

Olsson Associates
Consulting Engineers
1111 Lincoln Mall
Lincoln, Nebraska
January 3, 2007

ADDENDUM NO. 2

Salt Valley Trunk Sewer Phase V - 2006
Lincoln Wastewater System
City of Lincoln Project No. 502457
Specification No. 07-002
OA Project No. 2004-0065

TO ALL WHO HAVE RECEIVED PLANS AND SPECIFICATIONS FOR THE REFERENCED PROJECT.

SCOPE

This Addendum covers the following additions, modifications, and clarifications to the Drawings and Specifications for this project.

SPECIFICATIONS

1. Refer to PROPOSAL form.
 - a. Delete the Proposal form in the project specifications and add the attached Proposal form in its place.
2. Refer to the QUESTIONNAIRE.
 - a. Delete the Questionnaire in the project specifications and add the attached Questionnaire in its place.
3. Refer to SECTION 01100 SUMMARY.
 - a. Refer to Part 1.1 WORK COVERED BY CONTRACT DOCUMENTS, B. Delete Part 1, 2, 3, and 4 and add the following in its place:
 - “1. Base Bid Section I - Base Bid Section I of the project consists of construction of a total of approximately 3,480 linear feet of 60" diameter trunk sewer, two 60" ID tunneled crossing (300 LF, 175 LF), pre-cast or tee-based manholes, testing, connections, seeding, bike path restoration and all required appurtenant work from Station 0+00 to Station 39+54.11. Work from Station 500+00 to Station 508+17.03 consists of construction of a total of approximately 504 linear feet of 60" diameter trunk sewer, 79 linear feet of 48" diameter trunk sewer, one 60" ID tunneled crossing (64 LF), one 48" ID tunneled crossing (133 LF), one creek crossing, tee-based or pre-cast manholes, one 10' diameter drop manhole with sewer vortex insert, testing, a connection to an existing 48" diameter trunk sewer, bypass pumping, seeding, bike path restoration and all required appurtenant work.

2. Alternate Bid Section A - Open trenching across Old Cheney Road in lieu of tunneling consists of additional work zone traffic control, an additional 64 LF of 60" sewer in place, deletion of 64 LF of 60" tunneled sanitary sewer, pavement removal and replacement.
 3. Alternate Bid Section B - In lieu of all work described from Station 500+00 to Station 508+17, perform all work described from Station 39+54.11 to Station 41+94.27. This work consists of 76 linear feet of 48" diameter trunk sewer, one 48" ID tunneled crossing (165 LF), a connection structure, a 10' diameter drop manhole with a sewer vortex insert, testing, a connection to an existing 48" diameter sewer, bypass pumping, seeding, and all required appurtenant work.”
- b. Refer to Part 1.2 USE OF PREMISES, A.2. and add the following to this section:

“Lancaster County will issue a permit to cross Old Cheney Road after the project has bid and the final sewer alignment is known. General “Utility Permit Requirements” are attached for the Contractors’ information when working in Lancaster County Right-of-Way.”
 - c. Refer to Part 1.2 USE OF PREMISES, A.10. Bike Trail Detours and add the following to this section:

“c. The Contractor shall provide two, 20-foot lengths of culvert pipe with flared end sections for both ends of each pipe. These culvert pipes shall be installed by the Contractor as directed by Lincoln Parks & Recreation when the bike trail detours are constructed by the Parks & Recreation Department. The culvert pipes shall be galvanized, 16-gauge corrugated steel pipe conforming to the requirements of AASHTO M-36. Connecting bands, tug rods, and nuts shall conform to the requirements of AASHTO M-36 and ASTM A307. One bike trail detour is shown on the project drawings on Sheet No. 15 just north of Manhole No. 5. The other bike trail detour is not shown, but is located near Warlick Blvd. on the abandoned Union Pacific Railroad Right-of-Way.”
4. Refer to SECTION 01500 TEMPORARY FACILITIES AND CONTROLS.
 - a. Refer to Part 3.7 BYPASS PUMPING FOR EXISTING SEWER CONNECTIONS. A copy of the “City of Lincoln Confined Space Entry Policy” is attached. Add the following to this section:

“G. The Contractor shall comply with the City of Lincoln Confined Space Entry Policy when working or modifying existing sewers or manholes. A copy of this policy is provided for the Contractor’s use.”

5. Refer to SECTION 02612 PRESTRESSED AND REINFORCED CONCRETE CYLINDER PIPE.
 - a. Refer to Section 1.4 SUBMITTALS, Part D. Delete this section in its entirety and add the following in its place:

“D. Test Reports: Provide test reports by an Independent Testing Laboratory certifying that the pipe has been tested in accordance with and exceeds minimum requirements of Applicable AWWA Testing Standards. At the Contractor’s option, the pipe manufacturer may perform all of the specified testing at their facility. The Owner will determine who shall witness testing on their behalf. The Contractor shall be responsible for payment of all expenses incurred by a maximum of two representatives of the Owner and the Engineer for travel, lodging and food when witnessing pipe testing. All pipe testing shall be at the Contractor’s expense.”
 - b. Refer to Part 2.8 CONTROL TESTS. Delete the second sentence in Part A. Testing may be performed by the pipe manufacturer. Refer to Part 1.4 D. for further requirements.
6. Refer to SECTION 02641 CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER MORTAR PIPE.
 - a. Refer to Section 1.4 SUBMITTALS, Part D. Delete this section in its entirety and add the following in its place:

“D. Test Reports: Provide test reports by an Independent Testing Laboratory certifying that the pipe has been tested in accordance with and exceeds minimum requirements of ASTM D3262 and ASTM D3681. At the Contractor’s option, the pipe manufacturer may perform all of the specified testing at their facility. The Owner will determine who shall witness testing on their behalf. The Contractor shall be responsible for payment of all expenses incurred by a maximum of two representatives of the Owner and the Engineer for travel, lodging and food when witnessing pipe testing. All pipe testing shall be at the Contractor’s expense.”

