

# Shiprock First Responders Substation Facility

Highway 491, Shiprock, NM 87420  
Dyron Murphy Architects Project No. 2023.16



## ADDENDUM No. 1

February 26, 2024

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This addendum forms part of the Contract Documents and modifies the Bid Documents dated, January 28, 2019, as noted below. All Bidders must acknowledge receipt of this Addendum. Failure to do so may subject the Bidder to disqualification.

### BIDDERS QUESTIONS AND ANSWERS:

(Please note that some questions may be paraphrased or edited to ensure clarity of responses to inquiries received)

### ADDITIONS/MODIFICATIONS TO THE BID DOCUMENTS AS FOLLOWS:

#### CONTRACT DOCUMENTS

1. Add the following document, "Proposed Schedule of Values" worksheet for filing with the bid requirement. Refer to page 2, Part 1.5, Bid Documents, add as item g., Schedule of Values. Submit this form as part of the Bid Form, corresponding with the total Base Bid amount.
2. Add the following document, "Proposed Early Buyout Items" worksheet for filing with the bid requirement. Refer to page 2, Part 1.5, Bid Documents, add as item h., Proposed Early Buyout Items. Submit this form as part of the Bid Form, corresponding with the total amount proposed to identify long-lead items and early buyout amounting to a minimum amount of \$ 3,100,000. This amount is expected to be identified as a viable project expenditure by May, 2024.
3. Add the following under "Instructions To Bidders", page 4, Part 4.0, Bid Procedure, Subpart 4.6 (A): The Owner's Project Manager will hold a site orientation/visit for interested Bidders on March 4, 2024 at 2:00 pm (MST).
4. Add the following under "Instructions To Bidders", page 6, Part 5.0, Consideration of Bids, Subpart 5.3 (D): The Owner intends to issue a Notice To Proceed to the selected Bidder, who will be expected to immediately engage early procurement of long lead items impacted by time delay or manufacturing delays on the basis of this Notice To Proceed.

#### SPECIFICATIONS:

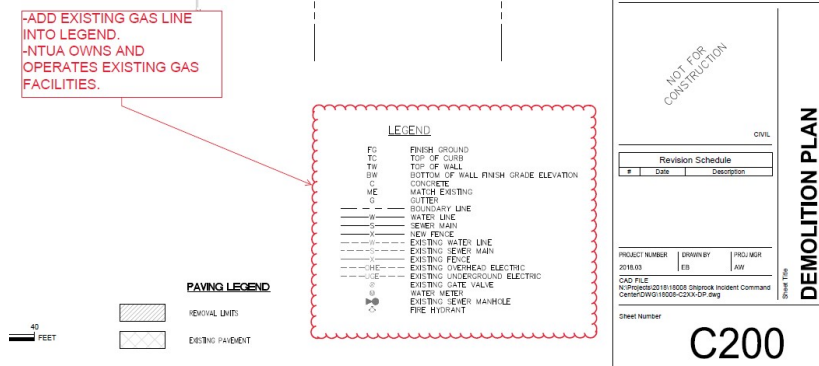
1. Add the following attached specification, Section 07 5400 – "Thermoplastic Membrane Roofing", 6 pp. References to specification section 07 5419, "PVC Roof Membrane", and associated roofing assembly materials in drawings and specifications shall be changed to reflect the change to a Thermoplastic Membrane Roofing product.
2. Add the following attached specification, Section 14 2400 – "Hydraulic Elevator", 10 pp.

#### DRAWINGS:

##### GENERAL

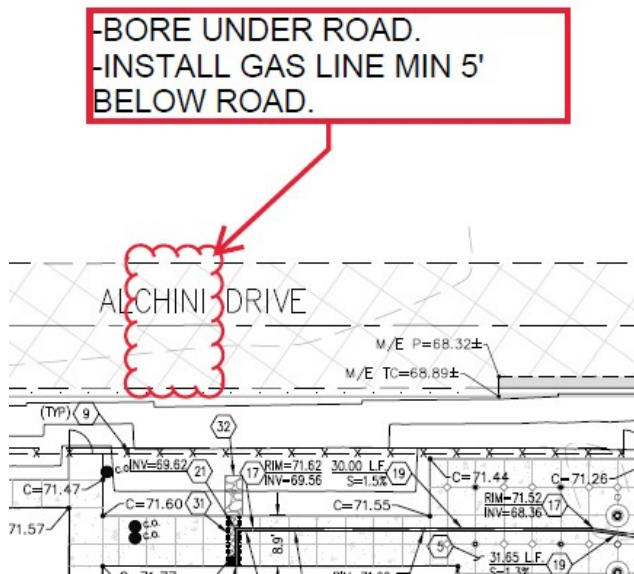
G002 – Add NTUA Gas General Notes, attached.

G200 – Add to General Notes: “NTUA owns and operates existing gas facilities”.

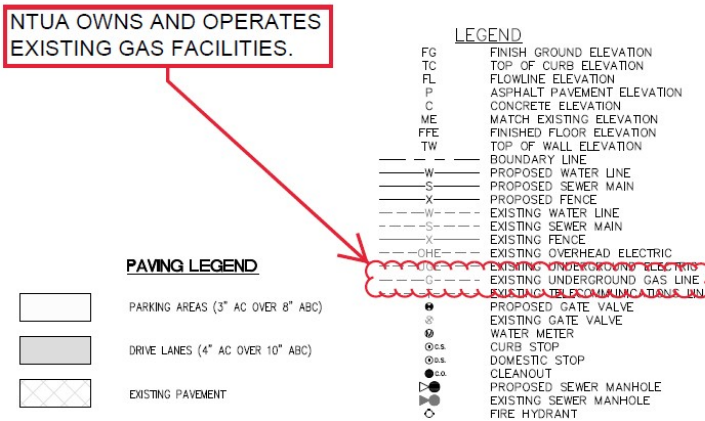


**CIVIL**

C300 GRADING AND DRAINAGE PLAN: Add notation as follows: “Proposed gas line will require boring under road to avoid damaging the road. Gas line will be installed at a minimum of 5 feet under the road. Open cutting will require permits and additional costs to repair. Legend note – NTUA owns and operates existing gas facilities”.



**NTUA OWNS AND OPERATES EXISTING GAS FACILITIES.**



C400 – WATER & SEWER PLAN: Add notation as follows: “Utility crossing will take place. Provide profiles of water and sewer to determine vertical clearances. Note: Gas Engineer and Water Engineer will need to approve crossing if clearances cannot be met.”

C710 – CIVIL DETAILS: Add standard NTUA gas details 2-011, 2-100, 2-150, 2-301, attached herein.

**LANDSCAPE ARCHITECTURE**

L101 - LANDSCAPE PLAN – Add the following notation: “Shrubs and accents circled, plants are proposed to be placed where proposed gas line will be placed. Note: Roots shall not infringe on gas service line.”

**LANDSCAPE LEGEND**

Supply and install the following plant material. Landscape designer to field verify location prior to planting. All plant material to meet A.N.A. specifications and be of sound health and appearance

TREES	SIZE	QTY	SHRUBS/ ACCENTS	SIZE	QTY	GROUND COVER/ HARDSCAPE MATERIAL	QTY
Quercus buckleyi Texas Red Oak	Standard 36" Box	6	Atriplex canescens Fourwing Saltbush	5 Gallon	65	DG(TYP.)	Decomposed Granite - 1/2" Screened - Apache Gold or approved equal. 3" in planting areas as noted.
Gleditsia triacanthos inermis Shademaster Honey Locust	Standard 24" Box	2	Chrysothamnus nauseosus Rabbit Bush	5 Gallon	73	SEED MIX - A	
Forestiera neomexicana New Mexico Privet	Multi 36" Box	3	Perovskia atriplicifolia Russian Sage	5 Gallon	9	Botanical Name	Common Name lbs/acre
Celtis reticulata Netleaf Hackberry	Standard 24" Box	6	Polypogon monspeliensis Apache Plume	5 Gallon	14	Artemisia ludoviciana	Silver Sage 1.0
Juniperus monosperma One Seed Juniper	Standard 15 Gallon	26	Ephedra nevadensis Mormon Tea	5 Gallon	30	Atriplex canescens	Fourwing Saltbush 1.0
Fraxinus velutina Arizona Ash	Standard 24" Box	3	Viguiera stenoloba Skeleton-leaf Goldeneye	5 Gallon	19	Eriogonum fasciculatum	Redvein Rabbitbrush 2.0
			Dalea frutescens Black Indigobush	5 Gallon	19	Dalea frutescens	Black Indigobush 1.0
			Nassella tenuicoma Mexican Feather Grass	1 Gallon	30	Ephedra nevadensis	Mormon Tea 2.0
			Melampodium leucanthum Blackfoot Daisy	1 Gallon	25	Polypogon monspeliensis	Apache Plume 1.0
			Agave chrysantha Golden Columbine	1 Gallon	18	Gaillardia pinnatifida	Blanketflower 1.0
			Penstemon pinifolius Pineleaf Penstemon	1 Gallon	37	Guara linheimeri	Pink Guara 1.0
			Guara linheimeri Pink Guara	1 Gallon	13	Melampodium leucanthum	Blackfoot Daisy 1.0
			Oenothera berlandieri Mexican Evening Primrose	1 Gallon	22	Oenothera berlandieri	Mexican Evening Primrose 1.0
			Tetrandeum aculeatum Angelic Daisy	1 Gallon	27	Sphaeralcea ambigua	Globeamallow 2.0
			Gaillardia pinnatifida Blanketflower	1 Gallon	16	Cover Crop	
			Yucca baccata var. navajona Navajo Soap Yucca	5 Gallon	16	Triticum aestivum x secale cereal	Quickguard Sterile Triticale 8.0
							Total lbs/acre 23.0

