS TO BE BUTT WELDED. ALL FLANGES TO BE WELD NECK. ALL WELDS 100% R.T. WITH ASME B31.3 ACCEPTANCE & REPAIR CRITERIA UNLESS OTHERWISE NOTED.
4) BURIED PIPES TO BE BONDED TOGETHER AT ONE PLACE. ELECTRICALLY ISOLATED FROM ABOVE GROUND PIPING AND EQUIPPED WITH A MINIMUM OF ONE 60LB HIGH PURITY MAGNESIUM ANODE AT EACH END.
5) ALL GAS VENT STACKS TO BE EQUIPPED WITH RAIN CAPS.
6) TUBING MATERIALS COMPLY WITH: ASME SA213, TP316 S.S.
7) ELECTRICAL MATERIALS COMPLY WITH U.L., C.S.A., OR F.M.
8) AMBIENT TEMPERATURE RANGE -20°F TO 100°F.
9) REFER TO THE SPECIFICATIONS FOR ADDITIONAL DETAILS NOT SHOWN IN THE DRAWINGS.
10) THESE DRAWINGS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SIZES AND QUANTITIES SHOWN ARE MINIMUM ALLOWABLE.
11) THE EXACT LOCATION AND TYPE OF ELECTRICAL AND MECHANICAL TIE INS ARE TO BE CONFIRMED WITH EQUIPMENT VENDORS.
12) GAS INSTRUMENTATION TUBE FITTINGS SHALL BE 316SS SWAGELOK COMPRESSION, OR PARKER SEAL-LOK (ZERO CLEARANCE) ONLY. FLARED FITTINGS ARE NOT PERMITTED.
13) EQUIPMENT SUPPLIED BY CNG EQUIPMENT PACKAGER INSTALLED UNDER THIS CONTRACT.

- ACTUATED BALL VALVE
- MANUAL BALL VALVE, N.C.
- MANUAL BALL VALVE, N.O.
- CHECK VALVE
- SAFETY RELIEF VALVE
- MANUAL 3-WAY VALVE
- HEATER
- PSE SUPPLY
- POINT OF CONNECTION
- FLEXIBLE CONNECTOR
- PIPE REDUCER
- NEEDLE VALVE
- PRESSURE REGULATOR
- ACTUATED THREE-WAY VALVE
- PRESSURE GAUGE (PI)
- PRESSURE TRANSMITTER (PT)
- CONTRACTOR SUPPLY
- AIR HOSE CONNECTION

METRO BUS
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ST. CLOUD METROPOLITAN TRANSIT COMMISION

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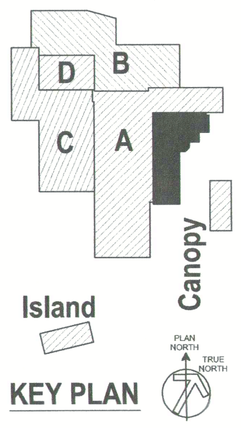
CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

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KEY PLAN

NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

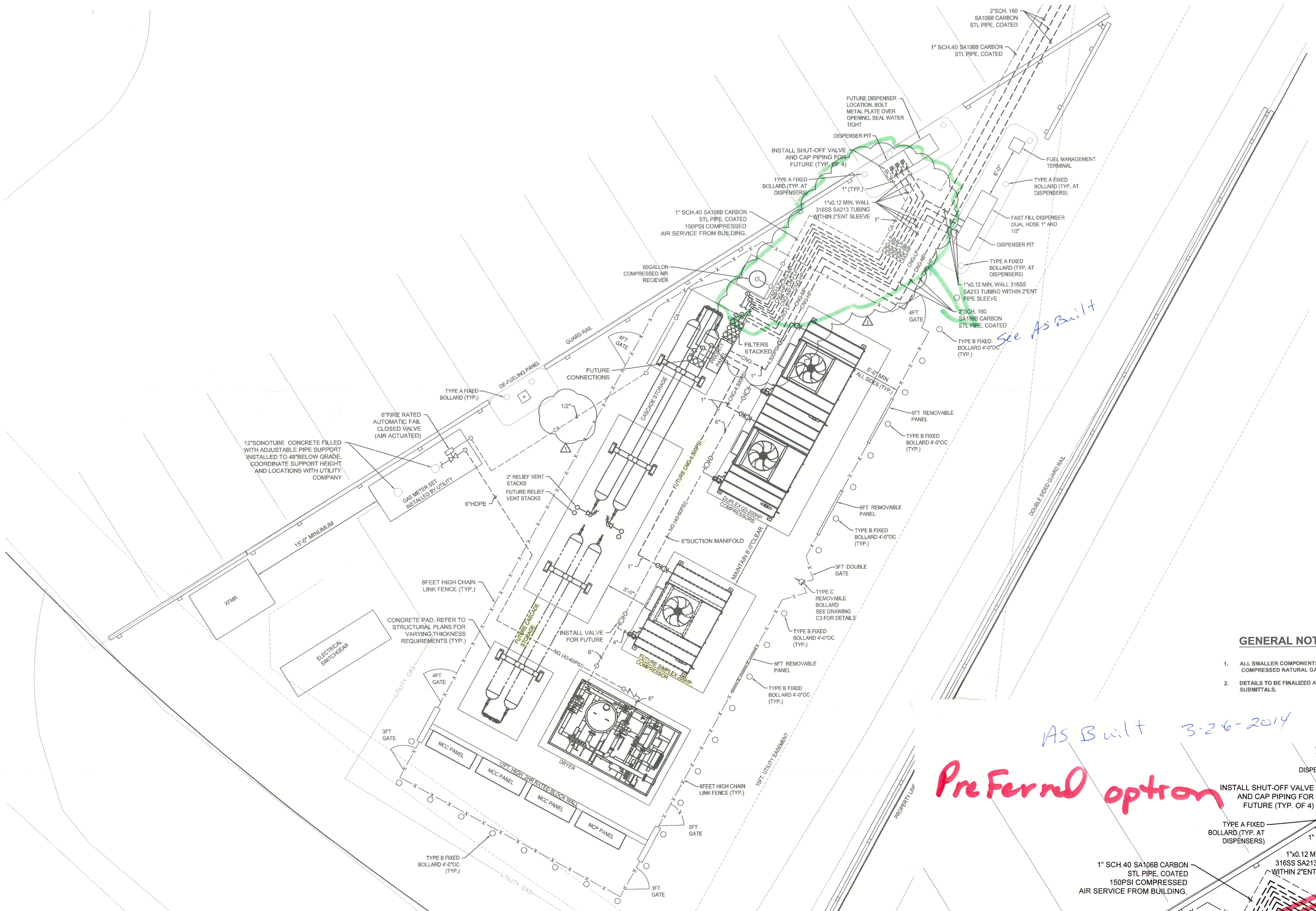
DWG. TITLE

P&ID

PIPING & INSTRUMENTATION DIAGRAM

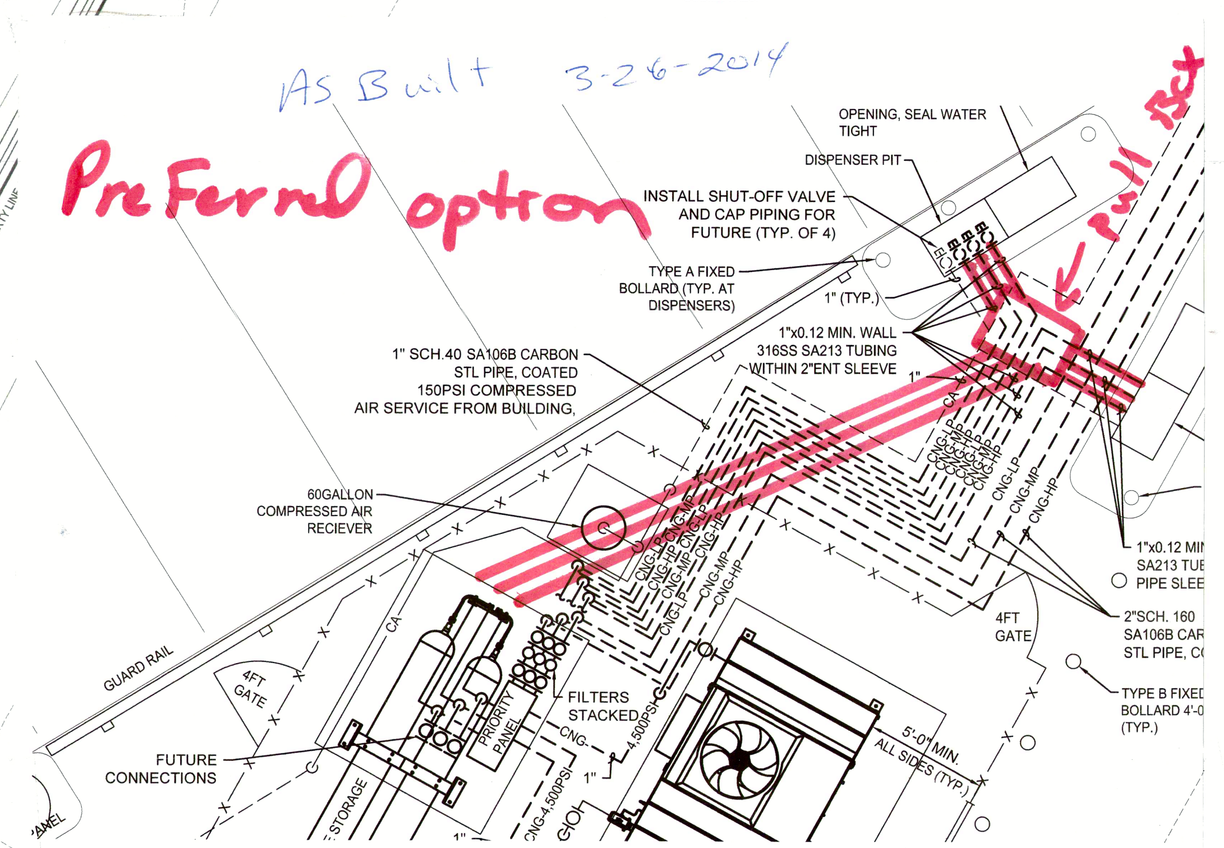
DATE	09/13/13
SCALE	NTS
DWN.	KWH
CHK.	RRA
PROJ. No.	462301
DWG. No.	CNG M01

09-20-2013 M:\462301 ST CLOUD METRO BUS UPGRADES\14 DRAWINGS\COMPOSITION\ M1.DWG



GENERAL NOTES:

1. ALL SMALLER COMPONENTS NOT SHOWN. FOR ADDITIONAL INFORMATION REFER TO COMPRESSED NATURAL GAS P&ID ON DRAWING CNG M01.
2. DETAILS TO BE FINALIZED AFTER RECEIPT AND APPROVAL OF CNG SKID MANUFACTURERS SUBMITTALS.



1 ENLARGED CNG EQUIPMENT PLAN
SCALE: 1"=5'

METRO BUS
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ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

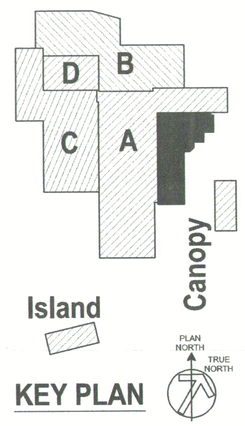
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KEY PLAN

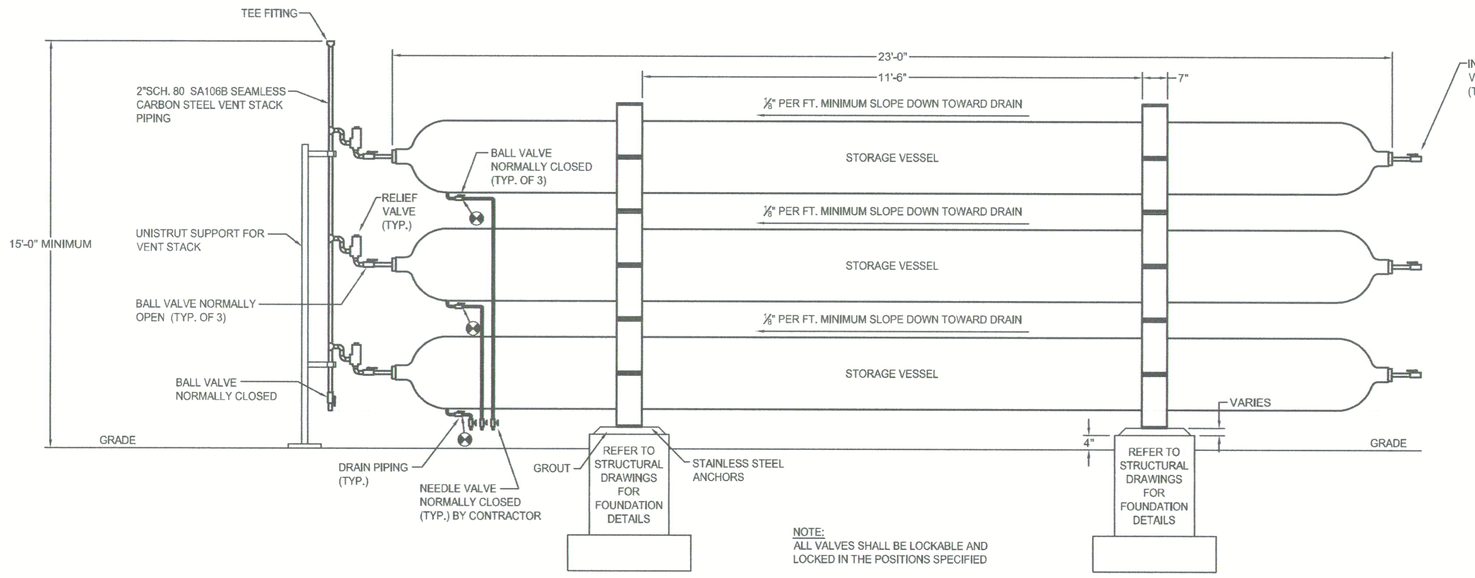
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