DRAWINGS

1. Refer to Sheet 2 of the Project Drawings.
 - a. Add the following general note to this sheet:

“3. As per the revised bid form, Bid Section I and Alternate Bid Section II quantities are now combined into Base Bid Section I. Bid Section II has been renamed “Alternate Bid Section B. To obtain a price for Alternate Bid Section B, the Contractor shall deduct all work from Station 500+00 to Station 508+17.03 and add all work from Station 39+54.11 to Station 41+94.27.”

2. Refer to Sheet 4 of the Project Drawings.
 - a. Refer to “General Notes” on the right side of the page. Delete Note 1 in its entirety and add the following in its place:

“1. At the Contractor’s option, tee base manholes may be substituted for precast concrete manholes to connect 60" Diam. PCCP, RCP or Hobas Pipe. For manholes with a 0.1 foot drop across the invert, tee-based manholes may be manufactured without the drop through the manhole and pipe slopes shall be adjusted by the Engineer during the submittal phase. For manholes with a change in direction, a 0.3 foot drop shall be provided across the manhole as shown on the drawings. If pipe manufacturers are unable to manufacture tee-base manholes with a 0.3 foot drop, precast manholes shall be provided by the Contractor.”
 - b. Refer to the detail for the Hobas Tee Base Manhole. The height of the concrete encasement above the joint with the 48" diameter pipe section shall be as recommended by the pipe manufacturer.
3. Refer to Sheet 7 of the Project Drawings.
 - a. Delete the reference to Bid Section II and Alternate Bid Section II. The 10' Diameter Sewer Vortex Drop Manhole details shall be utilized for work that is part of Base Bid Section I and Alternate Bid Section B.
4. Refer to Sheet 8 of the Project Drawings.
 - a. Delete the reference to Bid Section II for the Connection Structure removable slab details. The Connection Structure is part of Alternate Bid Section B.
5. Refer to Sheet 9 of the Project Drawings.
 - a. Delete the reference to Bid Section II for the Connection Structure. The Connection Structure is part of Alternate Bid Section B.
6. Refer to Sheet 11 of the Project Drawings.
 - a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Alternate Bid Section B starts at Sta. 39+54.11 and ends at Sta. 41+94.27. Revise references accordingly on this sheet.”
7. Refer to Sheet 15 of the Project Drawings.
 - a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Alternate Bid Section B starts at Sta. 39+54.11 and ends at Sta. 41+94.27. Revise references accordingly on this sheet.”

8. Refer to Sheet 19 of the Project Drawings.

- a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Alternate Bid Section B starts at Sta. 39+54.11 and ends at Sta. 41+94.27. Delete references to Alternate Bid Section II. This bid section is now part of Base Bid Section I. Delete references to Bid Section II. This bid section is now Alternate Bid Section B. Revise references accordingly on this sheet.”

9. Refer to Sheet 20 of the Project Drawings.

- a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Delete references to Alternate Bid Section II. This bid section is now part of Base Bid Section I. Revise references accordingly on this sheet.”

10. Refer to Sheet 21 of the Project Drawings.

- a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Alternate Bid Section B starts at Sta. 39+54.11 and ends at Sta. 41+94.27. Delete references to Alternate Bid Section II. This bid section is now part of Base Bid Section I. Delete references to Bid Section II. This bid section is now Alternate Bid Section B. Revise references accordingly on this sheet.”

11. Refer to Sheet 22 of the Project Drawings.

- a. Add the following general note to this sheet:

“Note: As per Addendum #2, Base Bid Section I is from Sta. 0+00 to Sta. 39+54.11 and Sta. 500+00 to Sta. 508+17.03. Alternate Bid Section B starts at Sta. 39+54.11 and ends at Sta. 41+94.27.”

Each Bidder must acknowledge receipt of all addenda in the space provided on the Proposal form.

COMPANY NAME : _____

PROPOSAL

**CITY OF LINCOLN PROJECT NO. 502457
SPECIFICATION NUMBER 07-002**

**BID OPENING TIME: 12:00 NOON
DATE: Wednesday, January 10, 2007**

The undersigned, having full knowledge of the requirements of the City of Lincoln for the below listed phases and the contract documents (which include Notice, Instructions, this Proposal, Specifications, Contract, and any and all addenda) and all other conditions of the Proposal, agrees to enter into a contract with the City the below listed fees for the performance of this Specification, complete in every respect, in strict accordance with the contract documents at and for fees listed below.