**SITE FURNISHINGS**

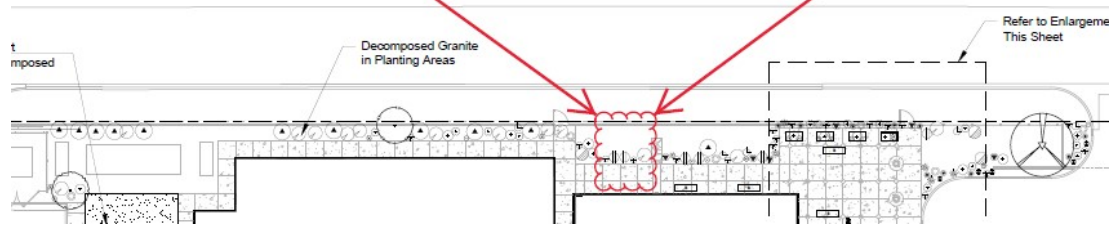
	QTY
Bench Seating, Typ.	3
Planters, Typ.	8

**DECORATIVE CONCRETE - COLOR SCHEDULE**

DC - 1	DAVIS COLORS - Santa Fe (Salted Finish) or Equal
DC - 2	DAVIS COLORS - Dark Grey ( Heavy Broom Finish) or Equal

**SHRUBS/ ACCENT CROSSING:**  
 -CHRYSOETHAMNUS. NAUSEOSUS RABBIT BUSH.  
 -PEROVSKIA ATRIPLICIFOLIA RUSSIAN SAGE.  
 -GAILLARDIA PINNATIFIDA BLAKEFLOWER.

**ROOTS SHALL NOT INFRINGE ON GAS SERVICE LINE**



L201 - LANDSCAPE PLAN – Add the following notation: “Tree and shrub irrigation crossing. Maintain 12 inch vertical separation. Provide profile of irrigation line. Note: Roots shall not infringe on gas service line.”

**IRRIGATION LEGEND**

- Irrigation Mainline - 1" unless otherwise shown.
- Install Water Meter per NTUA Standard Detail WS-1
- ⊓ Backflow Preventer per NTUA Standard Detail WS-1
- ⊓ Irrigation Controller - Rainbird
- ⊕ Gate Valve - Febco Brass Ball Valve - Line Size
- ⊖ Electrical Remote Control Valve and Filter - Valve - Rain Bird PESB Series - Filter - Rainbird RBY-100-150MX
- Irrigation Sleeve - Sch. 40 PVC - 4" unless otherwise shown
- Tree Lateral - 3/4" Class 200 PVC - unless otherwise shown
- Shrub Lateral - 3/4" Poly - unless otherwise shown
- Spray Lateral - 3/4" Class 200 PVC unless otherwise shown
- Pot Lateral - 3/4" Poly unless otherwise shown
- Hose End Cap
- ▲ Wilkins #60 - adjustable outlet pressure regulator
- Multiport Emitters Rain Bird - (6) 1gph or 2gph ports - Refer to Emitter Chart
- ⊕ Station Number
- ⊕ Valve Size
- ⊕ Valve Type

**GENERAL IRRIGATION NOTES:**

1. Maintain irrigation without disruption to all existing plant material as necessary. Coordinate with General Contractor to prevent damage to plant material caused by damage to irrigation caused by construction.
2. Irrigation system shall meet all specifications. If conflict arises between specifications and drawings, specifications shall prevail. If conflict arises between details and notes, notes shall prevail.
3. Irrigation plans are schematic. Contractor is responsible for locating all lines and heads away from obstructions and preventing hazardous conditions caused by irrigation.
4. Landscape Contractor shall coordinate all necessary sleeving with General Contractor. Landscape Contractor is responsible for all necessary sleeving whether shown on plans or not. No additional changes for sleeving or boring will be allowed after acceptance of bid.
5. All water used for irrigation purposes will conform to the Arizona Groundwater Code, Arizona Revised Statutes Title 45, Chapter 2.
6. The contractor shall verify the existing pressure and shall notify the landscape architect of any discrepancy before continuing the work.

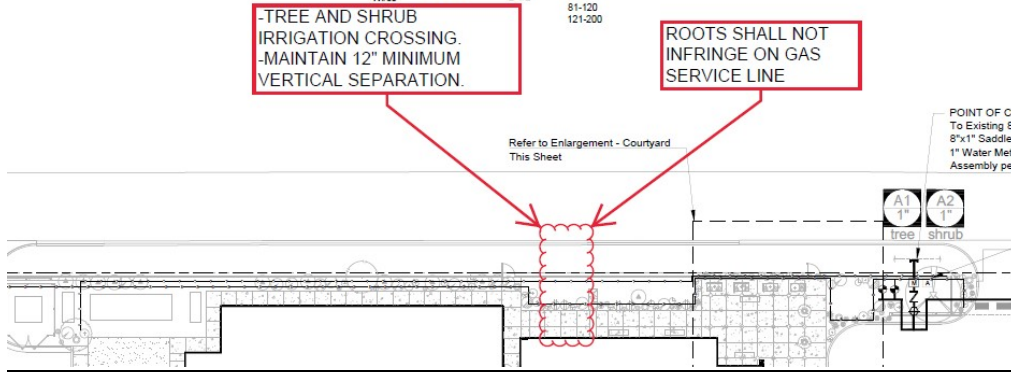
SLEEVING SCHEDULE:	PIPE SIZE	PIPE SIZE SCHEDULE
Contractor is responsible for all sleeving whether shown or not.	1/2"	0-5
8" Mainline	3/4"	6-10
3" Submain to Regulator	1-1/4"	11-15
3" Irrigation Wires	1-1/2"	16-25
3" Low Voltage Lighting Wires	2"	26-35
	2-1/2"	36-50
		61-80
		81-120
		121-200

**IRRIGATION VALVE SCHEDULE**

VALVE	SIZE	TYPE-GPM	VALVE	SIZE	TYPE-GPM
A-1	1"	TREE	A-5	1"	TREE
A-2	1"	SHRUB	A-6	1"	SHRUB
A-3	1"	TREE			
A-4	1"	SHRUB			

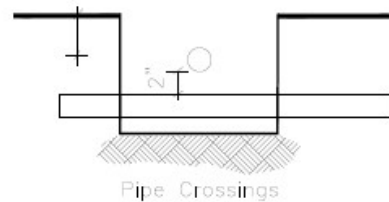
**NOTES:**

1. (M) Multi-port emitter, (S) Single-port emitter. Contractor may select to provide multi-port emitters for shrub plant material. All multi-port emitters shall be installed in emitter box per the project details.
2. Contractor shall adjust controller for the proposed emitter schedule and provide watering to promote healthy growth of plant material.



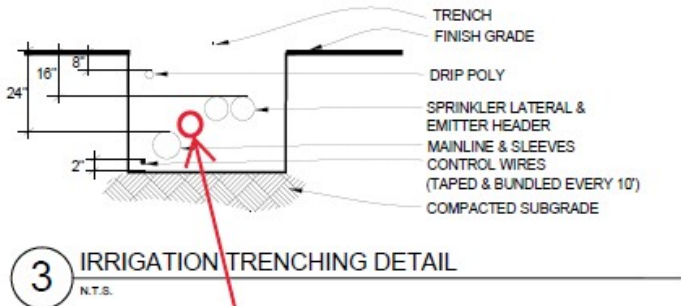
L302 - LANDSCAPE DETAILS – Add the following: “Note: Irrigation line conflicts with gas service line; a 12 inch vertical separation is required.”

**MINIMUM DEPTH SHOWN FOR PIPE TYPE**



**NOTES:**

1. ALL MAINLINES TO BE INSTALLED IN ACCORDANCE W/ MANUFACTURER'S SPECIFICATIONS
2. TRENCH WIDTH & DEPTH TO VARY DEPENDING ON NUMBER & TYPES OF PIPES CONTAINED THERE IN.

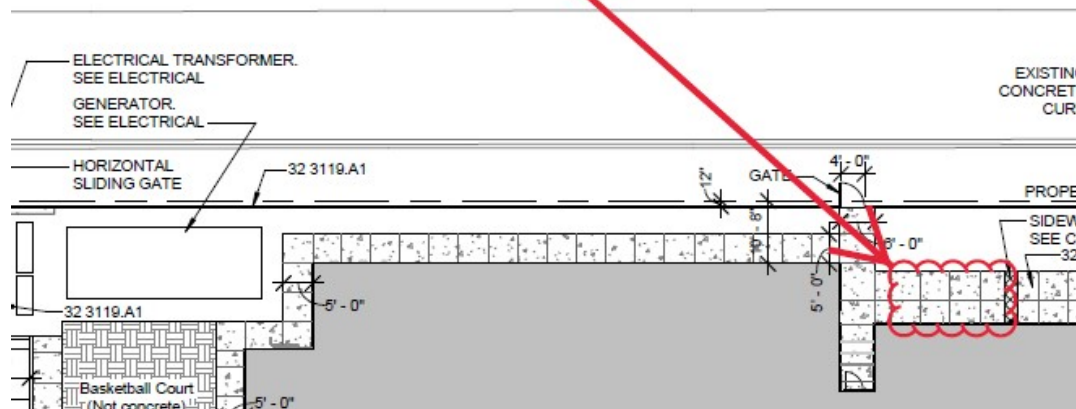


**CONFLICTS WITH GAS SERVICE LINE: -12" MINIMUM SEPARATION**

**ARCHITECTURAL**

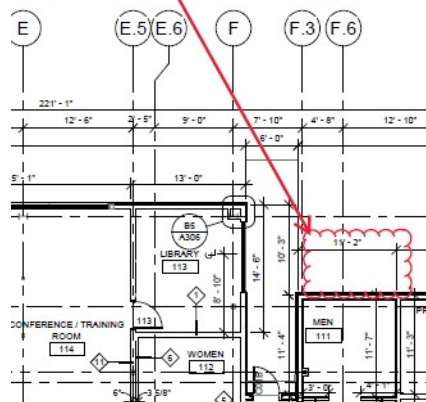
A001 - SITE PLAN – Add the following notation: “Gas facilities shall be installed with sleeve prior to installing sidewalk. See NTUA Detail 2-301.”