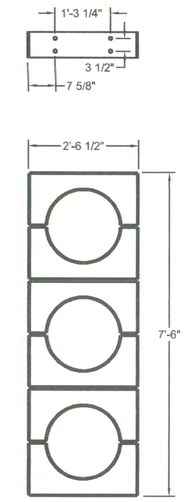
ENLARGED CNG EQUIPMENT PLAN

DATE	09/13/13
SCALE	1"=5'-0"
DWN.	TIP CHK. JTW
PROJ. No.	462301
DWG. No.	CNG M102

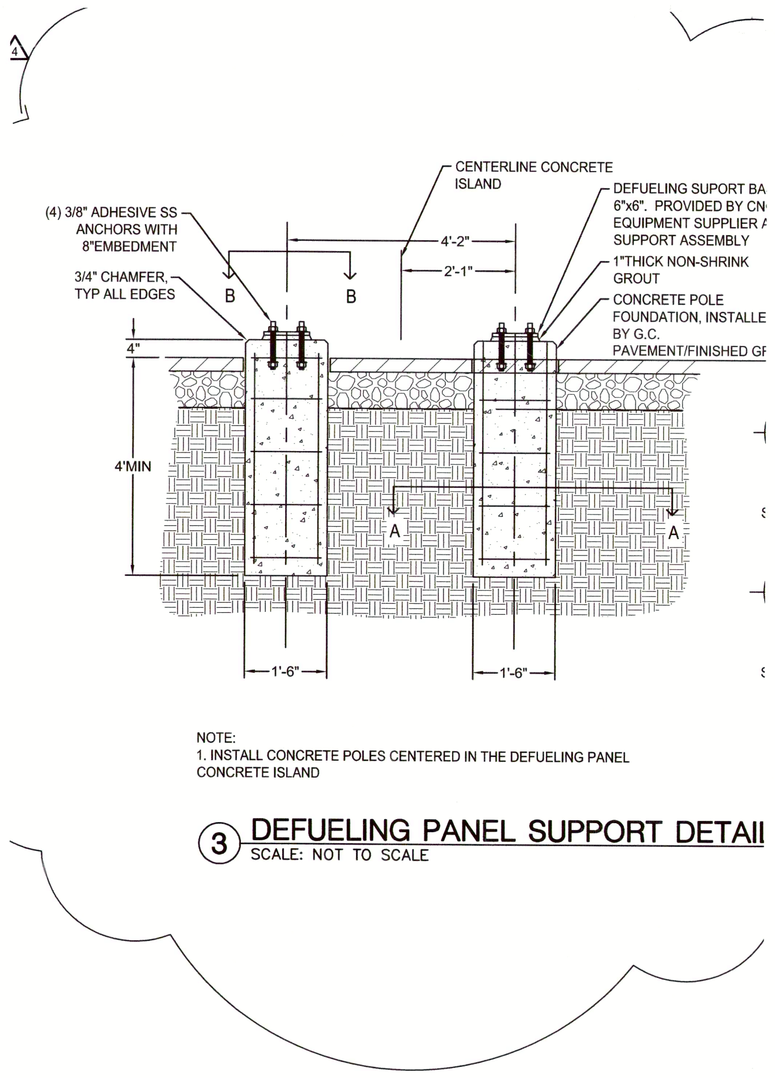
09-20-2013 TIP P:\462301 ST CLOUD METRO BUS UPGRADES\14_ASTORIA\CNG\DRAFTING\CNG M102 STD.DWG



1 TYPICAL RELIEF AND DRAIN VALVE DETAIL
SCALE: NOT TO SCALE

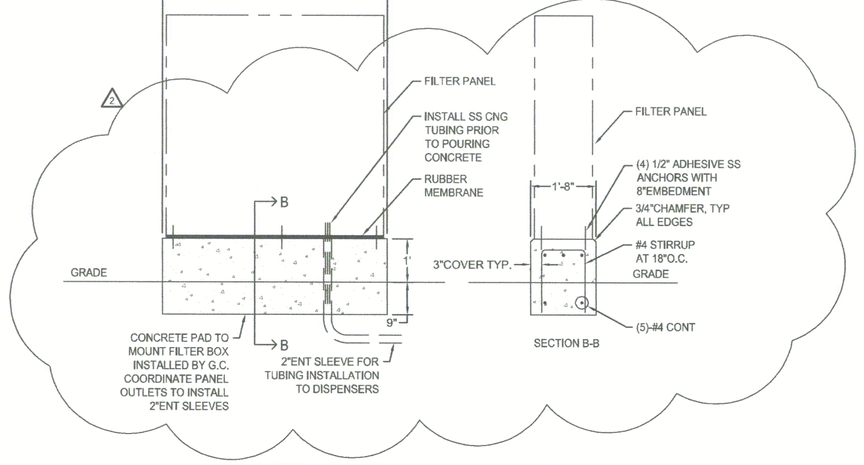


2 TYPICAL VESSEL RACK DETAIL
SCALE: NOT TO SCALE

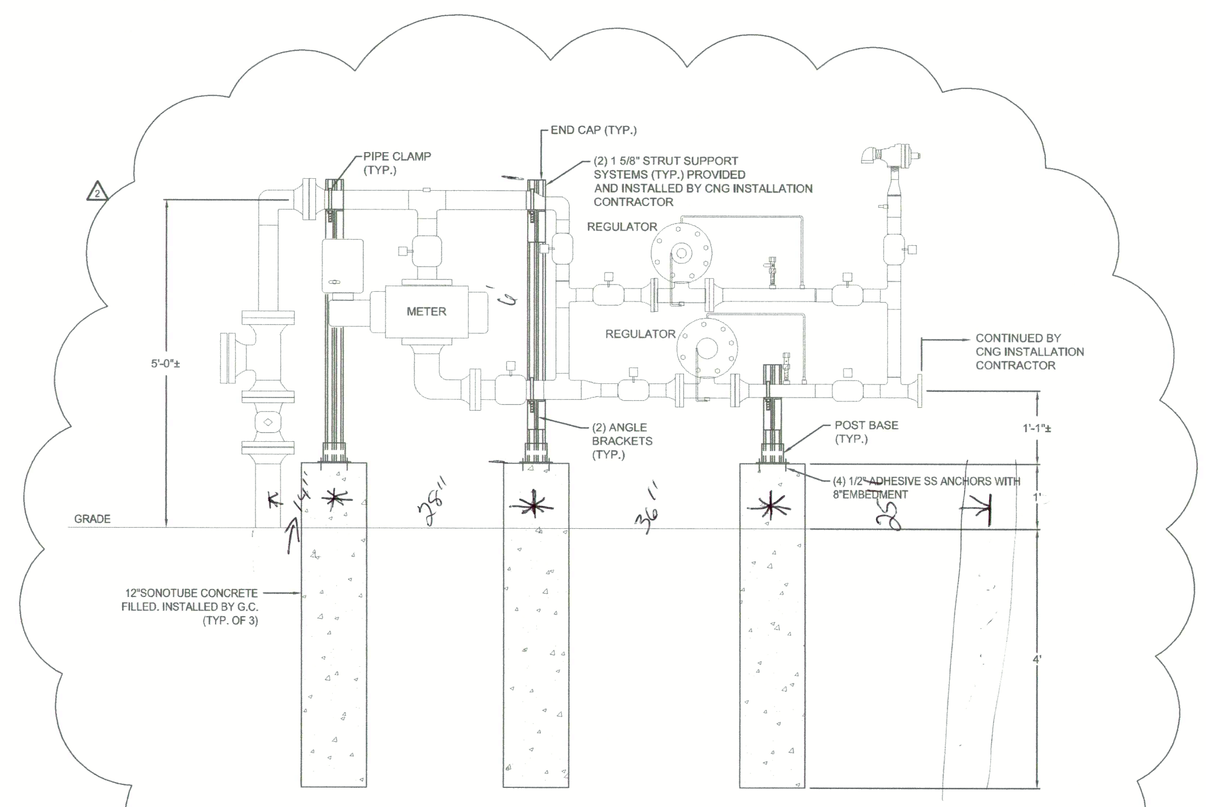


NOTE:
1. INSTALL CONCRETE POLES CENTERED IN THE DEFUELING PANEL CONCRETE ISLAND

3 DEFUELING PANEL SUPPORT DETAIl
SCALE: NOT TO SCALE

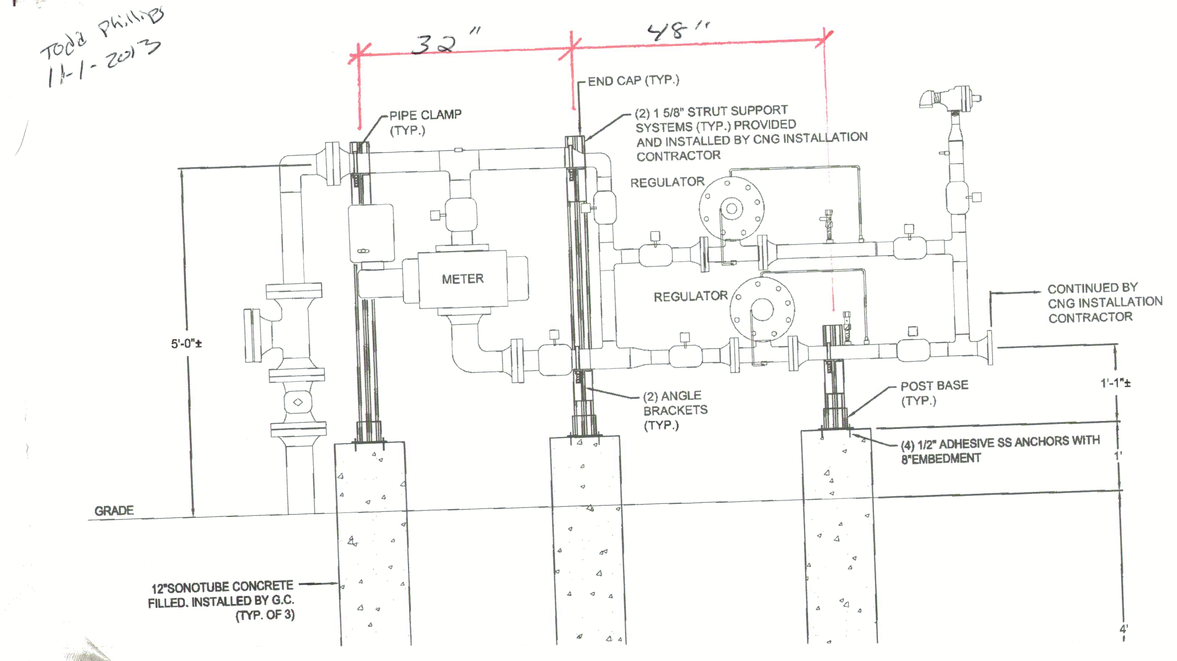


4 FILTER PANEL SUPPORT DETAIL
SCALE: NOT TO SCALE



5 GAS METER SUPPORT DETAIL
SCALE: NOT TO SCALE

Todd Phillips
11-1-2013



METRO BUS
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CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

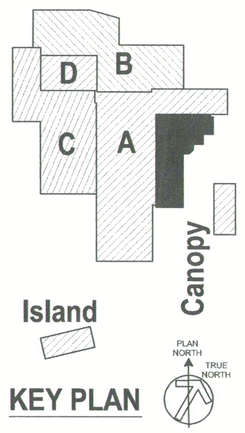
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KEY PLAN

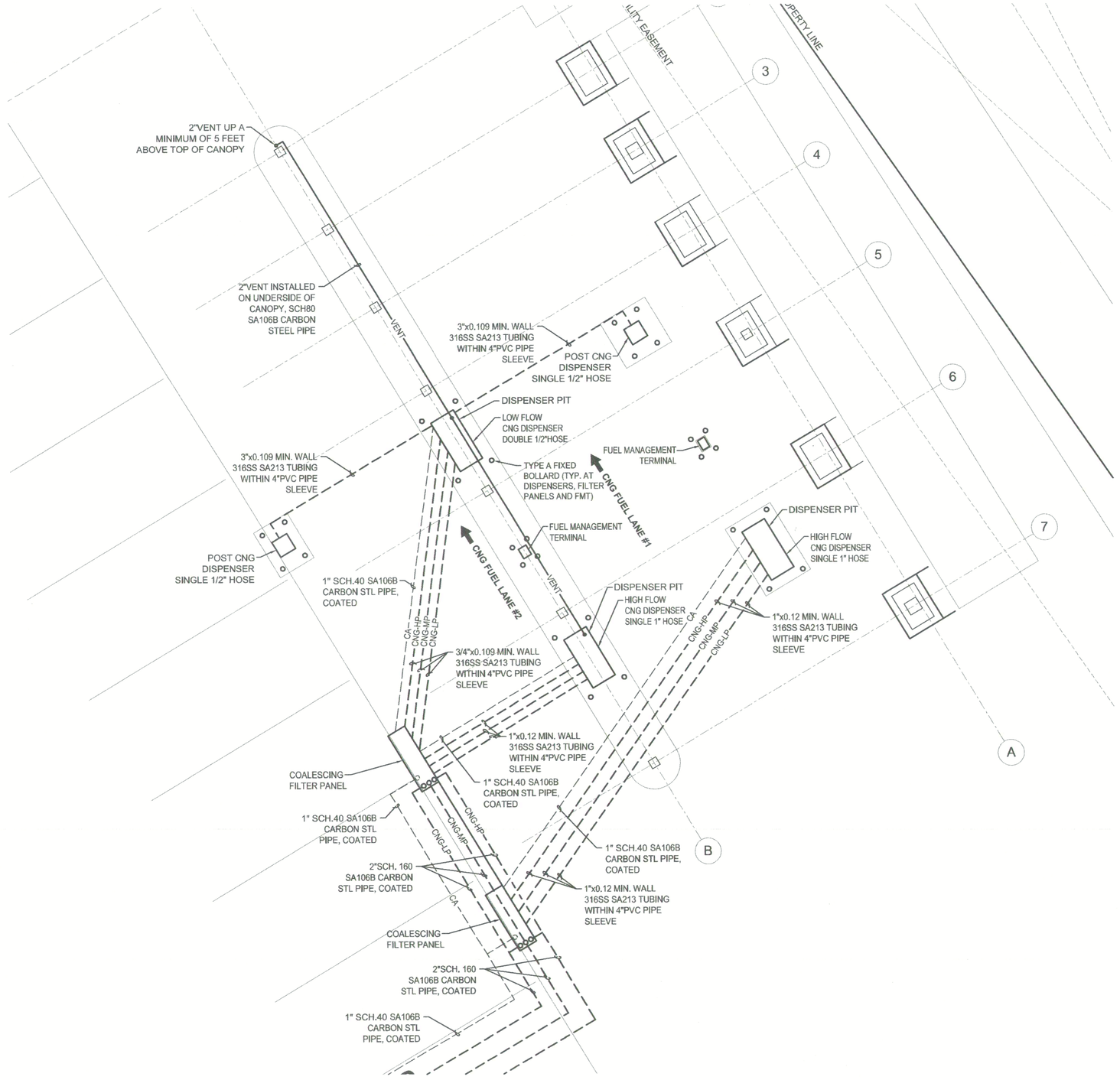
NO.	BY	REVISIONS	DATE
2		ADDENDUM 2	09-24-13

