

City of Wentzville Kimberly Butts, Director of Procurement 310 West Pearce Boulevard Wentzville, Missouri 63385 (636) 639-2005

Invitation for Bids

IFB #16-542

## ROTARY PARK RESTROOMS REBID & GRINDER LIFT STATION PROJECT

Date Bid Issued: November 4, 2016

Form Revision Date: 06-06-2016

## **TABLE OF CONTENTS**

## **INVITATION FOR BIDS**

Bid Notice 1
Information for Bidders 2

Pricing Form Exhibit A
Subcontractor Form Exhibit B
Non-Collusive Affidavit Exhibit C

## CONTRACT DOCUMENTS AND SPECIFICATIONS

City-Contractor Agreement and Terms & Conditions

General Conditions

GC-1 to GC-34

Job Specific Provisions

Supplementary Construction Details

Submittal Schedule

Exhibit E

Electronic Data Transfer Agreement

CCA-1 to CCA-14

GC-1 to GC-34

JSP-1 to JSP-20

Exhibit D

Exhibit E

Wage Rate Order #23
Restroom Drawings
Grinder Lift Station Drawings

## **TECHNICAL SPECIFICATIONS**

## **DIVISION 1 - GENERAL REQUIREMENTS**

01100 Summary

01230 Alternates

01310 Project Management and Coordination

01330 Submittal Procedures

01500 Temporary Facilities and Controls

01770 Closeout Procedures

01781 Project Record Documents

01782 Operation and Maintenance Data

## **DIVISION 3 – CONCRETE**

03300 Cast-In-Place Concrete

## **DIVISION 4 - MASONRY**

04810 Unit Masonry Assemblies

## **DIVISION 5 - METALS**

05500 Metal Fabrications

## **DIVISION 6 - WOOD AND PLASTICS**

06105 Miscellaneous Carpentry

06160 Sheathing

06176 Metal-Plate-Connected Wood Trusses

## **DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

07210 Building Insulation

07301 Roofing Underlayment

07311 Asphalt Shingle Roofing System

07620 Sheet Metal Flashing and Trim

07920 Joint Sealants

## **DIVISION 8 – DOORS AND WINDOWS**

08110 Steel Doors and Frames

08311 Access Doors and Frames

08460 Automatic Door Operators

08710 Door Hardware

## **DIVISION 9 - FINISHES**

09250 Gypsum Board

09911 Exterior Painting

09912 Interior Painting

## **DIVISION 10 - SPECIALTIES**

10155 Toilet Compartments

10520 Fire Protection Specialties



City of Wentzville Kimberly Butts, Director of Procurement 310 West Pearce Boulevard Wentzville, Missouri 63385 (636) 639-2005

## BID NOTICE IFB 16-542

November 4, 2016

The City of Wentzville (the "City") is requesting sealed bids from qualified contractors for: Rotary Park Restrooms Rebid & Grinder Lift Station Project.

The Rotary Park Restrooms Rebid and Grinder Lift Station Project ("Project") shall consist of the construction of the building and site at Rotary Park, along with the Grinder Lift Station and other incidental items and work described in the Project Manual or reasonably inferable therefrom. The Grinder Lift Station shall in general consist of 432 linear feet of 6" sanitary lateral, 598 linear feet of 2" force main, and one (1) duplex grinder pump lift station to service the restroom facility.

### **PRE-BID MEETING:**

A non-mandatory pre-bid meeting will be held at City Hall, 310 W. Pearce Blvd., Wentzville, MO 63385 at 9:30 am on November 10, 2016.

Sealed bids will be accepted by the City of Wentzville Procurement Department, City Hall, 310 W. Pearce Blvd, Wentzville, MO 63385 until 2:00 pm (local time) on November 22, 2016. Bids will be opened and read aloud.

Bid documents and plans are available on the City's Bid Opportunities website <a href="http://www.wentzvillemo.org/departments/procurement/current\_bidding\_opportunities.php">http://www.wentzvillemo.org/departments/procurement/current\_bidding\_opportunities.php</a>. You will be required to create a free log-in with Vendor Registry in order to download the bid documents and plans.

A set of the bid documents and plans are available for public inspection at Wentzville City Hall, 310 W. Pearce Blvd., Wentzville, MO 63385.

All questions regarding this project shall be submitted to Jill Schmitz, Procurement Specialist at Jill.Schmitz@wentzvillemo.org and be in writing by end of business day November 16, 2016.

The City reserves the right to reject any or all bids, or portions thereof, to waive technicalities or deficiencies in any or all the bids. The City of Wentzville reserves the right to cancel this IFB in part or in its entirety. This IFB does not commit the City of Wentzville to award a contract or to pay any costs to bidders in preparation of their bid.

The successful bidder shall be required to comply in all respects with the State Statutory provisions concerning the payment of prevailing wages on Public Works, Section 290.262 RSMo and shall pay to all workmen performing the work under the Contract not less than the prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of the State of Missouri.

The City of Wentzville hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this solicitation, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

City of Wentzville Kimberly Butts, CPPO, CPSM Director of Procurement

## **INFORMATION FOR BIDDERS**

**1.** <u>Background and Funding:</u> The Rotary Park Restroom Rebid and Grinder Lift Station Project shall include the construction of a restroom addition to the existing building and the construction of a new Grinder Lift Station at Rotary Park.

Job Site Location: 2577 W. Meyer Road, Wentzville, MO 63385

This project is fully funded through City of Wentzville funding.

**2.** Questions and Addendums: All questions must be submitted in writing via email to Jill Schmitz, Procurement Specialist at Jill.Schmitz@wentzvillemo.org with the project name in the subject line before time and date indicated. No verbal interpretation will be recognized; any and all such interpretations shall be confirmed in an addendum to the bid by the City.

Addendums will be posted on the City's website at: <a href="http://www.wentzvillemo.org/departments/procurement/current\_bidding\_opportunities.php">http://www.wentzvillemo.org/departments/procurement/current\_bidding\_opportunities.php</a>. Bidders are responsible for checking the City's website for the issuance of any addendums. The Bidding Opportunities website shall be the official site for information as related to this IFB.

To ensure fair consideration for all bidders, the City prohibits communication to or with any City department(s), board member(s), or employee(s) during the submission process, except as provided above. Additionally, the City prohibits communications initiated by a bidder to the City official(s) or employee(s) evaluating or considering the bids prior to the time an award decision is made. Any communication between Bidder and the City will be initiated by the appropriate City official(s) or employee(s) in order to obtain information or clarification needed to develop a proper, accurate evaluation of the bid. Such communications initiated by a bidder may be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future bid(s).

- **3.** <u>Sealed Bids Required:</u> No type of electronic submittal (fax, email, etc.) of bids will be accepted. The sealed envelope shall be clearly marked with the IFB number and title, and Bidder Name on the outside of envelope.
- **4.** <u>Bidder Documentation:</u> All responses, inquiries, or correspondence relating to, or in reference to, this Invitation for Bid, and all reports, charts, displays, schedules, exhibits and other documentation by the Bidder shall become the property of the City when received. All bids submitted shall also become the property of the City. If any proprietary information is contained in the bid, it should be clearly identified. Marking the entire bid as proprietary will be neither accepted nor honored. If a request is made to view a Bidder's bid submission, the City will comply according to Missouri Sunshine Law.
- **5.** <u>Bid Opening:</u> Bids will be publicly opened and read aloud on the date and time and at the location indicated. The Bidder is solely responsible for insuring its bid is received at the time, date, and location specified. The bid opening is public and anyone may attend.
- **6.** Examination of Bid/Contract Documents and Site of Work: The Bidder is expected to carefully examine the site of proposed work, the specifications, and the Bid/Contract documents before submitting a bid. The submission of a bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and as to the requirements of the Bid/Contract

documents. Differing site conditions from the bid documents may not be used for justification of a change order.

- **7. Product Substitutions:** Requests for product substitutions will not be considered during bidding. If Contractor's bid includes substitutions it shall be at the Contractor's risk and responsibility to demonstrate that the substitution is a "functional equivalent" product during submittal reviews. During the review process, if substituted products are determined not to be functionally equivalent, Contractor shall provide products as specified at no additional cost to the City.
- **8.** <u>Laws to be Observed:</u> The Contractor shall at all times observe and comply with all Federal and State laws, all local laws, ordinances, and regulations existing at the time of or enacted subsequent to the execution of the contract which, if in any manner, affect the execution of the work.
- **9.** <u>Taxes:</u> This project is exempt from all sales taxes for construction materials and supplies used directly in fulfilling contract requirements. Sales tax shall not be included into the price(s) for this project. The contractor shall follow the regulations as outlined in Section 144.062 RSMo Construction Materials Exemption Allowed.
- **10.** Prevailing Wage: The successful Bidder shall be required to comply in all respects with State Wage Rates, including applicable statutory provisions concerning payment of prevailing wages on public works projects, Sections 290.210 through 290.340 RSMo as currently amended, and shall pay to all workmen performing under work contract not less than prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of the State of Missouri

As such, the bid for this project shall be based upon the required payment by the Contractor for wages for each craft or type of workmen required to execute the Contract. A schedule of such prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of Missouri, pursuant to said statutory provisions is attached hereto and made a part of this Contract.

- 11. OSHA Required Training: Pursuant to Section 292.675 RSMo, Contractor shall require all on-site employees to complete the ten-hour training program as required under Section 292.675 RSMo. This program shall be provided by Contractor and shall be a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for Contractor's on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations ("MoDOLIR") which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work under this Agreement. Contractor shall further require all subcontractors under Contractor to provide the ten-hour training program required under Section 292.675 RSMo. to such subcontractors' on-site employees. On-site employees who have previously completed such ten-hour training program must hold documentation of prior completion of the program.
- **12.** <u>Equal Employment Opportunity:</u> The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or disability. Such action shall include, but not be limited to, the following: employment,

upgrading, demotion, or transfer; recruitment; advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or disability. The Contractor shall incorporate the foregoing requirements of this paragraph in all of its subcontracts for work performed under the terms and conditions of this Contract. A breach of this provision may be grounds for termination of this Contract.

- **13. References:** The City may request references from any bidder.
- **14.** <u>Method of Award</u>: The solicitation shall be awarded to the lowest, responsive, responsible bidder. The City reserves the right, in its sole discretion, to reject any or all bids, or portions thereof, to waive technicalities or deficiencies in any or all the bids.

The responsiveness of the bidder shall be determined by the City based whether their bid fully conforms in all material respects to the solicitation and all of its requirements, including all form and substance.

The responsibility of the bidder shall be determined by the City based on, but not limited to, whether the bidder is capable of meeting all of the requirements of the solicitation and subsequent contract; possesses full capability, including financial and technical, to perform as contractually required; and the quality and performance of previous contracts or services.

- **15.** <u>Notice of Intent to Award:</u> The successful bidder will receive a Notice of Intent to Award listing documentation that the bidder is required to submit, which includes but is not limited to the following:
  - City-Contractor Agreement (sample included with this solicitation)
  - Affidavit of Participation in Federal Work Authorization Form (sample included with this solicitation)
  - E-Verify Memorandum of Understanding (showing electronic signatures of Contractor and Homeland Security)
  - Insurance
  - Bonds
- **16.** Performance Bond: If the Contractor's Bid is in excess of \$50,000.00, the Contractor shall also furnish within ten (10) days of notification of contract award a satisfactory Performance Bond in the full amount of the Bid based on the bid quantities listed on the Pricing Form. The Performance Bond furnished shall guarantee the faithful performance of the Work and warrant the Work for the guaranty period established in this City-Contractor Agreement.
- 17. Payment Bond: If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) days of notification of contract award a satisfactory Payment Bond in the full amount of the Contract Sum. The Payment Bond furnished shall meet all requirements of Section 107.170 of the Revised Statutes of Missouri, as amended, and shall guarantee the payment of any and all materials, incorporated, consumed or used in connection with the construction of such work, and all insurance premiums, both for compensation, and for all other kinds of insurance, said work, and for all labor performed in such work whether by subcontractor or otherwise, including payment of prevailing wage requirements of the State of Missouri.
- **18. Bond Premiums:** The premiums on all the bonds shall be paid by the Contractor.

- 19. <u>Transient Employers:</u> Every transient employer, as define in Section 285.230 RSMo., shall post in a prominent and easily accessible place at the work site a clearly legible copy of the following: (1) the notice of registration for employer withholding issued to such transient employer by the director of revenue; (2) proof of coverage for workers' compensation insurance signed by the transient employer and verified by the department of revenue through the records of the division of workers' compensation insurances signed by the transient employer and verified by the department of revenue through the records of the division of workers' compensation; and (3) the notice of registration for unemployment insurance issued to such transient employer by the division of employment security. Any transient employer failing to comply with these requirements shall, under Section 285.234 RSMo., be liable for penalty of \$500 per day until the notices required by this section are posted as required by statute.
- **20.** <u>Notice to Proceed:</u> Upon submittal and acceptance of all items as outlined in the Notice of Award, the successful bidder will receive Notice to Proceed and will be required to attend a Pre-Construction Meeting prior to beginning work.

The City will issue the Contractor a tax exemption letter and a project exemption certificate. These documents are to be given to the contractor's suppliers and used only for the specific project identified and will expire on the date indicated unless renewed by the City.



For: IFB #16-542– Rotary Park Restrooms Rebid & Grinder Lift Station Project

To: Procurement Department

City of Wentzville 310 W. Pearce Blvd. Wentzville, MO 63385

Pursuant to and in compliance with your Invitation for Bid, the Information for Bidders, Contract Document and Specifications and other documents relating thereto, the undersigned Bidder hereby proposes and agrees/guarantees that:

- 1. They have visited and examined the project site(s) and have carefully examined the Contract Documents and Specifications and any and all Addenda, as indicated below.
- 2. If this Invitation for Bid is accepted, to furnish all tools, equipment, labor, materials, supplies, and services to construct the project in strict conformance with the Contract Documents and Specifications, within the time set forth therein, for the price indicated in this Exhibit A Pricing Form). These prices are to cover all expenses incurred in performing the work required under the Agreement of Services, of which this Pricing Form is a part.
- 3. If awarded the Contract for the above work, they will have a maximum of ten (10) calendar days; excluding holidays from the date of the Notice of Intent to Award letter to submit supportive documentation as outlined in the notification letter. Failure to complete the outlined requirements within such timeframe shall be subject to forfeiture of the subject contract.
- **4.** Time is of the essence. The Contractor will commence construction of the work promptly upon receipt of the Notice to Proceed, after the Pre-Construction Meeting, and will complete the project without delay in accordance with the Contract Documents and Specifications.
- 5. If the Bid is accepted, the Contractor will substantially complete (make available for use) the said work within one hundred fifty (150) calendar days after receiving the Notice to Proceed, and that should they fail to complete the work in the time specified or such additional time as may be allowed by the Engineer under the Contract, the amount of liquidated damages to be recovered shall be per the City-Contractor Agreement.
- 6. The Bid is firm for 90 days from the bid opening date.
- **7.** Bidder understands and will comply with all terms and conditions of these Bid Documents, the City-Contractor Agreement, and the Contract Documents and Specifications and any subsequent award or contract.
- **8.** Bid bond required if total bid price exceeds \$50,000.00: The bid bond (5% of bid amount) submitted with this Bid is from a surety that is authorized to do business in the State of Missouri and is authorized to issue bonds in the State of Missouri.

Bidder Name:	· · · · · · · · · · · · · · · · · · ·
--------------	---------------------------------------

## **Exhibit A - Pricing Form (Continued)**

## Rotary Park Restroom Rebid and Grinder Lift Station Bid

In response to the Invitation for Bids for IFB#16-542, and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the specifications and plans for the restrooms prepared by Cochran, and the specifications and plans for the Grinder Lift Station provided by the City of Wentzville in a safe, timely and workmanlike manner for the following Bid Price indicated in the Itemized Bid Form below:

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Price
Grinder Lift Station Bid					
1	1	LS	Mobilization (JSP-1)		
2	1	LS	Sediment and Erosion Control (JSP-2)		
3	1	LS	Excavation (JSP-3)		
4	1	LS	Embankment (JSP-4)		
5	1	LS	Single Phase Electric Power Supply for Grinder Lift Station (JSP-5)		
6	1	LS	Grinder Lift Station (JSP-6)		
7	1	LS	External Sanitary Piping (JSP-7)		
8	1	LS	Site Restoration (JSP-8)		
		SUBT	OTAL GRINDER LIFT STATION BID (Ite	ms 1 thru 8)	
Restro	oom Building	and A	ssociated Sitework Bid		
9	1	LS	Restroom Building Addition		
10	1	LS	Storm drainage and downspout leaders		
11	1	LS	Water lateral from water main to building, including the meter and tap		
12	1	LS	Mobilization, Sediment and Erosion Control, Excavation, External Sanitary Piping, Site Restoration required for the Restroom Building (See Sheet C1)		
		SUBT	OTAL RESTROOM BUILDING (Items 9 t	thru 12)	

Exhibit A -	Pricing F	Form (Continued)	Bidder Name:
Total Bid	Price (Ite	ems 1 thru 12) <i>(numerical)</i> : \$	
Total Bid	Price (Ite	ems 1 thru 12) (written in words):	
	Unit Bas	ed Pricing	
Item ∧		Description	Unit Price
1	CY	Excavation Class "A" (in excess of 5 CY)	Ontrice
Addendum Naddendum Naddend	No No ctor unders ctor employ ederal and atutes requ	Dated:	e United States in accordance with tate of Missouri Immigration Alien person's lawful presence within the
Legal Comp	any Name:	Indicate whether ( ) Individual; ( ) Partner	rship; ( ) Corporation, ( ) LLC
		Incorporated in the State of	
Authorized S	Signature:		
Name (Print	ed):		
Title:		-	
Business Ac	ldress:		
City:			
State:		Zip:	
Telephone N	No:	Fax No:	
State Charte	er #:		

Exhibit A - P	ricing Form (Continued)	Bidder Name:	<del> </del>
Email address:	·		
ATTEST:	Title	Dated	
Attach Corpora	ate Seal, if Applicable		
Enclosures:	Exhibit A – Pricing Form Exhibit B – Subcontractor Form Exhibit C – Non-Collusive Affidavit Bid Security of 5% of Bid Amount if Bid	Amount exceeds \$50,000	

Bidder Name:	

## EXHIBIT B SUBCONTRACTOR FORM

This form must accompany and be part of your sealed bid. If you do not plan to use subcontractors, indicate below and return this form with your bid.

The above referenced Bidder intends to subcontract for materials, services, supplies, specialty contractors, etc. as follows:

Subcontractor Name	Address (Street, City, State)	Nature of Participation	Dollar Value of Subcontract



# **EXHIBIT C**AFFIDAVIT OF NON-COLLUSION (PRIME BIDDER)

State of) S.S.
County of)
, being first duly sworn, deposes and says that:
They are the (owner, partner, officer, representative, or agent) of, the Bidder that has submitted the attached Bid;
2. They are fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such bid is genuine and is not a collusive or sham bid; and that all statements made and fact set out in the Invitation for Bid are true and correct;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest including this affidavit, has in any way colluded, considered, connived, or agreed, directly or indirectly with any other bidder, firm, or person, to submit a sham bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such Contract; or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price or prices in the attached Bid or of any other bidder, or to fix the overhead, profit, or cost element of the Bid price of the other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Wentzville or any person interested in the Proposed Contact.
5. The price or prices quoted in the attached Bid are fair and proper, and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit; and
6. They further certify that bidder is not financially interested in or financially affiliated with any other Bidder on this project.
Signed:
Title:
Subscribed and sworn to before me this day of, 2016.
Notary Public
My Commission expires:



## **Presented as Sample Enclosure**

## CITY - CONTRACTOR AGREEMENT #16-542

## ROTARY PARK RESTROOMS REBID AND GRINDER LIFT STATION PROJECT

This CITY-CONTRentered into as of th		,		
	hav	ing a	principal	office a
"Contractor"), and the Cit St. Charles County (the shall have the meanings defined).	"City"). All capita	alized terms	s used and not	t defined hereir
	DEOL	- 4 1 0		

## **RECITALS**

- A. In response to Invitation for Bid #16-542 for Rotary Park Restrooms Rebid & Grinder Lift Station, the Contractor has submitted a certain bid in accordance with the Bid Documents to perform the Services.
- B. After due consideration, the City has accepted the bid of the Contractor and the parties hereto desire to enter into this Agreement whereby the Contractor shall undertake the performance of the Services in accordance with the Contract Documents and the City shall pay the Contractor as hereinafter specified.

## **AGREEMENT**

NOW, THEREFORE, in consideration of the foregoing recitals and of the mutual promises hereinafter set forth the City and the Contractor hereby agree as follows:

- 1. <u>Contract Documents</u>: This Agreement shall consist of:
  - 1. Invitation for Bids
  - 2. Any addendums issued to the bid
  - 3. Bid and Pricing Form Exhibit A (submitted by Contractor)
  - 4. Subcontractor Form Exhibit B
  - 5. Affidavit of Non-Collusion Exhibit C
  - 6. Supplementary Construction Details Exhibit D
  - 7. Submittal Schedule Exhibit E
  - 8. Restroom Drawings
  - 9. Grinder Lift Station Drawings
  - 10. E-Verify Memorandum of Understanding with Electronic Signatures
  - 11. Affidavit of Participation in Federal Work Authorization Program Form
  - 12. Certificate of Insurance (submitted by Contractor)
  - 13. City-Contractor Agreement (executed by City and Contractor)
  - 14. Terms and Conditions
  - 15. General Conditions

- 16. Notice of Award (issued by City)
- 17. Notice to Proceed (issued by City)

and shall also include any exhibits to the above documents, any addenda issued prior to receipt of bids, any duly-issued modifications, and all other documents contained or specified within the specifications, details or job special provisions, as such may be on file in the Office of the Procurement Department and Office of the City Clerk of Wentzville, Missouri (all of the foregoing collectively referred to as the "Contract Documents" are hereby incorporated in this Agreement by reference).

- **Coordination of Contract Documents:** The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. In case of conflict or inconsistency among the Contract Documents, the governing ranking will be:
  - (a) Plans for Construction
  - (b) City of Wentzville Standard Specifications and Construction Details, most current effective date
  - (c) Exhibit A Pricing Sheet, Bid Items and/or Quantities

In case of conflict or inconsistency, calculated dimensions will govern over scaled dimensions. In the instance when any provision(s) of the Contract Documents not explicitly listed above conflict, the provision(s) most advantageous to the City shall govern.

All contractors, including subcontractors, shall not take advantage of any apparent error or omission in the Contract Documents. If an error or omission is discovered, the Engineer shall be notified promptly and prior to commencement of work related to said error or omission so corrections and interpretations necessary to fulfill the intent of the Contract can be made. A failure to give notice prior to commencement of work related to said error or omission shall render the effects of any error or omission non-compensable and any delay non-excusable.

- 23. Payment: Contractor shall be paid for the quantities placed based on a percent complete per the amount quoted of each amount on the Pricing Form Exhibit A. The Contractor shall submit all invoices complete with necessary supporting documentation and partial lien waivers to indicate the percentage complete of each sum amount to the City. The City shall make payment within 30 days of receipt of an invoice after satisfactory performance of the delivery and receipt of the services as shown on the Pricing Form Exhibit A. Final determination of percentage complete will be made by the Engineer. Invoices shall be submitted no more than once a month except for the final payment. Payment Terms: net 30 days. Remit Address is Accounts Payable, 5 W. Pearce Blvd., Wentzville, MO 63385.
- **Prompt Payment:** All public works contracts shall provide for prompt payment by the City to the Contractor (as well as prompt payment by the Contractor to the subcontractor and material supplier) unless contrary to any federal funding requirements, per RSMo 34.057.
- 5. The Work/Contract Sum. The Contractor shall furnish all labor, materials, tools, equipment and services, and perform and complete the Work required for the Project in accordance with this Agreement which shall include provision of every item specified in the Contract Documents necessary to complete the Project as designed.

The Contract Sum is \$\(\text{insert dollar amount}\) (and spell out dollar amount), which shall include all compensation to Contactor due for the Work, which shall include all such work within the Base Bid and additionally all such Work within selected Alternate Bids. Any additional Work not within the Base Bid and Alternate Bids that is hereinafter approved by the City in writing shall be incorporated into the contract pursuant to a Change Order.

- **Time of Completion:** Contractor shall commence work under this Agreement as specified in the Notice to Proceed and shall fully complete all items of the Work within the time set forth in the Contract Documents. The parties understand that time is of the essence and that the rate of progress and prompt completion are essential conditions, and that in the event the Work is not fully completed within the period provided herein, the Contractor shall pay to the City the sums provided in the Contract Documents.
- 7. Guaranty: The Contractor hereby expressly guarantees the aforesaid Work as to workmanship and quality of materials used in connection herewith for a term of one (1) year, commencing on the date of Final Acceptance by the City, and binds itself, its successors or assigns, to make all repairs or replacements which may become necessary within said period due to construction defects and nonconformity with the Contract Documents. Whenever notified by the City that said repairs or replacements are required, the Contractor shall at once make the same as directed at its own expense. If the Contractor does not proceed with such repairs or replacements within five (5) days after receipt of written notice, the City may use (and the Contractor agrees and consents to such use) the Maintenance Bond, according to the terms thereof, to make any necessary repairs or replacements to any portion of the Work. Upon expiration of the one (1) year guaranty period, the City shall release the Maintenance Bond, less any amounts reasonably necessary to remedy any of the Contractor's performance and/or maintenance obligations under this Agreement that may still be outstanding at the time of expiration of the guaranty period.
- 8. Performance Bond: If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) calendar days of notification of contract award a satisfactory Performance Bond in the full amount of the Bid based on the bid quantities listed on the Pricing Form. The Performance Bond furnished shall guarantee the faithful performance of this Contract.
- **Payment Bond:** If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) calendar days of notification of contract award a satisfactory Payment Bond in the full amount of the Contract Sum. The Payment Bond furnished shall meet all requirements of Section 107.170 of the Revised Statutes of Missouri, as amended, and shall guarantee the payment of any and all materials, incorporated, consumed or used in connection with the construction of such work, and all insurance premiums, both for compensation, and for all other kinds of insurance, said work, and for all labor performed in such work whether by subcontractor or otherwise, including payment of prevailing wage requirements of the State of Missouri.
- 10. <u>Maintenance Bond:</u> Upon Final Acceptance the Contractor shall furnish a satisfactory Maintenance Bond in the amount of 10% of the final Contract Sum after any and all Change Orders and/or formal amendments. The Maintenance Bond shall be in full force for a one (1) year guarantee period from the date of Final

Acceptance. The submitted Maintenance Bond shall be substantially in the form of the "Form of Maintenance Bond" included within the Bid Documents.

- 11. <u>Independent Contractor</u>. The Contractor shall be and operate as an independent Contractor in the performance of this Agreement. The Contractor shall have complete charge of the personnel engaged in the performance of the Services, and all persons employed by the Contractor shall be employees of said Contractor and not employees of the City in any respect.
- 12. Contractor's Liability Insurance. The Contractor shall obtain and maintain during the term of the Project and the City Contractor Agreement the insurance coverage's at least equal to the coverage's set forth in this paragraph 12, and as further provided in the Terms and Conditions, and General Conditions, but no event less than the individual and combined sovereign immunity limits established by Section 537.610 RSMo Insurance policies providing required coverage's shall be with companies licensed to do business in the State of Missouri and rated no less than AA by Best or equivalent. All costs of obtaining and maintaining insurance coverage's are included in the Bid Amount and no additional payment will be made therefor by the City:

Comprehensive General Liability Insurance	\$1,000,000 per occurrence \$2,735,000 aggregate
(including coverage for Bodily Injury and Property Damage)	
Comprehensive Automobile Liability Insurance	\$1,000,000 per occurrence
(including coverage for Bodily Injury and Property Damage)	
Employer's Liability	\$1,000,000 bodily injury by accident (each accident) \$1,000,000 bodily injury by disease (each
	employee) \$1,000,000 bodily injury policy limit

In addition, the Contractor and all subcontractors shall provide Worker's Compensation Insurance in at least statutory amounts for all workers employed at the Project site.

The Contractor shall also provide a policy of Builder's Risk Insurance in the amount of 100% of the complete insurable value of the Project, which policy shall protect the Contractor and the City, as their respective interests shall appear.

Before commencing any work, the Contractor shall provide to the City certificates of insurance evidencing the issuance and maintenance in force of the coverage's required by this paragraph 11. Each such certificate shall show the City, and such other governmental agencies as may be required by the City to be insured by underlying grant or contract relating to the Project, as an additional insured, on a primary and non-contributory basis, and shall bear an endorsement precluding cancellation of or change in coverage without at least thirty (30) days written notice to the City.

The City may waive any insurance coverage's or amounts required by this paragraph

12 when the City deems such waiver to be in the interest of the public health, safety, and general welfare.

13. <a href="Indemnification">Indemnification</a>: To the fullest extent permitted by law, the Contractor agrees to defend with counsel approved by the City, and indemnify and hold harmless the City, its officers, engineers, representatives, agents and employees from and against any and all liabilities, damages, losses, claims or suit, including costs and attorneys' fees, for or on account of any kind of injury to person, bodily or otherwise, or death, or damage to or destruction of property, or money damages, or trespass, or any other circumstances, sustained by the City or others, arising from the Contractor's breach of the Contract or out of services or products provided by the Contractor or its subcontractors under the terms of this agreement. The Contractor shall not be liable for any loss or damage attributable solely to the negligence of the City. To the extent required to enforce this provision, the Contractor agrees that this indemnification requires the Contractor to obtain insurance in amounts specified in the Contract Documents and that the Contractor has had the opportunity to recover the costs of such insurance in the compensation set forth in this Agreement.

In any and all claims against the City or any of its agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

- 14. <a href="Attorney Fees" and Costs:">Attorney Fees</a>' and Costs: The Contractor shall reimburse to the City any costs and attorneys' fees that the City may reasonably incur in pursuit of any remedies at law or equity or enforcement of any rights established in this Agreement, which may result from the Contractor's breach of the Agreement, the Contractor's failure to perform any obligation or requirement contained herein, or the City's enforcement of this Agreement.
- 15. Liquidated Damages: The Contractor agrees and acknowledges that time is of the essence and that absence of reasonable progress and delay in the project becoming Available for Use, in Project Closeout, and in Final Acceptance will inconvenience the public and increase administrative costs of the City, the costs of which the Contractor and the City are incapable of ascertaining at this time. Should the Contractor, or in the case of Contractor's default, the surety, fail to complete the Work and/or receive Final Acceptance within the times stipulated in this Agreement, or within such extensions of time as may be allowed by the City in the manner set forth in the Contract Documents, the Contractor (or surety, as applicable) shall pay to the City as liquidated damages, and not as a penalty, the sum of Five Hundred Dollars (\$500.00) for each calendar day of delay past the allotted calendar days to achieve Available for Use (Substantial Completion) as notified by the City, plus Two Hundred Dollars (\$200.00) for each calendar day of delay past the allotted calendar days to achieve Final Acceptance as notified by the City, as indicated in General Conditions (sections 8.01.4 and 9.05.2). In the sole discretion of the City, the amount of the liquidated damages may be deducted from any money due the Contractor under this Agreement. Permitting the Contractor to finish the Work or any part thereof after the expiration of the time for completion or any approved extension,

shall in no way operate as a waiver of the City of any of rights under this Agreement.