ADDENDA RECEIPT: The receipt of addenda to the specification numbers _____ through _____ are hereby acknowledged. Failure of any submitter to receive any addendum or interpretation of the specifications shall not relieve the submitter from any obligations specified in the request. All addenda shall become part of the final contract document.

BIDDING SCHEDULE

Base Bid Section I – Salt Valley Trunk Sewer Phase V (Sta.0+00 to Sta. 39+54 and Sta. 500+00 to Sta. 508+17.03).

Bid Section I shall include all Work as described within the Contract Documents and paid as described below. Refer to Sheet Nos. 16, 17, 18, 19 and 20 of the project drawings and Specification Section 01100 for a description of the work.

Base Bid Section I - Lump Sum

Bidder agrees to accept as full payment for the Lump Sum Work consisting of all Work proposed within the Contract Documents, unless stipulated otherwise in the Contract Documents, based upon the undersigned's own estimate of quantities and costs and including sales, consumer, and other taxes as appropriate, mobilization, demobilization, bonds and insurance, overhead and profit, the following lump sum of :

Total Base Bid Section I – Lump Sum:

_____ (\$ _____)
(Write-Out-In-Words) (Figures)

Required bid quantities for the items listed below are set forth in the specifications. If increases or decreases on these quantities occur, the Contract Price is to be adjusted by Change Order on the basis of the adjustment unit prices. Bidder agrees that the adjustment unit prices represent full compensation for the labor, material, and equipment required to furnish and install the item, including all allowances for overhead and profit for each type and unit of Work called for.

| <u>Item Description</u> | <u>Unit</u> | <u>Adjustment Unit Price</u> |
|--|-------------|------------------------------|
| Overexcavation and Trench Stabilization/Foundation Material | CY | _____ |
| Electric or telephone utilities not shown on the drawings | LF | _____ |
| Water Utilities less than or equal to 4 inches in diameter not shown on the drawings | LF | _____ |
| Storm or sanitary utilities less than 8 inches in diameter not shown on the drawings | LF | _____ |
| Hauling and disposal of debris or unsuitable excavated material | CY | _____ |

Adjustment unit prices are subject to acceptance by Owner and rejection of one or more adjustment prices will not invalidate acceptance of this Bid.

Bidder acknowledges that estimated quantities for adjustment unit price work are not guaranteed and are solely for the purpose of comparison of Bids. Final payment for all adjustment unit quantities will be based upon actual quantities provided, determined as provided in the Contract Documents.

The following documents are attached to and made a condition of this Bid:

- A. Required Bid Security in the form of _____;
- B. Questionnaire is part of the Bid Form and shall be submitted with all Bids.
- C. Required Bidder Qualifications Statement with supporting data; when requested as described in Articles 20 and 21 of the "Modifications to Instruction Bidders."

The Bidder agrees that the Work included in this Contract will begin as soon as possible from date of executed contract and Substantial Completion of the work, as defined in the General Conditions and Special Provisions, will be within 330 calendar days, and Final Completion of all work will be within 365 calendar days of the work commencement date in the Notice to Proceed.

QUESTIONNAIRE

Bidders shall enter in the names of subcontractors and manufacturers for items of work and materials proposed to be furnished. Bidders shall also enter the type of tunneling and materials used for each proposed tunneled crossing. Substitutions will not be permitted unless the proposed subcontractor or materials do not meet the specifications or the manufacturer of the proposed materials are unable to meet delivery requirements of the construction schedule.

Acceptance of the named subcontractors and manufacturers as part of the bid shall not constitute a waiver of specifications covering such work or materials. Final acceptance shall be based upon adequacy of work performed and review of shop drawings of the proposed materials.

Include required Bidder Qualification Statement with supporting data as required. Failure to furnish the information requested may be cause for rejection of the bid.

| <u>ITEM</u> | <u>SUBCONTRACTOR</u> |
|---------------|----------------------|
| 1. Tunneling | _____ |
| 2. Dewatering | _____ |

| <u>ITEM</u> | <u>MANUFACTURER</u> |
|---|---------------------|
| 3. 60" Diameter Sewer Pipe (trenched) & Tee-Based Manhole | _____ |
| 4. 60" Diameter Sewer Pipe (direct jacked) | _____ |
| 5. 60" Diameter Sewer Pipe (two pass tunnel) | _____ |
| 6. 48" Diameter Sewer Pipe (trenched) | _____ |
| 7. 48" Diameter Sewer Pipe (direct jacked) | _____ |
| 8. 48" Diameter Sewer Pipe (two pass tunnel) | _____ |
| 9. Precast Concrete Manholes | _____ |

| <u>TUNNELED CROSSINGS</u> | <u>METHOD (Circle One)</u> |
|--|---|
| 10. Tunneled Crossings - Base Bid Section I: | |
| Sta. 17+65 to Sta. 20+65: Direct Jack | Steel Casing Pipe Tunnel Liner Plate |
| Sta. 26+03 to Sta. 27+78: Direct Jack | Steel Casing Pipe Tunnel Liner Plate |
| Sta. 500+51 to Sta. 501+15: Direct Jack | Steel Casing Pipe Tunnel Liner Plate |
| Sta. 506+59 to Sta. 507+92: Direct Jack | Steel Casing Pipe Tunnel Liner Plate |
| 11. Tunneled Crossings - Alternate Bid Section B | |
| Sta. 39+90 to Sta. 41+55: Direct Jack | Steel Casing Pipe Tunnel Liner Plate |