DWG. TITLE

CNG DETAILS

DATE	09/13/13
SCALE	1/8"=1'-0"
DWN.	TIP CHK. JTW
PROJ. No.	462301
DWG. No.	CNG M201

09-24-2013 RP P:\462301 ST CLOUD METRO BUS UPGRADE\16. CAD\CIVIL\HVAC\DWGS\CNG M201.DWG



1 ENLARGED CNG FUELING LANES PLAN
SCALE: 1"=5'

GENERAL NOTES:

1. ALL SMALLER COMPONENTS NOT SHOWN. FOR ADDITIONAL INFORMATION REFER TO COMPRESSED NATURAL GAS P&ID ON DRAWING CNG M01.

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CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

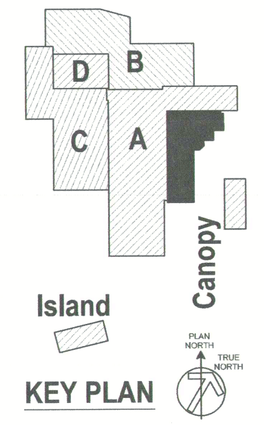
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KEY PLAN

NO.	BY	REVISIONS	DATE

DWG. TITLE

ENLARGED CNG FUELING LANES PLAN

DATE	09/13/13
SCALE	1"=5'-0"
DWN.	TJP CHK. JTW
PROJ. No.	462301
DWG. No.	

CNG M103

09-13-2013 TJP P:\462301 ST CLOUD METRO BUS UPGRADES\13 DOCUMENTS\CAD\PDF\CNG M103 SHT.DWG

SYMBOLS & ABBREVIATIONS SCHEDULE

RECEPTACLES

LP2,12	DUPLEX RECEPTACLE OUTLET, 18" A.F.F., 20AMP COMMERCIAL GRADE GROUNDING TYPE WITH MATCHING COVERPLATE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	GFCI RECEPTACLE OUTLET, 18" A.F.F., 20AMP COMMERCIAL GRADE GROUNDING TYPE WITH MATCHING COVERPLATE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	INDICATES (2) 20 AMP, COMMERCIAL GRADE RECEPTACLES IN 2-GANG BOX UNDER A COMMON MATCHING COVERPLATE. RECEPTACLES SHALL BE GROUNDING TYPE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,10,12	RANGE OR DRYER OUTLET VERIFY RECEPTACLE NEMA CONFIGURATION, RATING & INSTALLATION HEIGHT WITH SELECTED EQUIPMENT SUPPLIER. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO. COVER PLATES SHALL BE STAINLESS STEEL.
LP2,12	SPECIAL PURPOSE RECEPTACLE AS CALLED FOR ON DRAWINGS OR AS REQUIRED BY EQUIPMENT MANUFACTURER. VERIFY NEMA CONFIGURATION. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	FLOOR MOUNTED RECEPTACLE AS CALLED FOR ON DRAWINGS OR AS REQUIRED BY EQUIPMENT MANUFACTURER, UNLESS OTHERWISE NOTED, PROVIDE RECESSED IN CONCRETE WITH A METAL COVER. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
	SURFACE MOUNTED WIREMOLD TYPE RACEWAY. PROVIDE LENGTH AS INDICATED ON DRAWINGS WITH A MANUFACTURER STANDARD OUTLET SPACING.

POWER

J	WALL MOUNTED JUNCTION BOX, SIZE AS INDICATED OR PROVIDE MINIMUM SIZE REQUIRED BY LATEST EDITION OF NATIONAL ELECTRICAL CODE (NFPA 70-NEC).
J	CEILING MOUNTED JUNCTION BOX, SIZE AS INDICATED OR PROVIDE MINIMUM SIZE REQUIRED BY LATEST EDITION OF NATIONAL ELECTRICAL CODE (NFPA 70-NEC).
	PROVIDE COMPLETE ELECTRICAL CONNECTION 'TO EQUIPMENT' INDICATED (INCLUDING DISCONNECT, CONDUCTORS, RACEWAY, & OTHER REQUIRED HARDWARE. XX-X INDICATES EQUIPMENT TAG. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
EPO	EMERGENCY POWER OFF BUTTON (EPO). PROVIDE WHERE INDICATED ON DRAWINGS. PROVIDE ALL REQUIRED INTERFACES AS CALLED FOR ON DRAWINGS OR REQUIRED BY EQUIPMENT MANUFACTURER.
TYPICAL SKILL	ELECTRICAL PANELBOARD, SURFACE MOUNTED. UNLESS OTHERWISE NOTED, INSTALL AT 72" A.F.F. TO THE TOP OF THE BOX.
TYPICAL SKILL	ELECTRICAL PANELBOARD, FLUSH MOUNTED. UNLESS OTHERWISE NOTED, INSTALL AT 72" A.F.F. TO THE TOP OF THE BOX.
	ELECTRICAL PIECE OF EQUIPMENT. REFER TO DRAWINGS FOR ADDITIONAL INFORMATION.
C103A	INDICATES UNDERGROUND CONDUIT AND WIRE. NUMBER REFERS TO CONDUIT NUMBER ON CONDUIT AND CABLE REFER TO ANGI WIRING DIAGRAMS DRAWING A80-50 40517 SHEETS 1-29 INCLUDED AS PART OF BID PACKAGE

GAS DETECTION (SYSTEMS)

CO	CARBON MONOXIDE DETECTOR. (CEILING MOUNTED) PROVIDE & INSTALL ALL WIRING AS REQUIRED BY SELECTED SYSTEM MANUFACTURER.
CO	CARBON MONOXIDE DETECTOR. (WALL MOUNTED) PROVIDE & INSTALL ALL WIRING AS REQUIRED BY SELECTED SYSTEM MANUFACTURER.
NO_2	NITROGEN DIOXIDE DETECTOR. (CEILING MOUNTED) PROVIDE & INSTALL ALL WIRING AS REQUIRED BY SELECTED SYSTEM MANUFACTURER.
NO_2	NITROGEN DIOXIDE DETECTOR. (WALL MOUNTED) PROVIDE & INSTALL ALL WIRING AS REQUIRED BY SELECTED SYSTEM MANUFACTURER.

LIGHTING

T42,a,13	LUMINAIRE (RECESSED). REFER TO LUMINAIRE SCHEDULE FOR ADDTIONAL INFORMATION. UPPERCASE LETTER INDICATES TYPE IN LUMINAIRE SCHEDULE, LOWERCASE LETTER INDICATES TYPE OF SWITCHED LEG, NUMBER INDICATES CIRCUIT IN PANELBOARD
S42,b,12	LUMINAIRE (SURFACE OR PENDANT MOUNTED). REFER TO LUMINAIRE SCHEDULE FOR ADDTIONAL INFORMATION. UPPERCASE LETTER INDICATES TYPE IN LUMINAIRE SCHEDULE, LOWERCASE LETTER INDICATES TYPE OF SWITCHED LEG, NUMBER INDICATES CIRCUIT IN PANELBOARD
A6 c 17	COMPACT FLUORESCENT, HID, OR INCANDESCENT DOWNLIGHT. REFER TO LUMINAIRE SCHEDULE FOR ADDTIONAL INFORMATION. UPPERCASE LETTER INDICATES TYPE IN LUMINAIRE SCHEDULE, LOWERCASE LETTER INDICATES TYPE OF SWITCHED LEG, NUMBER INDICATES CIRCUIT IN PANELBOARD
AWB c 19	COMPACT FLUORESCENT, HID, OR INCANDESCENT WALLWASHER. REFER TO LUMINAIRE SCHEDULE FOR ADDTIONAL INFORMATION. UPPERCASE LETTER INDICATES TYPE IN LUMINAIRE SCHEDULE, LOWERCASE LETTER INDICATES TYPE OF SWITCHED LEG, NUMBER INDICATES CIRCUIT IN PANELBOARD
EM EM EM EM	PROVIDE LUMINAIRE AS INDICATED. LUMINAIRES SHALL BE CONNECTED EMERGENCY CIRCUIT OR PROVIDED WITH EMERGENCY BATTERY BACKUP BALLAST. REFER TO LUMINAIRE SCHEDULE FOR ADDITIONAL INFORMATION.
Kabc	WALL SWITCH, ROMAN NUMERAL INDICATES NUMBER OF SWITCHES GANGED UNDER ONE COVERPLATE. LOWER CASE LETTERS INDICATE SWITCHING. "K" INDICATES KEYED SWITCH. PROVIDE WITH MATCHING COVERPLATES
	WALL MOUNTED DIMMER CONTROLLER DESIGNED & MANUFACTURED FOR LIGHTING THAT IT IS CONTROLLING (INCANDESCENT OR FLUORESCENT).
	LOW VOLTAGE CEILING MOUNTED OCCUPANCY SENSOR WITH DUAL TECHNOLOGY SENSING & 360° VIEW CAPABILITY. PROVIDE COMPLETE WITH ALL REQUIRED RELAYS & WIRING AS REQUIRED BY SELECTED EQUIPMENT MANUFACTURER.
OS	WALL MOUNTED OCCUPANCY SENSOR TYPE SWITCH.
	PHOTOCELL. PROVIDE COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE & INTERCONNECTION TO CONTROLLER AS SPECIFIED.
	EXIT SIGN (LED TYPE), SHALL BE EITHER WITH BATTERY BACKUP OR CONNECTED TO EMERGENCY LIGHTING CIRCUIT. REFER TO LUMINAIRE SCHEDULE FOR ADDITIONAL INFORMATION. VERIFY SHEVRON DIRECTION IN FIELD, PROVIDE AS REQUIRED. BATTERY CAPACITY SHALL MEET OR EXCEED MINIMUM OPERATION TIME REQUIRED BY CODE.
	EMERGENCY LUMINAIRE UNIT, SHALL BE WITH BATTERY BACKUP. REFER TO LUMINAIRE SCHEDULE FOR ADDITIONAL INFORMATION. BATTERY CAPACITY SHALL MEET OR EXCEED MINIMUM OPERATION TIME REQUIRED BY CODES.
	TYPICAL SITE LUMINAIRE (EXACT SYMBOL MAY VARY). SHALL INCLUDE LUMINAIRE HEAD, POLE, & CONCRETE BASE. REFER TO LUMINAIRE SCHEDULE & SITE LIGHTING PLAN FOR ADDITIONAL INFORMATION.

DATA (SYSTEMS)

▼	DATA DROP LOCATION, UNLESS OTHERWISE NOTED, PROVIDE MINIMUM OF (2) DROPS, INSTALL 18" A.F.F., EXTENSION RING & ASSOCIATED JACKS. PROVIDE 3/4" EMT CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE WITH COVERPLATE.
▽	ANALOG TELEPHONE DROP LOCATION, UNLESS OTHERWISE NOTED INSTALL 18" A.F.F., EXTENSION RING & ASSOCIATED JACK. PROVIDE 3/4" EMT CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE WITH COVERPLATE.
▼▽	COMBINATION DATA & ANALOG TELEPHONE DROP LOCATION, UNLESS OTHERWISE NOTED, PROVIDE MINIMUM OF (2) DATA DROPS & (1) VOICE DROP, INSTALL 18" A.F.F., EXTENSION RING & ASSOCIATED JACK. PROVIDE 3/4" EMT CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE WITH COVERPLATE.
TV	TELEVISION CONNECTION DROP, VERIFY FINAL LOCATION PRIOR TO INSTALLATION. PROVIDE WITH DUPLEX RECEPTACLE UNDER THE SAME COVERPLATE.

REMOVAL (TYPICAL FOR ALL DEVICES)

XXXcd (F)	TYPICAL FIRE ALARM SYSTEM DEVICE SCHEDULED FOR REMOVAL. DISCONNECT & REMOVE ALL ASSOCIATED ELECTRICAL WORK AS INDICATED ON CONTRACT DOCUMENTS. REINSTALL AS REQUIRED
	TYPICAL LUMINAIRE SCHEDULED FOR REMOVAL. REFER TO LUMINAIRE SCHEDULE FOR ADDITIONAL INFORMATION.

REMOVAL NOTES:
NOT ALL DEVICES SCHEDULED FOR REMOVAL ARE SHOWN ON THIS SCHEDULE. ALL DEVICES TO BE REMOVED ARE MARKED WITH THE SAME LINETYPE & LINE WEIGHT AS SYMBOLS ABOVE. REFER TO DEMOLITION PLANS FOR ADDITIONAL INFORMATION.

EXISTING TO REMAIN (TYPICAL FOR ALL DEVICES)

(ETR) XXXcd (F) (ETR) (ETR)	TYPICAL FIRE ALARM SYSTEM DEVICE EXISTING TO REMAIN IN PLACE.
(ETR) (ETR) (ETR)	EXISTING LUMINAIRE SCHEDULED TO REMAIN IN PLACE. REFER TO LUMINAIRE SCHEDULE FOR ADDITIONAL INFORMATION.

EXISTING TO REMAIN NOTES:
NOT ALL EXISTING DEVICES SCHEDULED TO REMAIN ARE SHOWN ON THIS SCHEDULE. ALL DEVICES SCHEDULED TO REMAIN ARE MARKED WITH THE SAME LINETYPE & LINE WEIGHT AS SYMBOLS ABOVE. REFER TO FLOOR PLAN DRAWINGS FOR ADDITIONAL INFORMATION.