- 16. <u>Termination:</u> The City shall have the right to terminate this Agreement at any time for any reason by giving the Contractor written notice to such effect. The City shall pay to the Contractor in full satisfaction and discharge of all amounts owing to the Contractor under this Agreement an amount equal to the cost of all Services performed by the Contractor up to such termination date, less all amounts previously paid to the Contractor on account of this Agreement Price. The Contractor shall submit to the City its statement for the aforesaid amount, in such reasonable detail as the City shall request, within thirty (30) days after such date of termination. The City shall not be liable to the Contractor for any damages on account of such termination for loss of anticipated future profits with respect to the remainder of the Services.
- 17. <u>Compliance with Federal, State and Local Law:</u> The Contractor shall comply with all applicable federal, state and local law requirements for performance under this Agreement. The Contractor shall abide by all health and environmental requirements imposed by law in performance of its duties.
- **Prevailing Wage:** The Contractor shall be required to comply with all applicable provisions concerning the payment of prevailing wages on public works projects, as provided in the General Conditions. A copy of the applicable Annual Wage Order and Incremental Increases for each occupational title required under this project is included in the Bid Documents and the Contract Documents.
- 19. OSHA Required Training: Pursuant to Section 292.675 RSMo, Contractor shall require all on-site employees to complete the ten-hour training program as required under Section 292.675 RSMo. This program shall be provided by Contractor and shall be a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for Contractor's on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations ("MoDOLIR") which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work under this Agreement. Contractor shall further require all subcontractors under Contractor to provide the ten-hour training program required under Section 292.675 RSMo. to such subcontractors' on-site employees. On-site employees who have previously completed such ten-hour training program must hold documentation of prior completion of the program.

Notice is hereby given to Contractor that it shall be subject to the penalties set forth in Section 292.675 RSMo and such penalties shall be forfeited to the City pursuant to such Section. Penalties for non-compliance include contractor forfeiture to the City in the amount of \$2,500, plus \$100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMO. MoDOLIR shall investigate any claim of violation of Section 292.675 RSMo. Upon City's receipt of notification from MoDOLIR of violations of 292.675 by Contractor and a determination by MoDOLIR that penalties shall be assessed for such violations, the City shall withhold and retain from the contract all sums and amounts due and owing to the City as a result of any violation of Section 292.675 RSMo. All words in this paragraph shall have the

- definitions as provided in Section 292.675 RSMo.
- **20.** <u>Taxes:</u> The City is exempt from federal excise tax and Missouri sales tax and the Contractor shall not charge the same to the City and shall comply in all respects with the Special Sales Tax Provisions of the General Conditions.
- 21. Other Representations, Warranties and Other Covenants by the Contractor: The Contractor represents and warrants that the Contractor has been engaged in such work as is required for the Services and has provided services such as the ones to be performed under this Agreement to other municipalities and/or private enterprises and that the Contractor has sufficient expertise, knowledge, information and data, and engages sufficient personnel to perform the Contractor's obligations under this Agreement. The Contractor further represents and warrants that the Contractor is an equal opportunity employer. The Contractor agrees that the Contractor shall not use in any form or medium the name of the City for any advertising unless the Contractor receives the prior written consent of the City.
- **Amendment; Waiver:** The City may add, delete, or amend services. No amendment, modification or waiver of any provision of this Agreement shall be effective unless in writing signed by an authorized representative of the party against whom such provision as amended or modified or such waiver is sought to be enforced. Failure to insist upon strict compliance with any of the terms or conditions of the Agreement shall not be deemed a waiver of such term or condition.
- **Accounting**. During the period of this Agreement, the Contractor shall maintain books of accounts of its expenses and charges in connection with this Agreement in accordance with generally accepted accounting principles and practices. The City shall at reasonable times have access to these books and accounts to the extent required to verify all invoices submitted hereunder by the Contractor.
- **Compliance with State Immigration Statutes**. As a condition for the award of this Agreement, the Contractor shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the Services. The Contractor shall also sign an Affidavit of Participation in Federal Work Authorization Program affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the Services.
- 25. Governing/Choice of Law; Jurisdiction. This Agreement shall be governed by and construed and interpreted in accordance with the internal laws of the State of Missouri, without regard to its principles of conflict of laws, and shall be deemed to be executed and performed in the County of St. Charles, Missouri. Any legal action arising out of, or relating to this agreement, shall be governed by the laws of the State of Missouri, and the parties agree to the exclusive jurisdiction and venue over them by a court of competent jurisdiction located in the County of St. Charles, Missouri, or the U.S. District Court for the Eastern District of Missouri.
- **26.** <u>Headings:</u> The paragraph and section headings contained herein are for convenience only and are not intended to limit, vary, define or expand the content thereof.
- **27.** Representations. Contractor agrees that it has not relied on any representations or warranties of the City, oral or written, other than expressly identified in this

Agreement. The parties agree this Agreement represents the entire agreement between the parties.

- **Severability:** The invalidity or unenforceability of any portion or provision of this Agreement shall not affect the validity or enforceability of any other portion or provision of this Agreement, which shall remain in full force and effect to the maximum extent permitted by law.
- **29.** <u>Counterparts:</u> This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall constitute one and the same agreement.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed as of the day and year first above written.

CONTRACTOR	CITY OF WENTZVILLE, MISSOURI
Signature	Nickolas Guccione, Mayor
Title	
Address	ATTEST:
City, State, Zip	City Clerk
 Date	<del>Date</del>

## **TERMS AND CONDITIONS**

**Independent Contractor**. The Contractor shall be and operate as an independent Contractor in the performance of this Agreement. The Contractor shall have complete charge of the personnel engaged in the performance of the Services, and all persons employed by the Contractor shall be employees of said Contractor and not employees of the City in any respect.

**Compliance with Laws**. The Contractor shall comply with all applicable City ordinances and other laws and regulations, Federal, State, and any political subdivision thereof, including but not limited to, unemployment and workers' compensation, occupational safety, equal employment and affirmative action and wage and price laws insofar as applicable to the performance of this Agreement. In the event of a conflict between laws, codes and regulations of various governmental entities having jurisdiction over the Services, the Contractor shall notify the City of the nature and impact of such conflict.

**Subcontracts**. The Contractor shall not subcontract any of the Services to be performed by it hereunder without the express written consent of the City, except as provided herein. In the event Contractor utilizes a subcontractor, the Contractor shall ensure that any agreement between Contractor and such subcontractor complies with all requirement imposed for such agreement by federal, state, and local law. In addition, this Agreement shall not be assigned by the Contractor.

If the Contractor submits invoices to the City which include payments to be made on account of work performed by a subcontractor, such payments shall be conditioned upon submission by the Contractor of waiver of liens, or such other documents satisfactory to the City to protect the City's title to land, buildings, or improvements or to otherwise protect the City's interest. By submitting an invoice to the City, the Contractor warrants and guarantees that title to all land, buildings or improvements which may be subject to a lien under 429.015 RSMo, upon the receipt of such payment by the Contractor, will not be subject to a lien under 429.015 RSMo.

Indemnification. To the fullest extent permitted by law, the Contractor agrees to defend with counsel approved by the City, and indemnify and hold harmless the City, its officers, engineers, representatives, agents and employees from and against any and all liabilities, damages, losses, claims or suits, including costs and attorneys' fees, for or on account of any kind of injury to person, bodily or otherwise, or death, or damage to or destruction of property, or any other circumstances, sustained by the City or others, arising from breach of this Agreement or out of services negligently performed hereunder by the Contractor, or claims relating thereto, and including but not limited to the City's reliance on or use of the services or products provided by the Contractor under the terms of this agreement. The Contractor shall not be liable for any loss or damage attributable solely to the negligence of the City. To the extent required by law to enforce this provision, the Contractor agrees that this indemnification requires the Contractor to obtain insurance in amounts specified herein and that the Contractor has had the opportunity to recover the costs of such insurance in the compensation set forth in this Agreement.

No Aldermen, officer, administrator, director, board member, or employee of the City shall have any personal liability, directly or indirectly, under or in connection with this Agreement or any agreement made or entered into under or pursuant to the provisions of this Agreement. The Contractor shall look solely to the City for the satisfaction of any claims the Contractor may have arising under this Agreement.

**Insurance**. The Contractor shall furnish the City the certificates of insurance for workers' compensation, public liability, and property damage, including automobile coverage in the amounts specified by the City in the Invitation for Bids, if any, otherwise in the amounts required by the City, if any, but in no event less than the maximum amounts of liability set forth in Chapter 537.610 RSMo, as amended, applicable to political subdivisions. The policies of insurance shall be in such form and shall be issued be such company or companies as may be satisfactory to the City. In addition to the foregoing, the Contractor shall maintain Professional Liability "errors and omissions" insurance in the form for the coverages satisfactory to City as indicated in the Invitation for Bids, if any, but in no event less than the maximum amounts of liability set forth in Chapter 537.610 RSMo applicable to political subdivisions unless otherwise approved by

the City. The City, and such additional persons and entities as may be deemed to have an exposure to liability as a result of the performance of the Contractor's services, as determined by the City, shall be named as additional insured on a primary and non-contributory basis, with duty of defense on all insurance policies required hereunder.

**Nondisclosure/Confidentiality**. The Contractor agrees that it will preserve the confidentiality of all City data and account information and will not divulge to third parties without the written consent of the City any information obtained from or through the City in connection with the performance of this Agreement.

Changes. No change in this Agreement shall be made except in writing prior to the change in Services or terms being performed. The Contractor shall make any and all changes in the Services without invalidating this Agreement when specifically ordered to do so in writing by the City. The Contractor, prior to the commencement of such changed or revised Services, shall submit promptly to the City, a written cost or credit proposal for such revised Services. If the City and the Contractor shall not be able to agree as to the amount, either in consideration of time or money to be allowed or deducted, it shall nevertheless be the duty of the Contractor, upon written notice from the City, to immediately proceed with such alteration or change, and the Contractor shall be compensated the reasonable value of such Services. No work or change shall be undertaken or compensated for without prior written authorization from the City and shall be subject to any required approval from state or federal departments or agencies.

**Multi-year contracts; Non-appropriation**. Notwithstanding any provision herein to the contrary, the City is obligated only to make the payments set forth in the attached contract as may lawfully be made from funds budgeted and appropriated for that purpose during the City's then current fiscal year at the discretion of the City. If no funds are appropriated or otherwise made legally available to make the required payments for this Agreement during the next occurring fiscal year (an "**Event of Non-appropriation**"), this Agreement will terminate at the end of the then current fiscal year as if terminated expressly. The failure or inability of the City to appropriate funds for this Agreement in any subsequent fiscal year shall not be deemed a breach of this Agreement by any party. If applicable, this Agreement may be annually renewed at each fiscal year by inclusion of specific appropriation for this Agreement, from year to year not to exceed the maximum renewal period or term as set forth in the Agreement.

**Accounting**. During the period of this Agreement, the Contractor shall maintain books of accounts of its expenses and charges in connection with this Agreement in accordance with generally accepted accounting principles and practices. The City shall at reasonable times have access to these books and accounts to the extent required to verify all invoices submitted hereunder by the Contractor.

**Other Contractors**. The City reserves the right to employ other Contractors in connection with the Services.

**Invitation for Bids**. If the City issued an Invitation for Bids in connection with the Services, such Invitation for Bids and the bid of the Contractor in response thereto are incorporated herein by reference and made a part of this Agreement. In case of any conflicts between the Invitation for Bids and the executed City-Contractor Agreement or bid of the Contractor, the requirements of the City's Invitation for Bids and this executed City-Contractor Agreement shall control and supersede unless a change thereto is specifically stated in this Agreement.

Work Records and Work Product. The Contractor shall provide the City with copies of all documents pertinent to the Services which shall include, without limitation, reports, correspondence, meeting minutes, and originals of all deliverables. The City shall own all right, title and interest, including without limitations, all copyrights and intellectual property rights, to all documents and Work Product of the Contractor created in performance of or relating to this Agreement. The Contractor agrees to take all steps reasonably requested by the City to evidence, maintain, and defend the City's ownership rights in the Work Product. Upon termination of this Agreement, the Contractor shall promptly deliver to City any documents, and work product, whether printed or electronic.

**Personnel**. The Services shall be performed exclusively by the personnel of the Contractor identified in the Contractor's bid and no other personnel of the Contractor shall perform any of the Services without the express written approval of the City.

Compliance with State Immigration Statutes. As a condition for the award of this Agreement, the Contractor shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the Services. The Contractor shall also sign an (Affidavit of Participation in Federal Work Authorization Program) affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the Services. The Contractor shall not be required to provide these affidavits to the City if such affidavits have been previously provided to the City within the past year. All words in this paragraph shall have the definitions as provided in Section 285.525 RSMo.

**Representations.** The Contractor agrees that it has not relied on any representations or warranties of the City, oral or written, other than expressly identified in this Agreement. The parties agree this Agreement represents the entire agreement between the parties.

**Governing/Choice of Law; Jurisdiction.** This Agreement shall be governed by and construed and interpreted in accordance with the internal laws of the State of Missouri, without regard to its principles of conflict of laws, and shall be deemed to be executed and performed in the County of St. Charles, Missouri. Any legal action arising out of, or relating to this Agreement, shall be governed by the laws of the State of Missouri, and the parties agree to the exclusive jurisdiction and venue over them by a court of competent jurisdiction located in the County of St. Charles, Missouri or the U.S. District Court for the Eastern District of Missouri.

**Counterparts.** This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall constitute one and the same agreement.

## Presented as example; not required with bid AFFIDAVIT OF PARTICIPATION IN FEDERAL WORK AUTHORIZATION PROGRAM

Comes now(Name)	as	first being of (office held)	duly sworn, on my
		is enrolled and will continue	to participate in a
		ployees that will work in connection	
services related to the services be	eing provided to the	e City of Wentzville for the duration	of the
contract, if awarded, in accordance	ce with Section 285	5.530.2, Revised Statutes of Misso	uri. I also affirm
that		does not and will not knowing	ıly
		nnection with the contracted service	
duration of the contract, if awarded	d.		
Attached to this affidavit is docume	entation of		's
participation in a federal work auth	norization program.	(company name)	
(ATTACH DOCUMENTATION SH AUTHORIZATION PROGRAM)	IOWING THAT CO	MPANY PARTICIAPTES IN FEDE	RAL WORK
		e and correct (The undersigned und alties provided under Section 575.0	
Signature (person with authority)		Printed Name	_
Title	-	 Date	_
State of Missouri	)		
County of	) SS. )		
Subscribed and sworn to before m	ne this day o	of, 2016.	
My commission expires:		Notary Public	

## Presented as information; not required with bid

## PROOF OF E-VERIFICATION WITH U.S. DEPARTMENT OF HOMELAND SECURITY

**Electronic Signature Page** 



## STANDARD SPECIFICATIONS

The City of Wentzville Standard Specifications and Standard Details, most current effective date, have been adopted by the City as standard Construction Specifications. The adopted specifications are hereinafter referred to as the Standard Specifications. All work on this project shall be done in accordance with these specifications, except as indicated on the Plans for Construction and herein provided.

## **ENGINEERING DESIGN CRITERIA**

The City of Wentzville Engineering Design Criteria, most current effective date, has been adopted by the City as standard design criteria. The adopted criteria are hereinafter referred to as the Engineering Design Criteria. All work on this project shall be done in accordance with these criteria, except as indicated on the Plans for Construction and herein provided.

## JOB SPECIFIC PROVISIONS

The provisions of this section take precedence over the Standard Specifications. The following definitions apply to the Job Specific Provisions (JSPs):

Contract – Rotary Park Grinder Lift Station, ENG-2014-037B Owner / Engineer – City of Wentzville, Missouri Plans for Construction – Rotary Park Grinder Lift Station, ENG-2014-037A

## **Table of Contents**

JSP-1 - Mobilization	3
JSP-2 – Erosion and Sediment Control	
JSP-2A – Erosion and Sediment Control Maintenance	
JSP-3 – Excavation	
JSP-3A – Trenchless Installation	
JSP-4 – Embankment	
JSP-5 – Single Phase Electric Power Supply	
JSP-6 – Grinder Lift Station	
JSP-7 – External Sanitary Piping	
JSP-8 – Site Restoration	
JSP-9 – Shop Drawings, Product Data and Samples	

## JSP-1 - Mobilization

**Description.** Mobilization shall consist of scheduling and mobilizing equipment, materials and personnel necessary to pursue the work under this Contract. Mobilization shall include demobilization, which shall consist of removal and transporting from the site all personnel, plant devices, tools, equipment, and materials mobilized by the Contractor. It shall also consist of cleanup of the work area to the satisfaction of the Owner.

Materials. None.

**Construction Requirements.** Contractor shall set up operations on site with supervision and labor and shall move in and place the equipment, materials, and traffic control devices required for protecting and carrying out the work covered by this Contract.

Contractor shall breakdown operations by demobilizing which shall include, but not be limited to, removal and transporting from site all personnel, tools, equipment and materials mobilized by the Contractor.

**Method of Measurement.** Mobilization will not be measured.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for mobilization. When payment becomes due, partial payments will be made as follows:

- a) A maximum of \$5,000 may be invoiced with the first invoice for mobilization.
- b) The remaining contract amount, if any, may be invoiced on subsequent invoices.

Said lump sum price shall include full compensation to the Contractor for labor, materials, and equipment required for the complete mobilization of the Contractor onto the job site including portable sanitary facilities and all other incidental work related thereto and as shown on the Plans for Construction and Job Specific Specifications herein.

## JSP-2 – Erosion and Sediment Control

**Description.** The erosion control shall consist of the application of those measures and practices to limit erosion on the project site and to control the generation, collection and disposition of sediment associated with the project.

Erosion control is defined as those practices that limit the liberation of the soil from the surface of the ground. Erosion control is a preventative measure. Properly implemented erosion control measures will minimize the release of soil particles throughout the disturbed areas. Examples of erosion control measures include minimizing disturbed ground, temporary or permanent seeding and erosion control blankets.

Sediment control is the second line of defense used to prevent liberated sediment from migrating off the site or into the stream. Sediment control specifically deals with trapping liberated soil particles.

Prior to commencement of work, the Contractor shall submit any revisions in writing necessary to the Erosion and Sediment Control Plan as shown on the Plans for Construction. A copy of the approved Erosion and Sediment Control Plan shall be on site during Construction.

**Materials.** Acceptable sediment control materials include but are not limited to, siltation fence, sediment logs, or mulch tubing. The siltation control materials shall be approved, in writing by the Owner prior to commencement of work.

The Contractor is not limited in using the materials above or as shown in the Erosion and Sediment Control Plan. The Contractor is free to use all materials necessary to limit erosion and control sediment, as long as the Owner approves of the materials, in writing, prior to the commencement of work.

Exclusions. Hay bales and straw shall NOT be used for erosion and sediment control unless specifically called for in subsequent Job Specific Provisions.

**Construction Requirements.** Erosion and sediment control measures shall be applied to all disturbed areas. In addition, Contractor shall identify all site access, staging and stockpile areas and apply erosion and sediment control measures.

During the course of construction, the Contractor shall conduct his operation in such a manner to prevent damage to the adjacent stream from pollution by debris, sediment or any other foreign material, or from the manipulation of equipment or materials in or near the stream. The Contractor shall protect all slopes from erosion during construction.

Included in this JSP are minimum measures to be used in achieving the above performance specification.

## Initial Erosion Control

The purpose of initial erosion control is to be the first linen of defense against erosion and sediment. The Contractor shall not disturb areas until he is ready to excavate.

## Initial Sediment Control

The Contractor shall place temporary sediment fence parallel to the stream at the base of the active excavation prior to mobilizing equipment or otherwise disturbing the ground. The purpose of the sediment fence is to prevent loose clods of soil and other debris from entering the stream during excavation. It is not intended to contain runoff.

Areas of concentrated flow shall be leveled and spread. Sediment fence anchored in a toe trench, Enviroberm® or Sediment Logs™, or approved equal can be used to spread flow.

This temporary sediment fence shall be maintained and any accumulation of soil removed.

## **Sediment Control**

The purpose of sediment control is to prevent sediment and other debris from entering the adjacent stream until permanent erosion control is established.

For long or steep slopes, the Contractor shall place intermediate sediment traps on the excavation slope according to the following table:

Slope	Distance on Slope Between Sediment Traps
10 Horizontal:1Vertical	<50 feet
5H:1V	<25 feet
4H:1V	<15 feet

For slope steeper than 4H:1V, techniques that divert upland runoff past disturbed slopes shall be employed in addition to other sediment control measures.

If tracked equipment is used on the slope, tracking shall be up and down slope and not across.

## **Temporary Erosion Control**

The purpose of temporary erosion control (i.e. straw blanket or equivalent) is to reduce erosion between the beginning of excavation and the establishment of permanent erosion control.

The Contractor shall install temporary erosion control within 24 hours of disturbing the ground if the area is to remain bare for more than 5 days. No disturbed area is to be left bare for more than 5 days. If construction must stop for more than 7 days, the entire site must be stabilized, using a straw blanket, a heavy mulch layer, or another method that does not require germination to control erosion.

Method of Measurement. Erosion and Sediment Control will not be measured.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for erosion and sediment control. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

## JSP-2A - Erosion and Sediment Control Maintenance

**Description.** Erosion and sediment control maintenance shall consist of the maintenance, repair, replacement, and removal of those measures and practices utilized.

**Materials.** Erosion and sediment control materials.

## **Construction Requirements.**

Inspections. Erosion and sediment control measures shall be inspected once each week and within 24 hours after a storm event of ½ inches or greater. Inspections shall be documented using the Erosion and Sedimentation Control Inspection Form found at the end of the Special Provisions. Completed inspection forms are to be kept on site with the approved Erosion and Sediment Control Plan.

Sediment Control. If accumulated sediment exceeds 1/3 of the height of the sediment trap, the sediment shall be removed. Removed sediment shall be deposited in an area

that will not contribute sediment off-site and can be permanently stabilized. Should any part of the sediment control collapse, tear, decompose or become ineffective, it shall be replaced immediately.

Cleanup. All damaged or unused erosion and sediment control materials shall be removed from the site. When the site has been properly stabilized, all erosion and sediment control material, not part of the permanent design, shall be removed from the site.

**Method of Measurement.** Erosion Control Maintenance will not be measured.

**Basis of payment.** No direct payment will be made for Erosion and Sediment Control Maintenance. The work under this item is considered incidental to the Contract.

## JSP-3 - Excavation

**Description.** Excavation shall consist of stripping, excavation, stockpiling or hauling and disposal of all Class "A" and "C" materials to obtain the lines and grades on the Plans for Construction, install the lift station and all external piping. At the Contractors option, trenchless installation of external piping may be performed in accordance with JSP-4.

## Materials.

Class A: Any material in original beds, or well-defined ledges such as solid limestone, hard sandstone, or hard shales. Also, any material where each piece is more than one cubic yard in volume such as large boulders, detached pieces of limestone, hard sandstone, or mass concrete.

Class C: All materials not included in Class A excavation.

Topsoil: The top 6-inches of the existing earthen material.

**Construction Requirements.** All work and materials shall conform to the Standard Specifications for Trench Excavation, unless otherwise described herein or on the Plans for Construction. Work shall include pumping and bailing necessary to keep trenches and excavation areas free of water during construction.

Additionally, the work shall include shoring and the protection and temporary support or bracing of all pipes, conduits, utilities, and wires shown to be protected and other public and private property adjacent to or in the line of work.

<u>Stripping.</u> Remove topsoil from areas within limits of excavation, trenching, borrow and areas designed to receive fill. Scrape areas clean of all trees, brush, grass, weeds, roots and other unsuitable material. Strip to a minimum depth of 6 inches, and to a sufficient depth to remove excessive roots in heavy vegetation or brush areas and as required to segregate topsoil. Debris shall be disposed off the jobsite at a location provided by the Contractor.

<u>Dewatering</u>. Contractor shall drain or pump surface and groundwater as required to continually maintain all excavations and trenches free of water or mud. Commence

when water first appears and continue until work is complete to the extent that no damage will result from the presence of water.

<u>Class "A" Excavation</u>. Where encountered, rock shall be excavated to a distance of at least three (3) feet from outside of structure walls. Any additional rock excavation required for stability during construction shall be benched to maintain vertical cuts. Such additional excavation and any additional backfill subsequently required shall be supplied at no extra cost to the Owner.

**Method of Measurement.** Excavation will not be measured. Class "A" excavation exceeding 5 cubic yards will be measured by the cubic yard as computed from the Plans for Construction. Final measurement will not be made except for written authorized changes, accepted by the Owner during construction. Authorized changes shall be accepted in writing by the Owner prior to commencement of work. The revision or correction will be computed and added to or deducted from the Contract unit quantity.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for all Class "C" Excavation and 5 cubic yards of Class "A" Excavation. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item. Any additional Class "A" excavation performed above the 5 cubic yards will be paid based on the authorized changes to the Contract amount.

## JSP-3A – Trenchless Installation

**Description.** At the Contractor's option, trenchless installation may be performed in lieu of trench excavation. Select a method of installation that is appropriate for the soil conditions anticipated that will 1) allow the pipe to be installed to the desired line and grade within the specified tolerances; 2) prevent heaving or settlement of the ground surface or damage to nearby facilities; and 3) prevent damage to the carrier pipe and any lining materials within the carrier pipe.

## **Construction Requirements.**

- 1. Installation Methods:
  - a. Auger Boring: A method that utilizes a rotating cutting head to form the bore hole and a series of rotating augers inside a casing pipe to remove the spoil.
  - b. Directional Drilling: A method for installing pipe from a surface-launched drilling rig. A pilot bore is formed and then enlarged by back reaming and removing the spoil material. The pipe is then pulled in place.
  - c. Open-ended Pipe Ramming: A method that involves driving steel casing pipe with a percussive hammer. The front end of the casing pipe is openended. Spoils are removed from the pipe.
  - d. Pipe Jacking: A method in which pipe is pushed into the ground with hydraulic jacks while the soil is simultaneously excavated. Excavation is normally completed within a tunnel boring machine.
  - e. Microtunneling: A method of pipe jacking using a remote controlled tunnel boring machine.

- f. Utility Tunneling: A method of forming large diameter tunnels. As excavation takes place at the front of the tunnel, a liner is constructed to temporarily support the tunnel. Upon completion of the tunnel, the pipe is pushed in place.
- g. Other: Other methods may be allowed with the Engineers' approval.

## 2. Line and Grade:

- a. Install pipe and grade that will allow the carrier pipe to be installed at its true starting elevation and grade within the specified maximum alignment deviation of the pipe centerline.
- b. When no deviation tolerances are specified in the contract documents, apply the following maximum deviations to the carrier pipe.
  - i. Horizontally: +/- 1.0 foot per 100 feet;
  - ii. Vertically: +/- 0.2 feet up to 100 feet; an additional +/- foot per 100 feet thereafter. Backfall in pipe is not allowed.
- c. Pressurized Pipe:
  - i. Horizontally: +/- 2.0 feet
  - ii. Vertically: +/- 1.0 foot. Maintain the minimum depth specified in the Contract Documents.

## 3. Casing Pipe or Un-cased Carrier Pipe Installation:

- a. Install pipe by approved methods.
- b. Use a jacking collar, timbers, and other means as necessary to protect the driven end of the pipe from damage.
- c. DO not exceed the compressive or tensile strength capacity of the pipe during pushing or pulling operations.
- d. Fully support bore hole at all times to prevent collapse. Insert pipe as soil is removed, or support bore with drilling fluid.
- e. Fully weld all casing pipe joints. Use an interlocking connection system when approved by the Engineer.
- f. Fill space between the inside of the bore hold and the outside of the pipe with special fill material if the space is greater than 1 inch.

## 4. Carrier Pipe Installation through Casing:

- a. Clean dirt and debris from the interior of the casing pipe after installation
- b. Install casing spacers on carrier pipe sections as necessary to support the pipe barrel according to the pipe manufacturer's recommendations subject to the following minimum requirements:
  - i. Install a spacer within 1 foot of each side of the carrier pipe joint and at a maximum spacing of 6 feet.
  - ii. Do not allow the pipe to be supported by joint bells.
  - iii. Lubricate casing spacers with drilling mud or flax soap. Do not use petroleum-based lubricant or oils.
- c. Ensure that thrust loads will not damage carrier pipe joints. Provide thrust collars between joint shoulders of concrete pipe.
- d. Provide timbers for sufficient cushioning between the end of the pipe pushed and the jacking equipment to prevent damage to the pipe. Do not allow the steel jack face to thrust against the unprotected pipe end.
- e. Position jacks so the resulting force is applied evenly to the entire end of the pipe.

- f. Assemble pipe joints in jacking pit before pushing the carrier pipe into the casing.
- g. Close the end of the casing pipe around the carrier pipe with a casing end seal.
- h. When specified in the Contract Documents, fill the annular space between the carrier and casing pipe with flowable mortar or CLSM.

### 5. Pit Restoration

- a. Remove installation equipment and unused material from the launching and receiving pits.
- b. When the carrier pipe extends beyond the limits of trenchless installation and into the bore pit, place bedding and backfill material
- c. Place suitable backfill material in the pit.
- d. Restore the site to original condition or better.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** No direct payment will be made for Trenchless Installation. The work under this item is considered incidental to the Exterior Piping, Excavation and Embankment.

## JSP-4 – Embankment

**Description.** Embankment shall consist of backfill, compaction, and final grading to construct the proposed lift station and restore surrounding grades to pre-construction conditions.

### Materials.

- a) 1-inch Clean Limestone
  - 1-inch clean limestone shall be graded such that there is a maximum of 5-percent retained by the 1-inch sieve opening and a maximum of 5-percent passing the #200 sieve. The rock shall be a free draining material.
- b) Topsoil
  - i. As defined by JSP-3 Excavation

**Construction Requirements.** All work and materials shall conform to the Standard Specifications for Trench Backfill, unless otherwise described herein or on the Plans for Construction.

<u>Placement.</u> Placement of fill material in 8-inch maximum layers (uncompacted depth). Do not place snow, ice or frozen earth in fill and do not place fill on a frozen surface.

<u>Compaction.</u> Compact in loose lifts of 8 to 12 inches, using approved vibratory equipment.

<u>Topsoil.</u> All areas to be sodded shall have 6-inches compacted topsoil placed to meet the pre-construction grades.

<u>Subgrade Preparation.</u> Excavation or fill as required to construct subgrades to elevation and grades indicated. Remove all unsuitable material and replace with approved fill material. Perform all wetting, drying, shaping, and compacting required to prepare a suitable subgrade. Extend subgrade to full width of surfaced areas plus one foot. Compact subgrade to 90 percent maximum dry density. Compact the top six inches of subgrades for traffic areas and slabs on grade to 95 percent.