**-Gas facilities shall be installed with sleeve prior to installing sidewalk.  
-See NTUA Standard Detail: 2-301**

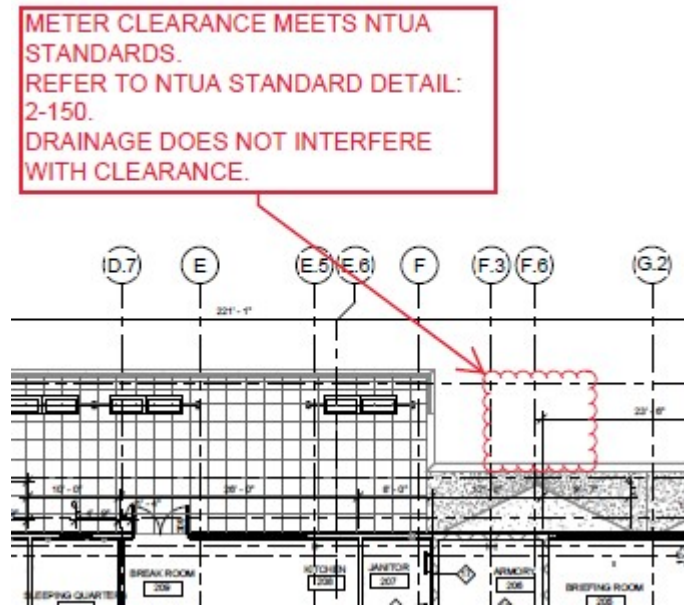


A103 – FIRST FLOOR DIMENSION PLAN – Add the following notation: “Meter clearance meets NTUA Standards; refer to NTUA Standard Detail 2-150.”

**METER CLEARANCE MEETS NTUA STANDARDS. REFER TO NTUA STANDARD DETAIL: 2-150.**



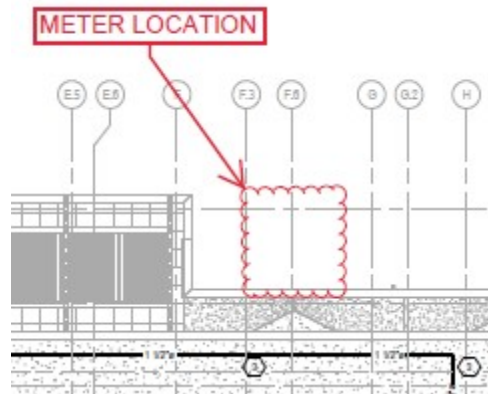
A104 – SECOND FLOOR DIMENSION PLAN – Add the following notation: “Meter clearance meets NTUA Standards, drainage does not interfere with clearance.”



A201 – EXTERIOR ELEVATIONS – Add the following notation: “Meter location identified in plan set does not meet meter clearance requirements. Note: Consider new meter location.”

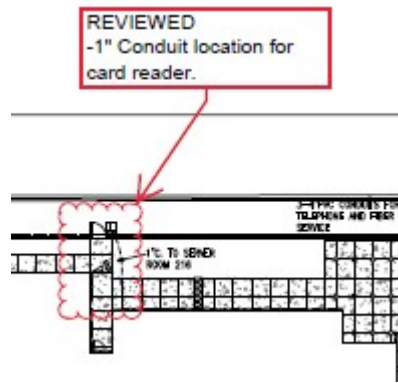
### **PLUMBING**

P302 – ROOF NATURAL GAS PIPING PLAN - Add the following notation: “Recommended gas meter location:”



### **ELECTRICAL**

E001 – ELECTRICAL SITE PLAN - Add the following notation: “Noted 1 inch conduit for card reader:”



**By:**

Dyron Murphy, Principal Architect  
Dyron Murphy Architects, P.C

Attachments:

1. Proposed Schedule of Values Worksheet, 1 pg.
2. Proposed Early Buyout Items Worksheet, 1 pg.
3. Specification Section 07 5400 – Thermoplastic Membrane Roofing, 6 pp
4. Specification Section 14 2400 – Hydraulic Elevator, 10 pp.
5. NTUA Gas General Notes, 1 pg.
6. NTUA Standard Details: 2-011, 2-100, 2-150, 2-301, 4 pp.

**END OF ADDENDUM No. 1**

# Shiprock First Responders Substation Facility

Shiprock, NM

3/14/2024

PROPOSED SCHEDULE OF VALUES	
Div. 001 - General Requirements	
Div. 003 - Concrete	
Div. 004 - Masonry	
Div. 005 - Metals	
Div. 006 - Wood, Plastics and Composites	
Div. 007 - Thermal & Moisture Protection	
Div. 008 - Openings	
Div. 009 - Finishes	
Div. 010 - Specialties	
Div. 012 - Furnishings	
Div. 013 - Special Equipment	
Div. 014 - Conveying Equipment	
Div. 021 - Fire Suppression	
Div. 022 - Plumbing	
Div. 023 - HVAC	
Div. 026 - Electrical	
Div. 027 - Communications	
Div. 028 - Electronic Security and Safety	
Div. 031 - Earthwork	
Div. 032 - Exterior Improvements	
Div. 033 - Utilities	
Subtotal	\$ -
Overhead/Profit	\$ -
Building Permits/Fees	\$ -
Performance and Payment Bond	\$ -
Subtotal	\$ -
NN Tax at 6%	\$ -
<b>TOTAL BASE BID AMOUNT</b>	<b>\$ -</b>

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Bidder Name  
Bidder Address

Date



# Shiprock First Responders Substation Facility

Shiprock, NM

3/14/2024

**MINIMUM VALUE: \$ 3,100,000.00**

**PROPOSED EARLY BUYOUT ITEMS**

Div. 001 - General Requirements	
Div. 003 - Concrete	
Div. 004 - Masonry	
Div. 005 - Metals	
Div. 006 - Wood, Plastics and Composites	
Div. 007 - Thermal & Moisture Protection	
Div. 008 - Openings	
Div. 009 - Finishes	
Div. 010 - Specialties	
Div. 012 - Furnishings	
Div. 013 - Special Equipment	
Div. 014 - Conveying Equipment	
Div. 021 - Fire Suppression	
Div. 022 - Plumbing	
Div. 023 - HVAC	
Div. 026 - Electrical	
Div. 027 - Communications	
Div. 028 - Electronic Security and Safety	
Div. 031 - Earthwork	
Div. 032 - Exterior Improvements	
Div. 033 - Utilities	
Subtotal	\$ -
Overhead/Profit	\$ -
Building Permits/Fees	\$ -
Performance and Payment Bond	\$ -
Subtotal	\$ -
NN Tax at 6%	\$ -
<b>TOTAL EARLY BUYOUT</b>	<b>\$ -</b>

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Bidder Name  
Bidder Address

Date

**SECTION 07 5400**  
**THERMOPLASTIC MEMBRANE ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Adhered system with thermoplastic roofing membrane.
- B. Insulation, flat and tapered.
- C. Vapor retarder.
- D. Deck sheathing.
- E. Cover boards.
- F. Flashings.
- G. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 3100 - Steel Decking: Placement of acoustical insulation for deck flutes.
- B. Section 06 1000 - Rough Carpentry: Wood nailers and curbs.
- C. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings and reglets.
- D. Section 07 7100 - Roof Specialties: Prefabricated roofing expansion joint flashing.
- E. Section 07 7200 - Roof Accessories: Roof-mounted units; prefabricated curbs.

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2017.
- C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2022.
- D. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing; 2021.
- E. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing; 2021.
- F. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011 (Reapproved 2019).
- G. FM DS 1-28 - Wind Design; 2016.
- H. NRCA (RM) - The NRCA Roofing Manual; 2022.
- I. NRCA (WM) - The NRCA Waterproofing Manual; 2021.
- J. UL (FRD) - Fire Resistance Directory; Current Edition.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week before starting work of this section.
  - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
- C. Shop Drawings: Submit drawings that indicate joint or termination detail conditions, conditions of interface with other materials, and paver layout.

- D. Samples for Verification: Submit two samples 4 by 4 inches (102 by 102 mm) in size illustrating colored coating.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- G. Manufacturer's qualification statement.
- H. Installer's qualification statement.
- I. Specimen Warranty: For approval.
- J. Warranty Documentation:
  1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
  2. Submit installer's written verification that installation complies with warranty conditions for waterproof membrane.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum 20 years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this section with at least 5 years of documented experience and approved by manufacturer.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact, unless otherwise indicated.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane when ambient temperature is below 40 degrees F (5 degrees C).
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- E. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

#### **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
  1. Warranty Term: 20 years.
  2. For repair and replacement include costs of both material and labor in warranty.
- C. Installer's Warranty: For repair and replacement include costs of both material and labor in warranty.
- D. Applicator's Warranty: Signed by installing applicator, covering the work of a System Warranty, including all components of roofing system installation such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, vapor retarders, and walkway products, for the following warranty period: 5 years from date of substantial completion.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Thermoplastic Polyolefin (TPO) Membrane Roofing Materials:
  - 1. Carlisle SynTec Systems; Sure-Weld TPO: [www.carlisle-syntec.com/#sle](http://www.carlisle-syntec.com/#sle).
  - 2. Substitutions: See Section 01 6000 - Product Requirements.
- B. Insulation:
  - 1. BASF Corporation; BASF Neopor GPS: [www.neopor.basf.us/#sle](http://www.neopor.basf.us/#sle).
  - 2. Carlisle SynTec Systems; SecurShield Insulation: [www.carlisle-syntec.com/#sle](http://www.carlisle-syntec.com/#sle).
  - 3. Owens Corning Corporation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 ROOFING - UNBALLASTED APPLICATIONS**

- A. Thermoplastic Membrane Roofing: One ply membrane, fully adhered, over insulation.
- B. Roofing Assembly Requirements:
  - 1. Solar Reflectance Index (SRI): Minimum of 64 based on three-year aged value; if three-year aged data is not available, minimum of 82 initial value.
    - a. Calculate SRI in accordance with ASTM E1980.
    - b. Field applied coating may not be used to achieve specified SRI.
  - 2. Roof Covering External Fire Resistance Classification: UL (FRD) Class A.
  - 3. Factory Mutual Classification: Class 1 and windstorm resistance of 1-90, in accordance with FM DS 1-28.
  - 4. Insulation Thermal Resistance (R-Value): 3 per inch, minimum; provide insulation of thickness required.
- C. Acceptable Insulation Types - Constant Thickness Application:
  - 1. Minimum 2 layers of polyisocyanurate board.
- D. Acceptable Insulation Types - Tapered Application:
  - 1. Tapered polyisocyanurate board.