GENERAL SYMBOLS NOTE:

THIS SYMBOLS & ABBREVIATIONS SCHEDULE IS FOR THE ELECTRICAL CONTRACTOR REFERENCE ONLY. NOT ALL SYMBOLS OR ABBREVIATIONS MAY APPLY TO THIS PARTICULAR PROJECT. ANY ADDITIONS OR OMMISSIONS FROM THIS SCHEDULE DOES NOT IMPLY INCLUSION AND / OR EXCLUSION OF ANY PARTICULAR ITEM FROM THE PROJECT.

GENERAL NOTES: (FOR ALL DRAWINGS)

A. THE DRAWINGS ARE DIAGRAMMATIC & INDICATE GENERALLY THE LOCATIONS OF THE MATERIAL & EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE.

B. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION & OPERATION, SHALL BE INCLUDED IN THE CONTRACTOR'S BID, THE SAME AS IF HEREIN SPECIFIED OR SHOWN.

C. ALL MATERIAL & INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRIC CODE, LATEST EDITION OF LOCAL CODES, & ORDINANCES.

D. ALL CONDUITS ON EXPOSED WORK SHALL BE RUN AT RIGHT ANGLES TO, & PARALLEL WITH, THE SURROUNDING WALL & SHALL CONFORM TO THE FORM OF THE CEILING. NO DIAGONAL RUNS WILL BE ALLOWED. BENDS IN PARALLEL CONDUIT RUNS SHALL BE CONCENTRIC. ALL CONDUIT SHALL RUN PERFECTLY STRAIGHT & TRUE.

E. ALL CONDUIT RUNS ARE TO BE CONCEALED IN WALLS, CEILINGS, OR IN THE SLAB. CONTRACTOR SHALL COORDINATE CONDUIT INSTALLATION DURING BUILDING CONSTRUCTION WITH OTHER TRADES. RUN SURFACE RACEWAY ONLY WHERE CALLED FOR OR SHOWN ON THE DRAWINGS. EXPOSED CONDUIT SHALL ONLY BE INSTALLED WHERE MEANS OF CONCEALING DOES NOT EXIST. CONTRACTOR IS TO NOTIFY ENGINEER & GET OWNERS APPROVAL PRIOR TO RUNNING EXPOSED CONDUITS.

F. RECEPTACLE & LIGHT FIXTURE CIRCUITS SHALL BE IN E.M.T. CONDUIT. A MAXIMUM OF (3) CIRCUITS CAN BE GROUPED TOGETHER IN A HOMERUN CONDUIT. EACH CIRCUIT SHALL HAVE SEPARATE NEUTRAL, GROUPING OF NEUTRALS SHALL NOT BE ACCEPTABLE. EACH CIRCUIT SHALL ALSO HAVE A GROUND WIRE SIZED PER NEC. USING CONDUIT, OR MC CABLE AS GROUND PATH SHALL NOT BE ACCEPTABLE. CABLE MUST BE SUPPORTED PER NEC, GROUPING OF GROUND WIRES [(1) GROUND PER (3) CIRCUITS] IS ACCEPTABLE. MAXIMUM 6' LENGTH OF MC CABLE ALLOWED FOR A WHIP CONNECTION TO LUMINAIRE ONLY.

G. COORDINATE ALL LUMINAIRE & CEILING MOUNTED EQUIPMENT LOCATIONS & MOUNTING HARDWARE WITH ARCHITECTURAL CEILING PLANS PRIOR TO CONSTRUCTION.

H. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED COSTS FOR SEALING ALL PENETRATIONS THROUGH FIRE & SMOKE WALLS USING UL APPROVED SEALANT & METHODS.

I. ALL COMMUNICATIONS OUTLET LOCATIONS ARE DIAGRAMMATIC & MUST BE FIELD VERIFIED WITH OWNER'S FURNITURE LOCATIONS PRIOR TO CONSTRUCTION. NO EXTRA COMPENSATION WILL BE GIVEN FOR FAILURE TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.

J. PROVIDE ALL NEW RACEWAYS UNLESS OTHERWISE NOTED. USE SURFACE RACEWAY ONLY WHERE INDICATED ON THE PLANS. IF CONTRACTOR INTENDS TO UTILIZE SURFACE RACEWAY IN AREAS OTHER THOSE INDICATED ON PLANS, PRIOR APPROVAL IS REQUIRED FROM ENGINEER & OWNER.

K. CONTRACTOR MAY REUSE EXISTING CONCEALED CONDUIT UNLESS OTHERWISE NOTED ON THE PLANS.

L. CONTRACTOR SHALL PROVIDE INFORMATION LABELS ON ALL RECEPTACLES, PANELBOARDS, JUNCTION BOXES, WALL SWITCHES, & DISCONNECT SWITCHES. LABELS SHALL BE PHENALIC TYPE WITH BLACK BACKGROUND & WHITE ENGRAVED LETTERING. LABEL SHALL INDICATED CIRCUIT/FEEDER SOURCE & EQUIPMENT ID NAME.

ABBREVIATIONS

WP	INDICATES WEATHERPROOF DEVICE OR EQUIPMENT
WG	INDICATES DEVICE SHALL HAVE WIRE GUARD PROTECTION
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
(ETR)	EXISTING EQUIPMENT SHALL REMAIN IN PLACE
OC	OVER COUNTER (INSTALL 6" ABOVE COUNTER HEIGHT)
UC	UNDER COUNTER (INSTALL 6" BELOW THE BOTTOM OF COUNTER)
VNAC	VISUAL NOTIFICATION APPLIANCE CIRCUIT
ANAC	AUDIO NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT
ATS	AUTOMATIC TRANFER SWITCH
HP	HORSEPOWER
kW	KILOWATT
VFD	VARIABLE FREQUENCY DRIVE
RGS	RIGID GALVANIZED STEEL CONDUIT

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CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

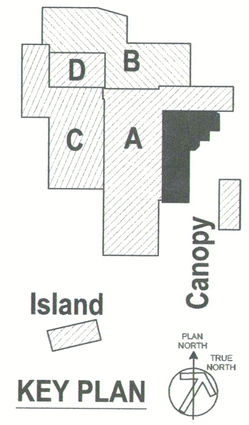
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KEY PLAN

NO.	BY	REVISIONS	DATE

DWG. TITLE

ELECTRICAL
SYMBOLS, ABBREVIATIONS, AND NOTES

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	

CNG E001

09-13-2013 J:\#\462301 ST CLOUD METRO BUS UPGRADE\1.0 CAD\CIMTECH\CLIENT\COMPONENTS.dwg, E1 - CNG INSTALL\1:1

GENERAL NOTES:

A. ALL ELECTRICAL WORK FOR THIS PROJECT SHALL CONFORM TO NFPA70, ARTICLE 500, & NFPA 52 AS IT APPLIES TO COMPRESSED NATURAL GAS INSTALLATIONS.

B. UNDERGROUND ELECTRICAL RACEWAYS SHOWN ON THIS DRAWING MAYBE BE INSTALLED IN THE SAME TRENCH AS OTHER TRADES. MAINTAIN MINIMUM 12" SEPARATION BETWEEN ELECTRICAL & OTHER PIPING. VERIFY EXACT LOCATION OF ELECTRICAL IN FIELD.

C. ALL ELECTRICAL EQUIPMENT INSTALLED IN CLASSIFIED (HAZARDOUS) LOCATIONS, CLASS 1, DIVISION 1 & DIVISION 2, SHALL BE LISTED FOR SUCH USE.

D. SEAL-OFF FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70, 501.5(B)(2). PROVIDE ON HORIZONTAL & VERTICAL CLASSIFIED BOUNDARIES OF THE DEFINED CLASS 1, DIV. 2 AREAS.. PROVIDE LARGE CAPACITY FITTINGS WHERE REQUIRED TO ACHIEVE 40% MAXIMUM CONDUIT FILL CAPACITY.

E. REFER TO DRAWING CNG E601 FOR ADDITIONAL INFORMATION ON RACEWAY REQUIREMENTS FOR ALL EQUIPMENT SHOWN ON THIS DRAWING.

F. PROVIDE SEAL-OFF FITTINGS AS REQUIRED IN ACCORDANCE WITH NEC 501.15(B)(1) FOR ENTERING CLASS 1, DIV. 2 ENCLOSURES & NEC SECTION 501.15(B)(2) FOR ENTERING CLASS 1, DIV. 2 BOUNDARY.

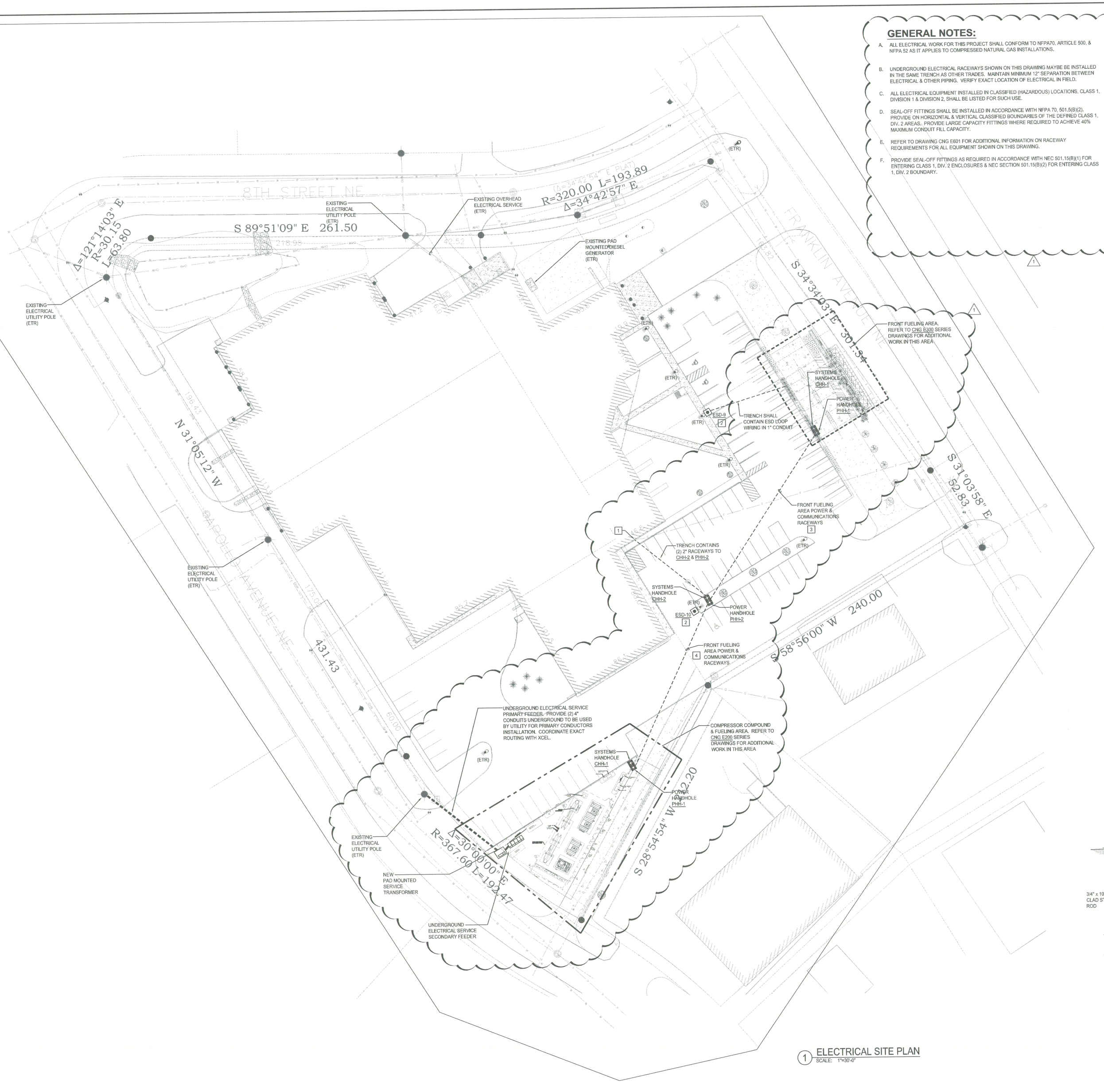
[X] CONSTRUCTION NOTES:

1. BRING NEW RACEWAYS UP FROM UNDERGROUND & INSTALL ON FACE OF THE BUILDING TO APPROX. 8FT A.F.G. PENETRATE RACEWAYS INTO EXISTING DATA ROOM. PROVIDE (1) 2" CONDUIT FOR POWER WIRING & (1) 2" CONDUIT FOR SYSTEMS WIRING.

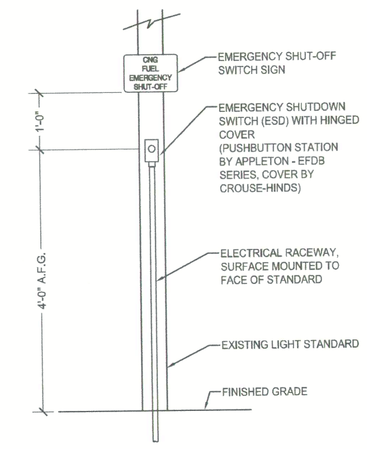
2. INSTALL ESD STATION ON THE FACE OF EXISTING LIGHT STANDARD. REFER TO DETAIL #2 ON THIS DRAWING FOR ADDITIONAL INFORMATION.

3. THIS SECTION OF THE TRENCH SHALL CONTAIN ALL WIRING AS REQUIRED & INDICATED ON DRAWING CNG E601 & IN ADDITION PROVIDE THE FOLLOWING:
   - (1) 2" RACEWAY FOR SITE LIGHTING WITH PULL ROPE. PROVIDE (2) #8 AWG & #10 GND FROM 1CNG1 TO PHH-1. WIRING SHALL BE USED BY BID PACKAGE #5 CONTRACTOR & INSTALLED TO SITE FIXTURES.
   - (1) 2" RACEWAY FOR CCTV WIRING WITH PULL ROPE. WIRING SHALL BE INSTALLED BY BID PACKAGE #5 CONTRACTOR.
   - (1) 2" RACEWAY FOR FLAME DETECTION WITH PULL ROPE. WIRING SHALL BE INSTALLED BY BID PACKAGE #5 CONTRACTOR.
   - (1) 2" RACEWAY FOR CANOPY LIGHTING WITH PULL ROPE. WIRING SHALL BE INSTALLED BY BID PACKAGE #5 CONTRACTOR.
   - (4) 1" EMPTY RACEWAYS FOR WITH PULL ROPE.