<u>Maintenance and Repair</u>. Settling or erosion shall be filled, repaired and grades reestablished to elevations and slopes indicated. Under provisions of the guarantee, the Contractor is responsible for correcting any settlement in excess of the amount of the specified grading tolerance for the specific areas of embankments or backfill and damages created thereby within one year after final acceptance of the Work. Repairs shall be made within 10 days from and after due notification by Owner of embankment backfill settlement and resulting damage.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for embankment. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

#### JSP-5 - Single Phase Electric Power Supply

**Description.** Single-Phase Electric Power Supply shall consist of the installation of all conduit wiring, and appurtenant structures necessary to convey Single-Phase 230 Volt Electric from the nearest transformer with sufficient capacity to the Rotary Park Grinder Lift Station per the Plans for Construction.

**Materials.** All conduit, wiring, valve boxes, poles, meters and pads as may be required by Ameren. Additionally, all materials necessary to perform the Work that is not otherwise indicated on the Plans for Construction.

#### **Construction Requirements.**

Installation of conduit in defined areas shall be accomplished using trenchless horizontal directional drilling methods whenever practical and all necessary trenching excavation by hand or equipment in order to complete the installation.

<u>Requirements.</u> All electrical work shall conform with the requirements specified by Ameren including both the *Electric Service Manual* and the *Specifications for Costumer-Installed Underground Distribution Facilities (Non-Residential)*, Current Edition. This shall include all testing to ensure proper functioning of the power supply.

<u>Utility Coordination.</u> The Contractor shall coordinate with Ameren to provide a power supply to the new lift station. A preconstruction meeting shall be held with representatives from the Contractor, Owner, and Ameren to determine site specific requirements. For inquiries as to what may be required by Ameren, please contact:

Mr. Dan Giessmann

Customer Service Specialist Ameren-Missouri (Electric) 200 North Callahan Road Wentzville, Mo 63385-1932 Phone: (626) 357-2978

Email: DGiessmann@ameren.com

Ownership. After wiring has been pushed through the conduit and the installation has been approved by Ameren, the Contractor shall transfer ownership of conduit, wiring, valve boxes, and transformers to the City / Ameren.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for single-phase electric power supply. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

#### JSP-6 – Grinder Lift Station

**General.** Furnish two (2) and install two (2) Model S10/4DE Sulzer PIRANHA Grinder Pumps to deliver the flow and total head ranges defined in the pressure sewer system analysis. The motors shall be 1.3 HP, 1740 RPM connected for operation on a 230 volt, 60 HZ, three phase service. The motor shall be an integral part of the pumping unit. The pump discharge size shall be 1-1/4".

The local representative for ABS Pump is **Municipal Equipment Company** (314-645-2400).

The grinder unit shall be capable of shearing and reducing to a fine slurry all material normally found in domestic and commercial sewage such as sanitary napkins, disposable diapers, cloth diapers, wash rags, wood, plastic, etc. The slurry shall be capable of freely passing through a 1-1/4" piping system including check and gate valves.

**Grinder Pump Construction.** The pump shall be of the centrifugal type with the rotating cutter mounted on the pump shaft directly against the impeller. The stationary cutter shall be mounted in an adjustable bottom plate. The bottom plate shall be cast with grooves threading outward from the center opening of the plate to the outer diameter. The impeller shall be a multiple vane centrifugal type. The cutter material shall be similar to an AISI 440C stainless steel with the addition of cobalt, vanadium, and molybdenum for superior abrasion resistance and a hardness of 58-62 Rockwell C.

The common pump and motor shaft shall be 420 stainless steel supported by a heavy duty lower single row ball bearing and an upper sealed single row ball bearing, all models. The cutting elements and impeller shall be designed to keep the overhung load distance to a minimum. All fasteners shall be 304 stainless steel.

<u>Shaft Seals</u>: Each pump shall be equipped with two seals. The lower seal (pump side) shall be of the mechanical type with silicon carbide faces. The upper seal shall be a lip type seal, mounted at a slight angle to the shaft.

<u>Seal Failure Warning System</u>: The seals shall be separated by an oil chamber. An electronic probe shall be provided in the oil chamber to detect the leakage of water. Solid-state device mounted in the pump control panel or in a separate enclosure shall send a low voltage, low amperage signal to the probe. If water enters the oil chamber, the probe shall activate a warning light in the control panel.

**Motor Construction.** The motor shall be of the submersible type rated for 1.3 HP at 1710 RPM. The full load current shall not exceed 5.2 Amps at 230 volts. Motor speeds above 1780 RPM shall not be acceptable.

The motor shall be air filled and shall have Class "F" insulation. The rotor and stator shall be enclosed in a cast iron outer housing. Bimetallic thermal switches shall be imbedded in each phase of the winding to sense high temperature. The rating of the switch shall be  $130^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . The control current shall be connected through the bimetallic switches so the motor is shut down should a high temperature condition exist. The switches shall be self-resetting when the motor cools. Power cables shall be rated for an explosion proof environment and have a minimum length of 30'.

#### Accessories.

<u>Fiberglass Basin</u>: The pump station wet well shall be glass fiber-reinforced polyester basin with a minimum diameter of 48 inches. The resins used shall be a commercial grade unsaturated polyester resin. The reinforcing materials shall be commercial grade "E" type glass in the form of a mat, chopped roving or roving fabric, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin. Fillers of any type shall not be utilized.

The exterior surface shall be relatively smooth with no sharp projections. Handwork finish shall be utilized to ensure that enough resin is present to eliminate exposed fibers. The exterior surface shall be free of delamination, exposed fibers and blisters larger than 0.5 inches in diameter. The interior surface shall be resin rich with no exposed fibers. The surface shall be free of crazing, delamination, blisters, and wrinkles larger than 0.125 inches or greater in depth.

The wall and bottom laminates shall have a glass content of 30%+ 5% glass content by weight and resin content of 70% + 5%. The basin shall have a pipe stiffness of 2.01 (ASTM D3753, 1984). The flexural modulus in the hoop and axial direction shall be a minimum of 800000 psi. The basin thickness shall be adequate to maintain structural integrity when installed in the conditions listed: 1) Soil modulus of 700 psi, 2) Soil density of 120 pounds per square foot and 3) Luscher's safety factor of 2.

The fiberglass basin depth shall be of the size shown on the plans and shall be equipped with an anti-flotation ring on the bottom. The fiberglass basin shall be furnished with cast iron inlet hub(s) of the size and number shown on the plans. These shall be furnished loose for field installation. Internal piping and guide rail system shall be factory installed.

The basin shall be equipped with a 1  $\frac{1}{4}$ " NPT coupling for the discharge connection and one (1) 1  $\frac{1}{2}$ " NPT for the electrical connection. These couplings shall be factory installed.

Guide Rail Base and Piping: A cast iron guide rail base shall be mounted on the floor of the pump station. The grinder pump shall be guided onto the cast iron discharge base by a single guide rail supported at the top by an upper guide bracket and at the bottom by the discharge base. The pump base shall be equipped with a straightening vane, which properly aligns the pump on the discharge base just prior to the final seating. The pump slide bracket shall include a fully ported ball check valve. The pump and check valve shall be removable from the guide rail base as a single unit. When the pump is in position, the weight of the pump shall compress the gasket and seal the connection. The area under the pump shall be free and clear of any additional support legs or guides pipes to insure free entrance of solids to the impeller.

The pump guide rail shall be schedule 40 stainless steel pipe and shall be threaded into the pump base. The discharge pipe shall be schedule 80 PVC and 1 1/4" diameter. A bronze 1 1/4" gate valve shall be installed for each pump discharge line. A second gate valve shall be installed in the common discharge line exiting the station and this valve shall be used as a throttling valve to induce head against the pumps. Both gate valves shall have a stainless steel extension handle that will extend from the top of the valve to 1 foot below the top of the basin.

A 1 1/4" anti-siphon valve shall be installed in the basin.

<u>Lifting Chains</u>: Pump lifting chains shall be sized and provided by the pump manufacturer. The chain shall be sized to accommodate the installed pump weight and shall be type 304 or 316 stainless steel. The chain length shall be five feet greater than the station depth.

<u>Float Switches</u>: Float switches shall be Anchor Scientific Roto-Float type SM or approved equal. Each float shall contain a single pole mercury switch, which activates when the longitudinal axis of the float is horizontal, and dictates when liquid level falls 1" below the actuation elevation. The casing shall be chemical resistant polypropylene and have an internal stabilizing weight. A PVC type STO, 2 - #18 AWG conductor cable shall protrude from one end of casing. One end of the cable is permanently connected to the glass enclosed mercury switch and the entire assembly is encapsulated to form a completely watertight and impact resistant unit. The electrical cable shall have a minimum length of 30'.

<u>Basin Cover</u>: The basin cover shall be constructed of fiberglass, capable of withstanding 150 pounds per square foot loading, and be of one piece construction. The basin cover shall be bolted to the basin with stainless steel hardware. The basin cover shall include a 2" mushroom vent.

<u>Junction Box</u>: An ABS P/N 6002002-1 simplex junction box shall be installed in the fiberglass basin. The junction box shall be NEMA 4X, and constructed of Noryl. The junction box shall come complete with two pump power cable glands, four float switch glands, gasketed cover, and stainless steel screws. The junction box shall have a 1  $\frac{1}{2}$ " extension fitting to attach to the electrical conduit hub. A stainless steel float switch mounting bracket shall be installed next to the junction box.

**Duplex Control Panel.** The control panel shall be equivalent to the QC II series of controls offered by Sulzer/ABS Pumps housed in a Nema 4X fiberglass enclosure and to include:

- Circuit breaker with short circuit protection, per pump
- Contactor and overload relay, per pump (overload relay provides class 10 trip)
- Start & run capacitors, start relay, per pump
- Hand, Off, Auto selector switch, per pump
- Green pump run light, per pump
- Red seal fail light, per pump
- Switches and lights mounted on elevation bracket. No dead front door included.
- Motor thermal wired into control logic to shut off pump upon an over temp. Pump will restart after thermal cools.
- High water alarm beacon, top mounted on panel
- Highwater alarm buzzer, 95 db @ 2 ft., bottom mounted
- Alarm Off-Auto selector switch
- Terminal blocks for power, pump, and float switch connections.
- Dry Contacts for pump fail, high water, and power failure alarms
- UL approved

<u>Operation</u>: Basic operation of the pumps will be as a pump-down, lead/lag, common "off" system with high level alarm. Where two "off" floats are required by the plans, they shall be set at the same elevation and connected in series. Each pump motor shall be controlled through a Hand-Off-Auto switch. In the Auto position, the pump shall be controlled by the "off" and "on" float-type level sensors in the wet well. Elevations for float switches shall be as shown on the plans. "Off" floats shall not be set lower than the cable entrance into the pump motor.

#### **Product Data and Service Requirements.** No measurement will be made.

Manufacturer of Major Equipment. These specifications describe certain manufacturers of the required equipment. This is not done, however, to eliminate others equally as good and efficient. Any substitution of equipment or materials will be considered for one reason only: that the equipment proposed for substitution is superior or equal in construction and/or efficiency to that described in the specifications and work space equal to or greater than shown on the drawings is provided, and that high quality has been demonstrated by at least five years of service in similar installations.

If, prior to the opening of bids, the Engineer's approval is obtained for alternate equipment, the Contractor shall, at his own expense, make any changes in the structures, building, piping or electrical necessary to accommodate the equipment and if engineering is required due to substitution of other material, the Contractor shall pay the Engineer for the engineering service.

It will be assumed that the cost to the contractor of the equipment proposed to be substituted is less than the specified equipment and if the substitution is approved, the contractor's bid price shall be reduced by an amount equal to the net savings.

Substitution of equipment other than that specified and shown will not be considered after the opening of bids.

<u>Submittal Data Requirements</u>. The contractor shall submit, as a minimum, the following data for review and approval by the engineer.

- A. Pump performance curves and tests procedures.
- B. Complete technical data showing materials of construction, moments of inertia, weight, type, and length of cable.
- C. Complete motor data including input kW, shaft BHP, full load amps, locked rotor amps, NEMA code letter, motor efficiency, power factor, and moment of inertia.
- D. Dimensional prints.
- E. Details on accessories being supplied.
- F. Installation guides.
- G. Technical manuals.
- H. Parts list(s).
- I. A full set of shop drawings detailing the control system layout. The system layout shall include all mechanical, electrical, ladder diagrams, and panel details to completely describe the system and system operation. Product data and dimension sheets for all control system components.

Operation and Maintenance Manuals. Prior to final acceptance of the control system, four (4) complete system manual with operation and maintenance manuals for all the equipment provided, control system as-built drawings, and parts list shall be provided prior to final acceptance. The Contractor shall also submit any component warranties.

**Field Service Requirements.** The supplier of the lift station equipment and controls shall provide one (1) day of start-up service and operator training. The manufacturer's representative shall provide written certification that the installation has been successfully started and pump station can be put into service.

The control system manufacturer shall maintain a spare parts inventory for the controls within 300 miles of the project location. In addition, the control system manufacturer shall have on staff factory trained field service personnel available within 200 miles.

The pump manufacturer shall maintain spare parts inventory and have a warranty service center within 200 miles of the project location.

If requested by the Engineer, the pump station equipment supplier and/or the control system manufacturer shall supply at least five (5) names, locations and telephone numbers of references. These references would be used to document the service capabilities and quality of field service personnel.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for the control panel and transfer switch. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

#### JSP-7 – External Sanitary Piping

**Description.** External Sanitary Piping shall include the installation of the external gravity and force main piping including all valves, cleanouts, tracer wire, meter pit, connections, thrust blocks, manhole coating, and manhole box outs necessary to complete the connections specified on the Plans for Construction.

External piping connections:

- 1) Gravity piping from bathroom lateral stub to propose wet well.
- 2) Discharge piping from proposed wet well to the existing manhole.

**Materials:** All components necessary to complete the installation as indicated on the Plans for Construction and within the Standard Specifications.

**Construction Requirements.** As specified in the Plans for Construction and Standard Specifications.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for the external sanitary piping. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

#### JSP-8 – Site Restoration

**Description.** Site Restoration shall include top soil preparation, fertilization, and placement of seed.

Materials: Seed mixture shall follow Section 805.2 of the Standard Specifications.

**Construction Requirements.** In addition to those within the Standard Specifications and Engineering Design Criteria:

<u>Vegetation.</u> The Contractor shall protect an avoid damage to all public and private property along the line of work. Damage due to the carelessness of the Contractor shall be repaired or restored at his expense. Particular attention shall be paid to avoid damage to trees, shrubs, bushes, and private property located in and adjacent to the easements on private property and right-of-way. No trees may be removed outside the limits of the easements without the permission of the property owner. The removal of trees, shrubs, and plants within the easement lines necessary to construct the project may be removed and not replaced, unless otherwise shown on the plans or provided in the Project Specifications. At the Engineer's direction, specific trees, shrubs, or plants may be required to be removed and properly disposed of or left in place and protected.

<u>Cleanliness.</u> Debris and unused materials shall be removed from the working areas without unreasonable or unnecessary delay, and the working areas restored as nearly as practicable, as determined by the Engineer, to their original conditions as soon as possible, in order to minimize damage, hazard, and inconvenience.

<u>Seeding.</u> Seeding shall follow Section 805.3 of the Standard Specifications.

**Method of Measurement.** No measurement will be made.

**Basis of payment.** Payment for this item will be based on the Contract lump sum bid price for the site restoration. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

#### JSP-9- Shop Drawings, Product Data and Samples

**Description.** This section specifies procedural requirements for non- administrative submittals including shop drawings, product data, samples and other miscellaneous work-related submittals. Shop drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information in the Contract Documents. The submittals shall include all materials, equipment, fittings, structures including reinforcement, complete, so as to show conformance with these Job Specific Provisions, the Standard Specifications, and the Plans for Construction.

- 1. Shop drawings are technical drawings and data that have been specially prepared for this project, including but not limited to the following items:
  - a. Fabrication and installation drawings showing foundation details, anchor bolt sizes, base plate sizes, location of Owner's connections and all clearances required for erection, operation, and disassembly for maintenance.
  - b. Setting diagrams.
  - c. Shopwork manufacturing instructions.
  - d. Templates.
  - e. Patterns.
  - f. Coordination drawings (for use on-site).
  - g. Design mix formulas.
  - h. Contractor's engineering calculations.
  - i. Electrical routing drawings, internal wiring diagrams, one-line diagrams, etc.

Standard information prepared without specific reference to a project is not considered to be shop drawings.

- 2. Product data includes standard printed information on manufactured products that has not been specially prepared for this project, including but not limited to the following items:
  - a. Manufacturer's production specifications and installation instructions.
  - b. Standard color charts.
  - c. Catalog cuts.
  - d. Roughing-in diagram and templates.
  - e. Standard wiring diagrams.
  - f. Printed performance curves.
  - g. Operational range diagrams.
  - h. Mill report.
  - i. Standard product operating and maintenance manuals.

- 3. Samples are physical examples of Work, including but not limited to the following items:
  - a. Partial sections of manufactured or fabricated work
  - b. Small cuts or containers of materials.
  - c. Complete units of repetitively used materials.
  - d. Swatches showing color, texture and pattern.
  - e. Color range sets.
- 4. Miscellaneous submittals are work-related, non-administrative submittals that do not fit in the three previous categories including but not limited to the following:
  - a. Specially prepared and standard printed warranties.
  - b. Maintenance agreements.
  - c. Workmanship bonds.
  - d. Survey data and reports.
  - e. Project photographs.
  - f. Testing and certification reports.
  - g. Record drawings.
  - h. Field measurement data.
  - i. Operating and maintenance manuals.
  - j. Keys and other security protection devices.
  - k. Maintenance tools and spare parts.
  - I. Overrun stock.

#### Submittal Procedures.

- 1. Contractor shall prepare for Engineer's concurrence a schedule for submission of all shop drawings specified or necessary for Engineer's approval of the use of equipment and materials proposed for incorporation in the Work or needed for proper installation, operation or maintenance. The schedule shall accompany the procurement schedule and Work progress schedule submitted to the Engineer. Submission of all submittals shall be scheduled to permit review, fabrication and delivery in time to cause no delay in the Work of Contractor or his Subcontractors or any other contractors as described herein.
  - a. The schedule shall indicate anticipated dates of original submission for each item and Engineer's acceptance thereof, and shall be based upon at least one resubmission for each item.
  - b. All submittals of equipment and materials furnished by Subcontractors, manufacturers and suppliers shall be submitted to Engineer by Contractor.
- 2. After checking and verifying all field measurements, Contractor shall transmit all submittals to Engineer for acceptance. Contractor shall:
  - a. Identify each submittal by Project name and number along with the Contract title and number. Unidentifiable submittals will be returned for proper identification.
  - b. Check and stamp submittals of Subcontractors, suppliers and manufacturers with his/her approval prior to transmitting them to the Engineer. The Contractor's stamp of approval shall constitute a

- representation to Owner and Engineer that the Contractor has either determined or verified all quantities, dimensions, field construction criteria, materials, catalog numbers and similar data or he assumes full responsibility for doing so, and that he has coordinated each submittal with the requirements of the Work and the Contract Documents.
- c. At the time of each submission, call to the attention of the Engineer in the letter of transmittal any deviations from the requirements of the Contract Documents.
- d. All drawings, catalogs or parts thereof, manufacturer's specifications and data, samples, instructions, written guarantees and other information specified are necessary:
  - i. For Engineer to determine that the equipment and materials conform with the design concept and comply with the intent of the Contract Documents.
  - ii. For the proper erection, installation operation and maintenance of the equipment and materials which the Engineer will review for general content but not for substance.
  - iii. For Engineer to determine what supports, anchorages, structural details, connections and services are required for the equipment and materials, and effects on contiguous or related structures, equipment and materials.
- 3. Data submitted shall be complete with respect to dimensions, design criteria, materials of construction and the like to enable the Engineer to review the information effectively. Where standard drawings are furnished which cover a number of variations of the general class of equipment, each such drawing shall be individually annotated to describe exactly which parts of the drawing apply to the equipment being furnished. Such annotation shall also include proper identification of the submittal permanently attached to the drawing. Reproduction or copies of Contract Drawings or portions thereof will not be accepted as complete fabrication or erection drawings, but will be acceptable when used by the Contractor as a drawing upon which to indicate information on erection or to identify detail drawings.
- 4. Equipment operation and maintenance manuals shall be prepared by the manufacturer with loose-leaf pages mounted in durable covers and shall include the following:
  - a. Index and tabs.
  - b. Instructions for installation, start-up, operation, inspection, maintenance, parts list and recommended spare parts, and data sheets showing model numbers.
  - c. Applicable drawings.
  - d. Address of nearest manufacturer-authorized service facility.
  - e. All additional data specified.
- 5. Engineer will review and return submittals to Contractor with appropriate notations. Instruction books and similar submittals will be reviewed by Engineer for general content but not for substance. The approval for use of a separate item as such will not indicate approval for use of the assembly in which the item functions. The Contractor shall make all modifications noted or indicated by the

Engineer and shall return revised prints, copies or samples until accepted. The Contractor shall direct specific attention in writing, or on revised submittals, to changes other than the modifications called for by the Engineer on previous submittals. After submittals have been accepted, the Contractor shall submit copies thereof for final distribution. Prints of accepted drawings transmitted for final distribution will not be further reviewed and are not to be revised. If errors are discovered during manufacture or fabrication, the submittal shall be corrected and resubmitted for review.

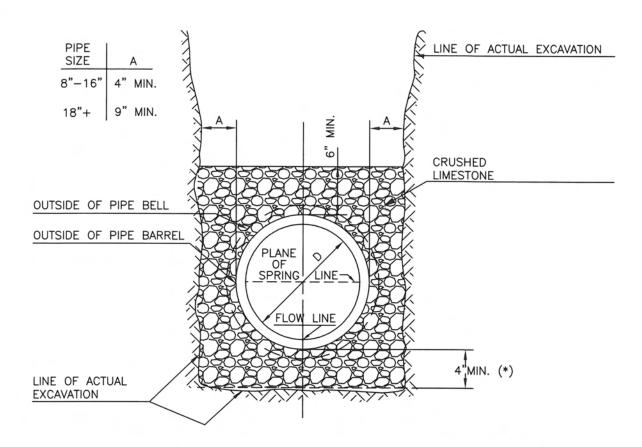
No Work requiring a submittal shall be commenced or shipped until the submittal
has been stamped "Approved" or "Approved as Noted" by the Engineer. A copy
or sample of each submittal shall be kept in good order by the Contractor at the
site.

#### Engineer's Action.

- 1. Except as otherwise specified, all manufacturer's or fabricator's drawings and specifications shall be transmitted as follows:
  - a. Initial submittal 2 hard copies to the Engineer
  - b. Resubmittal 2 hard copies to the Engineer
  - c. Submittal for Final Distribution 4 hard copies and 1 electronic copy to the Engineer, 1 copy retained by the Contractor.
- 2. Engineer's review action stamp, appropriately completed, will appear on all submittals of Contractor when returned by Engineer.
- 3. Engineer's approval of the submittals in no way relieves the Contractor from the responsibility of providing a working system, nor from insuring that all components are compatible with other components of the system.

Method of Measurement. No measurement will be made.

**Basis of payment.** No direct payment will be made for Shop Drawings, Product Data, and Submittals. The work under this item is considered incidental to the Contract.



(\*) WHEN A TRENCH IS CUT THROUGH ROCK, IT SHALL BE EXCAVATED 6" BELOW THE PLANNED PIPE BOTTOM GRADE, AND BEDDED AND INITIALLY BACKFILED WITH NON-ANGULAR GRANULAR BEDDING MATERIAL.

IN HIGHLY ORGANIC OR OPENLY FLOWING SOILS, THIS DEPTH SHALL BE INCREASED AS REQUIRED BY THE CITY.

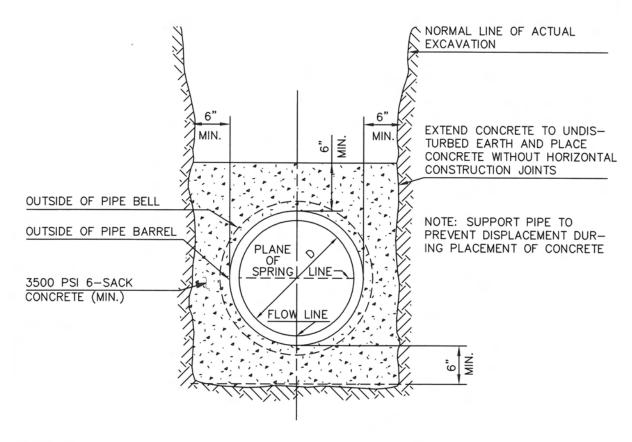
#### NOTES:

- 1. CHECK GRADE OF PIPE AFTER BACKFILL TO INSURE THE DESIRED FLOWLINE HAS NOT CHANGED
- 2. DURING JETTING PROCESS, NOZZLE SHALL NOT BE INSERTED CLOSER THAN TWO FEET FROM TOP OF PIPE.
- 3. ANY TRENCH BRACING USED BELOW THE TOP OF PIPE SHALL BE LEFT IN PLACE.
- 4. FOR INSTALLATIONS IN HIGHLY ORGANIC OR OPENLY FLOWING SOILS, THE ENTIRE PERIMETER OF THE PIPE BEDDING SHALL BE WRAPPED WITH AN APPROVED FILTER FABRIC OR THE "MINIMUM TRENCH WIDTH" SHALL BE EXPANDED BY INCREASING THE DISTANCE BETWEEN THE SIDE OF THE PIPE AND THE LINE OF ACTUAL EXCAVATION OR TRENCH BRACING TO A MINIMUM OF ONE PIPE DIAMETER.



City of Wentzville

Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385 STANDARD PIPE BEDDING FOR SANITARY SEWER Approved: W.E.B. Date: June 10, 2009



#### NOTES:

- 1. CONCRETE ENCASEMENT OF THE SANITARY SEWER IS REQUIRED WHEN:
  - A. THE SANITARY SEWER IS UNDER A STORM SEWER WITH LESS THAN 2 FEET OF VERTICAL SEPARATION. THE ENCASEMENT SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING.
  - B. THERE IS LESS THAN 3 FEET OF COVER OF THE TOP OF PIPE. THE ENCASEMENT SHALL EXTEND FOR THE LENGTH OF THE TRENCH WHERE COVER IS LESS THAN 3 FEET.
  - C. THERE IS INSUFFICIENT SEPARATION FROM THE WATER MAIN AS SHOWN ON SCD 502.02
- 2. WHERE CONCRETE ENCASEMENT IS REQUIRED THE PIPE SHALL BE SUPPORTED AT NO MORE THAN TWO PLACES WITH MASONRY SUPPORTS OR SELECTED HARDWOOD AS APPROVED BY THE CITY OF MINIMUM SIZE SUFFICIENT TO PROVIDE THE REQUIRED CLEARANCE AND TO PREVENT DISPLACEMENT DURING PLACING OF CONCRETE.
- 3. WHEN SANITARY SEWER IS ABOVE A STORM SEWER WITH LESS THAN 2 FEET OF VERTICAL SEPARATION A CONCRETE CRADLE SHALL BE POURED OVER THE STORM SEWER PIPE, FROM THE SPRINGLINE OF THE STORM SEWER UP TO THE FLOWLINE OF THE SANITARY SEWER, FOR THE WIDTH OF THE STORM SEWER TRENCH.

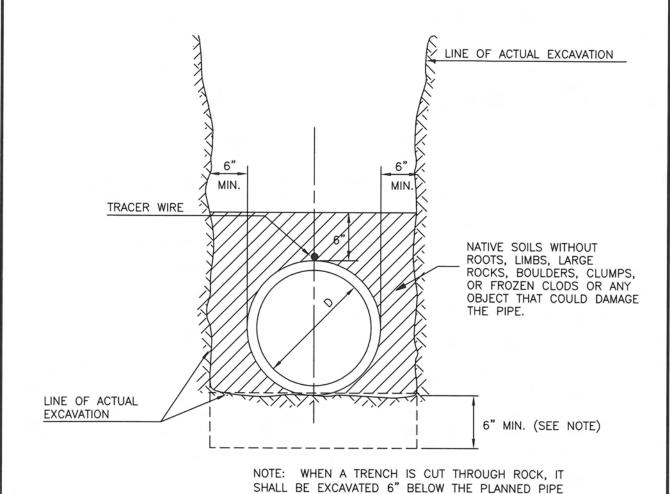


City of Wentzville

Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385

CONCRETE ENCASEMENT

Approved: W.E.B. Date: June 10, 2009





City of Wentzville Public Works Department

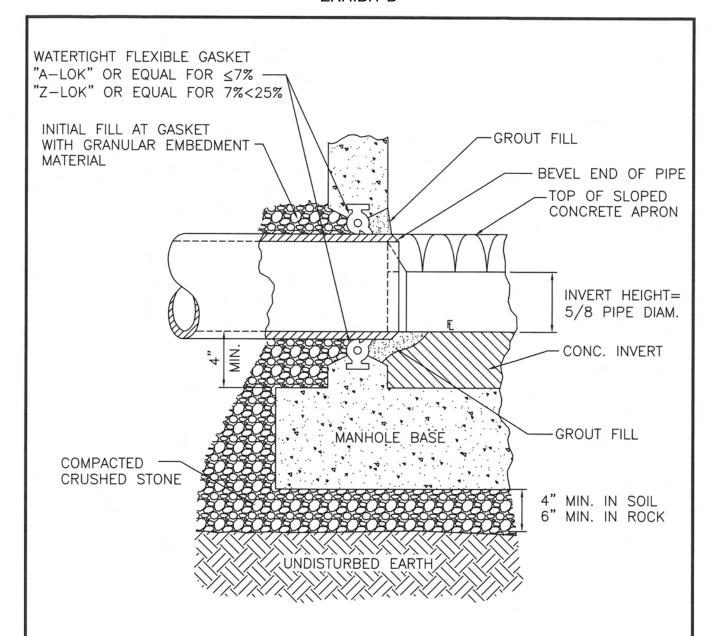
Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385 STANDARD PIPE BEDDING FOR C906 POLYETHYLENE FORCE MAIN PIPE

BOTTOM GRADE, AND BEDDED AND INITIALLY

MATERIAL.

BACKFILLED WITH NON-ANGULAR GRANULAR BEDDING

Approved: W.E.B. Date: June 10, 2009



#### NOTE:

- 1. BITUMINOUS COATING ON EXTERIOR SURFACE OF MANHOLE SHALL NOT COME IN CONTACT WITH PIPE GASKET.
- 2. FOR CAST-IN-PLACE CONCRETE MANHOLES OR PRE-CAST WITH BOX-OUTS, THE PIPE GASKET SHALL BE A RUBBER LABYRINTH WATERSTOP WITH STAINLESS STEEL CLAMPING BANDS LOCATED AT CENTER OF WALL AND THE SPACE BETWEEN PIPE & WALL COMPLETELY GROUTED WITH NONSHRINKING MORTAR.
- 3. PIPE TO BE INSTALLED PAST GASKET SUCH THAT ANNUALAR SPACE AROUND PIPE MAY BE GROUT FILLED.