BIDDER'S NAME: _____

UTILITY PERMIT REQUIREMENTS

- 1) The applicant shall furnish Lancaster Engineering Department (555 South 10th Street, Lincoln, NE 68508) with a Certificate of Insurance in accordance with the insurance requirements contained in this permit before starting any work on County right-of-way.
- 2) The applicant, or his contractor, shall contact the local utility companies and request location of any buried utilities. Damage to any utilities, either on County right-of-way or adjacent to County right-of-way, shall be repaired at the expense of the applicant or his contractor.
- 3) Future road construction work could necessitate relocation of utilities. Those utility relocation costs shall be borne by the utility owner.
- 4) Areas disturbed by construction shall be restored to pre-construction condition as much as practical. This includes compaction of the backfill to a density equal to or greater than the surrounding soil, replacing road and driveway surfacing materials lost during construction, and seeding of the disturbed areas.
- 5) Trees in the right-of-way shall be preserved wherever possible. Trees and brush removed to facilitate construction shall be properly disposed of.
- 6) Paved road crossings shall be dry bored.
- 7) All trenches shall be backfilled the same day trench was excavated except for the portion where the work is to be continued the next day. The portion left open for work continuation shall be protected by barricades with flashing lights at night. No open trenches in the roadway will be allowed overnight.
- 8) Lancaster County reserves the right to inspect barricades and construction procedures and request modifications as necessary to maintain safe passage of traffic. All barricading, flagmen, warning signs, etc. shall conform to the current *Manual on Uniform Traffic Control Devices*.

(TO BE FILLED IN BY COUNTY PERSONNEL)

Encasement Requirements:

Barricade, Signing and Flagging Requirements:

Methods of Installation:

Minimum Cover Provided in Road Ditches: _____

Other Requirements:

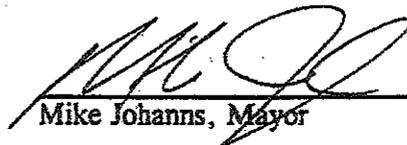
CITY OF LINCOLN SAFETY POLICIES

BY VIRTUE OF THE AUTHORITY VESTED IN ME by the Charter of the City of Lincoln, Nebraska,

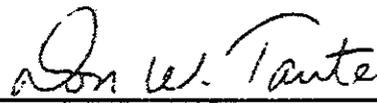
Pursuant to the procedure established by Nebraska Government Legislation Bill 757, I hereby sign into effect the following 18 page safety policy for the City of Lincoln:

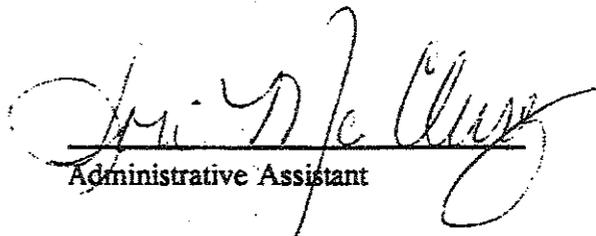
Confined Space Entry Policy

Dated this 18 day of March, 1996.


Mike Johanns, Mayor

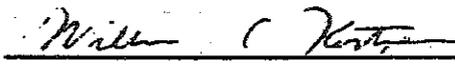
Approved as to Form & Legality:


Assistant City Attorney


Administrative Assistant

Approved:


Finance Director


Risk Manager

City Clerk, please distribute to all directors and division heads.

**CITY OF LINCOLN
CONFINED SPACE ENTRY POLICY**

PURPOSE

The purpose of this policy is to prevent personal injury and illness to City of Lincoln employees and contractors, while performing duties in permit-required confined spaces as per 29 CFR 1910.146.

OBJECTIVES

The objectives of this policy are to establish a written program outlining general guidelines governing confined space and permit-required confined space entry.

This written program will address the following elements:

1. **Confined Space Definitions\Hazards**
2. **Assessment Process and Identification Of Spaces**
3. **Entry Requirements For Non-Permit Confined Spaces**
4. **Entry Requirements for Permit-Required Confined Spaces**
5. **Alternate Entry Procedures**
6. **Confined Space Personnel Duties and Responsibilities**
7. **Precautions and Pre-Planning Before Entry**
8. **Rescue Plan/Provisions**
9. **Proper Safety Equipment For Confined Space Entry**
10. **Hot Work Or The Use Of Chemicals In A Confined Space**
11. **Contractor Performed Work**

RESPONSIBILITIES

Department Heads Have the Responsibility to:

- I. Implement this confined space entry policy by:
 - A. Directing all supervisors to assess and classify confined spaces in their work environment and to document this for future entrants.
 - B. Identify and train employees for appropriate confined space entry.
 - C. Ensuring that all necessary equipment is available to comply with this policy.

- D. Require the use of entry permits for every permit-required confined space entry.
- II. Enforce compliance with this policy. All appropriate employees, presently employed and all new employees, must be trained and responsible for the purpose and use of this confined space entry policy.