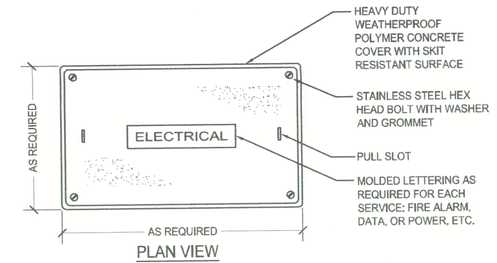
4. THIS SECTION OF TRENCH SHALL CONTAIN ALL WIRING AS REQUIRED & INDICATED ON DRAWING CNG E601 & IN ADDITIONAL PROVIDE THE FOLLOWING:
   - ALL ADDITIONAL WORK AS REQUIRED BY CONSTRUCTION NOTE #3 ABOVE.
   - (2) 2" RACEWAYS TO BE USED FOR WIRING TO THE DATA ROOM.



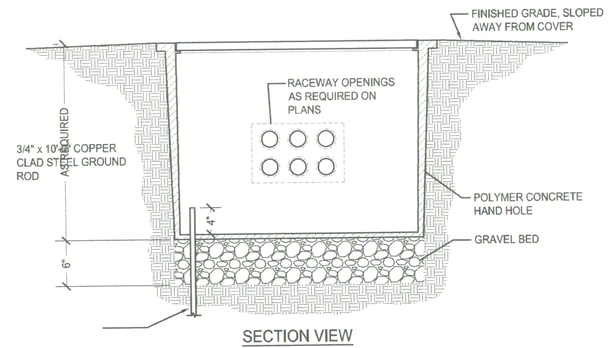
1 ELECTRICAL SITE PLAN
SCALE: 1"=30'-0"



2 LIGHT STANDARD ESD INSTALLATION DETAIL
SCALE: NONE



PLAN VIEW



SECTION VIEW

NOTES:

A. ALL HANDHOLES SHALL BE PROVIDED WITH A CLOSED BOTTOM, UNLESS OTHERWISE INDICATED ON PLANS OR SPECIFICATIONS.

3 TYPICAL HANDHOLE DETAIL
SCALE: NONE

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CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

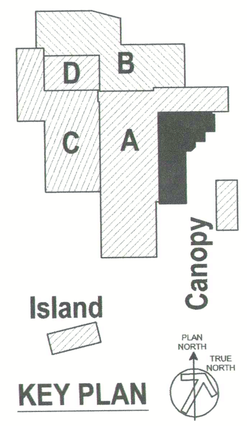
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KEY PLAN

NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

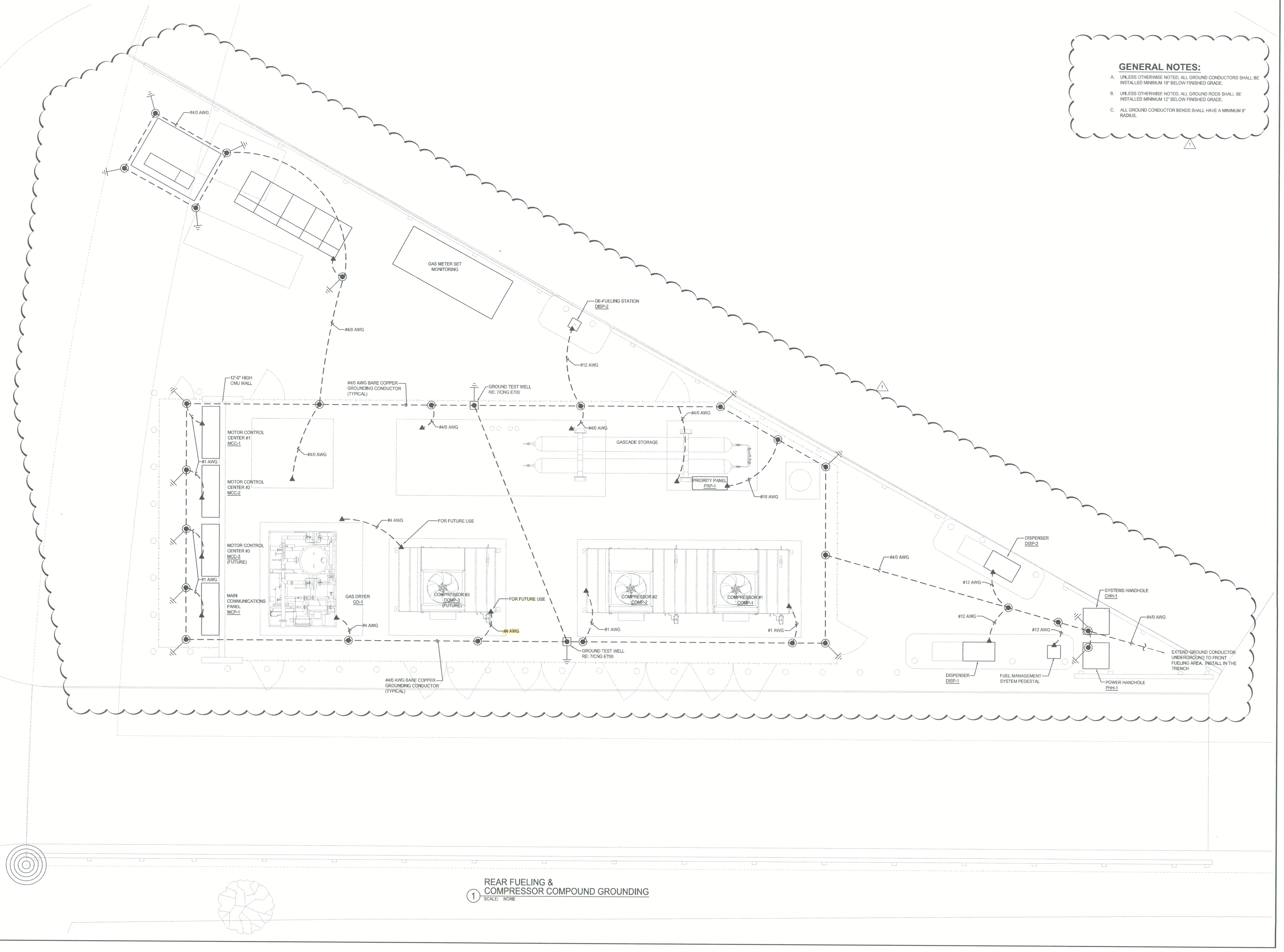
DWG. TITLE

ELECTRICAL SITE PLAN

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	

CNG E100

09-26-2013 REV. #1 (462301 ST CLOUD METRO BUS UPGRADES\14_DATA\XLS\CAD\COMPONENTS #2 - CNG INSTALL\1-100.DWG



1 REAR FUELING & COMPRESSOR COMPOUND GROUNDING
SCALE: NONE

GENERAL NOTES:

A. UNLESS OTHERWISE NOTED, ALL GROUND CONDUCTORS SHALL BE INSTALLED MINIMUM 18" BELOW FINISHED GRADE.

B. UNLESS OTHERWISE NOTED, ALL GROUND RODS SHALL BE INSTALLED MINIMUM 12" BELOW FINISHED GRADE.

C. ALL GROUND CONDUCTOR BENDS SHALL HAVE A MINIMUM 8" RADIUS.

1

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CNG FUELING STATION AND
CNG RELATED FACILITY
UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

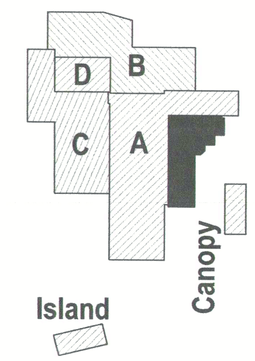
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KEY PLAN

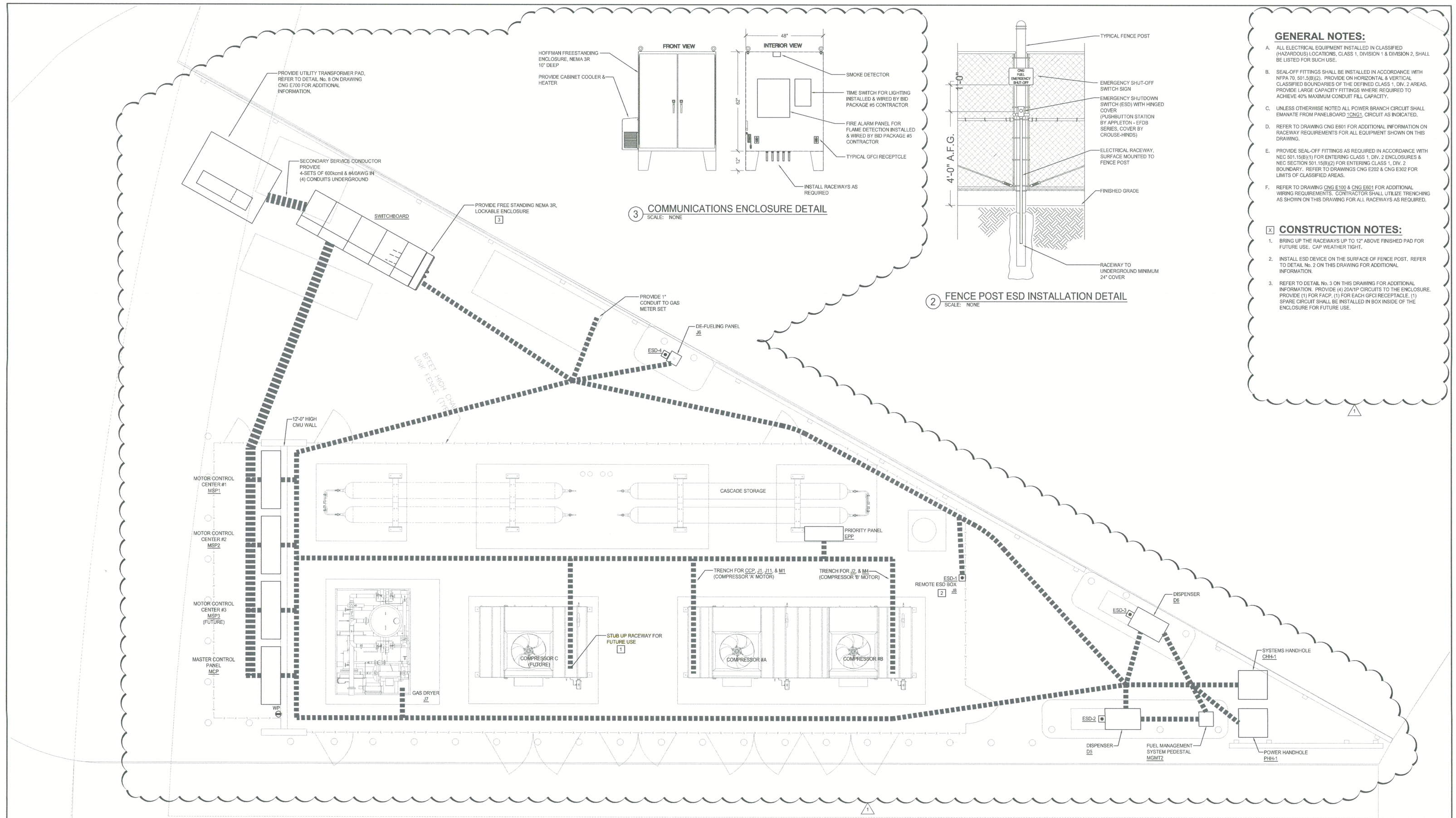
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

REAR FUELING &
COMPRESSOR COMPOUND
GROUNDING

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	CNG E200

09-20-2013 BY: A:\462301 ST CLOUD METRO BUS APPARATUS\4. CAD\PLANS\ELECTRICAL\CNG E2.1 - CNG FUELING STATION.DWG



3 COMMUNICATIONS ENCLOSURE DETAIL
SCALE: NONE

2 FENCE POST ESD INSTALLATION DETAIL
SCALE: NONE

GENERAL NOTES:

A. ALL ELECTRICAL EQUIPMENT INSTALLED IN CLASSIFIED (HAZARDOUS) LOCATIONS, CLASS 1, DIVISION 1 & DIVISION 2, SHALL BE LISTED FOR SUCH USE.

B. SEAL-OFF FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70, 501.5(B)(2). PROVIDE ON HORIZONTAL & VERTICAL CLASSIFIED BOUNDARIES OF THE DEFINED CLASS 1, DIV. 2 AREAS. PROVIDE LARGE CAPACITY FITTINGS WHERE REQUIRED TO ACHIEVE 40% MAXIMUM CONDUIT FILL CAPACITY.

C. UNLESS OTHERWISE NOTED ALL POWER BRANCH CIRCUIT SHALL EMANATE FROM PANELBOARD 1CNG1, CIRCUIT AS INDICATED.

D. REFER TO DRAWING CNG E601 FOR ADDITIONAL INFORMATION ON RACEWAY REQUIREMENTS FOR ALL EQUIPMENT SHOWN ON THIS DRAWING.

E. PROVIDE SEAL-OFF FITTINGS AS REQUIRED IN ACCORDANCE WITH NEC 501.15(B)(1) FOR ENTERING CLASS 1, DIV. 2 ENCLOSURES & NEC SECTION 501.15(B)(2) FOR ENTERING CLASS 1, DIV. 2 BOUNDARY. REFER TO DRAWINGS CNG E202 & CNG E302 FOR LIMITS OF CLASSIFIED AREAS.

F. REFER TO DRAWING CNG E100 & CNG E601 FOR ADDITIONAL WIRING REQUIREMENTS. CONTRACTOR SHALL UTILIZE TRENCHING AS SHOWN ON THIS DRAWING FOR ALL RACEWAYS AS REQUIRED.