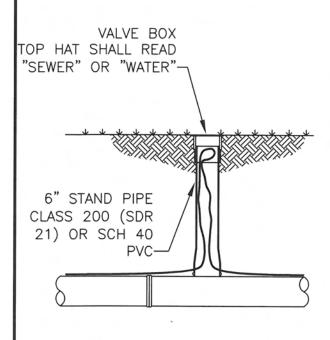


City of Wentzville

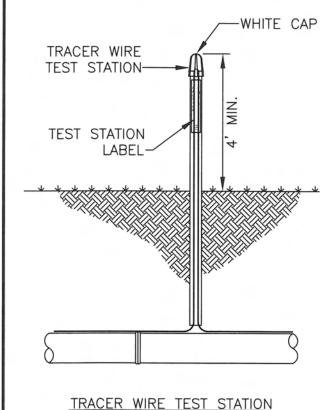
Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385

MANHOLE GASKET

Approved: W.E.B. Date: June 10, 2009



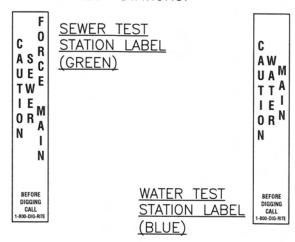
#### TRACER WIRE ACCESS BOX



#### NOTES:

- 1. ALL SPLICING OF TRACER WIRE MUST BE MADE WITH APPROVED 3M WATERPROOF SPLICE KITS.
- 2. TEST STATIONS OR ACCESS BOXES
  SHALL BE PLACED AT THE PC AND PT
  OF ALL RADII, AT ALL BENDS AND
  EVERY 500' ON STRAIGHT RUNS OF
  PIPE. CURVE LENGTHS GREATER THAN
  150 FEET REQUIRE INTERMEDIATE TEST
  STATIONS OR ACCESS BOXES IN
  ADDITION TO THE PC AND PT.
- 3. TRACER WIRE ACCES BOXES SHALL
  BE USED IN IMPROVED AREAS, SUCH
  AS IN THE EASEMENT OR RIGHT-OFWAY OF A RESIDENTIAL DEVELOPEMENT.
  TRACER WIRE TEST STATIONS SHALL
  BE USED IN UNIMPROVED AREAS,
  SUCH AS IN AREAS WITH HEAVY
  BRUSH OR TALL GRASSES.
- 4. TRACER WIRE SHALL BE CONNECTED TO THE TEST STATION AS DIRECTED BY THE MANUFACTURER'S INSTRUCTIONS.
- 5. A MINIMUM OF 3' OF EXCESS TRACER WIRE SHALL BE ROLLED UP AND BE AVAILABLE AT THE TOP OF THE TRACER WIRE ACCESS BOX.

TEST STATIONS SHALL BE CARSONITE SCEPTER TEST STATIONS.

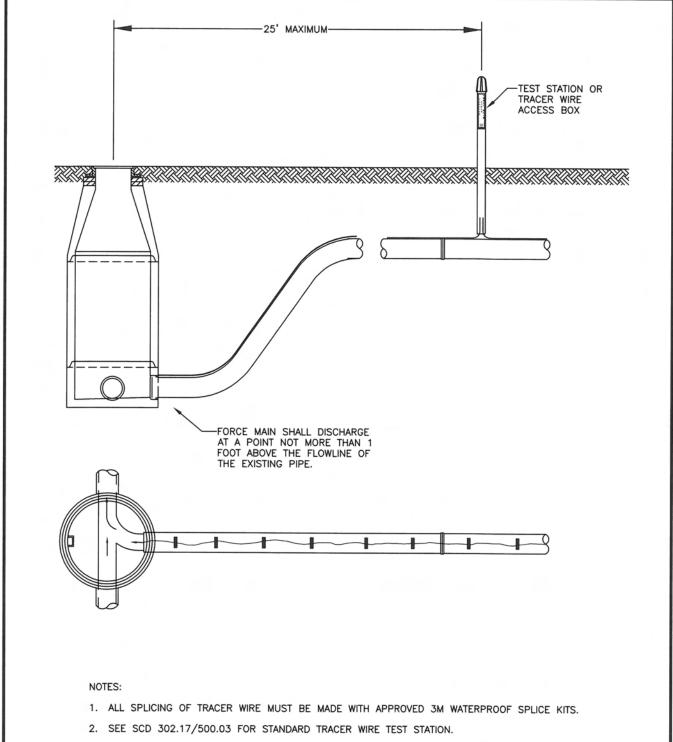




City of Wentzville

Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385 STANDARD TRACER WIRE TEST STATION AND ACCESS BOX Approved: W.E.B. Date: June 10, 2009





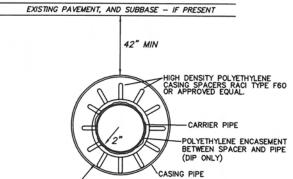
- 3. TRACER WIRE SHALL BE DUCT TAPED TO THE TOP OF THE FORCE MAIN PIPE TO PREVENT MOVEMENT OF THE WIRE DURING BACKFILLING OPERATIONS.
- 4. THE RECEIVING MANHOLE AND THE NEXT TWO (2) DOWNSTREAM MANHOLES, AT A MINIMUM, SHALL BE PROTECTED BY AN EPOXY COATING ON THEIR INTERIOR SURFACES.



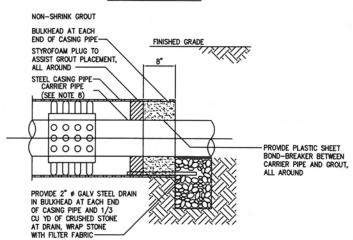
City of Wentzville

Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385 STANDARD FORCE MAIN DISCHARGE AT RECEIVING MANHOLE Approved: W.E.B. Date: June 10, 2009

#### **EXHIBIT D** WIDTH EQUAL TO DEPTH OF BORE PIT (TYP.) PROPOSED PAVEMENT **EXISTING** BORE PIT 20' ROADWAY 10' WIDTH TAP HOLE LENGTH MAY VARY ACCORDING TO LENGTH OF PAVEMENT BORE VARIES 2 MITS OF GRANULAR LIMITS OF BACKFILL GRANULAR BACKFILL SLOPE OF CASING SAME SLOPE AS CASIN CARRIER PIPE 10' MAXIMUM **PROFILE** SPACING חחיחת ממיממ $\mathsf{nnnn}$ nnnn $\mathsf{n}\mathsf{n}\mathsf{n}\mathsf{n}$ nnnn nnn0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 ממממ סטטט UUUU סטטט מסממ סססמ חחחו CARRIER PIPE POLYETHYLENE ENCASEMENT SEE NOTE 8 BELOW BETWEEN SPACER AND PIPE (DIP ONLY) SPACING DETAILS EXISTING PAVEMENT, AND SUBBASE - IF PRESENT



#### SECTION A-A



TYPICAL CASING PIPE PLUG

#### NOTES:

- 1. DO NOT SCALE DRAWING. FOLLOW DIMENSIONS.
- ALL JOINTS IN THE CASING PIPE SHALL BE WELDED AND COLE TAR EPOXY COATED.
- STEEL CASING PIPE USED IN THE INSTALLATION OF WATER OR SEWER MAINS MUST HAVE A MINIMUM YIELD STRENGTH OF 35,000 P.S.I.
- 4. HIGH DENSITY POLYETHYLENE CASING SPACERS SHALL BE RACI TYPE F60 OR APPROVED EQUAL.
- POLYETHYLENE SPACERS SHALL BE PLACED EVERY 10 FEET ALONG THE CARRIER PIPE AND 2 AT EVERY JOINT.
- 6. BORE PIT AND TAP HOLE SHALL BE BACKFILLED WITH GRANULAR BACKFILL.
- STEEL CASING PIPE SHALL HAVE A MINIMUM WALL THICKNESS AS INDICATED ON THE TABLE BELOW.

CASING PIPE	CASING PIPE
DIAMETER	MINIMUM WALL THICKNESS
6" THRU 12"	0.188"
14" THRU 22"	0.250"
24" & 26"	0.281"
28" THRU 34"	0.312"
36" THRU 48"	0.344"

- 8. CARRIER PIPE MATERIAL SHALL BE AS FOLLOWS. FOR WATER MAINS AND SANITARY SEWER FORCE MAINS, THE CARRIER PIPE SHALL BE C906 POLYETHYLENE. FOR SANITARY SEWER GRAVITY MAINS, THE CARRIER PIPE SHALL BE SDR 35 PVC OR DIP.
- SPACERS MAY BE OMITTED FOR C906 CARRIER PIPE, WHEN APPROVED BY ENGINEERING. IF SPACERS NOT USED, CASING PIPE SHALL BE A MIN. 4" DIA LARGER THAN CARRIER PIPE.



City of Wentzville

Public Works Department Engineering Division 200 East Fourth Street Wentzville, MO 63385

TYPICAL BORE DETAIL

Approved: W.E.B. Date: June 10, 2009

304.10 502.10

# EXHIBIT E ROTARY PARK GRINDER LIFT STATION (ENG-2015-037A) SUBMITTAL SCHEDULE

SUBMITTAL	REQUIREMENTS	(FIO) /(EA) <sup>1</sup>	RECEIPT DEADLINE
Shop Drawings	The submittals shall include all materials, equipment, fittings, structures including reinforcement, complete, so as to show conformance with the City of Wentzville Standard Specifications, the Approved Plans for Construction, and Standard Construction Detail's.	EA	30 Days from Notice to Proceed
Superintendent	The name of the person selected as superintendent and his qualifications.	EA	Prior to Mobilization
Sediment and Erosion Control Plan	Contractor shall submit an erosion control plan for the work.	EA	Prior to Mobilization
Quarry Information	The Contractor shall submit contract information for the quarry or quarries that will be supplying the aggregate.	FIO	5 Days prior to Day of Delivery
Material Tickets	The Contractor shall submit to the City original tickets to verify the quantity of each item.	FIO	Day of Delivery
Concrete Mixes	The Contractor and/or material supplier shall provide a copy of all concrete mix designs (standard and high early).	EA	Minimum 48 hours prior to commencing any concrete work.
Pipe Materials	The Contractor shall submit pipe materials prior to delivery to site.	EA	5 Days prior to Day of Delivery
Epoxy Coating	The receiving manhole of the force main shall be protected by an epoxy coating on the interior surfaces. Contractor shall submit epoxy coating.	EA	5 Days prior to Day of Delivery
Pump Warranties	The Pump Manufacturer shall warrant the units being supplied to the Owner against defects in workmanship and material for a period to be determined by the Manufacturer's allowable duration.	FIO	Final Acceptance
Pump O&M Manuals	Prior to final acceptance of the control system, Contractor shall submit complete system manual with operation and maintenance manuals for all equipment provided, control system as-built drawings, and parts list shall be provided.	FIO	Within 30 Days of Final Inspection
Pump and Pipe Testing	Contractor shall submit all pump and pipe testing results as required by the Contract Documents.	FIO	Within 30 Days of Final Inspection

<sup>&</sup>lt;sup>1</sup> FIO – For Information Only; EA – Engineer Approval

# **CONTACT INFORMATION**

OWNER

OWNER: CITY OF WENTZVILLE

REPRESENTATIVE: BILLY ROLL

ADDRESS: 310 WEST PEARCE BLVD

PHONE: 636-332-9236

ARCHITECTURAL/STRUCTURAL

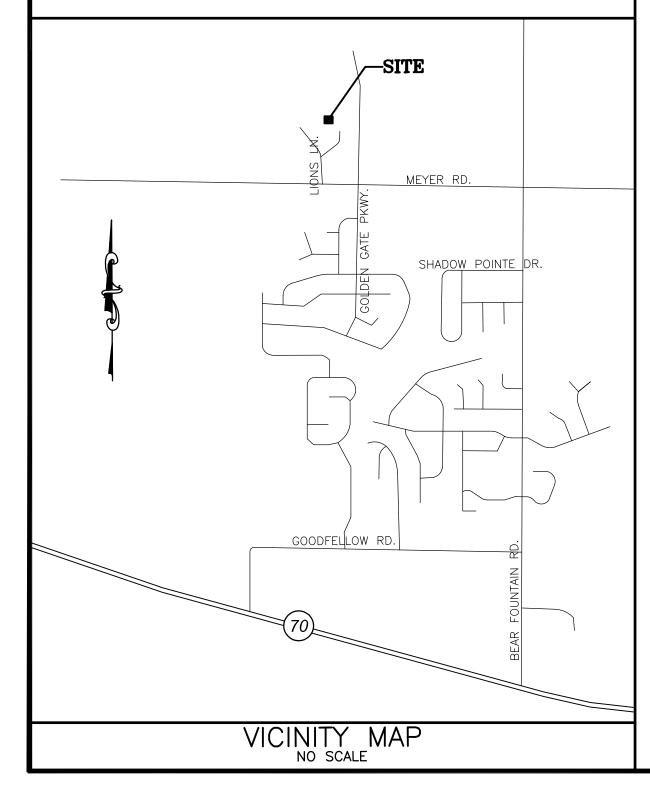


8 E. Main Wentzville, MO 63387 (636) 332-4574 (636) 327-0760 Contact: Joe McGowan

MECHANICAL | ELECTRICAL | PLUMBING

AEDIFICA CASE ENGINEERING

796 Merus CT Fenton, Missouri 63026 (636) 349-1600 Contact: Jim Eyre



# ROTARY PARK RESTROOMS CITY OF WENTZVILLE

Wentzville, Missouri

# DRAWING INDEX

# CIVIL

C1 SITE EXHIBIT

#### ARCHITECTURAL

A1.1 FLOOR PLAN / REFLECTED CEILING PLAN

A1.2 FOUNDATION PLAN

A2.1 EXTERIOR ELEVATIONS / BUILDING SECTIONS

A3.1 INTERIOR ELEVATIONS / SCHEDULES

A4.1 SECTIONS & DETAILS

#### **MECHANICAL**

M1.0 MECHANICAL SPECIFICATIONS

M2.0 MECHANICAL DETAILS

M3.0 MECHANICAL PLAN

# ELECTRICAL

E1.0 ELECTRICAL SYMBOLS & LEGENDS

E2.0 ELECTRICAL SPECIFICATIONS

E3.0 ELECTRICAL PLAN

# PLUMBING

P1.0 PLUJMBING SPECIFICATIONS

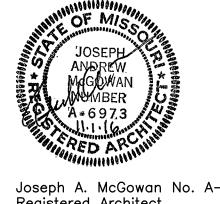
P2.0 PLUMBING PLAN

P3.0 PLUMBING DETAILS



- CIVIL ENGINEERING
- SITE DEVELOPMENT
- LAND SURVEYING
- MASTER PLANNING
- ARCHITECTURE GENERAL CONSULTING

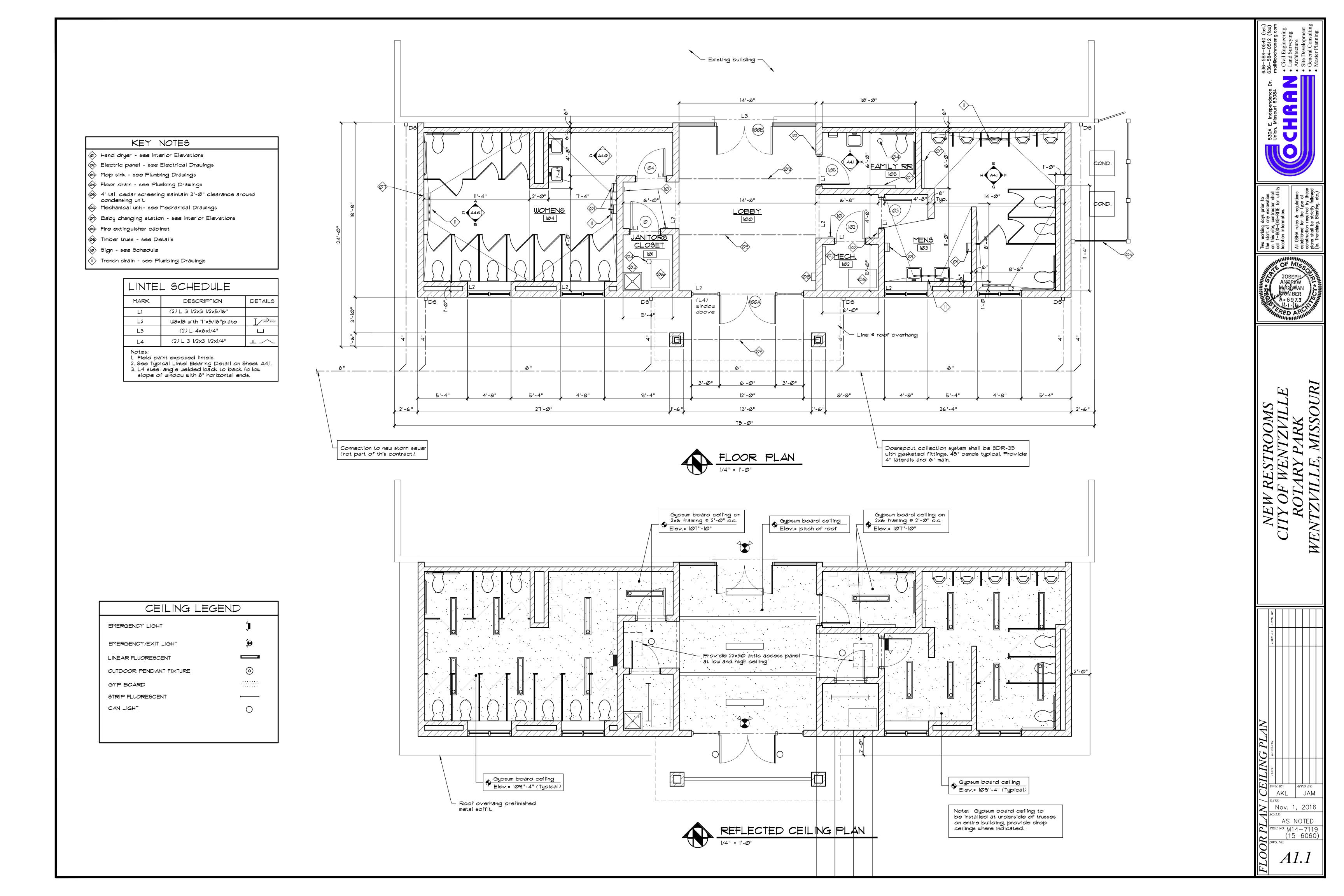
8 E. MAIN, WENTZVILLE, MO 63387 TELEPHONE (636) 584-0540 FAX (636) 584-0512 mail@cochraneng.com

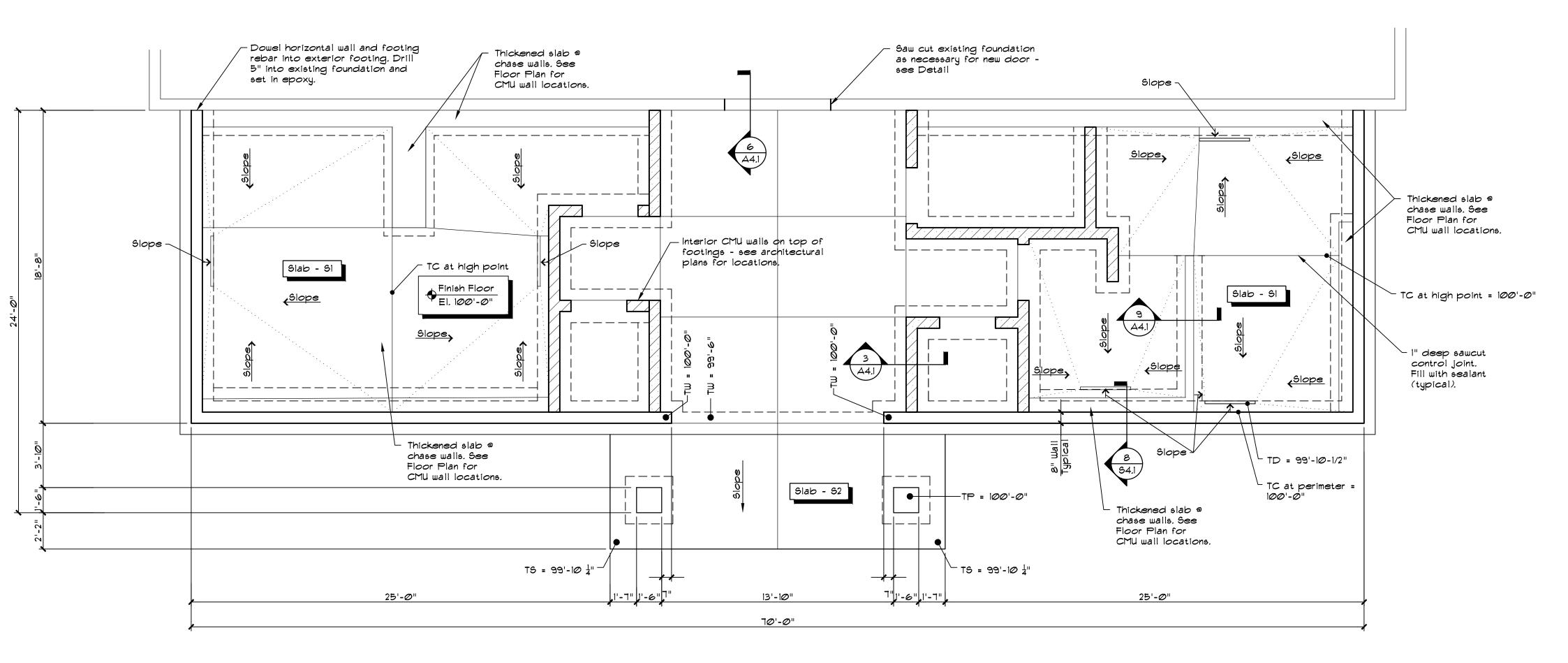


Joseph A. McGowan No. A—6973 Registered Architect State of Missouri Cochran Two working days prior to the start of any excavation on this site, contractor shall call 1-800-DIG-RITE for utility location information.

All OSHA rules & regulations established for the type of construction required by these plans shall be strictly followed (ie. Trenching, Blasting, etc.)

<i>C</i> (	OVEI	DATE: 11/1/16 SCALE:		
DWN. BY:	DATE:	REVISION:	DWN. BY: APP'D. BY: PROJ. NO: M14-7119 (15-6060)	
A			DWG. NO:	
4PP'D. BY:			CS	







# FOUNDATION NOTES

# 1. Floor Construction: See plan.

- 2. Prepare foundation sub-grade and slab-on-grade sub-grade per geotechnical report. The sub-grade to be field verified by a qualified geotechnical engineer prior to setting any foundations or concrete. If there is not a geotechnical report available, all footings are to be set on undisturbed soil or suitable clay material compacted to 95% std. proctor density at optimum moisture content. Soil shall have a net bearing pressure of 2000 psf.
- 3. Finish floor elevation = 100'-0"
- 4. All footings to be centered under walls and/or columns unless noted otherwise.
- 5. Footing sub-grade shall be kept continually dry prior to the placement of concrete.
- 6. All detailing, fabrication and placing of reinforcing bars shall comply with the A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures" latest edition.
- 7. Reinforcing bars shall conform to ASTM A615 specification, Grade 60 (except field bent dowels are Grade 40)
- 8. All concrete shall have a minimum compressive strength in 28 days 4,000 psi. (Concrete for foundation walls, sidewalks, steps, footings, floor slabs and driveways shall be air-entrained.)

# 9. All reinforcement shown is continuous

10. Splices in reinforcing steel shall be 36 bar diameters or 1"-6" minimum, unless noted otherwise.

11. Unless otherwise shown, the concrete cover for reinforcing steel shall be as follows:

Slabe: top and bottom of formed slabe 3/4"
Footings: top 2 1/2"
bottom 3"
walls 1 1/2"

- 12. All vertical rebar which extends above 1/2 of foundation wall height shall be doweled into footing. Bent bar is found in most footing/wall connections.
- 13. Construction joints in concrete shall be in the locations as shown on the drawings, and joints between pours. Key ALL construction joints.
- 14. All construction joints in concrete walls require continuous full reinforcing \$ keyways. Locate wall control joints @ 50' o.c. maximum.
- 15. See Floor Plan for all overhead and man door locations.

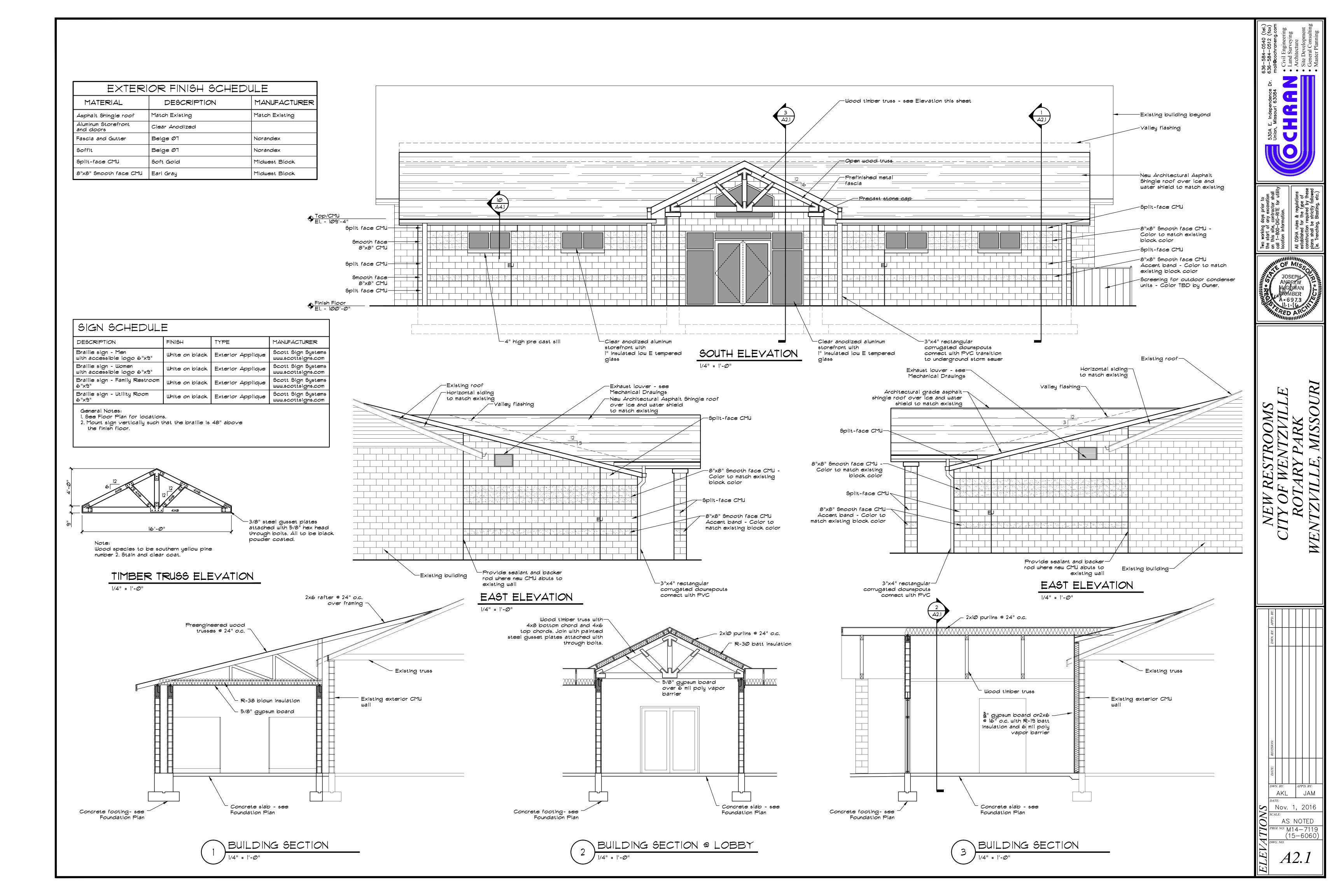
	SLAB SCHEDULE	
IARK	DESCRIPTION	
<b>S</b> 1	4" concrete slab reinforced with 6x6-W2.9xW2.9 WWF <u>OR</u> *4 rebar @ 1'-6" o.c. both ways over 10 mil poly vapor barrier over 4" of compacted 1" minus granular base. Smooth steel trowel finish. Cure and seal with VOCOMP-25 as manufactured	

by W.R. Meadows. Apply per manufacturers written instructions.

4" concrete slab reinforced with 6x6-W2.9xW2.9 WWF <u>OR</u> *4 rebar @ 1'-6" o.c. both ways over 4" of compacted 1" minus granular base. Light broom finish. Apply curing compound only ber manufacturers written instructions.
granular base. Light broom finish. Apply curing compound on per manufacturers written instructions.

Note: Foundation contractor shall coordinate all sleeve locations with the plumbing and Electrical Drawings, Typical.
---

	LEGEND	
TF P TL EJ	Top of Wall Top of Footing Top of Pier Top of Ledge Expansion Joint Control Joint	



#### ROOM FINISH SCHEDULE ROOM NO. WALLS CEILING NORTH EAST WEST SOUTH MAT'L HEIGHT FLOOR ROOM NAME REMARKS 100 LOBBY P2 GB Varies CONC CONC 101 GB 9'-6" JANITORS CLOSET CONC 102 GB 9'-6" MECHANICAL 103 CONC GB 9'-6" MENS RESTROOM PI PI CONC 104 WOMENS RESTROOM GB 9'-6"

ROOM FINISH SCHEDULE NOTES: See Paint Schedule this sheet.

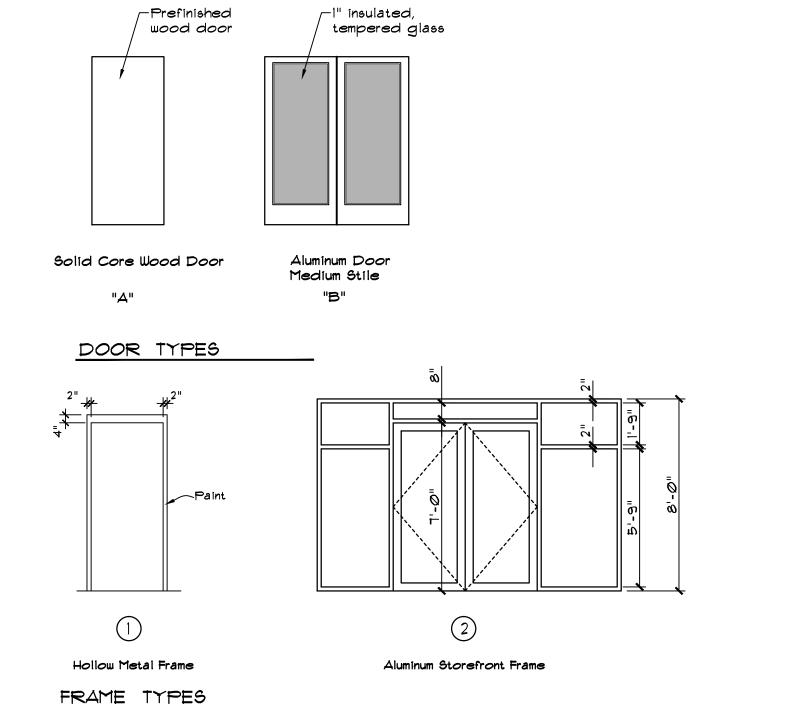
ABBREVIATION LEGEND

CONC Concrete GB Gypsum Board P Paint

0.	DESCRIPTION	MANUF.	CATALOG NO.	MATERIAL	FINISH	REMARKS
<u> </u>	Mirror - Made to order					Attach with vandal - proof anchors
<b>2</b>	Toilet Paper Dispenser	Bobrick	B-2892			Surface mount
<u> </u>	Grab Bar, 1 1/2" × 36"	Bobrick	B-6806×36	stainless steel	satin	36" mounting height
4	Grab Bar, 1 1/2" × 42"	Bobrick	B-6806×42	stainless steel	satin	36" mounting height
<b>(5)</b>	Urinal Screen	Scranton	-	solid HDPE	orange peel	Wall mounted, support post to floor
<b>6</b>	Plumbing fixture - See PLUMB	ING DRAWING			••	
<u>⟨Ŷ</u>	Handicapped Accessible Plum	bing Fixture	- See PLUMBIN	G DRAWINGS		
<b>8</b>	Toilet Partition	Scranton	-	solid HDPE	orange peel	color to be selected by Owner
9	Sanitary Napkin Disposal	Bobrick	B-27Ø	stainless steel	satin	
<b>(</b>	Hand Dryer	World Dryer	L-974	White Enamel	White	
<u></u>	Foam Soap Dispenser	U-line	H-3476	Plastic	White	
12	Baby Changing Station	U-line	H-1669	Plastic	white	
<b>(3</b> )	Vertical Grab bar, 1 1/2" x 18"	Bobrick	B-6806x18	stainless steel	satin	40" mounting height

- 1. Provide solid blocking where toilet partitions, grab bars, dispensers, lavatories, etc., are mounted to walls.
- 2. Soap \$ paper towel dispensers shall be mounted such that access point is located 44" above the finish floor.
- 3. Owner shall provide soap dispensers, paper towel dispensers, and trash receptacles.