Supervisors Have the Responsibility to:

- I. Identify and assess, the confined space areas in their work environment that are affected by this confined space entry policy.
- II. Ensure that all affected employees receive the appropriate training and equipment.
- III. Require the use of entry permits for every permit-required confined space entry.
- IV. Enforce compliance with this policy.
- V. Act as an entry supervisor and determine if acceptable entry conditions are met at a permit space, oversee entry operations and terminate entry upon conclusion of the permit.

Employees Have the Responsibility to:

- I. Understand their assigned tasks relating to confined space entry.
- II. Apply the proper training and equipment to safely work in confined spaces.
- III. Assist with the assessment and identification of confined spaces.
- IV. Comply with the directives of this policy.
- V. Act as the entry supervisor when delegated and trained as such.

Fire Has the Responsibility to:

- I. Rescue all employees trapped in confined spaces within the City of Lincoln. Outside the City of Lincoln, the local fire department will act as the authorized rescue agency, unless a specifically trained rescue team is identified as a necessity.

With this responsibility, it is necessary to inform Fire rescue workers of all hazards that may be encountered when called for a rescue, with access to all permit spaces from which rescue may be necessary.

Health Has the Responsibility to:

- I. Assist any department, upon request, with the identification of hazardous chemicals that may be found in a confined space.

Risk Management Has the Responsibility to:

- I. Train appropriate supervisors and assist in the training of employees in the City's confined space entry policy.
- II. Maintain a file of all completed, or canceled, entry permits from all departments, to be retained for at least one year. Entry permits may also be maintained within each department so long as these are accessible for review.
- III. Audit each department's compliance with this policy on an annual basis as per 29 CFR 1910.146
- IV. Assist with the identification of permit required confined spaces, and with identification of the necessary equipment for entry.

1. CONFINED SPACE DEFINITIONS/HAZARDS:

A Confined Space is any space that has the following characteristics:

1. Large enough and so configured that an employee can bodily enter and perform assigned work.
2. Has limited or restricted means for entry or exit.
3. It is not designed for continuous human occupancy.

A Permit-Required Confined Space is any confined space that has one or more of the following characteristics:

1. Contains or has known potential to contain a hazardous atmosphere.
2. Contains material with the potential for engulfment of an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor that slopes downward and tapers to a smaller cross section.
4. Contains any other recognized serious health hazard.

Examples of permit-required confined spaces include process vessels, crawl

spaces, vats, boilers, storage tanks, pipelines, wells, manholes, sewers, ventilation and exhaust ducts, pits, or any underground areas.

The most common hazards that should be recognized and associated with entry into a confined space can be categorized as follows:

1. Oxygen-deficient or enriched atmospheres

Normal air contains approximately 78% nitrogen and 20.95% oxygen by volume with the remaining composition made up of gases such as argon, carbon dioxide, etc.

When oxygen falls below 19.5%, asphyxiation is threatened. Likewise, when an atmosphere contains more than 23.5% of oxygen, it can be an extremely volatile atmosphere and creates a hazard. Confined spaces with either oxygen deficient or oxygen enriched atmospheres should not be entered unless they are properly controlled, as through appropriate ventilation.

Oxygen deficiency hazards within a confined space result from consumption or displacement. Consumption of oxygen in a confined space can occur from work being performed such as welding, cutting or brazing; by certain chemical reactions such as the oxidation of metal; and through bacterial action such as fermentation.

Oxygen deficiency via displacement involves other gases or vapors being present in quantities which reduce or displace available oxygen present. Decomposing organic matter can produce methane, carbon monoxide, carbon dioxide, and hydrogen sulfide which can reduce and displace available oxygen. Operations involving the introduction and use of cleaning agents, adhesives, or other chemicals can also displace available oxygen.

2. Flammable/Combustible Atmosphere

Two situations exist which create flammable atmosphere: the availability of oxygen in the air; and a flammable gas, vapor, or dust in the proper mixture. If a source of ignition is present or introduced into a confined space with the right combination of combustible gas, vapor, or dust and air, an explosion will occur.

3. Toxic Atmospheres

Any chemical, exhibiting toxic properties in a confined space is a cause for concern. In these cases, no entry should be made until the atmosphere is properly controlled, or the entrant is properly protected. All chemicals have a concentration at which a toxic response is elicited. Most chemical substances should be considered hazardous in a confined space because of the lack of air distribution.

4. Engulfment Hazards

Engulfment hazards exist in confined spaces by the surrounding and capture of a person by finely divided particulate matter, such as grain, sand, or any liquid, resulting in suffocation.

5. Other Hazards

This category primarily involves mechanical or crushing hazards, other than engulfment, and electrical hazards which can be safely guarded against by the proper implementation of procedures required by the City's lockout/tagout policy.

2. ASSESSMENT PROCESS AND IDENTIFICATION OF SPACES

It is the intent of this safety policy that all departments involved in confined space entry will work to assess and compile data about the hazards contained in various confined spaces that are required to be entered in the workplace.

Information to be compiled should include the type of hazard involved, and the classification of the confined space. In addition, after assessment, all permit only confined spaces must be marked with a sign reading "Danger, Permit-Required Confined Space, Do Not Enter", or by other equally effective means, such as a printout, map, etc., that it is a permit-only space.