X CONSTRUCTION NOTES:

1. BRING UP THE RACEWAYS UP TO 12" ABOVE FINISHED PAD FOR FUTURE USE. CAP WEATHER TIGHT.
2. INSTALL ESD DEVICE ON THE SURFACE OF FENCE POST. REFER TO DETAIL No. 2 ON THIS DRAWING FOR ADDITIONAL INFORMATION.
3. REFER TO DETAIL No. 3 ON THIS DRAWING FOR ADDITIONAL INFORMATION. PROVIDE (4) 20A1P CIRCUITS TO THE ENCLOSURE. PROVIDE (1) FOR FACP, (1) FOR EACH GFCI RECEPTACLE, (1) SPARE CIRCUIT SHALL BE INSTALLED IN BOX INSIDE OF THE ENCLOSURE FOR FUTURE USE.

1

METRO BUS
the people picker-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

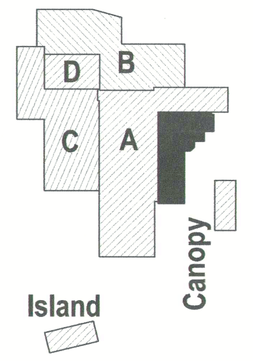
CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

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CNG EQUIPMENT INSTALL

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KEY PLAN

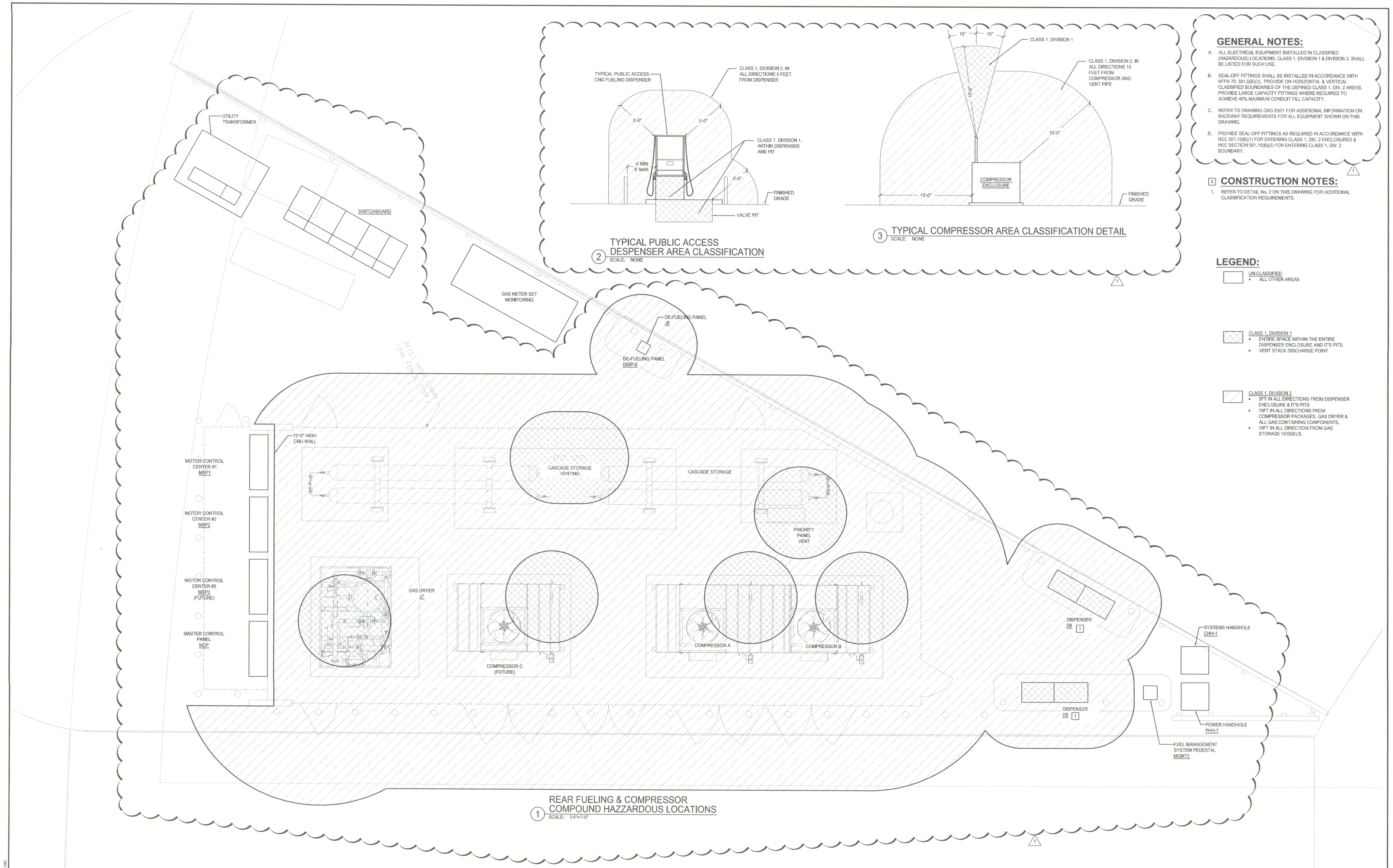
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

REAR FUELING & COMPRESSOR COMPOUND POWER & SYSTEMS PLAN

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	CNG E201

09-26-2013 09: P:\462301 ST CLOUD METRO BUS EXPANSION\14 CAD\COMPLIANCE\CNG E201 REAR FUELING LAYOUT.DWG



REAR FUELING & COMPRESSOR COMPOUND HAZZARDOUS LOCATIONS
1 SCALE: 1/4"=1'-0"

TYPICAL PUBLIC ACCESS DESPENSER AREA CLASSIFICATION
2 SCALE: NONE

TYPICAL COMPRESSOR AREA CLASSIFICATION DETAIL
3 SCALE: NONE

GENERAL NOTES:

A. ALL ELECTRICAL EQUIPMENT INSTALLED IN CLASSIFIED (HAZARDOUS) LOCATIONS, CLASS 1, DIVISION 1 & DIVISION 2, SHALL BE LISTED FOR SUCH USE.

B. SEAL-OFF FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70, 501.5(B)(2). PROVIDE ON HORIZONTAL & VERTICAL CLASSIFIED BOUNDARIES OF THE DEFINED CLASS 1, DIV. 2 AREAS. PROVIDE LARGE CAPACITY FITTINGS WHERE REQUIRED TO ACHIEVE 40% MAXIMUM CONDUIT FILL CAPACITY.

C. REFER TO DRAWING CNG E601 FOR ADDITIONAL INFORMATION ON RACEWAY REQUIREMENTS FOR ALL EQUIPMENT SHOWN ON THIS DRAWING.

D. PROVIDE SEAL-OFF FITTINGS AS REQUIRED IN ACCORDANCE WITH NEC 501.15(B)(1) FOR ENTERING CLASS 1, DIV. 2 ENCLOSURES & NEC SECTION 501.15(B)(2) FOR ENTERING CLASS 1, DIV. 2 BOUNDARY.

1

[X] CONSTRUCTION NOTES:

1. REFER TO DETAIL No. 2 ON THIS DRAWING FOR ADDITIONAL CLASSIFICATION REQUIREMENTS.

LEGEND:

UN-CLASSIFIED
- ALL OTHER AREAS

CLASS 1, DIVISION 1
- ENTIRE SPACE WITHIN THE ENTIRE DISPENSER ENCLOSURE AND IT'S PITS
- VENT STACK DISCHARGE POINT

CLASS 1, DIVISION 2
- 5FT IN ALL DIRECTIONS FROM DISPENSER ENCLOSURE & IT'S PITS
- 15FT IN ALL DIRECTIONS FROM COMPRESSOR PACKAGES, GAS DRYER & ALL GAS CONTAINING COMPONENTS.
- 10FT IN ALL DIRECTION FROM GAS STORAGE VESSELS.

METRO BUS
the people pickers-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

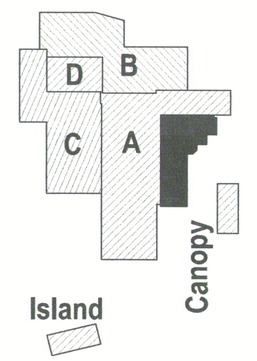
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KEY PLAN

NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

REAR FUELING & COMPRESSOR COMPOUND HAZZARDOUS LOCATIONS PLAN

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	

CNG E202

09-20-2013 BY: RJ 462301 ST CLOUD MTPO BUS GARAGE\14_CAD\ARCH\CLOUD\GARAGE.DWG XREF: CNG MTPOLLOGO.DWG

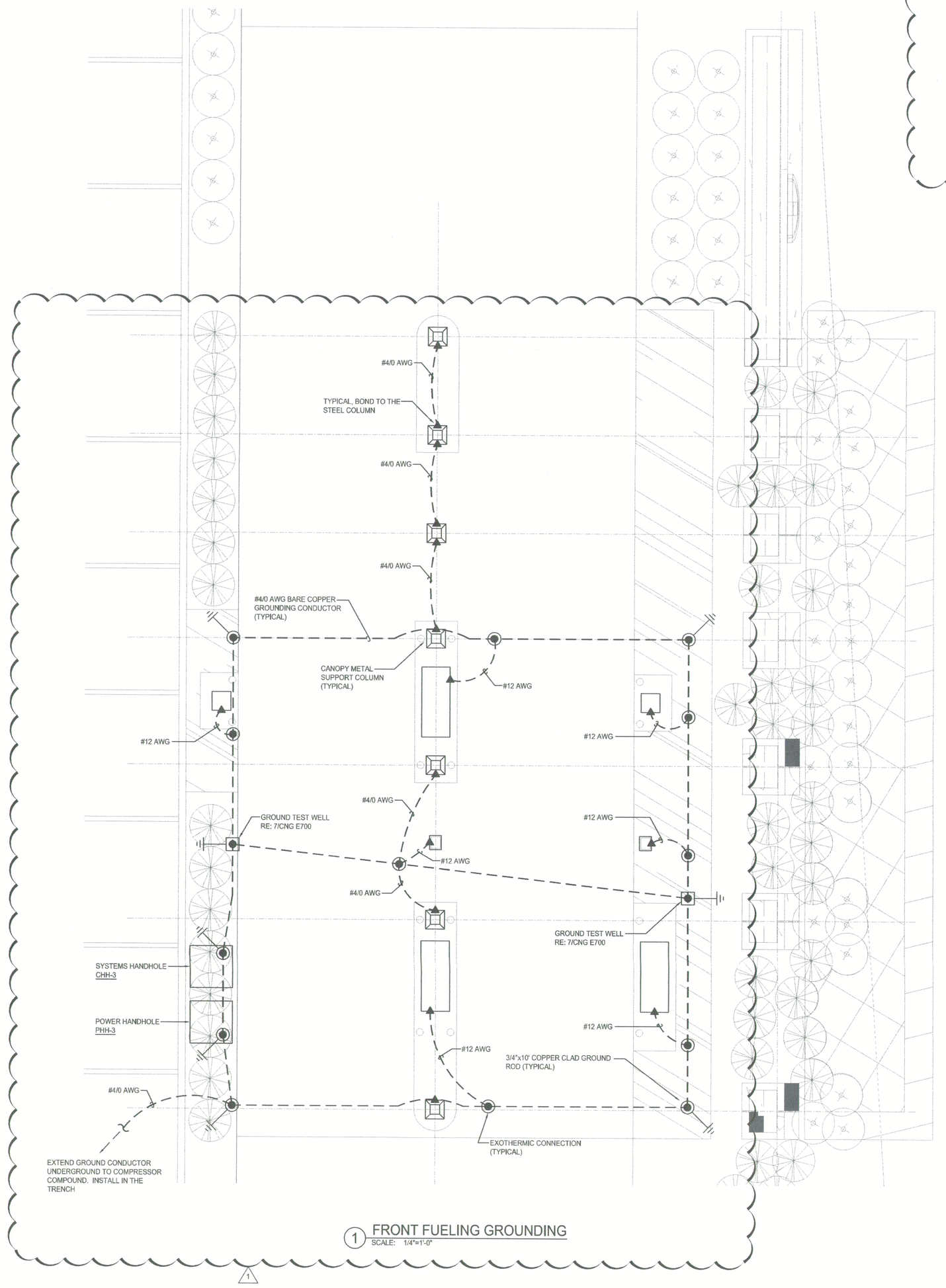
GENERAL NOTES:

A. UNLESS OTHERWISE NOTED, ALL GROUND CONDUCTORS SHALL BE INSTALLED MINIMUM 18" BELOW FINISHED GRADE.

B. UNLESS OTHERWISE NOTED, ALL GROUND RODS SHALL BE INSTALLED MINIMUM 12" BELOW FINISHED GRADE.

C. ALL GROUND CONDUCTOR BENDS SHALL HAVE A MINIMUM 8" RADIUS.

1



1 FRONT FUELING GROUNDING
SCALE: 1/4"=1'-0"

1

09-20-2013 RBI P:\462301 ST CLOUD METRO BUS GRNDNG\14_MEP\DWG\ELEC\CNGPKRTSM.RVT — CNG MTSU LTD3.DWG

METRO BUS
the people pickers-uppers

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

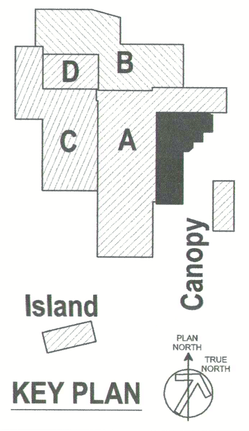
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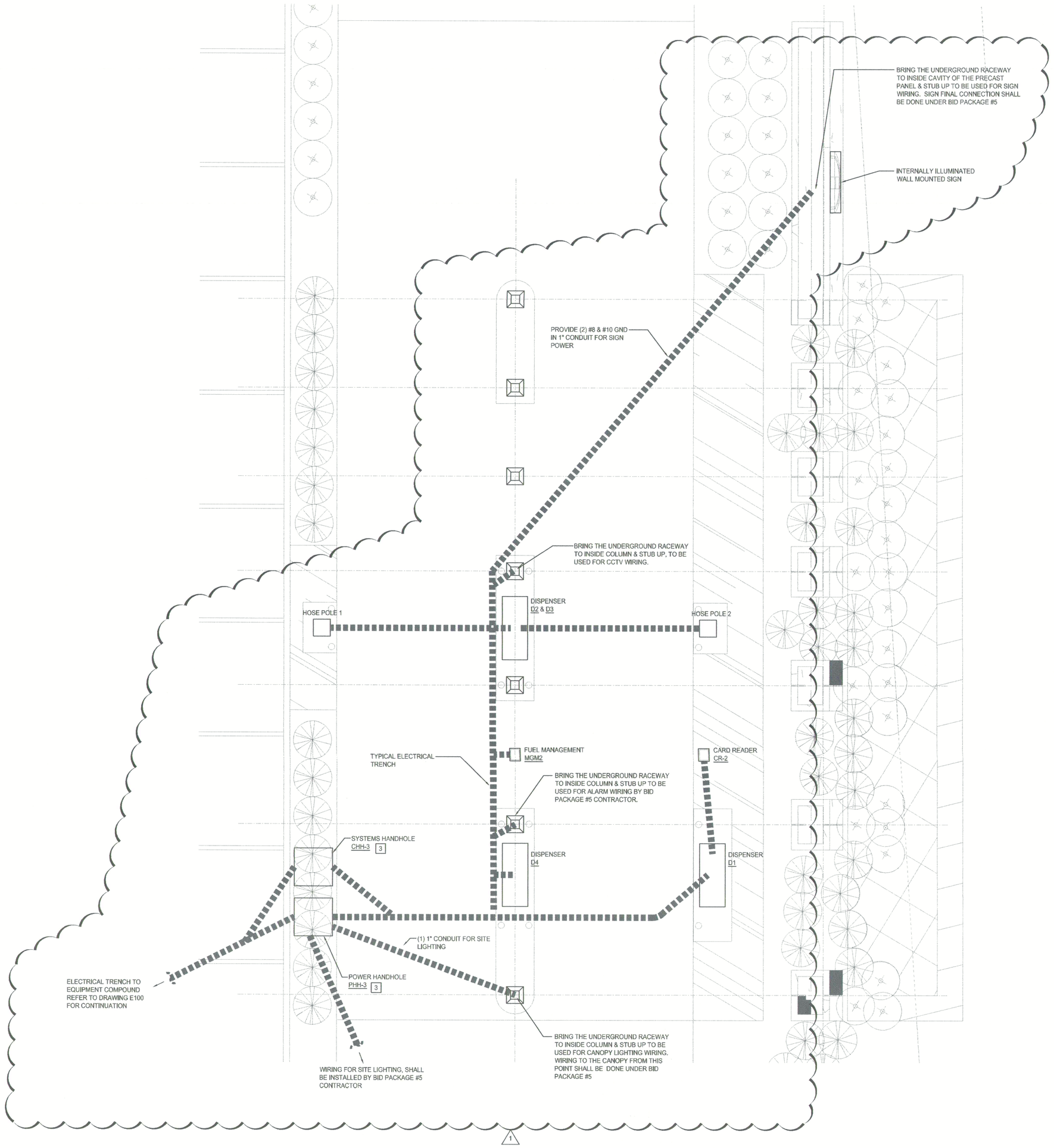
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

FRONT FUELING GROUNDING

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	

CNG E300



GENERAL NOTES:

A. ALL ELECTRICAL EQUIPMENT INSTALLED IN CLASSIFIED (HAZARDOUS) LOCATIONS, CLASS 1, DIVISION 1 & DIVISION 2, SHALL BE LISTED FOR SUCH USE.

B. SEAL-OFF FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70, 501.5(B)(2). PROVIDE ON HORIZONTAL & VERTICAL CLASSIFIED BOUNDARIES OF THE DEFINED CLASS 1, DIV. 2 AREAS. PROVIDE LARGE CAPACITY FITTINGS WHERE REQUIRED TO ACHIEVE 40% MAXIMUM CONDUIT FILL CAPACITY.

C. UNLESS OTHERWISE NOTED ALL POWER BRANCH CIRCUIT SHALL EMANATE FROM PANELBOARD 1CNG1, CIRCUIT AS INDICATED.

D. REFER TO DRAWING CNG E601 FOR ADDITIONAL INFORMATION ON RACEWAY REQUIREMENTS FOR ALL EQUIPMENT SHOWN ON THIS DRAWING.

E. PROVIDE SEAL-OFF FITTINGS AS REQUIRED IN ACCORDANCE WITH NEC 501.15(B)(1) FOR ENTERING CLASS 1, DIV. 2 ENCLOSURES & NEC SECTION 501.15(B)(2) FOR ENTERING CLASS 1, DIV. 2 BOUNDARY. REFER TO DRAWINGS CNG E202 & CNG E302 FOR LIMITS OF CLASSIFIED AREAS.

F. REFER TO DRAWING CNG E100 & CNG E601 FOR ADDITIONAL WIRING REQUIREMENTS. CONTRACTOR SHALL UTILIZE TRENCHING AS SHOWN ON THIS DRAWING FOR ALL RACEWAYS AS REQUIRED.

[X] CONSTRUCTION NOTES:

1. INSTALL LUMINAIRE ON WALL. REFER TO DETAIL 1/E702 FOR ADDITIONAL INFORMATION.
2. INSTALL FLAME DETECTOR AT THE BOTTOM OF THE PURLIN AFTER COMPLETION OF CANOPY (TO BE INSTALLED BY GC UNDER BID PACKAGE #3). VERIFY EXACT LOCATION IN FIELD.
3. IN ADDITION TO WIRING THAT IS REQUIRED PER DRAWING CNG E601, PROVIDE THE FOLLOWING IN THESE TRENCHES:
   - (1) CONDUIT & WIRING TO SIGN POWER.
   - (5) 1" CONDUIT TO THE COLUMN AS SHOWN FOR USE BY CCTV & FLAME DETECTION WIRING.

1

METRO BUS
the people pickers-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

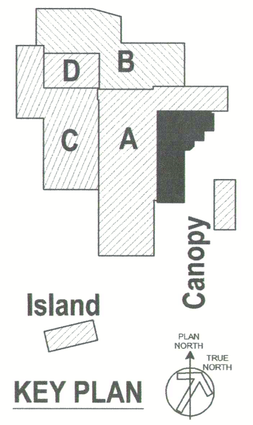
CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

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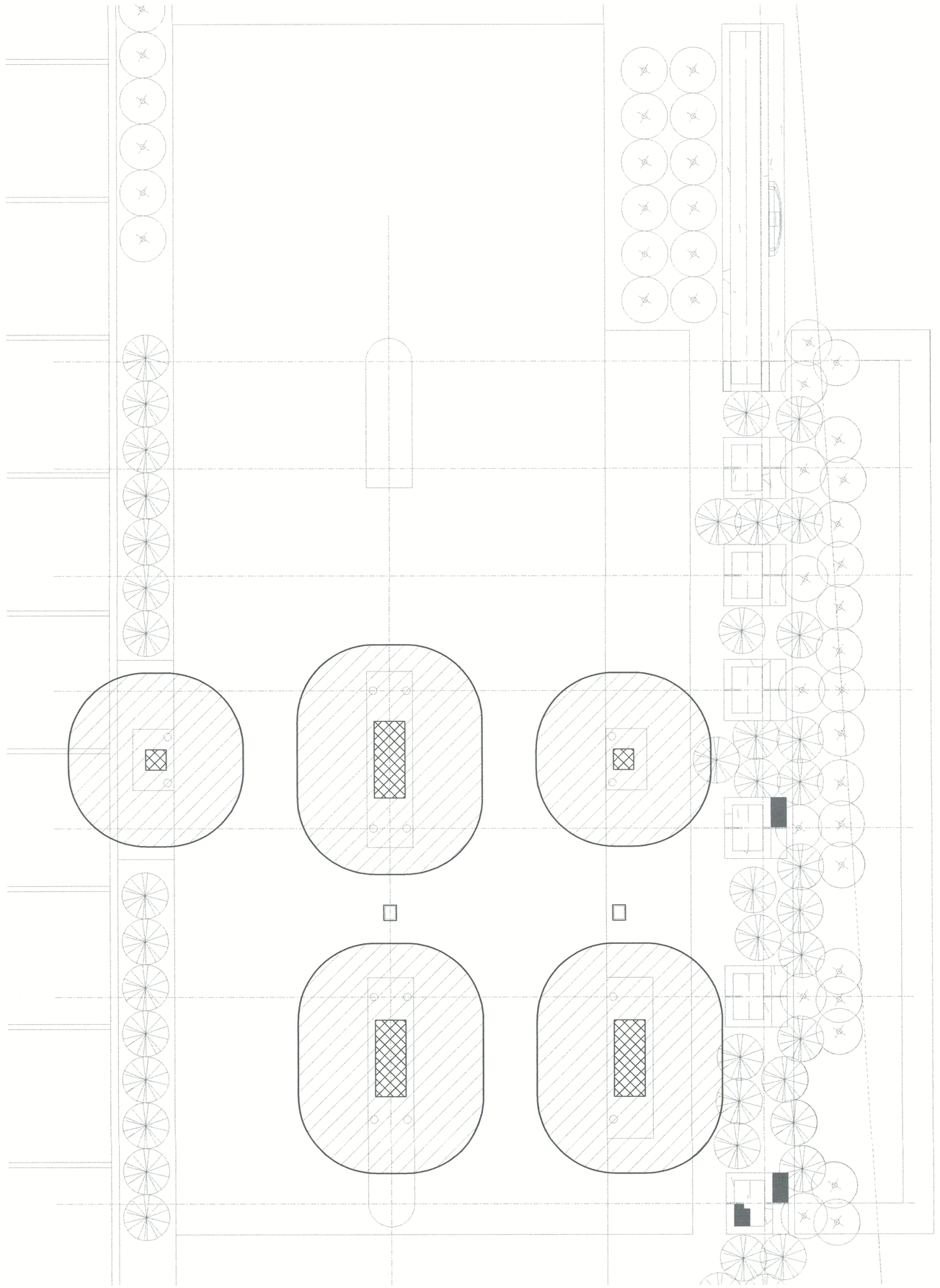
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

FRONT FUELING
POWER & SYSTEMS PLAN

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	CNG E301

09-20-2013 RB: P:\462301 ST CLOUD METRO BUS UPGRADES\14 ARCH\REVIT\CNG\CNG E301.DWG



GENERAL NOTES:

A. ALL ELECTRICAL EQUIPMENT INSTALLED IN CLASSIFIED (HAZARDOUS) LOCATIONS, CLASS 1, DIVISION 1 & DIVISION 2, SHALL BE LISTED FOR SUCH USE.

B. SEAL-OFF FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70, 501.5(B)(2). PROVIDE ON HORIZONTAL & VERTICAL CLASSIFIED BOUNDARIES OF THE DEFINED CLASS 1, DIV. 2 AREAS. PROVIDE LARGE CAPACITY FITTINGS WHERE REQUIRED TO ACHIEVE 40% MAXIMUM CONDUIT FILL CAPACITY.

C. REFER TO DRAWING CNG E601 FOR ADDITIONAL INFORMATION ON RACEWAY REQUIREMENTS FOR ALL EQUIPMENT SHOWN ON THIS DRAWING.

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1

LEGEND:

UN-CLASSIFIED
- ALL OTHER AREAS

CLASS 1, DIVISION 1
- ENTIRE SPACE WITHIN THE ENTIRE DISPENSER ENCLOSURE AND IT'S PITS
- VENT STACK DISCHARGE POINT

CLASS 1, DIVISION 2
- 5FT IN ALL DIRECTIONS FROM DISPENSER ENCLOSURE & IT'S PITS
- 15FT IN ALL DIRECTIONS FROM COMPRESSOR PACKAGES, GAS DRYER & ALL GAS CONTAINING COMPONENTS.
- 10FT IN ALL DIRECTION FROM GAS STORAGE VESSELS.

1 FRONT FUELING HAZZARDOUS LOCATIONS
SCALE: 1/4"=1'-0"

METRO BUS
the people pickers-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
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CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

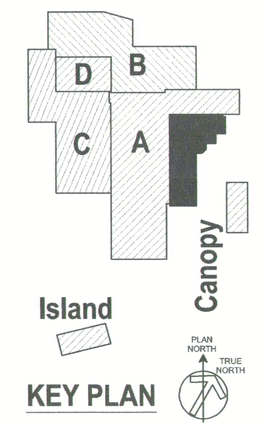
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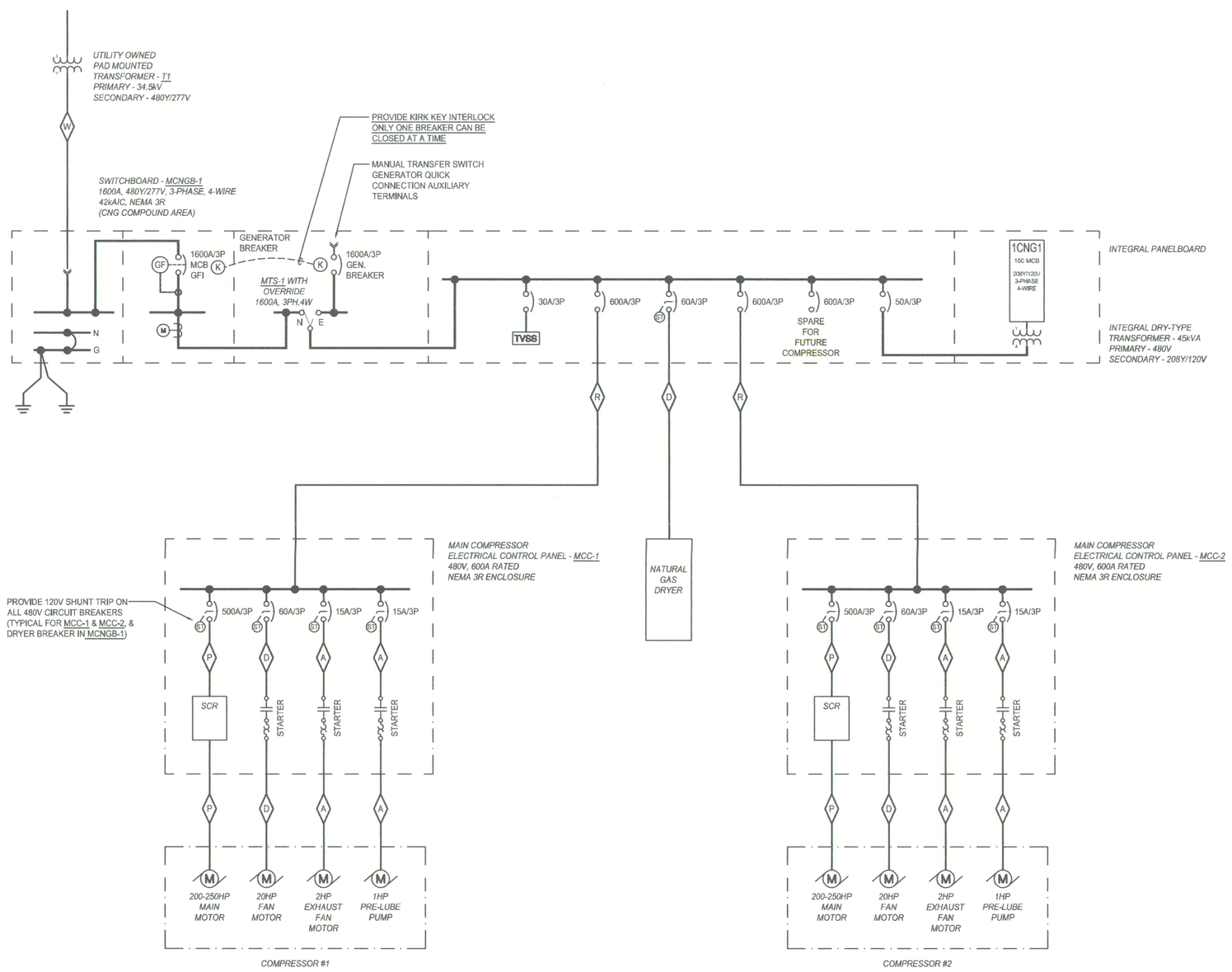
NO.	BY	REVISIONS	DATE
1		ADDENDUM 1	09-20-13