DO	DOOR SCHEDULE							
Door Number	Door Type	Door Size	HDWE. Group		UL Rating	Notes:		
100A	В	3'-0" x 1'-0" x 1 3/4" (paír)	Δl	2	-			
100B	А	3'-0" x 1'-0" x 1 3/4" (paír)	3	1	-			
101	Д	3'-Ø" x 1'-Ø" x 1 3/4"	2	1	-			
1Ø2	Д	3'-Ø" x 1'-Ø" x 1 3/4"	2	1	-			
103	Д	3'-Ø" x 1'-Ø" x 1 3/4"	1	1	-			
1004	А	3'-Ø" x T'-Ø" x 1 3/4"	1	1	-			
105	А	3'-Ø" × T'-Ø" × 1 3/4"	4	1	-			



# HARDWARE SCHEDULE

#### <u>Group 1</u> Manufacturer 3 Butt hinges 5-PB-1-HW-4.5x4.5-652 1 Push plate 8200-6-US32D-4x16 lves Pull plate 8303-10-US32D-4x16-G ives Closer 4011×MC×TBWMS LCN Wall stop W5401CVX-US26D l∨es Dead bolt B661P Schlage Weatherstripping 332CR Pemko Door sweep 315CN Pemko 2 Kick plates Rockwood

# Group 2

3 Butt hinges 5-PB-1-HW-4.5x4.5-630 Storeroom lock ND80PDxATHx626 Schlage Wall stop W5401CCY-US26D ives

# Group 3

6 1 1 1 2 2	Butt hinges 5-PB-1-HW-4.5x4.5-652 NRP Automatic opener Magic Force LE pair Electrified panic EL3347A-TL-L-TRIM US26D Electrified panic EL3347A-EO US26D Power supply PS914-2RS-4RL Power transfer EPTIO	lves Stanley Von Duprin Von Duprin Von Duprin Von Duprin
2 2	Wall stop W6407CCV x 652 Pull BF158 U626D	ives Rockwood
1	Mortise cylinder 80-302 US26D	Schlage
1	Wireless push plates IØPBSI  Door bottom seal	BEA Mfr. Sta
1	Set weatherstripping	Mfr. Std

#### <u>Group 4</u>

Butt hinges 5-BB-1-HW-4.5x4.5-652	lves
Privacy set ND405 x ATH x 626	Schlage
Closer 1461 x DS1 x US26D x thru-bolt	LCN
Seal PK22BL	Pemko
Door sweep 315CN	Pemko
Wall stop ₩S4Ø7CCV x 652	lves

NOTES: 1. All hardware to be lever type, handicap accessible.

- 2. All hardware shall be heavy-duty.
- 3. Coordinate keying with the owner.
- 4. See Specifications for additional requirements.

# ALUMINUM ENTRANCE DOOR

2 1 1 1 1 2	Pieces continuous hinge 780-224HD-ano alum Automatic opener Magic Force LE pair Electrified panic EL9947WDC-TL-L-TRIM US26D Electrified panic EL9947WDC-EO US26D Power supply PS914-2RS-4RL Power transfer EPTIO	Roton  Yon Duprin  Yon Duprin  Yon Duprin  Yon Duprin  Yon Duprin
2	Wall stop W6407CCV x 652	lves

<u>Manufacturer</u>

Rockwood

Schlage BEA

Mfr. Std

Mfr. Std

Mfr. Std

Wall stop WS4@7CCV x 652 Pull BF158 US26D

Mortise cylinder 80-302 US26D Wireless push plates IOPBSI Set weatherstripping Door bottom seal Thermally broken accessible threshold

<u>Group Al</u>

- All hardware shall be lever type, handicap accessible.
   Locksets with keys shall be keyed as directed by the Owner. The hardware supplier shall coordinate keying with the Owner.

  3. See Specifications for additional requirements and acceptable alternate
- manufacturer's. 4. All hardware shall be heavy duty.

#### INTERIOR FINISH SCHEDULE

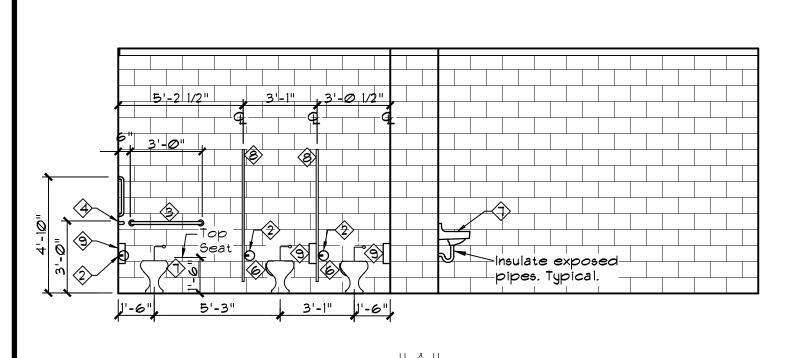
<del>[</del> ]	BATHROOMS PAINT COLOR SHERWIN WILLIAMS FINISH: SEMI-GLOSS COLOR: BISCUIT 6112
₽2	LOBBY PAINT WALL COLOR SHERWIN WILLIAMS FINISH: EGGSHELL COLOR: COMFORT GRAY 6205
<del>P</del> 3	LOBBY CEILING

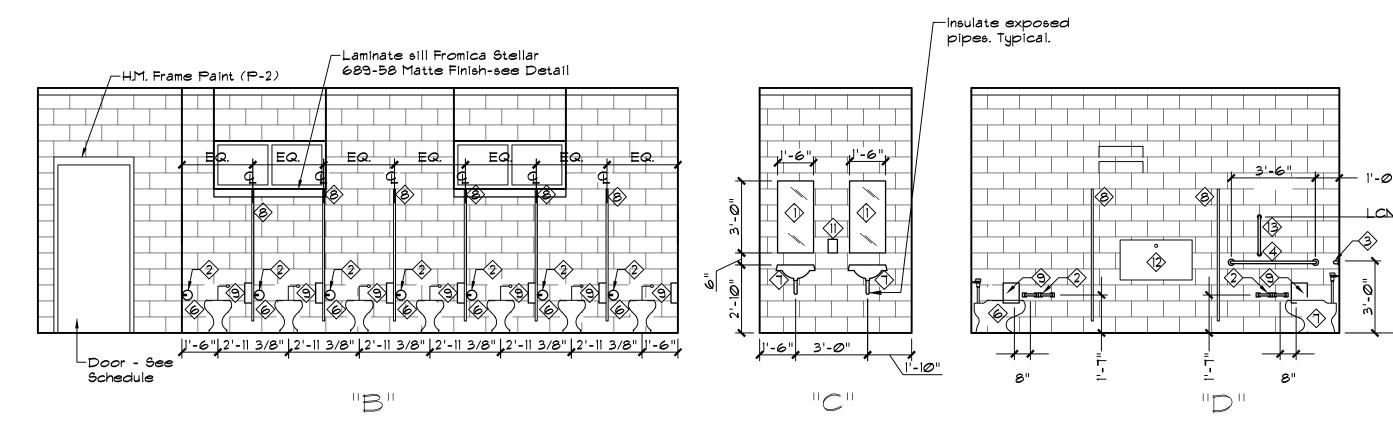
SHERWIN WILLIAMS

COLOR: INTERACTIVE CREAM 6113 P4 BATHROOM CEILING SHERWIN WILLIAMS FINISH: FLAT

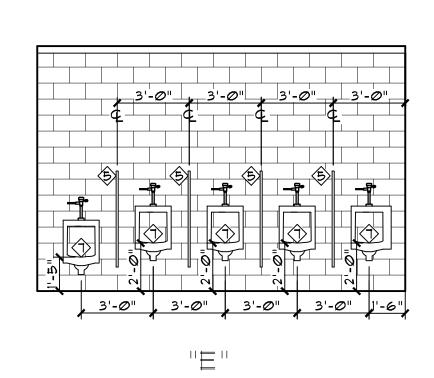
COLOR: CEILING WHITE TOILET PARTITIONS GLOBAL BLACK CONFETTI 9217

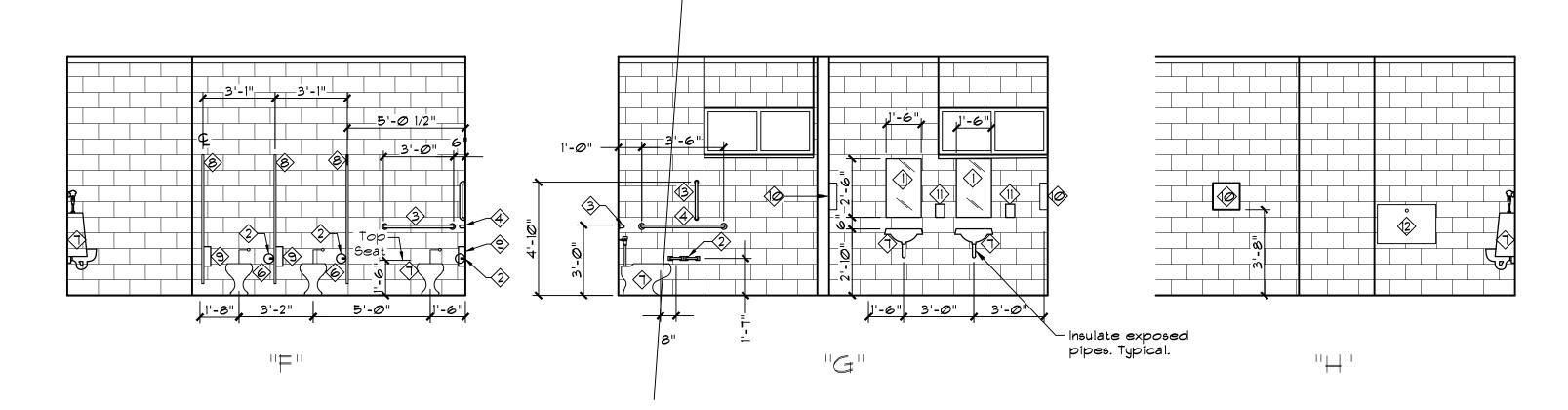
NOTE: ALL COLORS AND PATTERNS TO BE FIELD-VERIFIED WITH OWNER

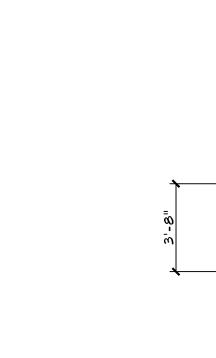




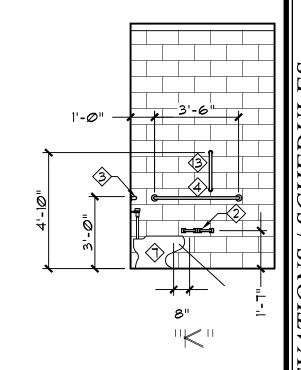
ELEVATIONS - WOMENS RESTROOM







3'-6"



ELEVATIONS - FAMILY RESTROOM

|| j ||

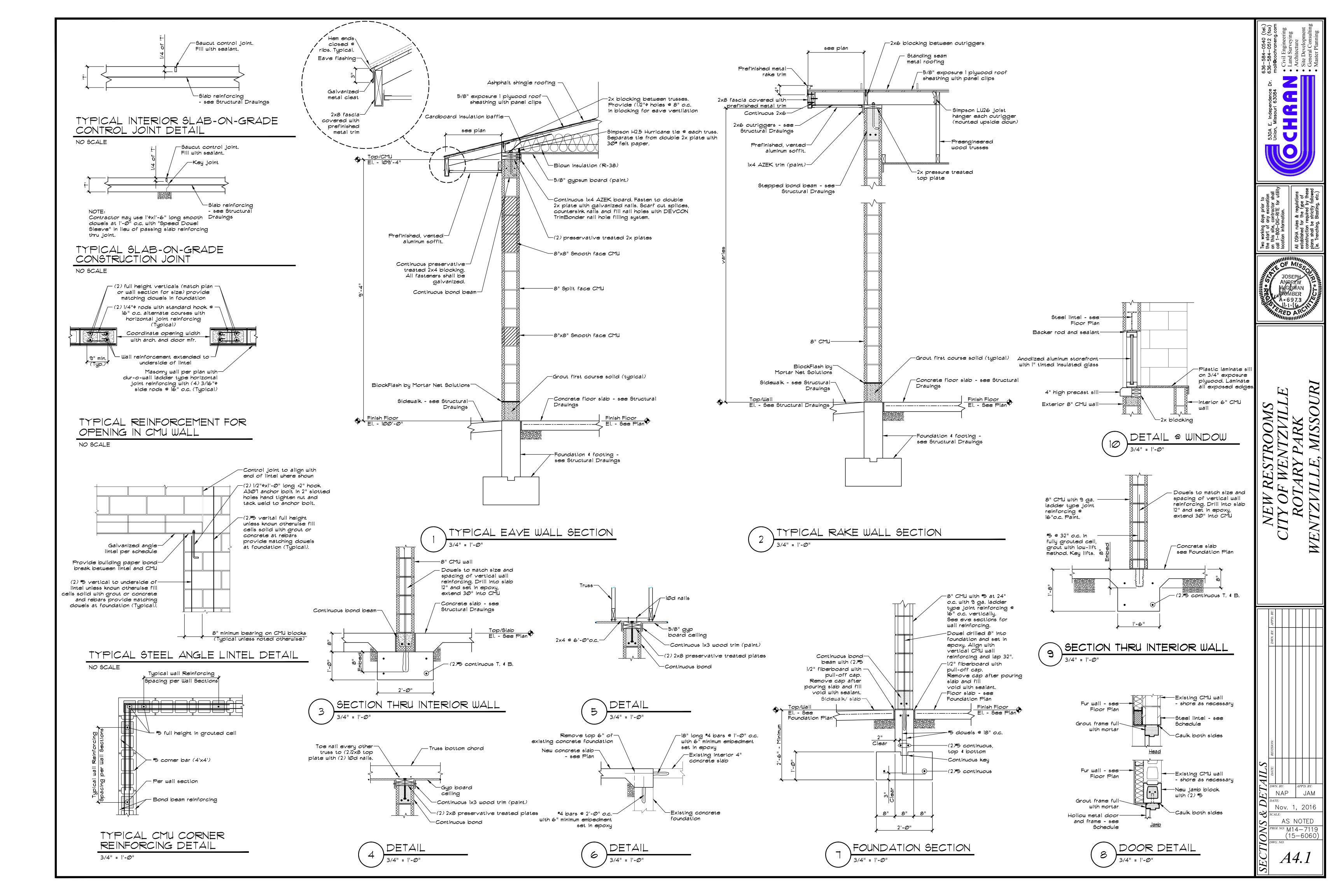
PROJ. NO: M14-7115 (15-6060)

ELEVATIONS - MENS RESTROOM

NAP Nov. 1, 2016

AS NOTED

A3.1



# ELECTRICAL SYMBOL LEGEND Not all devices will apply to this project.

LIGHT FIXTURES

1' X 4', SUSPENDED FLUORESCENT FIXTURE

4' WALL MOUNTED FLUORESCENT FIXTURE

4' FLUORESCENT STRIP FIXTURE W/BOX

PENDANT MOUNTED LIGHT FIXTURE

EXIT FIXTURE, WITH EMERGENCY HEADS

EMERGENCY BATTERY PACK, TWIN HEAD

WALL MOUNTED LIGHT FIXTURE

RECESSED DOWNLIGHT

EXIT FIXTURE

REMOTE HEAD

FIXTURE ON NIGHT LIGHT CIRCUIT (on 24 hours)

#### OUTLETS 120V SINGLE RECEPTACLE 120V DUPLEX RECEPTACLE WP = WEATHERPROOF GFI =GROUND FAULT INTERRUPTER EWC =ELECTRIC WATER COOLER CLG =FLUSH CEILING MTD (MT +12"AFF U.N.O.) ISOLATED GROUND RECEPTACLE 1' X 4', FLUORESCENT TROFFER RECEPTACLE MTD ABOVE COUNTERTOP

SWITCHED RECEPTACLE DOUBLE DUPLEX RECEPTACLE SPECIAL PURPOSE OUTLET AS NOTED

JUNCTION OR PULLBOX ESD DUCT DETECTOR

F<sub>SD</sub> SMOKE DUCT DETECTOR

CEILING MOUNTED OCCUPANCY SENSOR POWER PACK WITH SELF CONTAINED

ELECTRIC MOTOR CONNECTION

PHOTOCELL MOUNTED ON ROOF, AIM NORTH

SWITCHES

SINGLE POLE SWITCH 2 = 2 - POLE

3 = 3 - WAY

4 = 4 - WAY

D = DIMMER

P =PILOT LIGHT M =MANUAL STARTER L =LOW VOLTAGE K =KEYSWITCH

MD=OCCUPANCY SENSOR

EXISTING SINGLE PHASE

TRANSFORMER

EC SHALL FURNISH & INSTALL WEATHERHEADS &

CONDUIT MASTS PER UTILITY CO REQM'TS -

NEW 240V, 800AMP, NEMA

3R CT/METER

CABINET PER

UTILITY CO REQM'TS

EC SHALL FURNISH & INSTALL GROUNDING-

SYSTEM PER NEC 250.50 AND UTILITY CO

TO ELECTRODE WITH #3/0 BARE CU GROUND

CONDUCTOR.

ELECTRODE INSTALL GROUNDING ELECTRODE

REQM'TS. CONNECT SERVICE ENTRANCE GROUND LUG

TRANSFORMER SINGLE POLE 20 AMP

# POWER DISTRIBUTION

☐ DISCONNECT SWITCH AS INDICATED ☑ COMBINATION MOTOR STARTER PANELBOARD; SURFACE MOUNTED PANELBOARD; RECESSED MOUNTED DISTRIBUTION PANEL

TELEPHONE TERMINAL BOARD GROUNDING CONNECTION AS INDICATED CURRENT TRANSFORMERS

WEATHERHEAD FOR SERVICE LATERALS

RACEWAYS and CIRCUITRY

→ HOME RUN CIRCUIT

— | 1-HOT, 1-NEUTRAL 

> FOUR 100AMP FEEDS TO POLES A,B,C & SB/SW

> > PNL E

MCB

2

TO EXISTING

REMOTE PANEL

2

NEW 240V, 2-POLE, 800AMP, NEMA 3R SERVICE

ENTRANCE

DISCONNECT

— III 3-HOT, 1-NEUTRAL, 1-GROUND

——— 1-HOT

————— 2-HOT

————— 3-HOT

———— 1—NEUTRAL

1-GROUND

# GENERAL ABBREVIATIONS

UNLESS NOTED OTHERWISE ABOVE FINISHED FLOOR ABOVE FINISHED GRADE **ELECTRICAL CONTRACTOR** GROUND CONDUCTOR PHASE CONDUCTOR NEUTRAL CONDUCTOR TRANSFORMER SWITCHBOARD PANELBOARD HORSEPOWER

# **DESIGNATIONS**

CIRCUIT BREAKER ROOFTOP HVAC UNIT AIR HANDLING UNIT ELECTRIC DUCT HEATER MAKE-UP AIR UNIT CONDENSING UNIT

# INDICATORS

REVISION NOTE KEYNOTE

120/240 VOLT, 1ø, 3W, 800 AMPERE MAIN BUS & NEUTRAL										
PANEL MP										
SW NO.	CB SIZE	POLES	FEEDS	KVA						
1	400	2	WIREWAY FOR PANELS (A,B,C & DK)	73.4						
2	200	2	NEL 'E' 5							
3	400	2	PANEL 'G'	75.1						
4	200	2	REMOTE PANEL	3.0						
	TOTAL	CON	INECTED LOAD	157.3						
	656 AMPS									

_	N	EW	PAN	NEL BOARD 'G'					SURFAC	E M	OUN.	TED
	<u>12</u>	0/2	<u>40</u> VC	OLTS <u>1</u> PHASE <u>3</u>	WIRE	400_/	AMP. BUS		10,000	A.I.C	. RA	TED
11	_	400	_ AM	P. MAIN LUGS ONLY				FED	FROM _		<u>ISB</u>	
	CKT. NO.	TRIP AMPS	NO. POLE	LOAD SERVED	LOAD- Aø	V. A. Bø	ι	LOAD SERVE	D	NO. POLE	TRIP AMPS	CKT. NO.
	1	60		CONDENCINO UNIT OU 1	(4030) 600	>	CANOPY LOI FAMILY RES	BBY, UTILITY RM TROOM LIGHTS	M AND & FAN	1	20	2
	3	60	2	CONDENSING UNIT CU-1	<	(4030) 1260	GENERAL RE			1	20	4
11	5	60	2	CONDENSING UNIT CU-2	(4030) 920	>	MEN'S REST	ROOM LIGHTS	& FAN	1	20	6
11	7	00	2	CONDENSING UNIT CO-2		(4030) 920	WOMEN'S R	ESTROOM LIGHT	S & FAN	1 1	20	8
$\  \ $	9	60	2	AIR HANDLING UNIT AHU-1	4800 1100		AUTOMATIC	DOOR OPERATO	R	1	20	10
	11	80	2	HEATER CIRCUIT #1		4800 1100	AUTOMATIC	DOOR OPERATO	ıR	1	20	12
-	13	50	2	AIR HANDLING UNIT AHU-1	4800 1440	>	RESTROOM	HAND DRYER		1	20	14
	15	30		HEATER CIRCUIT #2		4800 1440	RESTROOM	HAND DRYER		1	20	16
	17	25	2	AIR HANDLING UNIT AHU-1	2400 1440	>	RESTROOM	HAND DRYER		1	20	18
	19	25	2	HEATER CIRCUIT #3		2400 1440	RESTROOM	HAND DRYER		1	20	20
	21	60		AIR HANDLING UNIT AHU-2	4800	>	SPARE			1	20	22
	23	60	2	HEATER CIRCUIT #3		4800	SPARE			1	20	24
	25	50		AIR HANDLING UNIT AHU-2	4800	>	SPARE			1	20	26
	27	50	2	HEATER CIRCUIT #2		4800	SPARE			1	20	28
	29	٥٢		AIR HANDLING UNIT AHU-2	2400 1200	>		10 111T #4 54				30
	31	25	2	HEATER CIRCUIT #3	(	2400 1200	AIR HANDLIN	NG UNIT #1 FA	N	2	20	32
	33			DUOT 1154T5D DU 4	2500 1200	>						34
	35	30	2	DUCT HEATER DH-1	1200	2500 1200	AIR HANDLIN	NG UNIT #2 FA	N	2	20	36
	37			DUOT HEATED SHIPS	2500	> 200	00.07					38
	39	30	2	DUCT HEATER DH-2		2500	SPARE			2	40	40
	41	_	_	SPACE		<b>\</b>	SPACE			<b> </b>	_	42
					36900	37560				1	1	1

LOAD DESCRIPTION	DEMAND FACTOR	VOLT -	AMPS	
	D.F.	CONNECTED	DEMAND	
LIGHTING	1.25	2440	3050	
RECEPTACLES	N.E.C.	1260	1260	
MOTORS	N.E.C.			
MISC. EQUIPMENT	1.00	7960	7960	
KITCHEN EQUIPMENT	0.65			
*HVAC EQUIPMENT	1.00	62800	62800	
	TOTAL —	74460	75070	

PANELBOARD LOAD = 75070 V.A. FULL LOAD AMPS = 312.8 A.

LO PROVIDE LOCK-ON DEVICE TS CIRCUIT VIA TIMESWITCH CL VIA TRACK CURRENT LIMITER (SEE LIGHT FIXTURE SCHEDULE)

**KEYED NOTES** 

BACKFEED EXISTING WIREWAY FROM NEW MSB. SPLICE NEW CONDUCTORS TO EXISTING (FIELD VERIFY SIZE) IN THE EXISTING WIREWAY. DO NOT ENERGIZE FROM NEW POWER SOURCE UNTIL EXISTING SERVICE ENTRANCE IS DE-ENERGIZED.

2 EXISTING ELECTRIC PANEL TO REMAIN.

3 SEE PANEL SCHEDULES FOR EQUIPMENT RATINGS AND CIRCUIT DIRECTORY.

4 BACKFEED EXISTING PANEL FROM NEW MSB. INSTALL 3#3/0, 1#6 GND, 2" CONDUIT. DO NOT ENERGIZE FROM NEW POWER SOURCE UNTIL EXISTING SERVICE ENTRANCE IS DE-ENERGIZED.

ELECTRIC ROOM

NEW MSB

120/240V 1ø, 800A

MLO

# **GENERAL NOTES**

ALL COMPONENTS OF THE NEW SERVICE SHALL BE INSTALLED AND READY TO ENERGIZE PRIOR TO REMOVAL OF ANY COMPONENT OF THE EXISTING ELECTRIC SERVICE. ALL EXISTING ELECTRIC PANELS SHALL REMAIN IN SERVICE DURING CONSTRUCTION.

#### ELECTRICAL DRAWING LIST

E1.0 ELECTRICAL SYMBOLS & LEGENDS E2.0 ELECTRICAL SPECIFICATIONS

E3.0 ELECTRICAL PLAN COORDINATE SCHEDULING OF THE SERVICE ENTRANCE WORK WITH CITY OF WENTZVILLE. DENOTES DEMOLITION STORAGE ROOM RESTROOM ADDITION 3#500MCM 1#3GND-3"C PNL DK NEW PNL G 120/240V 120/240V 1ø, 200A 1ø, 400A MLO 2 3

1 ELECTRICAL RISER DIAGRAM E1.0 SCALE: NONE

PNL B | PNL C

120/240V

1ø, 200A

MCB

2

-2 SETS OF (3)#500MCM,

(1)#2/0GND,3-1/2"C EACH

120/240V

1ø, 200A

MCB

1ø, 200A



NOV 01, 2016

AS NOTED

15-6060

#### A. BASIC REQUIREMENTS

#### 1. WORK INCLUDED

FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, SERVICES AND SKILLED SUPERVISION NECESSARY FOR THE CONSTRUCTION, ERECTION, INSTALLATION, CONNECTIONS, TESTING AND ADJUSTMENT OF ALL EQUIPMENT SPECIFIED HEREINAFTER, OR SHOWN OR NOTED ON THE DRAWINGS, AND ITS DELIVERY TO THE OWNER COMPLETE IN ALL RESPECTS AND READY FOR USE. PROVIDE ALL MINOR INCIDENTAL ITEMS REQUIRED AS PART OF THE WORK EVEN THOUGH NOT SPECIFIED OR SHOWN.

#### 2. COORDINATION OF WORK:

PLAN AND COORDINATE ALL WORK SO THAT IT PROCEEDS WITH A MINIMUM OF INTERFERENCE WITH OTHER TRADES. CONFLICTS ARISING FROM LACK OF COORDINATION SHALL BE THIS CONTRACTOR'S RESPONSIBILITY. PROVIDE ALL SPECIAL FRAMES, SLEEVES AND ANCHOR BOLTS AS REQUIRED. COORDINATE THE ELECTRICAL WORK WITH THE MECHANICAL INSTALLATION.

#### 3. EQUIPMENT AND FIXTURES:

EQUIPMENT AND FIXTURES SHALL BE CONNECTED PROVIDING CIRCUIT CONTINUITY IN ACCORDANCE WITH APPLICABLE CODES, WHETHER OR NOT EACH PIECE OF CONDUCTOR, CONDUIT, OR PROTECTIVE DEVICE IS SHOWM BETWEEN SUCH ITEMS OF EQUIPMENT OR FIXTURES, AND THE POINT OF CIRCUIT ORGIN.

ONLY NEW AND UNDAMAGED PRODUCTS SHALL BE UTILIZED FOR PERMANENT CONSTRUCTION.

#### 4. APPLICABLE DOCUMENTS:

DESIGN, MANUFACTURE, TESTING AND METHOD OF INSTALLATION OF ALL APPARATUS AND MATERIALS FURNISHED UNDER THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL CONFORM TO THE LATEST AND/OR APPLICABLE PUBLICATIONS OR STANDARD RULES OF THE FOLLOWING:

NATIONAL ELECTRICAL CODE - NEC
INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - IEEE
NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION - NEMA
UNDERWRITERS' LABORATORIES, INC.
NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION - OSHA
AMERICAN STANDARDS INSTITUTE, INC. - ANSI
NATIONAL ELECTRICAL SAFETY CODE - NESC
INSULATED POWER CABLE ENGINEERS ASSOCIATION - IPCEA
ELECTRICAL INSTITUTE ASSOCIATION - EIA
AMERICANS WITH DISABILITIES ACT - ADA
BOCA - NATIONAL BUILDING CODE
BOCA - SEISMIC REQUIREMENTS

PROVIDE THE DESIGN, FABRICATION, AND ERECTION OF SUPPLEMENTARY STRUCTURAL FRAMING REQUIRED FOR ATTACHMENT OF HANGERS OR OTHER DEVICES SUPPORTING ELECTRICAL EQUIPMENT. PROVIDE MEMBERS WELDED TO STRUCTURAL MEMBERS EQUAL TO THE SPECIFICATION FOR THE MAIN STRUCTURAL MEMBER. PROVIDE "SIMPLE BEAM" TYPE FRAMING WITH END CONNECTIONS WELDED OR BOLTED FOR SHEAR LOADS. USE CANTILEVERS ONLY WHEN SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. THE ENGINEER'S APPROVAL IS ALSO REQUIRED FOR LOCATION OF SUPPLEMENTARY FRAMING. WHEN SUPPLEMENTARY FRAMING IS REQUIRED, DESIGN-FRAMING MEMBERS FOR THEIR ACTUAL LOADS, WITH ALLOWABLE STRESSES SPECIFIED BY AISC. VERIFY THAT DIMENSIONS ARE SUITABLE FOR THE EQUIPMENT FURNISHED. PROVIDE ADDITIONAL STRENGTH WHEN EQUIPMENT FURNISHED IS HEAVIER THAN THAT SPECIFIED.