### **2.03 MEMBRANE ROOFING AND ASSOCIATED MATERIALS**

- A. Membrane Roofing Materials:
  - 1. TPO: Thermoplastic polyolefin (TPO) complying with ASTM D6878/D6878M, sheet contains reinforcing fabrics or scrim.
    - a. Thickness: 80 mil, 0.080 inch (2.0 mm), minimum.
  - 2. Sheet Width:
    - a. Adhered Application: Limit width to 120 inches (3,048 mm), maximum, when ambient temperatures are less than 40 degrees F (4.4 degrees C) for extended period of time during installation.
  - 3. Color: Gray.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Flexible Flashing Material: Same material as membrane.

### **2.04 DECK SHEATHING**

- A. Deck Sheathing: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M.
  - 1. Thickness: 1/2 inch (12.7 mm), fire-resistant.
  - 2. Products:
    - a. Georgia-Pacific; DensDeck Prime with EONIC Technology: [www.densdeck.com/#sle](http://www.densdeck.com/#sle).

### **2.05 COVER BOARDS**

- A. Cover Boards: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M.
  - 1. Thickness: 1/2 inch (12.7 mm), fire-resistant.
  - 2. Products:

- a. Georgia-Pacific; DensDeck Prime with EONIC Technology:  
[www.densdeck.com/#sle](http://www.densdeck.com/#sle).

## 2.06 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
  - 1. Classifications:
    - a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
      - 1) Class 1 - Faced with glass fiber reinforced cellulosic facers on both major surfaces of the core foam.
      - 2) Compressive Strength: Classes 1-2-3, Grade 1, 16 psi (110 kPa), minimum.
      - 3) Thermal Resistance, R-value (RSI-value): At 1-1/2 inches (38 mm) thick; Class 1, Grades 1-2-3, 8.4 (1.48), minimum, at 75 degrees F (24 degrees C).
  - 2. Board Size: 48 by 96 inches (1220 by 2440 mm).
  - 3. Board Thickness: 1.5 inches (38 mm).
  - 4. Tapered Board: Slope as indicated; minimum thickness \_\_\_\_ inch (\_\_\_\_ mm); fabricate of fewest layers possible.
  - 5. Board Edges: Square.
  - 6. Products:
    - a. Carlisle SecurShield.

## 2.07 ACCESSORIES

- A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.
- B. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- C. Sheathing Joint Tape: Paper type, 6 inches (\_\_\_\_ mm) wide, self adhering.
- D. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
  - 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- E. Membrane Adhesive: As recommended by membrane manufacturer.
- F. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- G. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- H. Insulation Adhesive: As recommended by insulation manufacturer.
- I. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- J. Insulation Perimeter Restraint: Stainless steel edge device configured to restrain insulation boards in position and provide top flashing over ballast.
- K. Sealants: As recommended by membrane manufacturer.
- L. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
  - 1. Composition: Asphaltic with mineral granule surface.
  - 2. Size: 18 by 18 inches (460 by 460 mm).
  - 3. Surface Color: White or Yellow.
  - 4. Products:
    - a. W.R. Meadows, Inc; Whitewalk: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.

- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

### **3.02 PREPARATION - METAL DECK**

- A. Install preformed acoustical glass fiber insulation strips in roof deck flutes in accordance with manufacturer's instructions; see steel decking section.
- B. Do not begin installation of roof insulation over metal deck until welds have been cleaned and painted as specified under steel decking section.
- C. Install deck sheathing on metal deck:
  - 1. Lay with long side at right angle to flutes; stagger end joints; provide support at ends.
  - 2. Cut sheathing cleanly and accurately at roof breaks and protrusions to provide smooth surface.
  - 3. Tape joints.

### **3.03 INSTALLATION, GENERAL**

- A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.
- B. Do not apply roofing membrane during cold or wet weather conditions.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

### **3.04 INSTALLATION - MEMBRANE**

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Apply adhesive to substrate at rate of []. Fully embed membrane in adhesive except in areas directly over or within 3 inches (76 mm) of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches (76 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- E. At intersections with vertical surfaces:
  - 1. Extend membrane over cant strips and up a minimum of 4 inches (102 mm) onto vertical surfaces.
  - 2. Fully adhere flexible flashing over membrane and up to nailing strips.
- F. Around roof penetrations, seal flanges and flashings with flexible flashing.
- G. Install roofing expansion joints where indicated. Make joints watertight.
  - 1. Install prefabricated joint components in accordance with manufacturer's instructions.
- H. Coordinate installation of roof drains and sumps and related flashings.

### **3.05 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Provide daily on-site attendance of roofing and insulation manufacturer's representative during installation of this work.

### **3.06 CLEANING**

- A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.

- B. Remove bituminous markings from finished surfaces.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.

**3.07 PROTECTION**

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

**END OF SECTION**

## SECTION 14 2400 - HYDRAULIC ELEVATORS

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Complete hydraulic elevator systems.
  - 1. Passenger type.

#### 1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Includes elevator machine foundation, elevator pit, grouting thresholds, and grouting hoistway entrance frames.
- B. Section 05 1200 - Structural Steel Framing: Includes hoistway framing, divider beams, and overhead hoist beams.
- C. Section 26 0533.13 - Conduit for Electrical Systems:
- D. Section 26 0583 - Wiring Connections:

#### 1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2014 (2015 Errata).
- C. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- D. AISC 360 - Specification for Structural Steel Buildings; 2016.
- E. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015.
- F. ASME A17.1 - Safety Code for Elevators and Escalators; 2016.
- G. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- H. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2016a.
- I. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- J. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.



- L. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2013.
- M. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- N. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015, with Errata (2016).
- O. NEMA MG 1 - Motors and Generators; 2016.
- P. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- Q. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Coordinate work with other installers to provide conduits necessary for installation of wiring including but not limited to:
    - a. Telephone service for machine room.
    - b. Elevator pit for lighting and sump pump.
    - c. Fire alarm panel from controller cabinet.
  - 2. Coordinate work with other installers for equipment provisions necessary for proper elevator operation, including but not limited to, the following:
- B. Preinstallation Meeting: Convene meeting at least one week prior to start of this work.
  - 1. Review schedule of installation, proper procedures and conditions, and coordination with related work.
  - 2. Review use of elevator for construction purposes, hours of use, scheduling of use, cleanliness of car, employment of operator, and maintenance of system.
- C. Construction Use of Elevator: Not permitted.

#### 1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on following items:
  - 1. Signal and operating fixtures, operating panels, and indicators.
  - 2. Car design, dimensions, layout, and components.
  - 3. Car and hoistway door and frame details.
  - 4. Electrical characteristics and connection requirements.
- C. Shop Drawings: Include appropriate plans, elevations, sections, diagrams, and details on following items:
  - 1. Elevator Equipment and Machines: Size and location of driving machines, power units, controllers, governors, and other components.
  - 2. Hoistway Components: Size and location of car guide rails, buffers, jack unit and other components.
  - 3. Rail bracket spacing; maximum loads imposed on guide rails requiring load transfer to building structural framing.

4. Clearances and over-travel of car.
  5. Locations in hoistway and machine room of traveling cables and connections for car lighting and telephone.
  6. Location and sizes of hoistway and car doors and frames.
  7. Electrical characteristics and connection requirements.
  8. Indicate arrangement of elevator equipment and allow for clear passage of equipment through access openings.
- D. Samples: Submit samples illustrating car interior finishes, car and hoistway door and frame finishes, handrail material and finish, and all other finishes in the form of cut sheets, finish color selection brochures, or samples as required..
- E. Testing Agency's Qualification Statement.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- G. Initial Maintenance Contract.
- H. Maintenance Contract: Submit proposal to Owner for standard one year continuing maintenance contract agreement in accordance with ASME A17.1 and requirements as indicated, starting on date initial maintenance contract is scheduled to expire.
1. Indicate in proposal the services, obligations, conditions, and terms for agreement period and for renewal options.
- I. Operation and Maintenance Data:
1. Parts catalog with complete list of equipment replacement parts; identify each entry with equipment description and identifying code.
  2. Operation and maintenance manual.
  3. Schematic drawings of equipment and hydraulic piping, and wiring diagrams of installed electrical equipment with list of corresponding symbols to identify markings on machine room and hoistway apparatus.

#### 1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and approved by elevator equipment manufacturer.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of type specified in this section.