3. ENTRY REQUIREMENTS FOR NON-PERMIT CONFINED SPACES

1. If the confined space is a "Non-Permit" confined space, the space may be entered by authorized employees without the need for a written permit or attendant under this procedure.
2. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.
3. The atmosphere in the confined space shall be tested, using a properly calibrated gas detector. Field calibration should be done prior to every use. The atmosphere shall be tested at four (4) foot intervals in the direction of entrant travel and side to side, for a minimum response time as specified by the manufacturer of the test instrument being used, down to the level where work is to be performed.
4. The atmosphere within the space shall be continuously monitored while workers are within the space, either by the entrant or by an optional attendant.
5. If at any time during the entry, a hazardous atmosphere is detected, all employees shall leave the space immediately, and report to their supervisor prior to any attempts at re-entry.
6. Smoking in or around a confined space is prohibited.

4. ENTRY REQUIREMENTS FOR PERMIT-REQUIRED CONFINED SPACES

1. Determine if confined space entry is necessary. Avoid permit required confined space entry if possible.

2. The Entry Supervisor should complete the "Entry Permit" form issued and authorized by a specifically designated supervisor or other representative of the department, as well as reviewing past assessment data, prior to work beginning in the confined space.

3. Set up barriers or take other measures to prevent unauthorized entry into the space. A Confined Space "Danger" sign along with the permit must be posted at the entrance to the Permit Space.

4. If entry is to be performed where pedestrian or vehicle traffic poses a danger, appropriate traffic control measures shall be used, including, but not limited to, affected employees wearing traffic safety vests.

5. Identify and evaluate any hazards existing in the space to assure acceptable entry conditions are met prior to entry into the space. Where possible, hazards should be minimized or eliminated by blanking or blinding, isolation, line breaking, lockout/tagout, or other appropriate methods.

6. Initially, the atmosphere outside of the confined space shall be tested to determine if any hazards are present. The atmosphere within the confined space shall then be tested, using a properly calibrated gas detector, and the results recorded on the confined space entry permit. The atmosphere shall be tested at four (4) foot intervals in the direction of the entrant travel and side to side, for a minimum response time as specified by the manufacturer of the test equipment being used, down to the level where work is to be performed. The confined space atmosphere shall also be tested on a continuous basis while workers are in the space.

7. The Confined Space Entry Permit must be completed by the designated Entry Supervisor and reviewed in detail by the authorized Entrants and Attendants, prior to entry into the confined space.

8. If the atmosphere inside the space is within acceptable limits, authorized employees may enter the space using the equipment listed on the Entry Permit and based upon the type of hazard for this space. If the atmosphere inside the space is not within acceptable limits, the space shall be ventilated until testing indicates that an acceptable atmosphere exists. Ventilation shall continue while there are employees inside the space. (* See exception under item 17 of this section.)

9. Where applicable, a retrieval system shall be used by each employee who enters the space, such as a chest or full body safety harness worn by the employee, connected to a

winch and tripod by means of a tagline and yoke. Where a retrieval system is infeasible or creates a greater hazard, employees should carry 5 minute escape air packs for the purpose of safe egress only.

10. An attendant shall be stationed outside the space while there are workers inside the space. The ratio of 3 entrants to 1 attendant shall not be exceeded.

11. Constant communication shall be maintained between the entrants inside the space and the attendant.

12. All appropriate personal protective equipment shall be worn while entry is in progress.

13. Smoking in or around a confined space is prohibited.

14. Artificial lighting shall be explosion proof, if the space contains or has the potential to contain an explosive atmosphere.

15. If the gas detector sounds an alarm, workers shall exit the space immediately and may not re-enter until the atmosphere has been determined as safe, using methods as described in steps 6 and 7, including the issuance of a new entry permit and notifying the designated entry supervisor. (*See exception under item 17 of this section.)

16. All entry permits are to be canceled by the designated entry supervisor upon completion of assigned duties. The confined space shall then be returned to its working condition and secured to prohibit unauthorized entry.

17. * Note that there are exceptions to items 8 and 15 above, for specifically trained employees that are designated to work in hazardous atmospheres or perform rescues with the use of SCBA (self contained breathing apparatus) or other supplied air equipment.

5. ALTERNATE ENTRY PROCEDURES

1. If the confined space has a "Hazardous Atmosphere Only", as contained in section (c) (5) (i) of 29 CFR 1910.146, and can be determined by the data on file that the only hazard posed by the permit space is an actual or potential hazardous atmosphere, the space must still be entered with a written permit provided that the space can be maintained in a safe condition by continuous forced air ventilation alone.

2. A space classified as a permit-required confined space may be reclassified as a non-permit confined space if the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space. These spaces shall be considered as permit-required until the atmosphere in the confined space has been tested, using a properly calibrated gas detector, and the space continuously

ventilated.

3. The atmosphere shall be tested at four (4) foot intervals in the direction of entrant travel and side to side, for a minimum response time as specified by the manufacturer of the test instrument being used, down to the level where work is to be performed.

4. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

5. When entrance covers are removed, the opening shall be promptly guarded by a temporary barrier that will prevent an accidental fall through the opening and that will protect each employee, working in the space, from foreign objects entering the space.