# 5. FEES AND PERMITS

ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY FEES ASSOCIATED WITH THIS INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING INSPECTIONS WITH THE APPROPRIATE BUILDING OFFICIALS.

# 6. SUBMITTAL DATA

INFORMATION ON ALL MATERIALS, EQUIPMENT AND APPURTENANCES TO BE FURNISHED UNDER THIS CONTRACT SHALL BE SUBMITTED AND APPROVED PRIOR TO RELEASE FOR FABRICATION AND/OR SHIPMENT TO THE JOBSITE. ALLOW 14 DAYS AFTER RECEIPT FOR RETURN. SUBMIT TEN COMPLETE COPIES. SIX COPIES WILL BE RETURNED.
SUBMITTAL DATA SHALL INCLUDE MANUFACTURERS LITERATURE AND DATA SHEETS SHOWING.

SUBMITTAL DATA SHALL INCLUDE MANUFACTURERS LITERATURE AND DATA SHEETS SHOWING QUANTITY, MODEL NUMBERS, DIMENSIONS, WEIGHTS, CAPACITIES, MATERIALS AND COMPLETE PERFORMANCE INFORMATION SHALL BE PROVIDED.

CONTRADCTOR SHALL SUBMIT TO THE ELECTRICAL CONSTRUCTION MANAGER FOUR COPIES OF DESCRIPTIVE LITERATURE COVERING INSTALLATION, MAINTENANCE AND OPERATION DATA AND PARTS LIST FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT.

# J. PROTECTION AND CLEANING

EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION BY THE INSTALLING CONTRACTOR. EQUIPMENT OR MATERIALS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT NO COST TO THE OWNER. INSTALLING CONTRACTOR SHALL ASSUME CUSTODY AND CONTROL OF OWNER FURNISHED EQUIPMENT ONCE IT ARRIVES AT THE JOBSITE.

AT THE COMPLETION OF THE INSTALLATION, THIS CONTRACTOR SHALL CLEAN ALL EQUIPMENT AND SHALL REMOVE ALL RUBBISH, CRATING, DEVICES, MATERIALS OR ANY OTHER DEBRIS OCCASIONED BY THIS INSTALLATION.

# 8. OUTLET LOCATION

POSITION OF OUTLETS: CENTER ALL OUTLETS WITH REGARD TO PANELING FURRING AND TRIM. SYMMETRICALLY ARRANGE OUTLETS IN THE ROOM. SATISFACTORILY CORRECT OUTLETS IMPROPERLY LOCATED OR INSTALLED. MOUNTED HEIGHTS ARE TO BE TO THE CENTER OF BOX ABOVE FINISH FLOOR.

# 9. SPECIAL CONSIDERATIONS:

WHEN CUTTING AND PIERCING IS REQUIRED, OBTAIN WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER BEFORE CUTTING OR PIERCING STRUCTURAL MEMBERS. SLEEVES SHALL BE GALVANIZED SHEET METAL, GALVANIZED RIGID STEEL CONDUIT OR PLASTIC SLEEVES, PROPERLY SIZED TO ACCOMMODATE THE RACEWAY. ALL SLEEVES MUST BE SEALED AND MADE TO A FIRE RATED PROTECTION STANDARD AFTER CONDUIT OR CABLES HAVE BEEN INSTALLED. SEAL EQUIPMENT OR COMPONENTS EXPOSED TO THE WEATHER AND MAKE WATERTIGHT AND INSECT-PROOF.

#### 10. ALTERATIONS:

VERIFICATION OF EXISTING CONDITIONS PRIOR TO ORDERING OR FABRICATING MATERIALS AND EQUIPMENT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

THE OWNER INTENDS TO MAKE CONTINUED USE OF EXISTING FACILITIES. UTILITIES AND SERVICES TO EXISTING FACILITIES SHALL NOT BE INTERRUPTED WITHOUT THE OWNER'S APPROVAL AS TO THE TIME AND DURATION. THE OWNER WILL CONTINUE TO OCCUPY THE EXISTING FACILITIES THROUGHOUT THE CONSTRUCTION OPERATIONS. ELECTRICAL CONTRACTOR SHALL SO ORGANIZE HIS WORK AS TO CAUSE A MINIMUM OF INTERFERENCE WITH THE NORMAL ROUTINE ACTIVITIES OF THE FACILITIES. ALL INTERRUPTION SHALL BE SCHEDULED AT THE CONVENIENCE OF THE OWNER.

ALL CONCEALED CONDUIT FOR CIRCUITS, WHICH ARE PARTIALLY OR COMPLETELY ABANDONED, MAY REMAIN IN PLACE. EXPOSED CONDUIT FOR ABANDONED CIRCUITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.

WIRING FOR EXISTING CIRCUITS WHICH MUST BE RE-ROUTED. OR WHICH ARE PARTIALLY ABANDONED, SHALL BE RECONNECTED TO SERVE THE REMAINING OUTLETS ON THE CIRCUIT.

THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER AND SHALL TURN OVER TO THE OWNER ALL REMOVED ELECTRICAL EQUIPMENT THAT THE OWNER DESIGNATES. ALL OTHER EQUIPMENT THAT IS REMOVED SHALL BECOME THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL BE REMOVED FROM THE JOB SITE.

#### 11. IDENTIFICATION OF EQUIPMENT

NAMEPLATES / IDENTIFICATION SHALL BE PROVIDED FOR ALL SAFETY SWITCHES, AND INDIVIDUAL MOTOR CONTROL EQUIP. THE NAMEPLATE SHALL INCLUDE THE EQUIPMENT NAME/NUMBER, VOLTAGE, AMPERES AND THE FEEDER OR THE EQUIPMENT THAT IT FEEDS. ALL EXISTING PANELBOARDS MODIFIED UNDER THIS CONTRACT SHALL INCLUDE NEW TYPED DIRECTORIES WITH ALL EXISTING AND NEW LOADS VERIFIED AND IDENTIFIED. PROVIDE SHOP DRAWINGS AND SUBMITTALS INCLUDING SYSTEM-WIRING DIAGRAMS. PARTIAL OR STANDARD WIRING DIAGRAMS WILL NOT BE ACCEPTABLE. THE WIRING DIAGRAMS SHALL BE FOR THE COMPLETE INSTALLED SYSTEM.

PROVIDE "DYMO TAPE" IDENTIFICATION FOR ALL EQUIPMENT NOT COVERED ABOVE, WHICH SHALL INCLUDE: DISCONNECT SWITCHES, MOTOR STARTERS, CONTROL PANELS, ETC.

ALL PANEL DIRECTORY CARDS SHALL BE TYPED AND INDICATE AREA AND DEVICES SERVED BY THE RENOVATION. PROVIDE NEW DIRECTORIES IN ALL EXISTING PANELS AFFECTED.

#### 12. EQUIPMENT, CONNECTIONS, STARTERS, AND CONTROLS

THE EC SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING AND MATERIAL REQUIRED TO PROVIDE CIRCUIT AND DISCONNECTING MEANS FOR ALL EQUIPMENT. HE SHALL INSTALL AND SET ALL BELT-DRIVEN MOTORS AND ALL STARTERS AND CONTROL DEVICES AS FURNISHED WITH, AND AS A PART OF THE EQUIPMENT FURNISHED BY OTHERS. EC SHALL ASSIST IN EQUIPMENT UNLOADING AND HANDLING AS ESTABLISHED BY LOCAL LABOR CUSTOM AND PROCEDURES.

THE EC SHALL PROVIDE FYNR MAGNETIC AND/OR COMBINATION STARTERS AS INDICATED. STARTERS SHALL BE PROVIDED WITH START-STOP, HOA, PILOT LIGHT, AUXILIARY CONTACTS AND CONTROL TRANSFORMER.

ALL CONNECTION AND WIRING REQUIRED FOR INTERLOCK AND/OR TEMPERATURE CONTROL WILL BE BY THE MECHANICAL SUBCONTRACTOR.

# 13. GROUNDING SYSTEM

FURNISH AND INSTALL A GROUNDING SYSTEM INCLUDING ALL FITTINGS, CLAMPS, CONDUIT AND WIRE OF THE PROPER SIZE TO MAKE GROUND CONNECTIONS BETWEEN ALL APPARATUS, CONDUITS, ETC. AS REQUIRED BY THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ACCORDING TO THE REQUIREMENTS OF THE UTILITY COMPANY AND LOCAL AUTHORITIES.

# 13. LIGHTING FIXTURE INSTALLATION

FURNISH AND INSTALL LIGHT FIXTURES OF TYPES AND QUANTITIES SHOWN ON THE PLANS. FINAL FIXTURE SELECTION AND COLORS TO BE DETERMINED BY OWNER.

THE EC SHALL PROVIDE ALL MOUNTING HARDWARE, FITTINGS AND ACCESSORIES REQUIRED. DO NOT DEPEND ON CEILING GRID FOR SUPPORT OF FIXTURES.

REMOVE, RETAIN AND RE-INSTALL, WHERE APPLICABLE ANY FIXTURES REQUIRED TO BE TEMPORARILY REMOVED TO COMPLETE DEMOLITION AND CONSTRUCTION WORK. EC SHALL SERVICE/TEST EXISTING BATTERY LIGHTING UNITS AND EXIT LIGHT FIXTURES AFFECTED BY THIS WORK.

UPON COMPLETION OF JOB, ALL FIXTURES SHALL BE LAMPED AND LEFT IN FIRST-CLASS CONDITION AND COMPLETELY CLEANED OF ALL PLASTER, PAINT AND SMUDGES.

#### B. BASIC MATERIALS AND METHODS

#### 1. RACEWAYS, FITTINGS AND BOXES

CONDUITS RUN ABOVE CEILINGS, IN WALLS OR EXPOSED SHALL BE ELECTRICAL METALLIC TUBING WITH STEEL SET SCREW FITTINGS. TYPE AC AND /OR MC CABLE MAY BE USED FOR LIGHTING AND RECEPTACLE CIRCUITS, AS PERMITTED BY CODE. HOME RUNS TO PANELS SHALL BE EMT.

CONDUITS IN DIRECT CONTACT WITH EARTH OR BELOW VAPOR BARRIER SHALL BE HEAVY WALL GALVANIZED STEEL OR SCHEDULE 40PVC.

PROVIDE HEAVY WALL GALVANIZED STEEL ELBOWS FOR PVC CONDUIT SERVING PANELS AND EQUIPMENT.

PROVIDE GROUND WIRE, PER NEC IN ALL PYC CONDUIT.

OUTLET BOXES FOR ALL INTERIOR OUTLETS SHALL BE STANDARD, GALVANIZED PRESSED STEEL WITH SUITABLE FRAMES TO SERVE PURPOSE INDICATED AND TO FIT SPACE ALLOTTED.

ALL OUTDOOR LIGHTS, SWITCHES AND OUTLETS SHALL BE PROVIDED WITH APPROVED WEATHERPROOF OUTLET BOXES.

FURNISH AND INSTALL JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED FOR THE PROPER INSTALLATION OF THE SYSTEMS.

WHERE FLUSH COVER PLATES ARE REQUIRED, THEY SHALL BE PAINTED TO MATCH ADJACENT WALL OR CEILING FINISHES.

ALL JUNCTION BOXES, OTHER THAN FOR POWER OR LIGHTING SHALL BE IDENTIFIED AS TO THEIR USAGE ON THE INSIDE OF THE COVER PLATE.

#### 2. CONDUCTORS/CABLE ASSEMBLIES

UNLESS OTHERWISE SPECIFICED, PROVIDE SOLID COPPER CONDUCTORS TYPE THUN (15C WET OR DRY) OR THHN (90C DRY ONLY) FOR ALL CONDUCTORS NO. 10 AWG AND SMALLER.

UNLESS OTHERWISE SPECIFIED, PROVIDE STRANDED COPPER CONDUCTORS THYPE THW, THWN, XHHW (75C WET OR DRY), THHN OR XHHW (90C DRY ONLY) FOR ALL CONDUCTORS NO. 10 AWG AND LARGER.

CABLE ASSEMBLIES SUCH AS TYPE AC, MAC ETC., AS PERMITTED BY CODE, ARE ACCEPTABLE

COLOR- CODE ALL CONDUCTOR INSULATION WITH THE STANDARD COLORS, OR TAPE AT EACH TERMINATION AND JUNCTION BOX. EACH VOLTAGE, PHASE, NEUTRAL AND GROUND SHALL BE IDENTIFIED WITH A SEPARATE COLOR AND SHALL BE USED CONSISTENTLY THROUGHOUT.

NO SPLICING OR JOINTS WILL BE PERMITTED IN EITHER FEEDER OR BRANCH CIRCUITS EXCEPT AT OUTLET AR ACCESSIBLE JUNCTION BOXES. UTILIZE COMPRESSION TYPE SOLDER LESS CONNECTORS, SIMILAR TO THOMAS AND BETTS TYPE 545 WITH 3M, 8400 SERIES SPLICE KITS AND COLD SHRINK CONNECTORS WHEN MAKING SPLICES OR TAPS IN CONDUCTORS NO. 8 AWG OR LARGER.

UTILIZE PREINGULATED CONNECTORS 3M COMPANY "SCOTCHLOK" OR IDEAL INDUSTRIES, INC. "SUPER NUT", FOR SPLICES AND TAPS IN CONDUCTORS NO. 10AWG AND SMALLER. ALL OTHER TWIST-ON CONNECTORS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALSO, UTILIZE THIS TYPE OF CONNECTOR FOR FACTORY-MADE SPLICES IN FIXTURES AND EQUIPMENT.

# 3. SAFETY SWITCHES

ACCEPTABLE MANUFACTURERS ARE SIEMENS, G.E., SQUARE D, WESTINGHOUSE OR APPROVED EQUAL.

SAFETY SWITCHES SHALL BE HEAVY DUTY, SIZE AND TYPE AND AS REQUIRED FOR THE PURPOSE INTENDED. PROVIDE MINIMUM NEMA 3R CONSTRUCTION FOR SWITCHES LOCATED OUTDOORS.

# 4. WIRING DEVICES AND PLATES

ALL SWITCHES AND RECEPTACLES SHALL BE 20A COMMERCIAL GRADE.
DEVICES SHALL BE STANDARD COLORS AS APPROVED BY THE ARCHITECT.
PLATES SHALL MATCH DEVICE COLOR AND BE HIGH IMPACT, THERMOPLASTIC FOR ALL FLUSH MOUNTED DEVICES.

# 5. SHOP DRAWINGS

ELECTRICAL CONTRACTOR SHALL SUBMIT FOR APPROVAL± TEN COPIES EACH OF DESCRIPTIVE LITERATURE FOR ALL PANELS, LIGHTING FIXTURES, ELECTRICAL EQUIPMENT, BOXES, CONDUITS, CABLES, CONDUCTORS, DEVICES, ETC. PRIOR TO INSTALLATION. ALL ELECTRICAL WORK INSTALLED PRIOR TO APPROVAL AND DEEMED UNACCEPTABLE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

# 6. OPERATION AND MAINTENANCE MANUALS:

BEFORE FINAL APPROVAL OF THE ELECTRICAL INSTALLATION, SUBMIT FOUR (4) COPIES OF DESCRIPTIVE LITERATURE, MAINTENANCE, RECOMMENDATIONS FROM THE EQUIPMENT MANUFACTURER, DATE OF INITIAL OPERATION, WIRING DIAGRAMS AND PARTS LIST OF EACH ITEM OF ELECTRICAL EQUIPMENT INSTALLED UNDER THIS CONTRACT.

# T. WARRANTIES

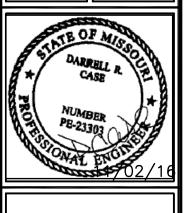
THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP SUPPLIED BY HIM TO BE FREE OF DEFECT FOR THE PERIOD OF ONE YEAR AFTER THE ACCEPTANCE DATE OF WORK, AND SHALL BE REQUIRED TO REPLACE OR MAKE ADJUSTMENTS FOR ANY DEFECTS DUE TO FAULTY MATERIAL OR POOR WORKMANSHIP. ALL GUARANTEES AND WARRANTIES PROVIDED BY MANUFACTURERS OR OTHERS FOR LONGER PERIODS SHALL BE IDENTIFIED AND PASSED THROUGH TO THE OWNER. A COMPLETE LIST OF ALL WARRANTIES SHALL BE SUBMITTED WITH CONTRACT NAMES, AND ADDRESSES AND PHONE NUMBERS PRIOR TO PROJECT COMPLETION.





Two working days prior to the start of any excavation on this site, contractor shall call 1–800–DIG–RITE for utility location information.

All OSHA rules & regulations established for the type of construction required by these plans shall be strictly followed (ie. Trenching, Blasting, etc.)



NEW RESTROOMS CITY OF WENTZVILLE ROTARY, PARK WENTZVILLE, MISSOURI

TRICAL SPECIFICATIONS

DATE: REVISION:

DATE: APPLICATION BY: APPLICATION BY:

DWN. BY: APP'D. BY:

DATE:

NOV 01, 2016

SCALE:

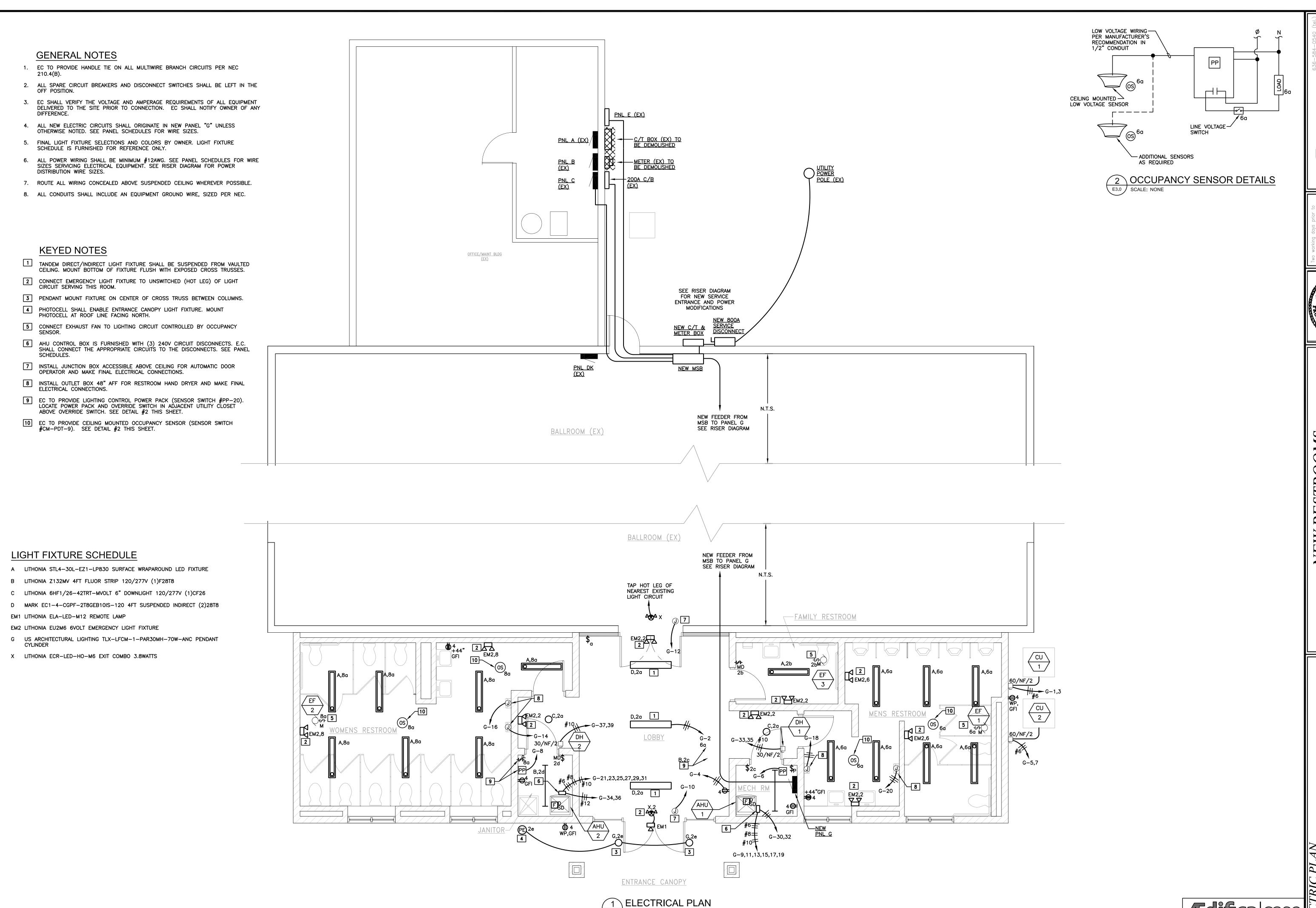
AS NOTED

PROJ. NO:

15-6060

DWG. NO:

E2.0



E3.0 | SCALE: 1/4" = 1'-0"

DATE:
NOV 01, 2016
SCALE:
AS NOTED
PROJ. NO:
15-6060
DWG. NO:

E3.0

T 636. 349.160 F 636. 349.173

Ædifica Case Engineering

796 Merus Court F 636. 349.17 St. Louis, MO 63026 CERTIFICATE OF AUTHORITY NO. E-2000155319-D

# **DIVISION 15000 MECHANICAL**

#### SECTION 15100 - GENERAL CONDITIONS

#### GENERAL

- a) The "Architectural General Conditions" and "Supplementary General Conditions" govern work under
- b) Before submitting a proposal, this contractor shall visit the site of the work and shall carefully examine the drawings and specifications. It is expressly understood that this proposal is based on the above requirements and that it covers everything necessary to do and complete the work.

#### 2. INSPECTION AND COOPERATION

- a) No deviation from the drawings and/or specifications will be allowed without prior written approval of the Owner's representative. This contractor shall cooperate with the other contractors to allow
- for the installation of their work as well as his own. b) This contractor shall be responsible for his work fitting in place without conflict with the other trades, where proper planning could avoid interference.

#### 3. <u>CODES AND PERMITS</u>

- a) Nothing in the drawings and/or specifications shall be interpreted to conflict with any City or State law, regulation, code, ordinance, ruling, or Fire Underwriter's requirement applicable to this class
- b) Should the drawings and/or specifications conflict with such laws or ordinances, the conflicting portion of the work shall be installed strictly in accordance with such laws and ordinances
- c) This contractor shall secure and pay for all necessary permits and inspections required for this

#### 4. ACCURACY OF DATA

- a) The information given herein and on the drawings is as exact as could be secured, but its extreme accuracy is not guaranteed. This contractor shall examine the locations and verify all measurements, distances, elevations and existing pipe sizes before starting the work. b) This contractor shall provide all necessary offsets, raised and drops in piping and ductwork as required by building conditions at no additional cost to the Owner.
- c) Mechanical drawings shall not be used for general construction dimensions or for type of material used. For exact building layout, dimensions and building material used, this contractor shall refer to the Architectural Drawings.

#### 5. SHOP DRAWINGS

- a) Eight (8) copies of all shop or installation drawings, foundation plans, equipment or apparatus drawings shall be furnished by this contractor. These drawings shall be clearly marked indicating which items are to be supplied and shall state capacities, sizes and general description of all equipment. Any changes from the specified items shall be noted on the submittals. b) Shop drawings of special apparatus or equipment which is to be fabricated individually for this project and is not described by standard manufacturer's drawings or bulletins shall be submitted for processing before fabrication.
- c) These drawings shall be submitted in a timely manner. d) It shall be this contractors responsibility to maintain liaison with all parties concerned with the material submitted. This contractor shall not purchase any equipment until shop drawings have been processed.
- e) This contractor shall submit no drawings without notation of each copy indicating date of contractor's review and signature of check for contractor together with contractor's name and project identification.
- f) Engineer's processing will not constitute a complete check but will indicate only that general method of construction and detailing is satisfactory.
- q) Engineer's processing will not relieve the contractor of responsibility for errors since this contractor is solely responsible for dimensions and designs of adequate connections, details and satisfactory construction of all work, as well as furnishing materials and workmanship required by drawings and specifications which may not be indicated on the submittals when approved.

#### 6. SUBSTITUTIONS OF EQUIPMENT OR MATERIAL

- a) The brand names of equipment or materials specified herein shall establish quality, capacity, type and dimensions to be included in the base bid.
- b) Approval of substituted items will be based on ability and capacity to perform function served, quality and availability of parts and service, quality of equipment, delivery schedule, etc. The Engineer shall review all such requests but reserves the sole right of judgement to approve or reject the proposed substitutions.
- c) Acceptance or rejection of proposed substitutions shall not cause additional cost to the Owner. Any changes of piping, ductwork, electrical controls or installation required because of the substitution or equipment shall be paid for by this contractor proposing the substitution.
- d) Any and all costs associated with a substitution, to this contractor or any other contractor, shall be this contractors sole responsibility and shall not increase any costs to the owner.

# 7. ERECTION OF APPARATUS

- a) All work shall be done under the personal supervision of this contractor who shall provide a competent foreman to lay out all work. All work shall be laid out with due regard for the space equirements of the other contractors. This contractor shall report any conflicts or difficulties in regard to the installation immediately.
- b) Where crowded locations exist or where there is a possibility of conflict between trades, this contractor shall make composite drawings showing the exact locations of pipes, duct, conduit and equipment. Drawings shall be based on field measurements and after consultation and agreement between the trades, shall be approved by the Owner's representative before installation of the
- c) Equipment of a type to require replacement, servicing, adjusting or maintenance shall be located to allow easy access and space for removal of internal assemblies, if required.

# 8. EXCAVATION AND BACKFILL

- a) This contractor shall do all excavation required to install pipes and equipment shown on the plans or required for proper operation. Excess excavation below the required level shall be backfilled with earth and thoroughly tamped. Utilities services, sewer and drain lines shall be inspected and approved by the proper inspection authority before backfilling.
- b) The bottom of trenches shall be tamped hard and graded to secure the required fall. Rock, where encountered shall be excavated to a depth of six inches (6") below the bottom of the pipe, and before the pipe is laid, the space between bottom pipe and rock surface shall be filled with gravel. If trenches are deeper than bottom of flooring or closer than three feet (3'-0") to footing they must be filled with cohesive soil and compacted to 95% of maximum density, standard proctor, ASTM D-698. All other excavations under floor slabs compacted to 95% standard
- c) When excess dirt has been removed, the trench shall be brought to the required level with sand and gravel firmly compacted.
- d) Trenches and excavation shall be backfilled in 6" layers of earth, free from clods, and stones thoroughly tamped to a depth of 12" above the pipe. After that depth has been reached, backfilling shall be done in 12" layers, thoroughly tamped.

# 9. EQUIPMENT SUPPORTS

a) Any structural steel members required to adapt the equipment and piping as furnished by this contractor, to the building steel or structure, shall be included in the bid of the contractor furnishing the equipment or piping. Hanging of all equipment and required supporting steel and bracing shall be furnished by the contractor who supplies the equipment.

# 10. ROOF MOUNTED EQUIPMENT

a) This contractor shall furnish and install curbs for all roof mounted equipment and roof penetrations. Curbs shall be a minimum of 8" above roof surface and shall be set so that roofing contractor can mop units into the roofing system.

# 11. CUTTING AND PATCHING

- a) This contractor shall include all cutting, patching and painting of patched areas required for and resulting from the installation of all of this contractor's work, except where noted otherwise. b) All openings around duct or pipe penetrations through smoke or fire-rated floors, ceilings or walls
- shall be sealed airtight with material having a rating equal to the material of the wall, ceiling c) All patching shall be neatly finished to the satisfaction of the Architect.

# 12. ACCESS PANELS

- a) This contractor shall locate and furnish for installation by the General Contractor, all access panels as required for access to valves, dampers and the proper servicing of equipment and lines installed under the contract
- b) All panels shall be Milcor, Style "M" for masonry, "A" for acoustical tile and "K" for plaster; except for fire-rated UL 1 1/2 hour and "B" label access panels shall be furnished in fire-rated walls and ceilings as indicated on the drawings.
- c) Access doors shall be 12" x 12" minimum size for valves and shall be 24" x 36" for access to equipment and filters.

#### 13. DIELECTRIC UNIONS

a) For the prevention of electrolytic corrosion at connections between pipe of dissimilar metals or between pipe and equipment connections of dissimilar metals, provide dielectric unions or flanges.

#### 13. MOTORS, STARTERS AND DISCONNECTS

a) Unless specified to be furnished with equipment, all motor starters and disconnect switches shall be furnished and installed by the electrical contractor.

#### 14. JOINTS AND FITTINGS

- a) Threads on screwed pipe shall be standard, clean butt and tapered. Pipe shall be reamed of burrs and kept clean of scale, dirt and shavings. Threads shall be made with flaked graphite and lubricating oil or approved pipe compound on the male thread only.
- b) Copper-to-steel and copper-to-brass joints shall be made with silver solder. All other copper-to-copper joints above ground shall be made with lead free solder. Copper pipe shall be cut square, burrs removed and care shall be given to keep the lines free of dirt and moisture. All tubing and fittings shall be thoroughly cleaned. c) Welded pipe shall have butt welded single "V" type joints for which pipe has been beveled to 45 degrees. Weld shall be one-fourth greater thickness than the pipe. Connections to
- equipment, accessories, etc. shall be made by means of flanges and/or adapters. d) Unions shall be provided at each screwed valve and unions or flanges at each equipment

#### 15. EXPANSION JOINTS

- a) Furnish and install Flexonics expansion joints in piping system where shown or necessary
- for expansion and contraction. b) Expansion joints in pipe 4" and greater shall be the packless type with stainless steel bellows and have welded or flanged end. Joints shall have traverse as indicated on the

e) ProPress connections (crimping) or similar products are not permitted.

plans. Expansion joints shall be of the controlled flexing type.

internal auides and anti-torque devices.

- c) Expansion joints in copper pipe under 4" in size shall be of the compensator type constructed of two-ply stainless steel bellows and carbon steel shrouds and end fittings, internal guides and anti-torque devices.
- d) Expansion joints in steel pipe under 4" in size shall be of the compensator type constructed of two-ply stainless steel bellows and carbon steel shrouds and end fittings,
- e) Provide guides on each side of expansion joint, at 4 pipe diameters, 14 pipe diameters, and a third guide as recommended by the manufacturer.

#### 16. PIPE FLEXIBLE CONNECTIONS

- a) Flexible pipe connections shall be Resistoflex #R6904 or approved equal flexible connections made from Teflon.
- b) Provide for movement in piping by use of swing joints at connection of all branches to mains and risers. All branches from mains and risers shall have 1/4" clearance between pipe insulation and sleeve to permit pipe movement.