#### 1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's warranty for elevator operating equipment and devices for one year from Date of Substantial Completion.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Basis of Design - Hydraulic Elevators: OTIS ELEVATORS; HYDROFIT 3500# - 125 F.P.M..
- B. Other Acceptable Manufacturers - Hydraulic Elevators:
  - 1. ThyssenKrupp Elevator: [www.thyssenkruppelevator.com/#sle](http://www.thyssenkruppelevator.com/#sle).
  - 2. KONE Elevators: <https://www.kone.us/>.
- C. Substitutions: See Section 01 6000 - Product Requirements.
  - 1. For any product not identified as Basis of Design, submit information as specified for substitutions.
- D. Products other than Basis of Design are subject to compliance with specified requirements and prior approval of Architect. By using products other than Basis of Design, the Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.

### 2.02 HYDRAULIC ELEVATORS

- A. Hydraulic Passenger Elevator, BASIS OF DESIGN : OTIS HydroFit - 3500# - 125 F.P.M:
  - 1. Hydraulic Elevator Equipment:
    - a. Holeless hydraulic with cylinder mounted within hoistway.
  - 2. Drive System:
  - 3. Operation Control Type:
  - 4. Service Control Type:
    - a. Standard service control only.
  - 5. Interior Car Height: 93 Min. inch.
  - 6. Electrical Power: Per Manuf. Requirements, coordinate with electrical drawings.
  - 7. Rated Net Capacity: 3500 pounds.
  - 8. Rated Speed: 125 to 150 feet per minute.
  - 9. Hoistway Size: As indicated on drawings.
  - 10. Elevator Pit Depth: 60" / per manuf. inch.
  - 11. Travel Distance: As indicated on drawings.
  - 12. Number of Stops: As indicated on drawings.
  - 13. Number of Openings: 01 Front; 0 Rear.
  - 14. Hydraulic Equipment Location: As indicated on drawings

### 2.03 COMPONENTS

- A. Elevator Equipment:
  - 1. Motors, Hydraulic Equipment, Controllers, Controls, Buttons, Wiring, Devices, and Indicators: Comply with NFPA 70. Refer to Section 26 0583
  - 2. Guide Rails, Cables, Buffers, Attachment Brackets and Anchors: Design criteria for components includes safety factors in accordance with applicable requirements of Elevator Code, ASME A17.1.
  - 3. Buffers:
    - a. Per Manuf.
  - 4. Sump Pump:

- a. If required by code / AHJ shall be included with this submittal. Coordinate with foundation / pit installation as required. Coordinate with electrical for wiring as required.

B. Electrical Equipment:

1. Motors: NEMA MG 1.
2. Boxes, Conduit, Wiring, and Devices: As required by NFPA 70. Refer to Sections 26 0533.13 and 26 0583.
3. Spare Conductors: Provide ten percent in extra conductors and two pairs of shielded audio cables in traveling cables.
4. If sump pump is required, coordinate requirements with electrical contractor.
5. Include wiring and connections to elevator devices remote from hoistway and between elevator machine room. Provide additional components and wiring to suit machine room layout. Refer to Section 26 0583.

2.04 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with ASME A17.1, applicable local codes, and authorities having jurisdiction (AHJ).
- B. Accessibility Requirements: Comply with ADA Standards.
- C. Perform structural steel design, fabrication, and installation in accordance with AISC 360.
- D. Perform welding of steel in accordance with AWS D1.1/D1.1M.
- E. Fabricate and install door and frame assemblies in accordance with NFPA 80 and in compliance with requirements of authorities having jurisdiction.
- F. Perform electrical work in accordance with NFPA 70.

2.05 OPERATION CONTROLS

- A. Elevator Controls: Provide landing operating panels, landing indicator panels, and Card Access system..
  1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
  2. Landing Indicator Panels: Illuminating.
  3. Provide Card access system with controls. Ensure programming is compatible with owner card access system.
  4. Comply with ADA Standards for elevator controls.
- B. Interconnect elevator control system with building security, fire alarm, card access, smoke alarm, building management control, and all other applicable systems.
- C. Door Operation Controls:
  1. Program door control to open doors automatically when car arrives at floor landing.
  2. Render "Door Close" button inoperative when car is standing at dispatch landing with doors open.
  3. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.

- D. Lobby Monitoring Panel:
  1. Locate status indicator and control panel for each individual elevator and group of elevators in dispatch center..
  2. Etch face plate markings in panel, and fill with paint of contrasting color.
  3. Include direction indicator displaying landing "Up" and "Down" calls registered at each landing floor.
  4. Include position and motion display for direction of travel of each elevator. Display appropriate graphic characters on non-glare screen. Indicate position of cars at rest and in motion.
  5. Include "Firefighter's Service Switch" that manually recalls each elevator to main floor.
- E. Provide "Firefighter's Emergency Operation" in accordance with ASME A17.1, applicable building codes, and authorities having jurisdiction (AHJ).
  1. Designated Landing: Main Lobby.

## 2.06 OPERATION CONTROL TYPE

- A. Single Automatic (Push Button) Operation Control: Applies to car in single elevator shaft.
  1. Refer to description provided in ASME A17.1.
  2. Set system operation so that momentary pressure of landing button dispatches car from other landing to that landing.
  3. Allow call registered by momentary pressure of landing button at any time to remain registered until car stops in response to that landing call.
  4. If elevator car door is not opened within predetermined period of time after car has stopped at terminal landing allow car to respond to call registered from other landing.

## 2.07 SERVICE CONTROL TYPE

- A. Restricted Access Service Control:
  1. Landing Call Lock-out: Provide a key operated switch with key removable from "On" or "Off" position in landing control station that performs the following when activated:
    - a. Restricts or permits landing call registration for that landing.
    - b. Causes the elevator to not respond to that landing.
  2. Allow "Firefighter's Emergency Operation" to take control priority over "Restricted Access Service Control".

## 2.08 EMERGENCY POWER

- A. Set-up elevator operation to run with building emergency power supply when the normal building power supply fails, and in compliance with ASME A17.1 requirements.
- B. Building Emergency Power Supply: Supplied by backup generator; provide elevator system components as required for emergency power characteristics with phase rotation the same as for normal power.
  1. Provide transfer switches and auxiliary contacts.
  2. Provide battery back up as necessary for continuous operation of elevator during transfer to back up generator.
  3. Install connections to power feeders.
- C. Emergency Lighting: Comply with ASME A17.1 elevator lighting requirements.

- D. Provide operational control circuitry for adapting the change from normal to emergency power.
- E. Upon transfer to emergency power, advance one elevator at a time to a pre-selected landing, stop car, open doors, disable operating circuits, and hold in standby condition.

## 2.09 MATERIALS

- A. Rolled Steel Sections, Shapes, Rods: ASTM A36/A36M.
- B. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- C. Stainless Steel Sheet: ASTM A666, Type 304; No. 4 Brushed finish unless otherwise indicated.
- D. Stainless Steel Bars, Shapes and Moldings: ASTM A276/A276M, Type 304.
- E. Extruded Aluminum: ASTM B221 (ASTM B221M), natural anodized finish unless otherwise indicated.
- F. Tempered Glass: 3/8 inch minimum thickness, fully tempered in compliance with ASME A17.1, 16 CFR 1201, ANSI Z97.1, and ASTM C1048 tempered glass requirements.
- G. Carpet Flooring: As specified in Section 09 6816, Type \_\_\_\_.

## 2.10 CAR AND HOISTWAY ENTRANCES

- A. Elevator, No. 01:
  - 1. Car and Hoistway Entrances, Each Elevator Floor Lobby:
    - a. Framed Opening Finish and Material: Brushed stainless steel.
    - b. Car Door Material: Stainless steel, with rigid sandwich panel construction.
    - c. Hoistway Door Material: Stainless steel, with rigid sandwich panel construction.

## 2.11 CAR EQUIPMENT AND MATERIALS

- A. Elevator Car:
  - 1. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open/Door Close" buttons, "Door Open" button, "Door Close" button, alarm button, and \_\_\_\_\_.
    - a. Panel Material: Integral with front return; one per car.
    - b. Car Floor Position Indicator: Above door with illuminating position indicators.
    - c. Locate alarm button where it is unlikely to be accidentally actuated; not more than 54 inch above car finished floor.
  - 2. Flooring: Carpeting.
  - 3. Wall Base: Recessed stainless steel, 4 inch high.
  - 4. Front Return Panel: Match material of car door.
  - 5. Door Wall: Stainless steel.
  - 6. Hand Rail: Aluminum, at all three sides. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.
    - a. Round, Metal Tube: 1-1/2 inch diameter.
    - b. Aluminum Finish: Clear anodized.
  - 7. Ceiling:

- a. Canopy Ceiling: Stainless steel.
  - b. Frame Finish: Color anodized aluminum.
- B. Car Accessories:
- 1. Certificate Frame: Stainless steel frame glazed with tempered glass, and attached with tamper-proof screws.

## 2.12 FINISHES

- A. Clear Anodized Finish: Class I, AAMA 611 AA-M12C22A41 clear anodic coating with electrolytically deposited organic seal; not less than 0.7 mils, 0.0007 inch thick.
- B. Color Anodized Finish: Class I, AAMA 611 AA-M12C22A44 electrolytically deposited colored anodic coating not less than 0.7 mils, 0.0007 inch thick.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting this work.
- B. Verify that hoistway, pit, and machine room are ready for work of this section.
- C. Verify hoistway shaft and openings are of correct size and within tolerance.
- D. Verify location and size of machine foundation and position of machine foundation bolts.
- E. Verify that electrical power is available and of correct characteristics.

### 3.02 PREPARATION

- A. Arrange for temporary electrical power for installation work and testing of elevator components, and comply with requirements of Section 01 5000 - Temporary Facilities and Controls.
- B. Maintain elevator pit excavation free of water.