6. The designated entry supervisor shall be notified prior to entry.

7. Ventilation of the space shall be continuous for the duration of the entry, and shall be supplied from a clean source.

8. Smoking in or around a confined space is prohibited.

9. Constant communication shall be maintained between the entrants inside the space and the attendant.

10. The atmosphere within the space shall be continuously monitored to assure that the continuous forced air ventilation is maintaining a safe atmosphere.

11. If at any time during the entry, a hazardous atmosphere is detected, all employees shall leave the space immediately and contact their designated entry supervisor. Note that there is an exception for specifically trained employees that are designated to hazardous atmospheres to perform work or rescues with the use of SCBA (self contained breathing apparatus) or other supplied air equipment.

6. **CONFINED SPACE PERSONNEL DUTIES AND RESPONSIBILITIES**

Duties of ATTENDANTS

1. A properly trained attendant shall be stationed outside the permit-required confined space.
2. The attendant shall have a knowledge of the hazards that may be faced during entry, and an awareness of the possible behavioral effects of this hazard exposure.
3. The attendant shall monitor the outside of the permit space, to prohibit

unauthorized people from entering the permit-required space, in addition to the inside conditions.

4. The attendant shall continuously maintain an accurate count of authorized entrants in the permit space.
5. The attendant shall maintain continuous communication with the entrant(s). The attendant shall be able to recognize confined space hazards and changing conditions that could affect employees in the space. If conditions become hazardous or if the entrants exhibit a marked behavior change, the attendant shall require the entrants to exit the space.
6. In the event of an emergency the attendant shall summon emergency service by using the radio or calling 911 by telephone if available.
7. Ensure the safety of the entrants working in the confined space by preventing any material or tools from falling in the space.
8. The attendant shall perform no duties that might interfere with the attendants primary duty to monitor and protect the entrants.
9. Attendant will remain at his/her post except:
 - A. When replaced by equally authorized attendant.
 - B. For self preservation.
 - C. To notify rescue personnel in an emergency.
10. Attendant will not enter the permit entry confined space unless:
 - A. Another attendant is in place.
 - B. The authorized entrant has exited the space and is not acting as the attendant (rotation).
 - C. A rescue team has arrived and has appropriate personal protection equipment available.

Duties of authorized ENTRANTS

1. The entrant shall know the hazards that may be faced during entry, including information on the method of exposure, signs or symptoms, and consequences of the exposure.
2. Perform the work in the confined space and properly use equipment as required for safe entry and operation in confined spaces.

3. Communicate with the attendant as necessary to enable the attendant to monitor entrant status.
4. If the entrant detects a prohibited condition, or recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant shall communicate with the attendant and evacuate the space as quickly as possible.

Duties of designated ENTRY SUPERVISORS

1. The designated entry supervisor shall know the hazards that may be faced during entry, including information on the method of exposure, signs or symptoms, and consequences of the exposure.
2. Verifies by checking that the means for summoning rescue services are operable, and that all appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
3. Terminates the entry and cancels the permit when the entry operations have been completed, or a condition that is not allowed under the permit arises in or near the permit space.
4. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
5. Removes unauthorized individuals who have entered or attempt to enter a permit space.

Detailed training shall be provided to all employees who work in any of the above positions prior to their work in or around any confined spaces.

7. PRECAUTIONS AND PRE-PLANNING BEFORE ENTRY

1. Entry is to be made by authorized personnel only.
2. An attendant is to be present whenever entry is made into any permit required confined space.
3. The Confined Space Entry Permit must be completed by the designated Entry Supervisor and reviewed in detail by the authorized Entrants and Attendants, prior

to entry into the confined space.

4. A sign or other means of posting that a confined space is being entered shall be placed at the opening of the confined space. The posting shall read:
DANGER - CONFINED SPACE
ENTER BY PERMIT ONLY.
5. Set up barriers shall be placed, or other measures taken to prevent unauthorized entry into the space.
6. If entry is to be performed where pedestrian or vehicle traffic poses a danger, appropriate traffic control measures shall be used, including, but not limited to, affected employees wearing traffic safety vests.
7. Before any entrance cover to a confined space is removed, the employee shall determine if it is safe to do so by checking for the presence of atmospheric pressure or temperature differences by evaluating whether there might be a hazardous atmosphere in the space. The order of all test procedures, for monitoring a confined space is oxygen first, combustible gases and vapors second, and then any toxic gases and vapors, last.
8. When covers are removed from confined spaces, the opening shall be promptly guarded by a railing, temporary cover, or other barrier intended to prevent an accidental fall through the opening and to protect employees working in the space from objects entering the space.
9. Identify and evaluate any hazards existing in the space to assure acceptable entry conditions are met prior to entry into the space. Where possible, hazards should be minimized or eliminated by blanking or blinding, isolation, line breaking, lockout/tagout, or other appropriate methods.
10. Entry into a confined space with an unsafe atmosphere shall be avoided if at all possible, unless performed by an employee designated to perform emergency or rescues with SCBA (self contained breathing apparatus) or other supplied air equipment.
11. All permit entry confined spaces are to be purged prior to and during entry.
12. If the atmosphere inside the space is within acceptable limits, authorized employees may enter the space using the equipment listed on the Entry Permit for the space. If the atmosphere inside the space is not within acceptable limits, the

space shall be ventilated until testing indicates that an acceptable atmosphere exists. Ventilation shall continue while there are employees inside that space.