#### 17. VALVES

- a) This contractor shall furnish and install all valves of one manufacturer, figure number and type throughout the entire installation of the work, unless otherwise specified. The following numbers are from the Crane catalog. Equal valves of reputable manufacturers, such as Hammond, Nibco-Scott and/or Jensins will be considered equivalent.
- c) Gate valves 2 1/2" and smaller shall be #438 (screwed ends) or #1320 (solder-joint ends) with bronze body, bronze trim and rising stem.
- d) Gate valves 3" and larger shall be #461 (flanged ends) with iron body, bronze trim and non-risina stem.
- e) Check valves 2 1/2" and smaller shall be #36 (screwed ends) or #1342 solder-joint ends swing—type with bronze body and bronze trim.
- f) Check valves 3" and larger shall be #73 (flanged ends) swing check with iron body and
- g) Butterfly valves 2" and larger shall be #12F, iron body, cast—iron wafer w/lock lever. h) Ball valve up to 3" in size shall be Appollo series #70 bronze valve with chrome—plated
- ball and Teflon seat. Balancing ball valves over 3" in size shall be Dezurik. i) Gas line cocks up to 4" shall be #320. Larger than 4" gas shutoffs to be butterfly valve
- j) Hose end valves shall be #438 gate valves with hose end nipples.

b) All valves shall be built for a minimum of 125 PSIG working pressure.

# 18. PIPE SLEEVES AND COLLARS

- a) This contractor shall lay out all his work and set sleeves in new construction as concrete forms and walls are erected so as to be able to install his work without cutting or breaking of floors or walls. All sleeves for insulated piping shall be large enough to allow insulation to pass through sleeve.
- b) All sleeves passing through floors which are waterproofed shall be copper tubing sleeves extending 1" above finished floor. All other sleeves shall be 24 gauge galvanized pipes and sleeves to be thoroughly packed with oakum and the remaining space filled with mastic and must be watertight.
- c) All sleeves passing through inner walls shall be standard pipe thimbles equal to the thickness of the wall.
- d) Spaces between pipes and sleeves through outside walls, above grade, shall be caulked with caulking compound; those below grade shall be caulked with oakum and lead and made watertiaht. e) Sleeves through equipment room floors above lower floor shall be steel pipe sleeves and
- shall extend 4" above finished slab and shall be caulked watertight. ) Sleeves through poured concrete floors shall be 1/2" less than the floor thickness.
- q) Space around all piping through fire or smoke rated partitions or floors shall be sealed
- airtight with material as specified under firestopping. h) All pipe penetrations of slabs on grade shall be wrapped with #15 building felts or foam

# 19. HANGERS

- a) All hangers shall be Grinnell Fig. 108 malleable iron split ring or Grinnell Fig. 260 black steel adjustable clevis type hangers. Riser clamps on each vertical pipe at each floor line shall be Grinnell Fig. 261. All hangers for copper lines shall be copper-plated. Strap hangers will not be permitted. Similar and equal supports as manufactured by Fee & Mason and Elcen will be acceptable for approval.
- b) All horizontal downspouts, soil, waste and vent lines shall be supported at the hub with Grinnell Fig. 260 black steel adjustable clevis hangers.
- c) All horizontal water lines 4" and smaller shall be hung with Grinnell Fig. 97 hangers. All hangers for copper lines shall be copper-plated or felt lined. At fixture groups, horizontal pipes shall be hung from long arm riser clamps attached to vent lines.

# 21. DAMAGE BY LEAKS

a) This contractor shall be responsible for damages to the grounds, walks, roads, all building components and finishes, piping systems, electrical systems and their equipment and content, caused by leaks in the piping systems being installed or having been installed herein. All repairs will be made at this contractor's expense.

# 22. PIPE MARKERS

- a) Furnish and install Brady #B-350 thin film or approved equal pipe markers. Markers shall be 1 1/8" high for pipes 3" and under and 2 1/4" high for pipes over 3". Markers shall indicate type of service and direction of flow.
- b) Pipe markers shall be located: at equipment connections
- 2) at access doors 3) at branch mains
- 4) on all accessible pipe a maximum of 75' between markers.

# 23. FLOOR, WALL AND CEILING PLATES

a) Pipes passing through floors and finished ceilings, fitted with chrome-plated plates or escutcheons large enough to completely close opening around pipe or pipe covering and floor support in the case of vertical piping, securely held in place; caulk watertight around pipe in unfinished rooms.

# 24. FIRE STOPPING

a) The penetrations of fire and/or smoke rated walls or floors shall be protected by a UL approved material to retain the integrity of the time-rated construction by maintaining as effective barrier against the spread of flame, smoke and gases. It shall be used in all duct cable, conduit and piping penetrations through floor slabs and time-rated walls, and/or floors. The rating of the firestopping shall equal the rating of the time-rated

- b) Firestopping material shall be 3M Fire Barrier Sealing system of approved equal. Firestopping material shall constitute one or more of the following products:
- 1) Caulk: CP-25 2) Putty: #303
- 3) Wrap/strip: FS195
- 4) Composite Sheet: CS195 5) Penetrating Sealing Systems: 7900 series
- c) Installation of firestopping shall be installed in accordance with and in strict conformity with
- manufacturer's printed instructions as to surface preparation, installation and quality control. Areas of work shall remain accessible until inspection and approval by the applicable code authorities. d) On insulated pipes, the fire—rating classification shall not require removal of the insulation.
- e) Quality Assurance: 1) Submit manufacturer's product data, letter of certification or certified laboratory test report that
  - the material or combination of materials meet the requirements specified in ASTM E814 and are s o classified in UL's Building Materials Directory.
- 2) Materials shall meet and be acceptable for use by all three model building codes; Basic Code, Uniform Building Code and Standard Building Code.
- 3) Materials shall meet the requirements of NFPA101— Life Safety Code and NFPA 70—National Electrical Code.
- f) Submittals: 1) Submit shop drawings, product data, certificates and manufacturer's installation instructions. 2) Submit manufacturer's product data for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site. Include manufacturer's instructions for
- 3) Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.

#### 25. CLEANUP AND ADJUSTMENT

- a) All parts work left clean: equipment, fixtures, valves, pipes and fittings cleaned of grease and metal cuttings. Any discoloration or other damage to portions of building, its finish or furnishing due to this contractors failure to properly clean interior of piping, shall be repaired at this contractor's expense. All automatic control devices adjusted for proper operation. All surplus materials and any rubbish
- removed as it accumulates. All equipment left in safe, proper operating condition. b) All parts of heating and cooling units and all other items of equipment including registers, grilles, coils, cabinets, controls, shall be carefully protected by this contractor form the normal work of other trades. Damage to any portions must be repaired or the part replaced by this contractor and all parts left without dents, scratches, through the finish paint, loose plaster, stains or other blemishes. Interior of all ducts and all coils and filters are to be thoroughly cleaned at the completion of all work in the

#### 26. AS BUILT DRAWINGS

- a) Two copies of drawings prepared by this contractor, detailing revisions or "As-Built" construction shall be
- furnished to the Architect. b) These drawings shall consist of two sets of black or blue line prints which shall be furnished to this contractor by the Architect. This contractor shall during the progress of the job, record any and all changes or deviations from the original drawings and at the completion of the project, deliver to the Architect these two sets of marked-up "As-Built" drawings.

#### 27. PIPE TESTING AND START-UP

- a) All piping to be tested in accordance with the following:
- Compress Air one and one—half times the maximum operating pressure
- Water 100 psi water pressure Refrigerant - 250 psi with anhydrous carbon dioxide
- 4) Gas 50 psi air pressure
- b) All testing must hold for at lease 24 hours without loss of pressure of vacuum. Before starting any system, all mechanical and electrical equipment shall be lubricated by this contractor. Test entire plant for heating, ventilating, and air conditioning under full load conditions for a
- period of not less that one (1) week during which time the Owner's operating personnel shall be fully instructed in the operation and maintenance of the plant. After the plant is in full operation, this contractor is to furnish whatever additional service is required to recalibrate and reset controls, valves, balancing cocks, etc. to ensure proper operation of this system.

#### 28. TESTING AND BALANCING

- a) This contractor shall at the time of installation ensure that all devices to complete Testing and
- Balancing as directed herein are furnished and installed during fabrication and installation of work. b) Balance, adjust and test air handing equipment, air distribution devices and water systems as described below. All instruments used are to be recently calibrated and maintained. Upon request this contractor shall furnish proof of calibration and conduct tests in the presence of the engineer. The system is to be completely installed and operating before any testing starts. Test data shall be compiled by this contractor on legible forms and shall be complete. This contractor shall, at no additional cost, make
- fine adjustments to individual areas as required within ninety (90) days after turnover. c) Air systems to be adjusted and checked that all dampers are in the proper position and free to operate. Adjust equipment and on the submittal sheets record the following data:

5) Temperatures — outside air wet and dry bulb, mixed air wet and dry bulb, discharge air wet and

- 1) RPM and Amperage 2) Rotation
- 3) Static pressure suction and discharge
- 4) Traverse of main ducts
- dry bulb. 6) Return air quantity
- 7) Fresh air quantity 8) Set individual rooms to within 10% of design criteria. Identify each supply and return device within
- room and the air quantity and velocity of the air passing through it. 9) The manufacturer and AK value of each device within the room. 10) Readjust fans to obtain room design conditions and re-record amperage and RPM.
- 11) Report in writing all discrepancies between design and adjusted criteria. d) Submit to the Architect for approval, a complete bound report of air balance, water balance, and control setpoints certified correct. After approval by Architect, three (3) copies shall be furnished to
- the Owner. e) Submit to the Architect for approval, a complete bound set of manufacturer's operating and maintenance instructions, and spare parts lists. After approval by the Architect, three (3) copies shall
- be furnished to the Owner. f) Entire balance of systems shall be provided by an independent test and balance company with NEBB Certification. Submit data on balance company proposed for approval by the Engineer.

# 29. SEISMIC RESTRAINTS ON MECHANICAL EQUIPMENT

a) All mechanical equipment shall be provided with seismic restraining services as required by local building Codes. Contractor shall have local building office review each piece of equipment when installed and

#### the Contractor shall install all required tie down, anchors, straps or other devices required. 30. **GUARANTEE**

- a) This Contractor shall guarantee all equipment, materials, and labor furnished under this Contract to be free from defects for a period of one (1) year from the date of substantial completion and shall repair or replace any equipment or material which is defective or improperly installed. In addition, this Contractor shall assume full responsibility for any damage to the buildings and its contents or other equipment, caused by defects or improper installation of equipment or materials installed under this
- Section of the Specifications. b) All HVAC units shall have a five (5) year compressor warranty.

# 31. MAINTENANCE OF SERVICE

- a) Continuity of all building services and utilities serving facilities in existing building shall be maintained
- without interruption, except for such period of time that the Owner may designate. b) This contractor shall so arrange and execute his work that any connections, either temporary or
- permanent, or rearrangement of present equipment and piping shall be in such a manner as to assure full resumption of service at the time designated by the Owner. c) If temporary valves, cross connections and piping are necessary to assure this continuity of service, they shall be furnished under this section of these specifications without additional charges to the

#### Owner or his agents and shall be removed when no longer necessary. 32. INTERFERENCE WITH OPERATION

- a) This contractor shall confine his activities to the area set aside for him do his work and shall not
- interfere with any of the Owner's activities. b) This contractor shall not be permitted to store material except within the areas as directed by the
- c) Should any disturbance of existing installation be necessary this contractor shall so inform the Owner well in advance of the time contemplated for the disturbance. After a plan acceptable to the Owner has been formulated, the general contractor's superintendent shall keep in close personal contact with the work to see that it is executed in accordance with the agreed procedure.

END OF SECTION 15100

#### DIVISION 15000 MECHANICAL

# SECTION 15700 HEATING VENTILATING AND AIR CONDITIONING

#### 1. SCOPE OF WORK

part of this section.

- a) The work under this section shall include all material, equipment and labor required heating, ventilating and air conditioning installation as to install a complete shown on the drawings and specified herein. b) Provisions of Section 15100 "GENERAL CONDITIONS" shall be and are hereby made a
- 2. CONDENSATE DRAIN PIPING
- a) Provide condensate drain piping for all cooling coil drains as noted on the drawings. Condensate drain piping shall be type "L" copper or PVC if approved by local
- b) Drains shall be pitched in the direction of flow with a pitch of not less than 1" in
- 10 feet or horizontal c) Trap all condensate drains outside of coolers/freezer at hub drains. d) Roof top units drain with "P" trap shall terminate with 90° elbow onto roof.

#### 3. SHEET METAL WORK

- a) Fabricate and install ductwork for velocities less than 2000 feet per minute and two inches water gauge in accordance with the latest static pressure less than edition of the Low Velocity Duct Construction Standards published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA). b) Except where noted or specified otherwise, all ductwork shall be constructed of galvanized sheet metal.
- d) All supply and return ductwork shall be lined with 1" ductliner alued, clipped and edges treated all has recommended by the manufacturer and per the latest SMACNA manual.
- e) Provide turning vanes, splitter dampers and volume dampers all as shown by symbols on drawings.

#### 4. FLEXIBLE DUCTS

6. EXHAUST FANS

c) Not used.

- a) Furnish and install 1" insulated flexible ductwork where indicated on the drawings.
- 5. REGISTERS, GRILLES AND DIFFUSERS

b) Maximum length of each run to be 5'-0".

a) Furnish and install air distribution outlets where shown on the drawings. Outlets shall be of type indicated in the schedules.

# a) Furnish and install fans as shown in the schedule on the drawings.

a) Furnish and install filters and filter racks in all air handling equipment, except otherwise indicated in equipment specification, filters shall exhaust fans. Unless be 1" thick, throw away type. This contractor is to install new filters in all units when project is ready for acceptance by the Owner.

b) Fans shall be complete with fan motor, backdraft damper and factory mounted

#### 8. AIR HANDLING UNITS

built-in disconnect switch.

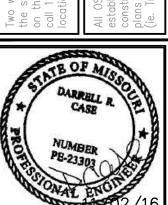
- a) This contractor shall furnish and install Air Handling Unit of size and capacity as
- indicated in the schedule on the drawings. b) All units shall come complete with throw away filters, programmable thermostats with remote sensors and all controls necessary for proper operation. c) Design has been based on manufactures model numbers indicated and any expense involved to substitute the specified items will be born by this contractor. Roof
- openings in roof have been detailed, weights considered and some dimensions could be critical. d) Flexible connections shall be installed between air handling unit and ductwork.

# f) HVAC contractor shall pay for any electrical changes due to any substitution of

- 9. TEMPERATURE CONTROLS a) Furnish and install all controls for HVAC equipment and provide complete wiring diggrams to the electrical contractor so that he can properly wire all remote
- b) Controls shall include all firestats and smoke detectors as required by code c) Provide locking type plastic guards for all thermostats.

END OF SECTION 15700

Approved unit manufacturers are: Trane, Carrier, or Lennox.



TROOMS NTZVILL **7** 'RE'S M

T 636, 349,10

F 636. 349.1

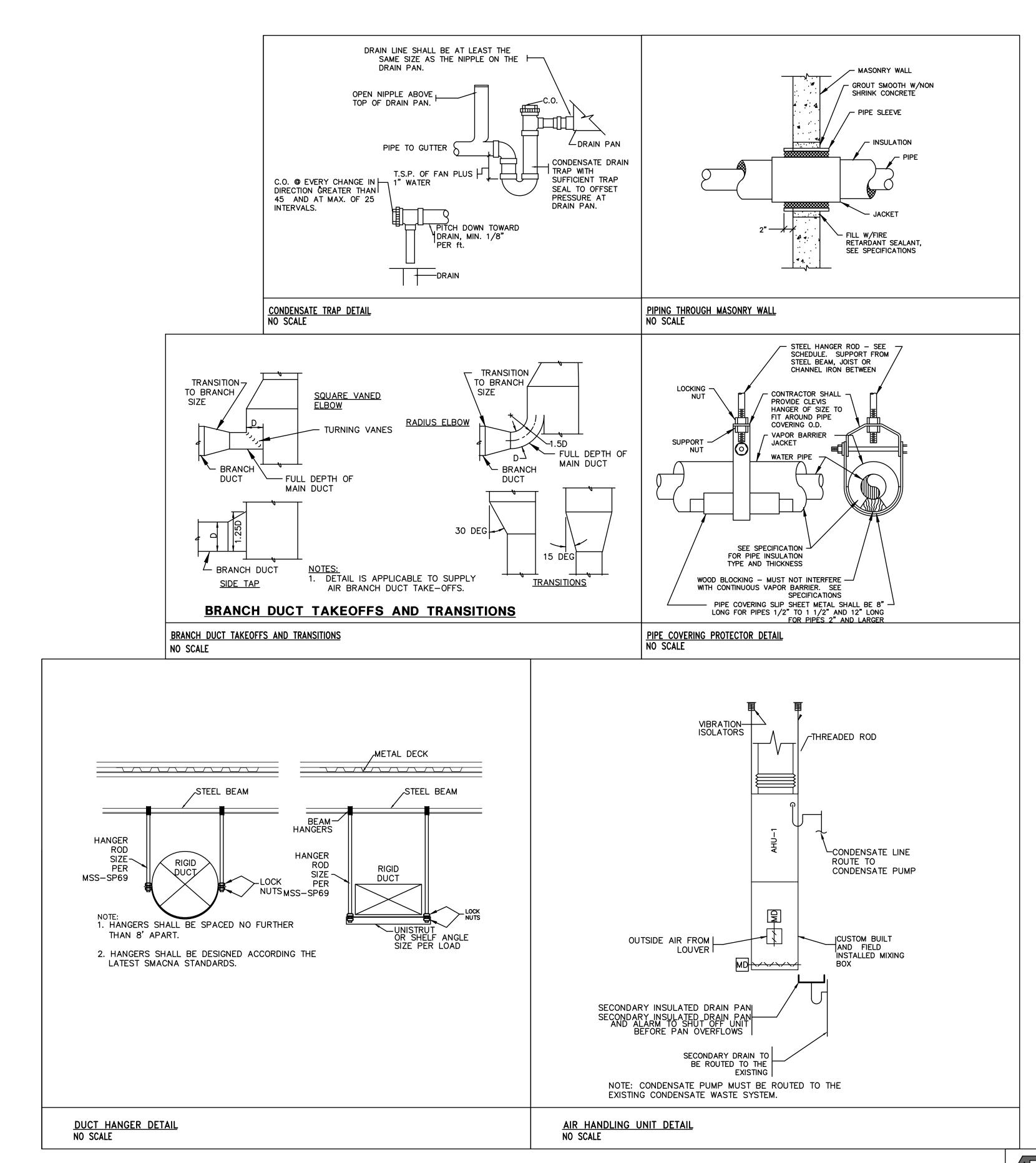
CERTIFICATE OF AUTHORITY NO. E-2000155319-

Ædifica Case Engineering

796 Merus Com

St. Louis, MO 63026

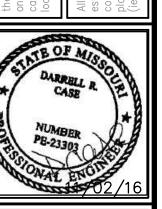
NOV 01, 2016 AS NOTED 15-6060





on this site, contractor shall call 1–800–DIG–RITE for utility location information.

All OSHA rules & regulations established for the type of construction required by these plans shall be strictly followed (ie. Trenching, Blasting, etc.)



F WENTZVILLE ARY, PARK ILLE, MISSOURI

SEVISION:
DUN. BY: APP'D. BY:

DATE:
NOV 01, 2016
SCALE:
AS NOTED
PROJ. NO:
15-6060
DWG. NO:

AEGITICAL CASE

engineering

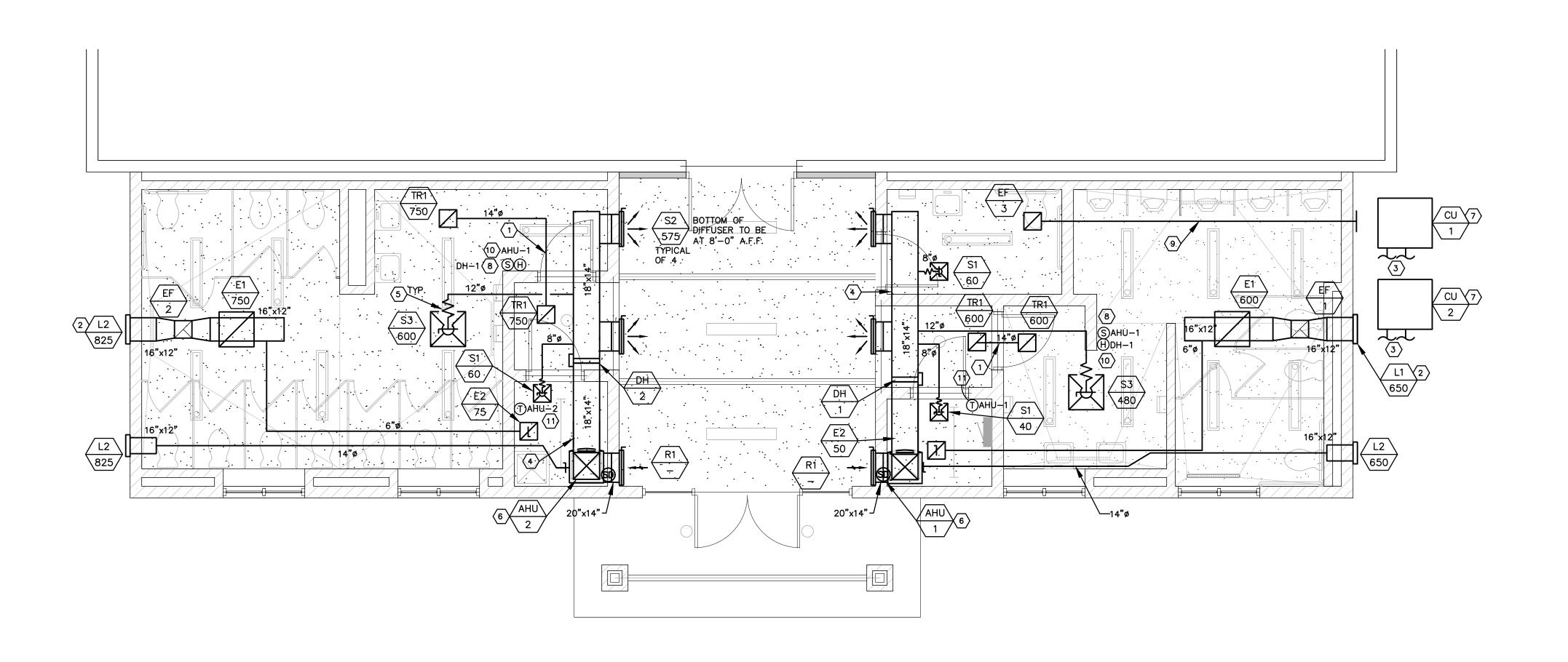
AEdifica Case Engineering

796 Merus Court

St. Louis, MO 63026

CERTIFICATE OF AUTHORITY NO. E-2000155319-D

66. 349.1600 66. 349.1730



# MECHANICAL FLOOR PLAN Scale: 1/4" - 1'-0"

(T)	THERMOSTAT
S	TEMPERATURE SENSOR
3	SMOKE DETECTOR

MECHANICAL SYMBOLS LEGEND

	TEIM ENTITIONE SERVICEN									
SD	SMOKE DETECTOR									
-~-	FLEXIBLE DUCT									
	VOLUME DAMPER									
MD=	MOTORIZED DAMPER									
K	CEILING SUPPLY AIR DIFFUSER									
	CEILING RETURN AIR GRILLE									

-	CEILING RETURN AIR GRILLE
-	SIDEWALL AIR DIFFUSER OR GRILLE
_	NEW DUCTWORK
$\setminus$	AIR DEVICE # S - SUPPLY R - RETURN
→ I	R - KETUKN

E - EXHAUST

| SIDE | NEW | S1 | CFM | CFM |

SUPPLY FANS OPERATE AS NEEDED ON THERMOSTAT CALL FOR HEATING/COOLING AT SET BACK TEMPERATURE. OUTSIDE AIR DAMPER(S) IN CLOSED POSITION, RETURN AIR DAMPER(S) IN FULLY

OCCUPIED MODE: SUPPLY FANS OPERATE CONTINUOUSLY DURING OCCUPIED PERIOD. O.A. DAMPER(S) OPEN TO

IF SPACE HUMIDITY RISES ABOVE 65% (ADJUSTABLE), DH-1 OR DH-2 SHALL TURN ON TO

MINIMUM POSITION. HEATING/COOLING CYCLE ON/OFF TO SATISFY THERMOSTAT.

DH-1 AND DH-2 SHALL BE INTERLOCKED TO SUPPLY FAN'S ON AHU-1 AND AHU-2.

SEQUENCE OF OPERATIONS

AIR HANDLING UNIT:

MAINTAIN SPACE HUMIDITY.

#### MECHANICAL OUTSIDE AIR VENTILATION DATA (BASED ON IMC-2012) CODE REQUIREMENTS CFM/ CFM/SQ. FT. O.A. CFM (O.A. CFM) PERSON ROOM PURPOSE AREA # OF SUPPLY SUPPLY ROOM NAME SUPPLY SUPPLY MEN'S RESTROOM RESTROOM 316 0.12 JANITOR'S ROOM ENTRY VESTIBULE 0.06 CORRIDOR | 355 | - | 22 WOMEN'S RESTROOM 342 825 0.12 STORAGE | 40 | - | - | MECHANICAL ROOM

AIR DEVICE SCHEDULE											
PLAN MARK	MANUFACTURER	MODEL	MATL.	NECK SIZE	FRAME TYPE	PANEL TYPE	REMARKS				
S1	TITUS	TMS	ST	SEE DWG.	FLANGED	12"x12"	1,2,3,4				
S2	TITUS	300RS	ST	22"x10"	FLANGED	24"x12"	1,2,3,4				
S3	TITUS	TMS	ST	12 <b>"</b> ø	FLANGED	24"x24"	1,2,3,4				
TR1	TITUS	350RL	ST	SEE DWG.	FLANGED	14"x14"	3				
R1	TITUS	350RL	ST	24"x12"	FLANGED	24"x12"	3				
E1	TITUS	350RL	ST	SEE DWG.	FLANGED	24"x24"	3				
E2	TITUS	350RL	ST	SEE DWG.	FLANGED	12"x12"	1,3				

AIR DEVICE RUN-OUT SHALL BE SAME SIZE AS DIFFUSER NECK. PROVIDE WITH OPPOSED BLADE VOLUME DAMPER. GRILLE TO BE WHITE. 4. DUCT MOUNTED AIR DEVICE

#### MECHANICAL KEYED NOTES

- 1 PROVIDE 14" TRANSFER AIR DUCT TO RUN IN ATTIC SPACE.
- PROVIDE EXHAUST AIR LOUVER THROUGH WALL VERIFY MINIMUM 10'-0" CLEARANCES FROM ALL OUTDOOR AIR INTAKES
- ROUTE REFRIGERANT LINES TO AIR HANDLING UNITS WITH 1" ARMAFLEX. SIZE AND INSTALL ALL PIPING PER MANUFACTURER'S GUIDELINES FOR TOTAL LENGTH AND EQUIPMENT VERTICAL SEPARATION. COORDINATE EXACT LOCATIONS AND PENETRATIONS WITH OWNER PRIOR TO ANY WORK.
- HVAC CONTRACTOR TO FURNISH AND INSTALL GALVANIZED STEEL DUCTWORK, SIZES AS NOTED ON DRAWING. ALL DUCTWORK SIZES ARE SHEET METAL SIZES, AND DUCTWORK SHALL BE PROVIDED WITH 1/2" INTERNAL LINER. DUCTWORK TO RUN IN SOFFIT PROVIDED BY ARCHITECT.
- MAXIMUM FIVE (5) FEET OF FLEXIBLE DUCT. ONLY ONE 90° ELBOW ALLOWED IN FLEXIBLE DUCTWORK.
- PROVIDE SMOKE DETECTOR MOUNTED IN RETURN DUCT TO MEET CODE REQUIREMENTS. DETECTOR SHALL DE-ENERGIZE UNIT SUPPLY FAN UPON DETECTION OF SMOKE. VERIFY WITH FIRE ALARM
- COORDINATE EXACT CONDENSING UNIT LOCATIONS WITH OWNER PRIOR TO INSTALLATION. INSTALL UNIT PER ALL MANUFACTURER'S
- PROVIDE AND INSTALL REMOTE TEMPERATURE SENSOR WIRE BACK TO CORRESPONDING THERMOSTAT LOCATED IN MECHANICAL ROOM. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION.
- 9 RUN 8" EXHAUST DUCT FROM CEILING MOUNTED EXHAUST FAN TO SIDE WALL. PROVIDE WALL LOUVER OR RAIN CAP WITH BIRD
- PROVIDE AND INSTALL HUMIDISTAT SENSOR TO ACTIVATE DUCT HEATER. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION.
- $\langle 11 \rangle$  PROVIDE AND INSTALL 7-DAY PROGRAMBLE THERMOSTAT FOR AIR HANDLING UNITS (AHU-1,2). COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.

	ELECTRIC DUCT HEATER											
		DUCT		ELEC.	TRICAL							
MARK	MFR	DIMENSION	STAGES	KW	V / PH	REMARKS						
DH-1	INDEECO	18"x14"	2	5.0	230/1	1,2,3						
DH-2	INDEECO	18"x14"	2	5.0	230/1	1,2,3						

- FURNISH WITH FLOW SWITCH AND DOOR INTERLOCKED DISCONNECT
- 2. HEATER TO BE CONTROLLED BY AHU HUMIDISTAT.
  3. DUCT HEATER MUST BE INTERLOCKED WITH SUPPLY FAN.

PLAN MARK	MANUFACTURER	MODEL	MATL.	FREE AREA SQ. FT.	FRAME TYPE	PANEL TYPE	REMARKS
L1	RUSKIN	ELF375X	AL	1.09	FLANGED	20"x18"	1,3
L2	RUSKIN	ELF375X	AL	1.15	FLANGED	15"x24"	2,3

		EANLO(	<u> </u>									
FAN SCHEDULE												
MARK	MANUFACTURER	MODEL NO.	CFM	SP	HP	SONE	VOLTS/PH	REMARKS				
EF-1	GREENHECK	SQ-095-VG	650	0.25	1/8	8.7	120/1	1,2,3				
EF-2	GREENHECK	SQ-100-VG	825	0.25	1/4	11.9	120/1	1,2,3				
EF-3	GREENHECK	SP-B110	100	0.25	80.2 W	2.0	120/1	1,2,4				
1. F	FURNISH AND INSTALL NEW EXHAUST FAN. VERIFY EXACT LOCATION WITH OWNER REPRESENTATIVE.											

VERIFY ELECTRICAL VOLTAGE/PHASE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING. OPERATION OF EXHAUST FAN CONTROLLED VIA OCCUPANCY SENSOR. OPERATION OF EXHAUST FAN CONTROLLED VIA LIGHT SWITCH.