### 3.03 INSTALLATION

- A. Coordinate this work with installation of hoistway wall construction.
- B. Install system components, and connect equipment to building utilities.
- C. Provide conduit, electrical boxes, wiring, and accessories. Refer to Sections 26 0533.13 and 26 0583.
- D. Install hydraulic piping between cylinder and pump unit.
- E. Mount machines, motors and pumps on vibration and acoustic isolators.
  - 1. Place on structural supports and bearing plates.
  - 2. Securely fasten to building supports.
  - 3. Prevent lateral displacement.

- F. Install hoistway, elevator equipment, and components in accordance with approved shop drawings.
- G. Install guide rails to allow for thermal expansion and contraction movement of guide rails.
- H. Accurately machine and align guide rails, forming smooth joints with machined splice plates.
- I. Install hoistway door sills, frames, and headers in hoistway walls; grout sills in place, set hoistway floor entrances in alignment with car openings, and align plumb with hoistway.
- J. Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime two coats.
- K. Wood Surfaces not Exposed to Public View: Finish with one coat primer; one coat enamel.
- L. Adjust equipment for smooth and quiet operation.

#### 3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Testing and inspection by regulatory agencies certified in accordance with ASME QEI-1 will be performed at their discretion.
- C. Operational Tests:
  1. Perform operational tests in the presence of Owner and Architect.
  2. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.
    - a. Furnish event recording of each landing call registrations, time initiated, and response time throughout entire working day.
  3. Set period of time elevator takes to travel between typical floor landings at not more than 10 seconds.
    - a. Measure time from moment doors start to close until car has stopped level at next floor landing and doors are opening.

#### 3.05 ADJUSTING

- A. Adjust for smooth acceleration and deceleration of car to minimize passenger discomfort.
- B. Adjust with automatic floor leveling feature at each floor landing to reach 1/4 inch maximum from flush with sill.

#### 3.06 CLEANING

- A. Remove protective coverings from finished surfaces.
- B. Clean surfaces and components in accordance with manufacturers written instructions.

#### 3.07 CLOSEOUT ACTIVITIES

- A. Demonstrate proper operation of equipment to Owner's designated representative.
- B. Training: Train Owner's personnel on cleaning and operation and maintenance of system.



1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
2. Provide minimum of two hours of training.
3. Location: At project site, unless noted otherwise.

### 3.08 PROTECTION

- A. Do not permit construction traffic within car after cleaning.
- B. Protect installed products until Date of Substantial Completion.
- C. Touch-up, repair, or replace damaged products and materials prior to Date of Substantial Completion.

### 3.09 MAINTENANCE

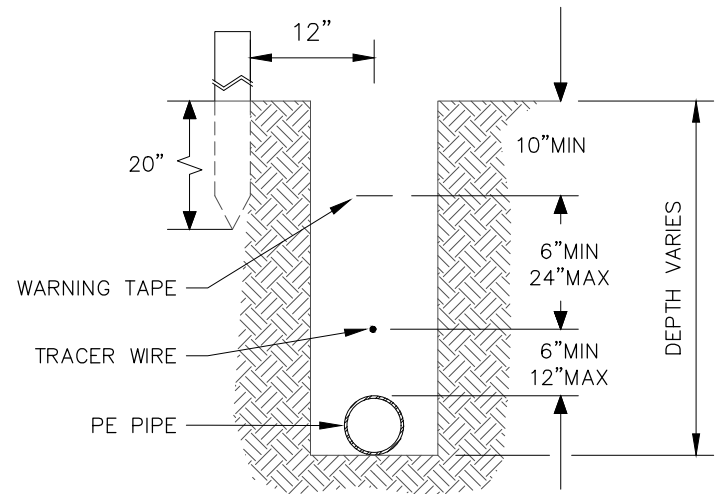
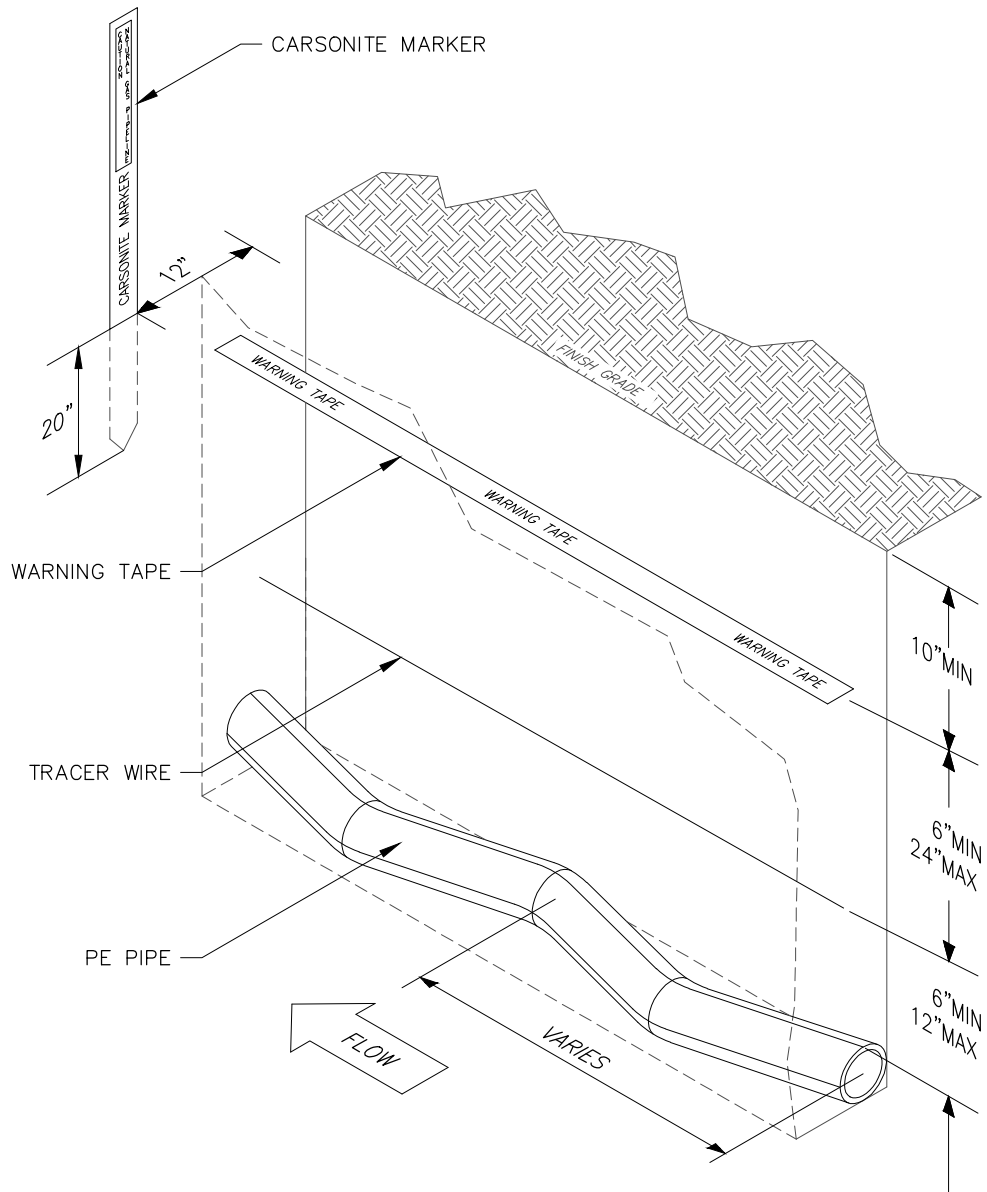
- A. Provide Initial Maintenance Contract of elevator system and components in accordance with ASME A17.1 and requirements as indicated for 3 months from Date of Substantial Completion.
- B. Perform maintenance contract services using competent and qualified personnel under the supervision and direct employ of the elevator manufacturer or original installer.
- C. Include systematic examination, adjustment, and lubrication of elevator equipment.
- D. Perform work without removing cars from use during peak traffic periods.

END OF SECTION

## NTUA GAS DEPARTMENT

### GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH NTUA TECHNICAL SPECIFICATIONS FOR WORKMANSHIP AND MATERIALS FOR NATURAL GAS FACILITIES (2004).
2. NATURAL GAS FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH MOST RECENT VERSION OF UNIFORM PLUMBING CODE (2015) AND UNIFORM MECHANICAL CODE (2015).
3. NATURAL GAS STUB-OUT SHALL COMPLY WITH NTUA DETAIL 2-150.
4. UNLESS OTHERWISE SPECIFIED BY CUSTOMER'S WRITTEN NOTICE, STANDARD DELIVERY SHALL BE 4 OUNCES PER SQUARE INCH (7 INCHES WATER COLUMN) AND NOT EXCEED 275 CUBIC FEET PER HOUR.
5. CUSTOMER SHALL PROVIDE NTUA WRITTEN NOTICE SPECIFYING INCREASE/DECREASE IN CUSTOMER'S TOTAL CONNECTED LOAD AND/OR DELIVERY PRESSURE SHOULD IT DIFFER FROM CONTRACT.
6. NTUA FUEL GAS PIPING AFFIDAVIT OF COMPLIANCE FORM MUST BE CERTIFIED BY LICENSED JOURNEYMAN PIPEFITTER OR PLUMBER PER UNIT.
7. MODULAR UNITS SHALL BE PERMANENTLY SET PRIOR TO PRESSURE TEST.
8. LICENSED JOURNEYMAN PIPEFITTER OR PLUMBER MUST BE PRESENT AND PARTICIPATE IN ACTIVATION OF EACH NATURAL GAS METER. MINIMUM 72 HOUR NOTICE REQUIRED.
9. NATURAL GAS FACILITIES BEFORE THE METER WILL BE CONSTRUCTED BY NTUA. SCHEDULING OF CONSTRUCTION WILL COMMENCE AFTER NTUA RECEIVES 95% GRADING CERTIFICATION FROM PROJECT AND FINANCIAL COMMITMENT FROM OWNER.
  - a. 95% GRADING CERTIFICATION MUST BE CERTIFIED BY REGISTERED LAND SURVEYOR.
  - b. 95% GRADING COMPLIANCE REQUIRED ALONG PATH OF NATURAL GAS EASEMENT/ROW ONLY.
11. NTUA NATURAL GAS DEPARTMENT MAY BE CONTACTED AT (928) 729-5721 EXT. 3040 REGARDING SCHEDULING, ENGINEERING, CONSTRUCTION, AND PROJECT MANAGEMENT.
12. CALL 811 AND NTUA (800) 528-5011 BEFORE YOU DIG. MINIMUM 72 HOUR NOTICE REQUIRED.