13. After purging the area, and before entry, the confined space is to be tested using equipment capable of measuring oxygen content, for the presence of explosive and toxic gases. All equipment will be tested for operation and safety before reaching the job site.
14. Test instruments, used to monitor atmospheres in enclosed spaces, shall be checked daily prior to use, using calibration gas cylinders. The minimum acceptable accuracy is +/- 10%.
15. All lifelines, harness, D-rings and any other equipment needed for entry or exit shall be inspected for defects before entry.

8. RESCUE PLAN/PROVISIONS

If an emergency condition is perceived:

1. **Do not enter the space, you are not a trained rescuer.** Only Lincoln Fire Department personnel are designated to perform confined space rescue with the City of Lincoln.
2. Notify the Fire Department immediately by calling 911 from your radio/phone.
 - A. State the nature of your request.
 - B. State your name.
 - C. State your location.
3. If the worker is attached to a rescue/retrieval system, promptly begin the retrieval process.
4. The attendant is to monitor the situation until Rescue/Emergency Medical personnel arrive.

9. PROPER SAFETY EQUIPMENT FOR CONFINED SPACE ENTRY

Recommended Equipment

- A confined space "Danger" sign
- Entry barrier or warning cones

- Portable gas detector with calibration kit and carrying case
- Remote sampling pump with a 20ft. clear plastic tubing for gas detector
- Industrial explosion proof flashlight
- Portable ventilator (*Warning: Use extreme caution to prevent the buildup of carbon monoxide in the confined space when using gasoline powered ventilators*)
- 25ft. blower hose for ventilator
- Portable confined space floor sign
- Retrieval system, to include a full body safety harness connected to a winch and tripod by means of a tagline and yoke
- 5 minute escape air pack for safe egress only & extra tanks

10. Hot Work Or The Use Of Chemicals In A Confined Space

Hot work, such as heating, cutting, welding or soldering, or the use of chemicals in a confined space, present special hazards by the very nature of the work, the hazardous environment it can create, and the fact that hot work presents an ignition source to the environment.

Before any entry involving the use of hot work or chemicals can begin, a review of the confined space characteristics should first be carried out. All procedures and safety equipment shall be available as in a normal confined space entry. In addition the hazards that may arise from hot work or chemicals should be evaluated using a material safety data sheet. This may create a permit-required space by introduction of the hot work or use of chemicals.

In addition, **all hot work in a confined space requires a hot work permit**, in addition to other applicable permits.

Employees should exercise extreme caution whenever introducing hot work or chemicals into a confined space.

If there are any questions during an entry, contact your designated entry supervisor.

11. Contractor Performed Work

It is the responsibility of all City contractors or consultants to comply with 29 CFR 1910.146, regarding Permit Required Confined Spaces. City employees should make every effort to:

- A. Identify confined-spaces to which contractors may be exposed while on the job site.
- B. Inform contractors of precautions that may lessen the possibility of injury and exposure.

C. Identify the location of confined spaces that contractors may be exposed to.

However, it is the contractors responsibility to inform his/her own employees about these hazards and the precautions required by the above standard. The information provided by City employees should be used as a guide only, with final determination to rest with the contractor or consultant.

Questions concerning this policy will be addressed by:

**Risk Management
233 South 10th Street
Lincoln, NE 68508
441-7671**

DEFINITIONS APPLICABLE TO THIS PROCEDURE

| | |
|---|---|
| Acceptable entry conditions | -Conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space can safely enter into and work within the space. |
| Atmosphere | -The gases, vapors, mists, fumes and dusts within a confined space. |
| Attendant | -A trained individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program. |
| Authorized entrant | -A trained employee who is authorized by the employer or the employers designee to enter a permit only confined space. |
| Blanking or blinding withstanding the leakage | -The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of maximum pressure of the pipe, line, or duct with no beyond the plate. |
| Emergency permit | -Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the space that could endanger entrants. |
| Engulfment | -The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing. |
| Entry | -The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space. |
| Entry permit | -The written or printed document that is provided by the employer to allow and control entry into a permit space. |

Entry supervisor

-The designated person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations and for terminating entry as required by this policy.

Hazardous atmosphere

- Means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10% of its lower flammable level (LFL);

2. Airborne combustible dust at a concentration that meets or exceeds its LFL,

3. Atmospheric oxygen concentration below 19.5 % or above 23.5%

4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of the Code of Federal Regulations.

5. Any other atmospheric condition that is immediately dangerous to life or health.

Immediately dangerous to life or health (IDLH)

-Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Isolation

-The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system, lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line breaking

-The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Lower Explosive Limit (LEL)-The minimum concentration of a combustible gas or vapor in air which will ignite if an ignition source is present.

Non-permit confined space -A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Oxygen deficient atmosphere -An atmosphere containing less than 19.5% oxygen by volume.

Oxygen enriched atmosphere -An atmosphere containing more than 23.5% oxygen by volume.

Permissible Exposure Limit -The maximum 8 hour time weighted average of any airborne contaminant to which an employee may be exposed.

See Permit-Required Confined Space Decision Flow Chart Below, per 1910.146, Appendix A.