DWG. TITLE

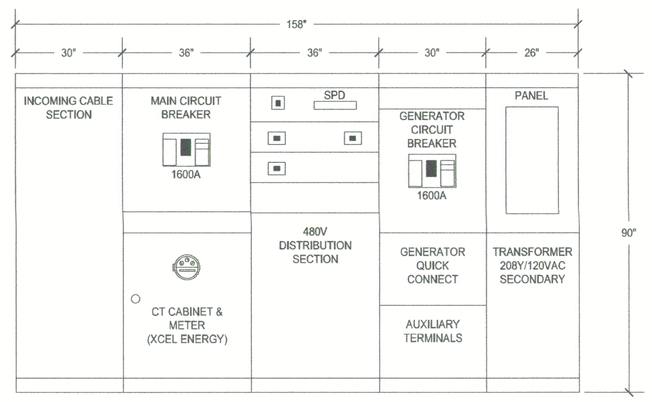
FRONT FUELING HAZZARDOUS LOCATIONS PLAN

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	CNG E302

09-25-2013 RB P:\462301 ST CLOUD METRO BUS SPRINGVILLE ADMIN\CAD\CAD\CNG\CNG E302.DWG HOTPULL\E302.DWG



1 CNG COMPOUND SINGLE LINE DIAGRAM
SCALE: NONE



2 SWITCHGEAR MCNGB-1 ELEVATION
SCALE: NONE

NOTE: ALL EQUIPMENT SHOWN ON THIS PLAN IS FURNISHED BY OWNER INSTALLED BY CONTRACTOR

FEEDER SIZE SCHEDULE

OVERCURRENT DEVICE RATING	WIRE SIZE AWG OR KCMIL		4-WIRE FEEDERS WITH EQUIPMENT GROUND		3-WIRE FEEDERS WITH EQUIPMENT GROUND	
	PHASE & NEUTRAL	GND.	◇	CONDUIT SIZE	◇	CONDUIT SIZE
20	12	12	A	3/4"	A1	3/4"
30	10	10	B	3/4"	B1	3/4"
40	8	10	C	3/4"	C1	3/4"
60	6	10	D	1"	D1	1"
70	4	10	E	1 1/4"	E1	1 1/4"
100	2	8	F	1 1/4"	F1	1 1/4"
110	1	6	G	1 1/2"	G1	1 1/2"
150	1/0	6	H	2"	H1	2"
175	2/0	6	I	2"	I1	2"
200	3/0	6	J	2"	J1	2"
225	4/0	4	K	2 1/2"	K1	2 1/2"
250	250	4	L	2 1/2"	L1	2 1/2"
300	350	4	M	3"	M1	3"
350	500	2	N	3"	N1	3"
400	600	2	O	3 1/2"	O1	3"
450	2-4/0	2	P	2-2 1/2"	P1	2-2"
500	2-250	2	Q	2-2 1/2"	Q1	2-2 1/2"
600	2-350	1	R	2-3"	R1	2-3"
700	2-500	1/0	S	2-3"	S1	2-3"
800	2-600	1/0	T	2-3 1/2"	T1	2-3"
1000	3-500	2/0	U	3-3 1/2"	U1	3-3"
1200	3-600	3/0	V	3-3 1/2"	V1	3-3 1/2"
1600	4-600	4/0	W	4-3 1/2"	W1	4-3 1/2"
2000	5-600	250	X	5-3 1/2"	X1	5-3 1/2"
2500	6-600	350	Y	6-3 1/2"	Y1	6-3 1/2"
3000	8-500	500	Z	8-3 1/2"	Z1	8-3 1/2"
4000	10-500	500	AA	10-3 1/2"	AA1	10-3 1/2"
5000	12-600	2-500	BB	12-3 1/2"	BB1	12-3 1/2"
6000	16-500	2-500	CC	16-3 1/2"	CC1	16-3"

CNG EQUIPMENT LOAD SUMMARY

ITEM	DESCRIPTION	MOTOR CURRENT (A)	OTHER LOAD (kVA)	CONNECTED kVA	DEMAND	TOTAL kVA
1	COMPRESSOR #1 - 200 to 250HP	302		251.08	100%	251.08
2	FAN MOTOR - 20HP	27		22.45	100%	22.45
3	EXHAUST FAN MOTOR - 2HP	3.4		2.83	100%	2.83
4	PRE-LUBE PUMP - 1HP	2.1		1.75	100%	1.75
5						
6	COMPRESSOR #2 - 200 to 250HP	302		251.08	100%	251.08
7	FAN MOTOR - 20HP	27		22.45	100%	22.45
8	EXHAUST FAN MOTOR - 2HP	3.4		2.83	100%	2.83
9	PRE-LUBE PUMP - 1HP	2.1		1.75	100%	1.75
10						
11	COMPRESSOR #3 - 200 to 250HP	302		251.08	100%	251.08
12	FAN MOTOR - 20HP	27		22.45	100%	22.45
13	EXHAUST FAN MOTOR - 2HP	3.4		2.83	100%	2.83
14	PRE-LUBE PUMP - 1HP	2.1		1.75	100%	1.75
15						
16	GAS DRYER		39.9	39.90	100%	39.90
17	45kVA TRANSFORMER		45	45.00	100%	45.00
18				0.00	100%	0.00
19				0.00	100%	0.00
20				0.00	100%	0.00
	SUB-TOTAL	**1003.5**	**84.9**	**919.19**		**919.19**
	ADJUSTMENTS					
	FUTURE EXPANTION - 10%					91.92
	LARGEST MOTOR - 200HP-25%					62.77
	TOTAL DEMAND (kVA)					**1073.88**
	CURRENT DEMAND (A)					**1291.68**

METRO BUS
the people picker-uppers.

ST. CLOUD METROPOLITAN
TRANSIT COMMISION

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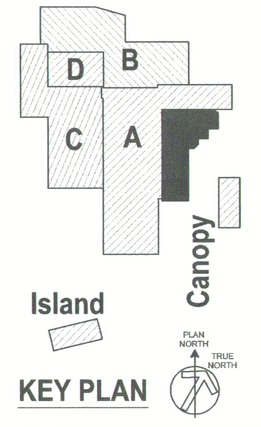
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KEY PLAN

NO.	BY	REVISIONS	DATE

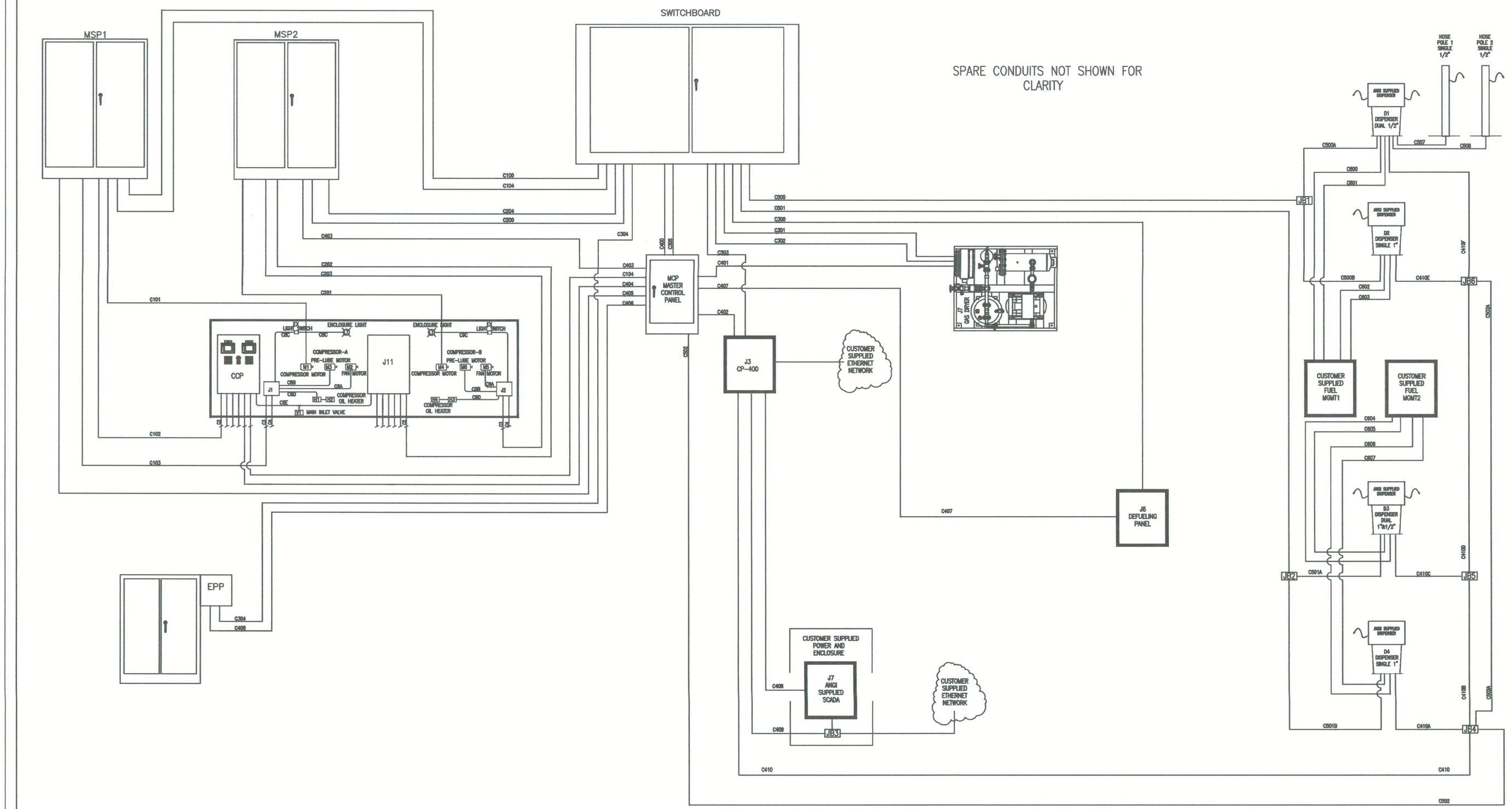
DWG. TITLE

SINGLE LINE DIAGRAM

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB CHK. PTV
PROJ. No.	462301
DWG. No.	

CNG E600

09-13-2013 dgn: P:\462301 ST CLOUD METRO BUS\04 DRAWINGS\15 CAD\CNG\CLEC COMPONENTS.DGN REF: ... CNG INSTALL E600.DWG



REV	DATE/BY	DESCRIPTION	REV	DATE/BY	DESCRIPTION

ANGI ENERGY SYSTEMS
305 W DELAVAN DR
JANESVILLE, WI 53546
PH: 608-563-2800
www.angienergy.com

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UNLESS OTHERWISE SPECIFIED

BREAK SHARP EDGES .005-.015

ALL DIMENSIONS IN INCHES

FRACTIONAL	± 1/8
TWO PLACE DECIMAL	±.010
THREE PLACE DECIMAL	±.005
ANGLES	±1°

TITLE	CONDUIT WIRING DIAGRAM INDEX AND GENERAL INFORMATION				
CUSTOMER	ST. CLOUD METRO			PROJECT NO.	PROJECT NO.
DRN MAM	DATE 09/05/13	SCALE 1:1		DRAWING NO.	REV.
CHK YYY	DATE MM/DD/YY	SHT 2	TOT 29	A80-50 40517	-

AUTOCAD WINDCHILL

METRO BUS
the people picker-uppers.

ST. CLOUD METROPOLITAN TRANSIT COMMISION

665 FRANKLIN AVENUE NE
ST. CLOUD, MN 56304

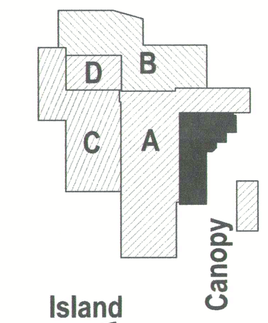
CNG FUELING STATION AND CNG RELATED FACILITY UPGRADES

BID PACKAGE #2
CNG EQUIPMENT INSTALL

wendel
140 John James Audubon Pkwy, Suite 201
Buffalo, NY 14228
www.wendelcompanies.com
p:716.688.0766 f:716.625.6825
AUDUBON ARCHITECTURE, ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

marathon

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KEY PLAN

NO.	BY	REVISIONS	DATE

DWG. TITLE

DATE	09/13/13
SCALE	AS NOTED
DWN.	RB
CHK.	PTV
PROJ. No.	462301
DWG. No.	CNG E601