**CROSS SECTION**

**NOTES:**

1. MATERIAL SHALL BE OF POLYETHYLENE PERFORMANCE PIPE YELLOW STRIPE 8300 SERIES. POLYETHYLENE PIPE SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH THE LATEST PUBLICATION EDITION OF ASTM D2513.
2. SCRATCHES OR GROOVES DEEPER THAN ONE TENTH (0.10IN) THE WALL THICKNESS SHALL BE REJECTED.
3. SNAKE PIPE TO ALLOW FOR EXPANSION AND CONTRACTION OF EARTH.
4. THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) MAY NOT EXCEED 100 PSIG FOR PE PIPE USED IN DISTRIBUTION SYSTEMS.
5. WARNING TAPE AND TRACER WIRE SHALL BE VERTICALLY ALIGNED WITH PIPE.
6. YELLOW CARSONITE SIGNS ARE TO BE INSTALLED AT ALL ELBOWS, BENDS, TEES, VALVES AND ON CONTINUOUS STRAIGHT LINES-OF-SIGHT AT 500 FOOT INCREMENTS, UNLESS THE TERRAIN REQUIRES MORE FREQUENT PLACEMENT. CARSONITE SIGNS ARE TO BE OFFSET APPROXIMATELY 1 FOOT FROM THE CENTERLINE OF THE GAS LINE INSTALLATION.

DETAIL NUMBER:  
**2-011**



Navajo Tribal  
Utility Authority

NATURAL GAS  
STANDARD DETAIL

DETAIL TITLE:

**UNDERGROUND INSTALLATION  
OF PE PIPE (TYPICAL)**

APPROVED:

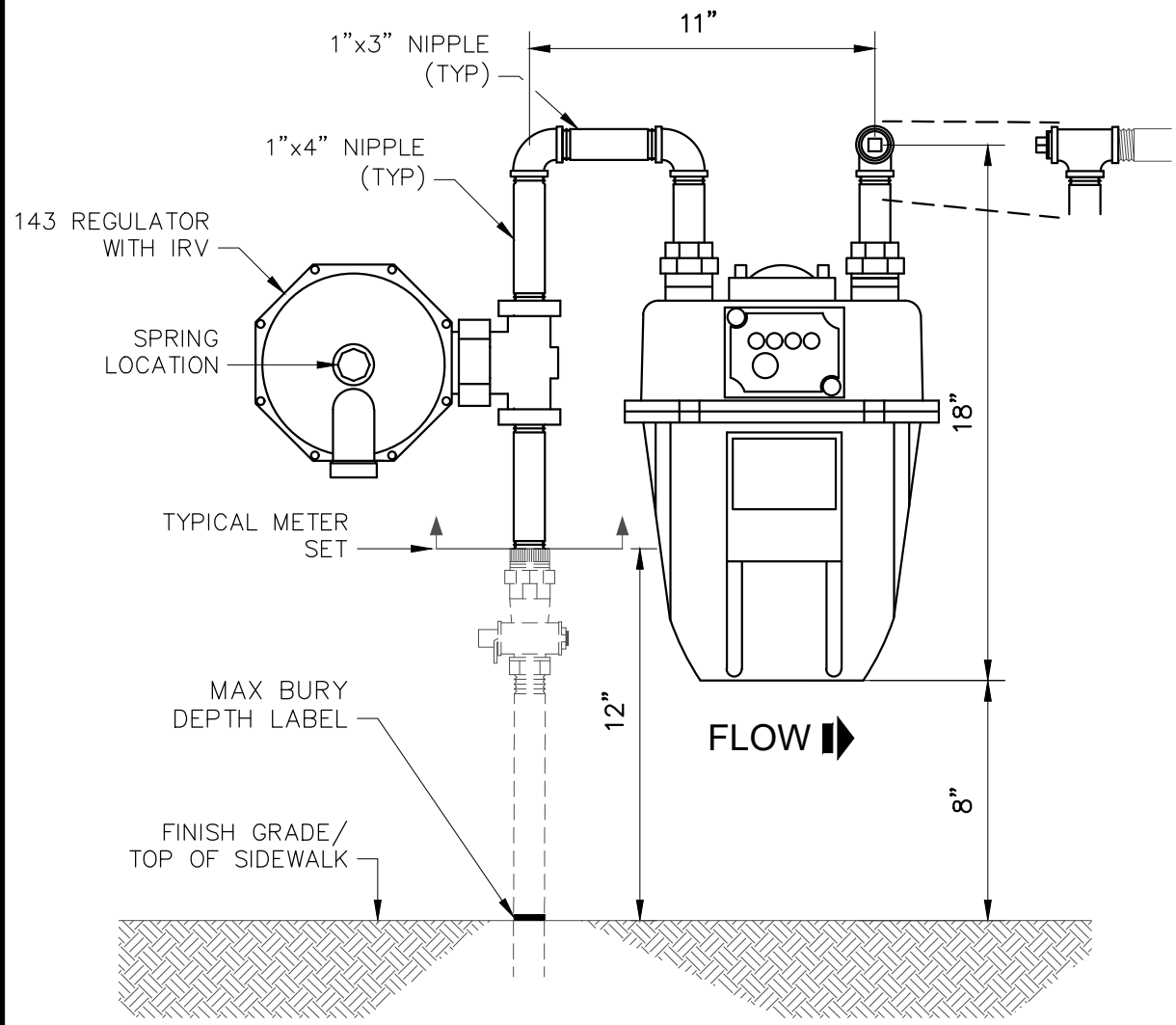
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REVISION DATE:

08/19/14

REVISED BY:

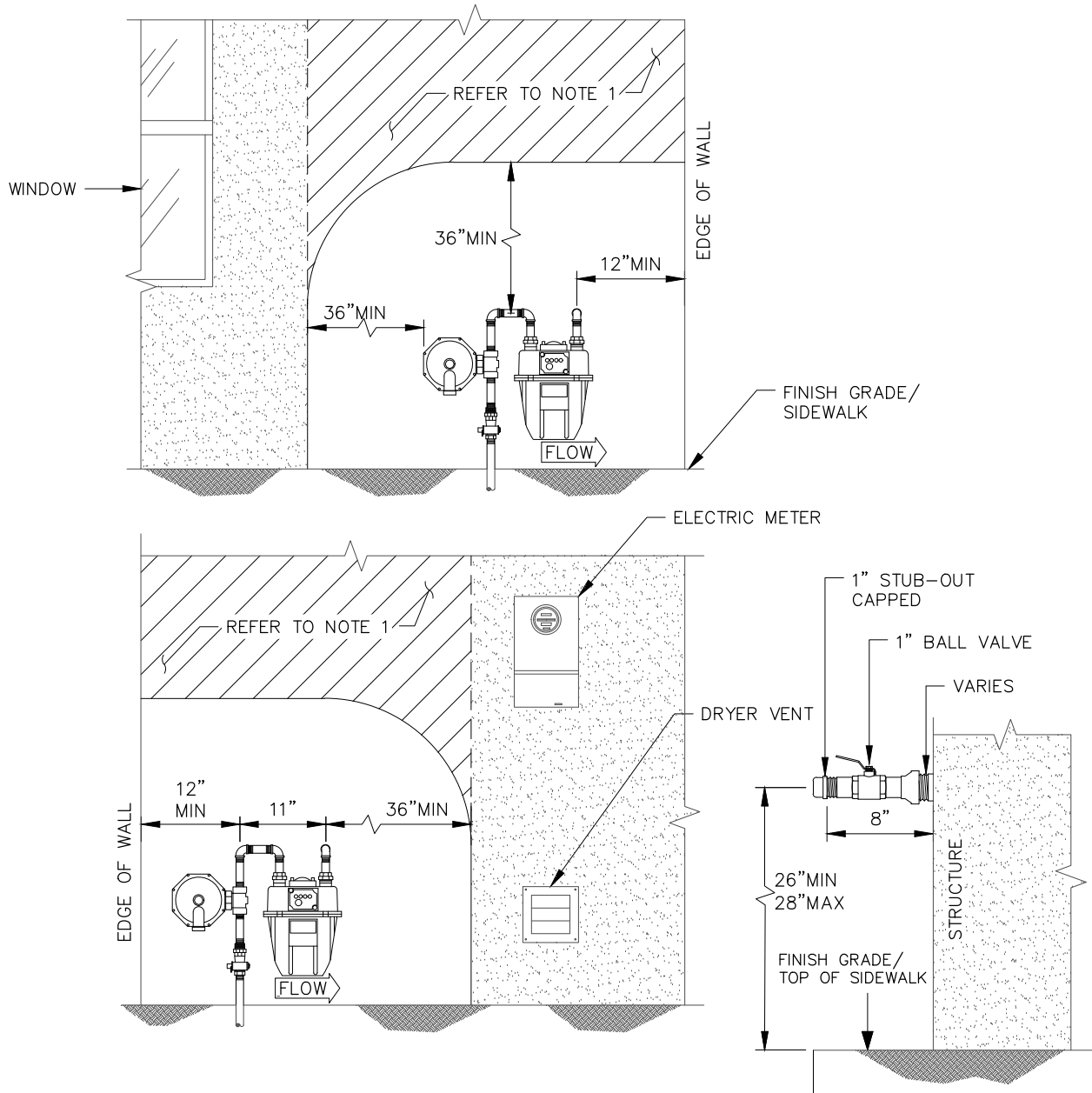
G.BILLIE



**NOTES:**

1. METER LOOP SHALL NOT BE PLACED UNDER ANY VENTS, OPENING WINDOWS, DOORS OR OTHER OPENINGS INTO THE STRUCTURE, ELECTRICAL PANELS, EQUIPMENT, ECT. SHALL NOT BE ALLOWED WITHIN 36" OF THE METER LOOP.
2. ALL GAS STUB-OUTS SHALL BE 1" NPT AT METER CONNECTION, EXTEND 8" OUT FROM THE EXTERIOR WALL, AND SHALL BE 26"-28" ABOVE FINISH GRADE, INCLUDING TOP OF SIDEWALKS.
3. 143 REGULATOR MAXIMUM INLET PRESSURE 60 PSI WITH 1/4" ORIFICE SIZE. BLUE SPRING WITH NORMAL RANGE OF 5.0"-8.5" W.C.
4. METER TIE-IN WILL BE PERFORMED BY NTUA PROVIDED THE FOLOWING CRITERIA ARE SATISFIED:
  1. STUP-OUT MEETS NTUA SPECIFICATIONS.
  2. STUB-OUT EXISTS PRIOR TO METER INSTALLATION.
5. MAOP FOR 275 METER IS 5 PSI.
6. STANDARD METER FERRULE SIZE IS 20LT SWIVEL.
7. 275 METER INSTALLATION SHALL HAVE A 6"-8" MINIMUM CLEARANCE FROM EXISTING/FINISH GRADE INCLUDING SIDEWALKS.
8. DIRECTION OF GAS FLOW IS FROM LEFT TO RIGHT THROUGH METER. DIRECTION CANNOT BE REVERSED.

TOTAL CONNECTIVE LOAD: \_\_\_\_\_  
 INLET PRESSURE: \_\_\_\_\_  
 UPSTREAM PRESSURE: UP TO 60 PSI  
 DOWNSTREAM PRESSURE: 7" W.C.



**NOTES:**

1. METER LOOP SHALL NOT BE PLACED UNDER ANY VENTS, OPENING WINDOWS, DOORS OR OTHER OPENINGS INTO THE STRUCTURE, ELECTRICAL PANELS, EQUIPMENT, METERS DEVICES, ECT. SHALL NOT BE ALLOWED WITHIN 36" OF THE METER LOOP.
2. ALL GAS STUB-OUTS SHALL BE 1" NPT AT METER CONNECTION, EXTEND 8" OUT FROM THE EXTERIOR WALL, AND SHALL BE 26"-28" ABOVE FINISH GRADE, INCLUDING TOP OF SIDEWALKS.
3. ALL STUB-OUTS ARE TO BE CAPPED TO PREVENT FOREIGN OBJECTS FROM ENTERING NATURAL GAS SYSTEM PRIOR TO METER INSTALLATION.
4. METER TIE IN WILL BE PERFORMED BY NTUA PROVIDED THE FOLLOWING CRITERIA ARE SATISFIED:
  1. STUB-OUT MEETS NTUA SPECIFICATIONS.
  2. STUB-OUT EXISTS PRIOR TO METER INSTALLATION.
5. RISER SHALL HAVE A MINIMUM OF 2" CLEARANCE WHEN PENETRATING THROUGH CONCRETE. CONCRETE SHALL BE POURED AFTER RISER IS INSTALLED.
6. STUB-OUT MUST BE INSTALLED PERPENDICULARLY TO WALL AND SECURELY STRAPPED TO STRUCTURE.
7. DIRECTION OF GAS FLOW IS LEFT TO RIGHT THROUGH METER. DIRECTION CANNOT BE REVERSED.

DETAIL NUMBER:  
**2-150**



Navajo Tribal  
Utility Authority

NATURAL GAS  
STANDARD DETAIL

DETAIL TITLE:

**RESIDENTIAL METER CLEARANCE**

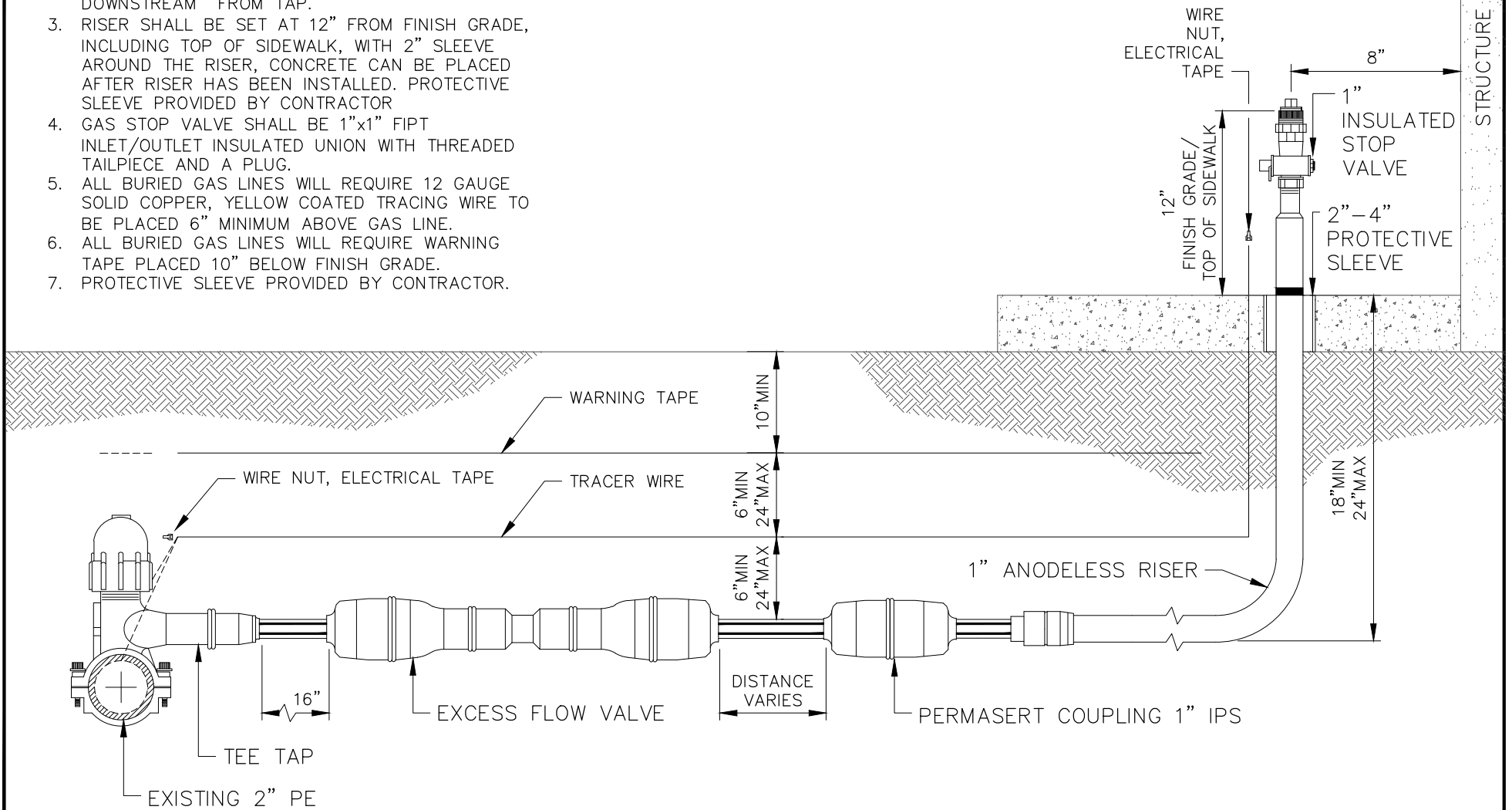
APPROVED:  
\_\_\_/\_\_\_/14

REVISION DATE:  
**08/19/14**

REVISED BY:  
**G.BILLIE**

# NOTES:

1. SERVICE LINES SHALL BE BURIED AT DEPTH OF 18" - 24" MAX BELOW FINISH GRADE.
2. EXCESS FLOW VALVE SHALL BE USED ON SINGLE RESIDENTIAL HOMES AND INSTALLED 16" DOWNSTREAM FROM TAP.
3. RISER SHALL BE SET AT 12" FROM FINISH GRADE, INCLUDING TOP OF SIDEWALK, WITH 2" SLEEVE AROUND THE RISER, CONCRETE CAN BE PLACED AFTER RISER HAS BEEN INSTALLED. PROTECTIVE SLEEVE PROVIDED BY CONTRACTOR
4. GAS STOP VALVE SHALL BE 1"x1" FIPT INLET/OUTLET INSULATED UNION WITH THREADED TAILPIECE AND A PLUG.
5. ALL BURIED GAS LINES WILL REQUIRE 12 GAUGE SOLID COPPER, YELLOW COATED TRACING WIRE TO BE PLACED 6" MINIMUM ABOVE GAS LINE.
6. ALL BURIED GAS LINES WILL REQUIRE WARNING TAPE PLACED 10" BELOW FINISH GRADE.
7. PROTECTIVE SLEEVE PROVIDED BY CONTRACTOR.



DETAIL NUMBER:  
**2-301**



Navajo Tribal  
Utility Authority

NATURAL GAS  
STANDARD DETAIL

DETAIL TITLE:

**1" PE SERVICE LINE  
STANDARD**

APPROVED:

\_\_/\_\_/14

REVISION DATE:

08/19/14

REVISED BY:

G.BILLIE