AIR HANDLING UNIT SCHEDULE															
			SUPPLY	O.A.	EXT.	COOLING	COOLING MBH		LING MBH HEATING		NG MBH HEATING SUPPLY			WEIGHT	REMARK
MARK	MANUFACTURER	MODEL NO.	CFM	CFM	SP.	TONS	TOT	SENS		FAN HP	MCA	моср	VOLT/PHASE		
AHU-1	TRANE	GAM5B0C60	1800	650	0.7	5.0	59.0	43.8	24.0	1.0	53/43/22	60/50/25	230/1	180	1,2,3,4,
AHU-2	TRANE	GAM5B0C60	1800	825	0.7	5.0	59.0	43.8	24.0	1.0	53/43/22	60/50/25	230/1	180	1,2,3,4,
4 00	MOTE CONDENCING	N LINUT LOOKT	-D AT ODG	UND IE	/CL OUTC	וחר							,		

- 1. REMOTE CONDENSING UNIT LOCATED AT GROUND LEVEL OUTSIDE
- 2. PROVIDE 30% FILTERS AND INSTALL WITH EASY ACCESS TO FILTERS. 3. VERIFY ELECTRICAL VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING.
- 4. PROVIDE WITH FIELD FABRICATED MIXING BOX. MIXING BOX TO HAVE ECONOMIZER CONTROLS, MOTORIZED DAMPERS AND TEMPERATURE AS REQUIRED IN OUTDOOR AIR DUCT PROVIDE COMPATIRIE THERMOSTAT TO CONTROL ALL REQUIRED.

	TEMPERATURE AS REQUIRED IN OUTDOOR AIR DOCT. PROVIDE COMPATIBLE THERMOSTAT TO CONTROL ALL REQUIRED
	FEATURES, INCLUDING ECONOMIZER, DUCT HEATER AND HUMIDITY. MIXING BOX TO HAVE ALL ACCESSORIES REQUIRED FOR ECONOMIZER OPERATION.
5.	PROVIDE WITH 2 STAGE, 3-CIRCUIT ELECTRIC HEATER. PROVIDE WITH FUSED DISCONNECT.

	CONDENSING UNIT SCHEDULE												
				COOLIN	COOLING CAPACITY			ELECTRICAL					
			COOLING	мвн	AMB	REF.	HEATING		ELECTRICAL		WEIGHT	REMARKS	SERVES
MARK	MANUFACTURER	MODEL	TONS	МВП	<b>°</b> F	TYPE.	мвн	МСА	моср	VOLT/PHASE	LBS		
CU-1	TRANE	4TTB3060	5.0	60	95	R410A	N/A	35	60	230/1	240	1,2,3	AHU-1
CU-2	TRANE	4TTB3060	5.0	60	95	R410A	N/A	35	60	230/1	240	1,2,3	AHU-2

- PROVIDE AND INSTALL CONDENSING UNIT IN SAME LOCATION AS PREVIOUS UNIT, PROVIDE NEW CONCRETE PAD IF REQUIRED. COORDINATE EXACTION LOCATION IN FIELD PRIOR TO INSTALLATION. RUN REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.
- COMPLETE WITH LOW AMBIENT CONTROL AS PER MANUFACTURER'S RECOMMENDATIONS FOR OPERATION BELOW 55°F
- VERIFY ELECTRICAL VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING.

796 Merus Court F 636. 349.17 St. Louis, MO 63026

CERTIFICATE OF AUTHORITY NO. E-2000155319-

NOV 01, 2016 AS NOTED

15-6060

B. REFERENCE IS MADE TO REQUISITES FOR BIDDERS AND CONTRACTORS UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, WHICH SHALL BE CONSIDERED BINDING, UNLESS OTHERWISE NOTED UNDER THIS SECTION.

EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE CON-STRUCTION DETAILS, BOTH AS ON TENANT CONSTRUCTION DRAWINGS AND LANDLORD'S AS REFERRED TO, BEFORE SUBMITTING HIS BID AS NO ALLOW-ANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH THESE DETAILS. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION.

#### INSPECTION OF SITE

ALL PROPOSALS SHALL PRECLUDE THAT CONTRACTOR IS FAMILIAR WITH JOB SITE CONDITIONS AND UTILITY LOCATIONS AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR INVOLVED.

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS OR AS DIRECTED BY THE OWNER, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, WHETHER SO SHOWN OR NOT, AND ALL MODIFICA-TIONS REQUIRED BY SUCH AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.

#### MATERIALS AND WORKMANSHIP

- A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURERS, AND UNLESS OTHER-WISE SPECIFIED SHALL BE NEW, AND FREE FROM ANY DEFECTS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY UNLESS OTHERWISE SPECIFIED.
- B. ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, AND ON COM-PLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND ALL DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES, <u>DO NOT JUST ABANDON</u>.

#### CODES AND REGULATIONS

EACH SUBCONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN OR SPECIFIED. IF A SUBCONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT A VARIANCE, HE SHALL PROMPTLY NOTIFY THE GENERAL CONTRACTOR AND THE TENANT IN WRITING. IF ANY SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO LAWS, ORDINANCES, RULES AND REGULATIONS AND WITHOUT GIVING SUCH NOTICE, THE SUBCON-TRACTOR SHALL BEAR ALL COSTS ARISING THEREFROM.

#### PROTECTION OF WORK AND PROPERTY

- A. EACH SUBCONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PRO-TECTION OF ALL HIS WORK FROM DAMAGE AND SHALL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS ARISING FROM HIS WORK. HE SHALL MAKE GOOD ANY SUCH DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO CAUSES BEYOND HIS CONTROL AND NOT TO HIS FAULT OR NEGLIGENCE. HE SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS WELL.
- B. EACH SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THEIR EMPLOYEES ON THE WORK AND SHALL COMPLY WITH ALL PROVISIONS OF FEDERAL. STATE AND LOCAL BUILDING CODES AND SAFETY LAWS TO PREVENT ACCIDENTS OR INJURY TO PERSONS ON OR ADJACENT TO THE PREMISES WHERE THE WORK IS BEING PERFORMED. EACH SUBCONTRACTOR SHALL MAINTAIN ALL INSUR-ANCE REQUIRED TO PROTECT HIMSELF, OWNER AND TENANT FOR THE DURATION OF THE WORK AGAINST PROPERTY DAMAGE AND PUBLIC

# CHANGES IN THE WORK

THE TENANT, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK, THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY.

# <u>COOPERATION</u>

ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CON-JUNCTION WITH OTHER CONTRACTORS AND TRADES OF THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH CONTRACTOR AND TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS CONTRACTS. REFER-ENCE SHALL BE MADE TO THE OWNER FOR INSTRUCTIONS SHOULD ANY QUESTIONS ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES, OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

# SUBSTITUTION OF MATERIALS

MANUFACTURER'S NAMES ARE LISTED HEREIN TO ESTABLISH A STANDARD. THE PRODUCTS OF OTHER MANUFACTURERS WILL BE ACCEPTABLE, IF IN THE OPINION OF THE TENANT, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY, THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED.

# SHOP DRAWINGS

SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS, AND SUCH OTHER ILLUSTRATIVE MATERIAL AS MAY BE CONSIDERED NECESSARY BY THE TENANT, SHALL BE SUBMITTED BY THIS CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.

# DRAWINGS AND SPECIFICATIONS

- A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES, AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM.
- B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR IN ITEMS SHOWN ON CONTRACT DRAWINGS, THE SHOP DRAWINGS, DES-CRIPTIONS, AND THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

- A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED IN HIS CONTRACT. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PRO-VIDE ALL INCIDENTAL ITEMS REQUIRED AS PART OF HIS WORK, REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.
- B. CONTRACTOR SHALL SUPPLY TO LANDLORD AND TENANT A CERTIFIED BALANCE REPORT AT COMPLETION OF PROJECT. THIS IS REQUIRED FOR BOTH REMODELED AND NEW STORES.

- 1. SCOPE: PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE ACCOMPANYING DRAWINGS TO PROVIDE A COMPLETE AND PROPERLY OPERATING PLUMBING SYSTEM FOR THE BUILDING. OBTAIN WATER, SEWER, GAS TAPS, AND ANY OTHER REQUIRED UTILITIES AND EXTEND SERVICE FROM SAME TO BUILDING AS SHOWN ON DRAWINGS. VISIT THE SITE FOR UNDERSTANDING OF THE WORK TO BE DONE BEFORE SUBMITTING BID.
- COORDINATE THIS WORK WITH THE WORK OF THE OTHER TRADES ON THE PROJECT. ALL PLUMBING IS TO BE ROUGHED IN WHILE THE BUILDING IS BEING CONSTRUCTED AT SUCH TIMES AS NOT TO DELAY THE GENERAL CONTRACTOR ON THE BUILDING.
- 2. GENERAL REQUIREMENTS: COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS, CODES, RULES, AND ORDINANCES GOVERNING WORK OF THIS CHARACTER.

PAY FOR AND OBTAIN NECESSARY CONSTRUCTION PERMITS AND CERTIFICATES OF

A. DRAWINGS: THE LOCATION OF THE PIPING RUNS ARE APPROXIMATE AND THE CONTRACTOR MUST MAKE ANY NECESSARY CHANGES IN THE PIPING RUNS, ETC., AT NO ADDITIONAL COST TO THE OWNER. OUTLET LOCATIONS ARE CRITICAL AND MUST BE LOCATED EXACTLY ACCORDING TO THE PLUMBING PLAN. COORDINATE THIS WORK WITH THE INSTALLERS OF EQUIPMENT FURNISHED AND INSTALLED BY OTHERS. REFER TO THE OTHER MECHANICAL FLECTRICAL AND FOLIROWS.

CONSTRUCTION AND THE OTHER MECHANICAL, ELECTRICAL, AND EQUIPMENT

B. COORDINATION AND WORKMANSHIP: SCHEDULE THIS WORK SO THAT IT WILL BE PROPERLY COORDINATED WITH ALL OTHER TRADES. WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE BEST PRACTICE FOR THE CLASS OF WORK INVOLVED WORKMANSHIP SHALL ALLOW THE APPLIANCE TO OPERATE AS INTENDED AND BE INSTALLED TO BEST PROTECT THE PUBLIC AND OPERATORS FROM INJURY OR DAMAGE, AND TO PRESENT A NEAT, PLEASING, AND ORDERLY APPEARANCE.

#### MATERIALS AND PERFORMANCE

- 1. MATERIALS: ALL MATERIALS SHALL BE NEW AND OF THE QUALITY INDICATED BY THE SPECIFIED BRAND NAMES. SUBSTITUTIONS OF MATERIAL OF EQUAL QUALITY BY OTHER FIRST—LINE MANUFACTURERS MAY BE ACCEPTABLE PROVIDED A LIST OF SUCH SUBSTITUTIONS IS APPROVED IN WRITING. A SUBSTITUTIONS LIST SHALL BE SUBMITTED IN TRIPLICATE WITHIN FIVE (5) DAYS AFTER THE CONTRACT IS LET.
- 2. BACKFILLING: PERFORM ALL NECESSARY EXCAVATING AND BACKFILLING REQUIRED FOR THIS INSTALLATION. PREPARE A PROPER BED OF SAND OR GRAVEL OR EQUIVALENT IN ROCK SCREENINGS SO AS TO ELIMINATE SHIMMING AND VOID SPACES UNDER ANY OF THE ROCK SCREENINGS SO AS TO ELIMINATE SHIMMING AND VOID SPACES UNDER ANY OF THE UTILITY SERVICE PIPES. BENDING OF ANY HARD PIPE WILL NOT BE PERMITTED. WHERE A CHANGE IN DIRECTION IS NECESSARY ON PRESSURE PIPES, "COMPATIBLE" COUPLINGS OR EQUAL SHALL BE USED AND BENDS MAY NOT EXCEED 90 DEGREES. ALL EXCAVATION BELOW THE BOTTOM OF FOOTINGS SHALL BE BACKFILLED WITH 2000 PSI CONCRETE. OTHER BACKFILL SHALL CONSIST OF 2-3" OF SAND OR ROCK SCREENINGS AND EARTH TO A FINAL LEVEL EQUAL TO ITS ORIGINAL CONDITION. IN THE EVENT THE BACKFILL SHOULD SETTLE BEFORE THE FINAL TOP SUFFACE IS APPLIED, APPLY ADDITIONAL BACKFILL TO SUSTAIN THE ORIGINAL LEVEL. CARE SHOULD BE TAKEN TO MINIMIZE THE DUST LEVEL WHEN EXCAVATING AND BACKFILLING SO AS TO COMPLY WITH FEDERAL AND STATE E.P.A. REGULATIONS RELATING TO THIS TYPE OF WORK (FUGITIVE DUST).
- 4. PIPING INSTALLATION: CLEAN-OUTS MUST BE INSTALLED ON MINIMUM DROP LINES EVEN THOUGH NOT SHOWN ON THE BLUEPRINTS. USE REDUCING FITTINGS IN MAKING REDUCTIONS IN SIZE OF PIPE. REAM ALL PIPE AFTER CUTTING, THEN TURN PIPES ON END AND KNOCK OUT ALL LOOSE DIRT AND SCALE BEFORE INSTALLING. MAKE CHANGES IN HORIZONTAL DIRECTION OF SOIL AND WASTE PIPES WITH LONG RADIUS FITTINGS OR WITH "Y" BRANCHES AND 1/8 OR 1/16 BENDS. CONNECT SOIL STACKS AT BASE TO HORIZONTAL RUNS WITH "Y" CONNECTIONS.
- WATER SUPPLY PIPES TO FIXTURES AND WASTE PIPES FROM FIXTURES SHALL BE WATER SUPPLY PIPES TO FIXTURES AND WASTE PIPES FROM FIXTURES SHALL BE CENTERED IN THE PROPER PLACE RELATIVE TO THE CENTER LINE OF THE FIXTURE. NO OFFSETS WILL BE ALLOWED. ALL PIPES SHALL BE RUN MECHANICALLY STRAIGHT AND SQUARE WITH BUILDING LINES, EXCEPT FOR REQUIRED PITCH ON HORIZONTAL LINES, AND ALL CHANGES IN DIRECTION SHALL BE MADE WITH FITTINGS. WATER PIPING TO BE ROUTED IN WALLS, UNDER THE FLOOR SLAB, AND ABOVE SUSPENDED CEILINGS AS NOTED. WHERE WATER LINES ARE ROUTED UNDER THE FLOOR SLAB, NO MECHANICAL JOINTS SHALL BE MADE UNDER THE SLAB EXCEPT AS LISTED BELOW. WATER PIPING SHALL BE INSTALLED NOT TO EXERT VERTICAL NOR HORIZONTAL STRESSES ON THE SEATING OF UNIONS. UNIONS SHALL BE COPPER TYPE NIBCO #733 OR EQUAL.
- NO WAX, PUTTY, OR VARNISH WILL BE PERMITTED. CRACKED FITTINGS SHALL BE REMOVED AND REPLACED WITH NEW FITTINGS. MAKE THREADED JOINTS IN BRASS PIPE AND FITTINGS WITH PERMITTER AND FITTINGS. NO SLIP JOINTS OR COUPLING JOINTS IN BRASS PIPE WILL BE PERMITTED, EXCEPT ON THE FIXTURE SIDE OF THE TRAP.
- 5. NATURAL GAS PIPING: FOR ABOVEGROUND INSTALLATIONS, ALL FITTINGS TO BE JOINED WITH TEFLON TAPE SEAL OR OTHER SUITABLE SEAL AND MADE IN CONFORMANCE WITH THE BEST PRACTICES OF AGA AND NFPA 54. UNIONS SHALL BE CAST BLACK IRON AND INSTALLED IN A MANNER SUCH THAT NO STRESS WILL BE PLACED ON THE MALE-FEMALE SEALING SURFACES. PROPER ALIGNMENT WILL BE MADE AT TIME OF INSTALLATION. ALL JOINTS AND CONNECTIONS SHALL BE THOROUGHLY CLEANED OF OIL, THREAD CUTTINGS AND RESIDUALS TO ACCEPT ENAMEL PAINT. ROUGH OR SHARP EXPOSED THREAD SURFACES SHALL BE FILED SMOOTH.

- JOINTS SHALL BE CLEANED AND DEBURRED AS RECOMMENDED BY THE MANUFACTURER AND FEDERAL, STATE, AND LOCAL CODES AND SOLDERED AS LISTED BELOW. FLUX SHALL BE
- ABOVE GRADE WHERE FITTINGS ARE SOLDERED BOTH FITTINGS AND TUBING SHALL BE CLEANED AS DESCRIBED ABOVE. UNDER NO CIRCUMSTANCES SHALL DISSIMILAR METALS COME INTO DIRECT CONTACT WITH COPPER TUBING; E.G., GALVANIZED STRAPPING, HANGERS, OR CLAMPS TO SECURE THE TUBING.
- BELOW GRADE, OR FLOOR SLAB ON EARTH OR STONE FILL HIGH TEMPERATURE, SOLDER, 1200 DEG. F OR GREATER MELTING POINT.
- NOTE: WATER PIPE TO BE PROPERLY SECURED AND ALIGNED SO AS NOT TO EXERT VERTICAL OR HORIZONTAL STRESSES ON THE SEATING OF THE MATING (MALE AND FEMALE) SURFACES OF THE UNIONS.
- A. MATERIALS UNDERGROUND: TYPE "L" COPPER TUBE, SOFT TEMPER
- B. MATERIALS ABOVEGROUND: TYPE "L" COPPER TUBE, HARD DRAWN.
- C. INSULATION: INSULATION FOR HOT AND COLD. PIPING SHALL BE 1/2" (1" ON 1ST 8, FT. FROM, HEATER) THICK ARMAFLEX UL LABELED OR FIBERGLASS 25 WITH ASJ/SSL FOIL/VINYL JACKET OR EQUAL. INSULATE ALL PIPING AND FITTINGS.
- 7. GAS PIPING A. UNDERGROUND GAS PIPING: ASTM A53, SCHEDULE 40 BLACK STEEL PIPE WITH LONG RADIUS STEEL WELDING FITTINGS INCLUDING CATHODIC PROTECTION OR POLYETHYLENE AS APPROVED BY LOCAL GAS COMPANY AND
- AUTHORITY HAVING JURISDICTION. B. GAS PIPING ABOVE GROUND: ASTM A53, SCHEDULE 40 BLACK STEEL WITH 125 POUND BLACK MALLEABLE IRON SCREWED FITTINGS. INSTALL MOISTURE TRAPS ON HVAC UNITS, WATER HEATER, AND KITCHEN
- C. GAS PIPING COMPOUND AT JOINTS; IN COMPLIANCE WITH NFPA BULLETIN #54 AND LOCAL APPLICABLE CODES AND SUITABLE FOR NATURAL GAS SERVICE.
- 8. WASTE PIPING: INSTALL HORIZONTAL DRAIN AND WASTE PIPES WITH 1/4"/FT. SLOPE.
  - MATERIALS: PIPING SHALL NOT BE EXPOSED, CAST IRON HUB TYPE WITH NEOPRENE JOINTS WITH STAINLESS STEEL CONNECTORS WHEN PVC IS NOT ALLOWED PER LOCAL CODE.

- 9. PIPE SLEEVES/ESCUTCHEONS: PROVIDE CHROME—PLATED ESCUTCHEONS ON ALL PIPES PASSING THROUGH WALLS, FLOORS, OR CEILINGS OF FINISHED ROOMS. ESCUTCHEONS TO BE BEATON & CADWELL, #10, 40, 6A OR EQUIVALENT WITH SET—SCREWS. PROVIDE ESCUTCHEONS ON ALL WASTE LINES FROM PLUMBING FIXTURES, WHETHER THROUGH WALLS, FLOORS, AND WHETHER CONCEALED BEHIND COUNTERS OR EXPOSED. PIPE SLEEVES SHALL BE PROVIDED WHEN PIPES PENETRATE FOUNDATION AND SHALL BE LARGER THAN PIPE, SEAL SLEEVE W/CAULKING.
- 10. PLUMBING FIXTURES: FURNISH AND INSTALL PLUMBING FIXTURES AS SHOWN ON DRAWINGS WITH ALL ACCESSORIES AND TRIM AS LISTED. ALL FIXTURES SHALL BE PROTECTED THROUGH THE COURSE OF THE CONSTRUCTION. ANY FIXTURE DAMAGED SHALL BE REPLACED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- 11. CONNECTION TO OTHER FIXTURES: CONNECT BUILDING SERVICE PIPING, INCLUDING BUT NOT LIMITED TO WATER, DRAIN, AND GAS PIPES TO FOOD SERVICE EQUIPMENT AS INDICATED IN EQUIPMENT SPECIFICATIONS. PROVIDE BACKFLOW PROTECTION ON ICE MACHINES AND BEVERAGE EQUIPMENT SUPPLY CONNECTIONS.
- A. DRAINAGE AND VENT PIPING DRAINAGE AND VENT PIPING SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE INSTALLED BY CAPPING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER AND ALLOWING IT TO STAND THUS FILLED NOT LESS THAN ONE (1) HOUR. INSPECT WATER LEVEL TO DETERMINE IF PIPING IS TIGHT.
- B. WATER PIPING THE WATER SUPPLY PIPING LINES SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE CONNECTED BY FILLING THE ENTIRE SYSTEM WITH POTABLE WATER AND APPLYING HYDROSTATIC PRESSURE OF 100 PSI AND ALLOWING O STAND FOR NOT LESS THAN FOUR (4) HOURS AT THIS PRESSURE TO PROVE
- C. GAS PIPING IN LIEU OF LOCAL REQUIREMENTS, GAS PIPING SHALL BE FILLED WITH COMPRESSED AIR TO 150 PSI AND HELD FOR A PERIOD OF FOUR (4) HOURS. EACH JOINT SHALL BE CHECKED BY LIQUID SOAP OR SPECIAL LIQUID CHEMICAL FOR LEAKS. NOTE: REMOVE ALL GAS VALVES AND PROTECT FROM DAMAGE BEFORE
- 13. DISINFECTION OF POTABLE WATER SYSTEM: UPON COMPLETION OF INSTALLATION DISINFECT THE WATER SYSTEM BY FILLING IT WITH SOLUTION CONTAINING 50 PARTS PER MILLION OF CHLORINE AND ALLOW IT TO STAND FOR NOT LESS THAN SIX (6) HOURS BEFORE FLUSHING THOROUGHLY AND RETURNING TO SERVICE. FURNISH CLEAN WATER SAMPLES TO THE LOCAL AUTHORITY FOR TESTING AFTER THE LINES HAVE BEEN

INSPECTION, LEAVING ALL READY FOR USE.

- DISINFECTED. THIS PROCEDURE TO BE IN ACCORDANCE WITH STATE PLUMBING CODE. 14. CLEANUP: CLEAN ALL PLUMBING FIXTURES AND EQUIPMENT THOROUGHLY BEFORE FINAL
- 15. GUARANTEE: MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE. DEFECTIVE WORK AND ALL DAMAGES CAUSED THEREBY WHICH MAY OCCUR DURING THE TERM OF THE AFOREMENTIONED GUARANTEE WILL BE REPAIRED AND/OR REPLACED AT NO EXPENSE TO THE OWNER.
- 16. OWNER'S MANUAL: PROVIDE THE OWNER, AT THE COMPLETION OF THIS CONTRACT, WITH AN "OWNER'S MANUAL" SO LABELED. THE MANUAL SHALL CONSIST OF A THREE—RING LOOSE—LEAF BINDER CONTAINING ALL PRINTED MATTER SUCH AS: GUARANTEE CARDS, CLEANING INSTRUCTIONS, NOTICES TO OWNER, OPERATING MANUALS, AND MAINTENANCE INSTRUCTIONS THAT MAY BE CONTAINED IN THE SHIPPING CARTONS OR EQUIPMENT

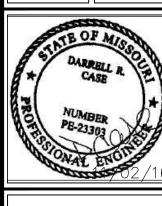
- G — NATURAL GAS PIPING - CD — CONDENSATE DRAIN PIPING - PD — PUMP DISCHARGE (FORCED MAIN) — COLD WATER PIPING — HOT WATER PIPING (120°F) — HOT WATER RETURN PIPING - SANITARY DRAIN PIPING - UNDERGROUND SANITARY PIPING - VENT THROUGH ROOF - → PIPE TURNING DOWN - ○ PIPE TURNING UP - ← CHECK VALVE -   — UNION - AFF ABOVE FINISHED FLOOR - CO CLEAN OUT - ♦ PRESSURE REGULATING VALVE (PRV) (50 PSI) - ♦ BALL VALVE - CA — COMPRESSED AIR - FW — FILTERED WATER - GCO GRADE CLEAN OUT - ♦ POINT OF CONNECTION - BALLANCE VALVE	PL	UMBING SYMBOLS LEGEND
PD PUMP DISCHARGE (FORCED MAIN)  COLD WATER PIPING  HOT WATER RETURN PIPING  HOT WATER RETURN PIPING  SANITARY DRAIN PIPING  UNDERGROUND SANITARY PIPING  SANITARY VENT PIPING  VTR VENT THROUGH ROOF  PIPE TURNING DOWN  O PIPE TURNING UP  CHECK VALVE  UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  BALL VALVE  CA COMPRESSED AIR  FW FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		
COLD WATER PIPING HOT WATER RETURN PIPING HOT WATER RETURN PIPING SANITARY DRAIN PIPING UNDERGROUND SANITARY PIPING SANITARY VENT PIPING VENT THROUGH ROOF PIPE TURNING DOWN PIPE TURNING UP CHECK VALVE UNION ABOVE FINISHED FLOOR CO CLEAN OUT BALL VALVE BALL VALVE CA COMPRESSED AIR FW FILTERED WATER GCO GRADE CLEAN OUT POINT OF CONNECTION	— CD —	CONDENSATE DRAIN PIPING
HOT WATER PIPING (120°F)  HOT WATER RETURN PIPING  SANITARY DRAIN PIPING  UNDERGROUND SANITARY PIPING  VTR VENT THROUGH ROOF  PIPE TURNING DOWN  PIPE TURNING UP  CHECK VALVE  UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA COMPRESSED AIR  FW FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	— PD —	PUMP DISCHARGE (FORCED MAIN)
HOT WATER RETURN PIPING  SANITARY DRAIN PIPING  UNDERGROUND SANITARY PIPING  SANITARY VENT PIPING  VTR VENT THROUGH ROOF  PIPE TURNING DOWN  PIPE TURNING UP  CHECK VALVE  IIII UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		COLD WATER PIPING
SANITARY DRAIN PIPING  UNDERGROUND SANITARY PIPING  SANITARY VENT PIPING  VTR VENT THROUGH ROOF  PIPE TURNING DOWN  PIPE TURNING UP  CHECK VALVE  UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		HOT WATER PIPING (120°F)
UNDERGROUND SANITARY PIPING  SANITARY VENT PIPING  VTR VENT THROUGH ROOF  PIPE TURNING DOWN  PIPE TURNING UP  CHECK VALVE  IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		HOT WATER RETURN PIPING
SANITARY VENT PIPING  VTR VENT THROUGH ROOF  → PIPE TURNING DOWN  → CHECK VALVE  →   UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  → PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  - CA — COMPRESSED AIR  - FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		SANITARY DRAIN PIPING
VTR VENT THROUGH ROOF  → PIPE TURNING DOWN  → CHECK VALVE  →   UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  → PRESSURE REGULATING VALVE (PRV) (50 PSI)  → BALL VALVE  — CA — COMPRESSED AIR  — FW — FILTERED WATER  GCO GRADE CLEAN OUT  → POINT OF CONNECTION		UNDERGROUND SANITARY PIPING
PIPE TURNING DOWN  PIPE TURNING UP  CHECK VALVE  UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		SANITARY VENT PIPING
PIPE TURNING UP  CHECK VALVE  III UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	VTR	VENT THROUGH ROOF
CHECK VALVE  I UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	—— <u> </u>	PIPE TURNING DOWN
UNION  AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		PIPE TURNING UP
AFF ABOVE FINISHED FLOOR  CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	<u> </u>	CHECK VALVE
CO CLEAN OUT  PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	<u> </u>	UNION
PRESSURE REGULATING VALVE (PRV) (50 PSI)  BALL VALVE  CA — COMPRESSED AIR  FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	AFF	ABOVE FINISHED FLOOR
BALL VALVE  CA — COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION		
COMPRESSED AIR  FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	8	
FW — FILTERED WATER  GCO GRADE CLEAN OUT  POINT OF CONNECTION	<u> </u>	
GCO GRADE CLEAN OUT  POINT OF CONNECTION		
POINT OF CONNECTION		
•	GCO	GRADE CLEAN OUT
Ø BALANCE VALVE	<b>M</b>	POINT OF CONNECTION
	Ø	BALANCE VALVE

	PLUMBING FIXTURE SCHEDULE										
MARK	FIXTURE	SAN.	<u>VENT</u>	C.W.	H.W.	REMARKS					
FD-1	FLOOR DRAIN ZURN MODEL FD-2322	3"	2"	_	_	CAST IRON FLOOR DRAIN, 5" DIAM. PROVIDE WATERLESS TRAP GUARD BY PROSET IN FLOOR DRAINS, MODEL NUMBER MAY VARY FOR MFG AND SIZE.					
FCO	FLOOR CLEANOUT ZURN MODEL Z-1404	_	_	_	_	CAST IRON CLEANOUT WITH THREADED ADJUSTABLE HOUSING, ROUND SCORIATED HEAVY CAST IRON COVER.					
WCO-1	WALL CLEANOUT ZURN MODEL Z-1441	_	_	_	_	CAST IRON CLEANOUT TEE WITH INLET/OUTLET SPIGOT AND THREADED BRASS PLUG, WITH STAINLESS STEEL ACCESS COVER.					
WC-1	FLOOR MOUNTED WATER CLOSET ZURN Z5665-BWL ADA COMPLIANT ELONGATED BOWL	4"	2"	1-1/2"	_	ZURN SEATZ5955SS-EL-AM OR EQUIVALENT, ZURN Z6000AV-HET (1.28 GPF) FLUSH VALVE. MOUNT AT 17" FROM FLOOR TO TOP OF RIM.					
WC-2	FLOOR MOUNTED WATER CLOSET ZURN Z5665-BWL ADA COMPLIANT ELONGATED BOWL	4"	2"	1-1/2"	_	ZURN SEATZ5955SS-EL-AM OR EQUIVALENT, ZURN Z6000AV-HET (1.28 GPF) FLUSH VALVE. MOUNT AT 17" FROM FLOOR TO TOP OF RIM. ADA HEIGHT					
LAV-1	LAVATORY, VITREOUS CHINA ZURN Z5351 WALL MOUNTED	2"	2"	1/2"	1/2"	ZURN FAUCET Z86100-3M (0.5GPM), VANDAL RESISTANT SPRAY WITH GRID DRAIN. ZURN Z8700 P-TRAP AND ARIM, CLEANOUT, AND ESCUTCHION. ZURN Z8946-3-NT ADA PROTECTORS. LOOSE KEY ANGLE STOPS WITH FLEXIBLE RISER AND ZURN Z1224 RIGID SYSTEM LAV SUPPORT.					
UR-1	URINAL TOTO UT105UG #01	2"	1-1/2"	3/4"	_	TOTO #TEU1UN12#CP FLUSH VALVE, WHITE VITREOUS CHINA WITH SANI-GLOSS, WALL HUNG, ADA COMPLIANT 1/8 GPF.					
MSB-1	MOP SINK ZURN 24"x24" Z1996.05.217.5.03.00	3"	2"	1/2"	,	MOLDED STONE MOP BASIN. 3" STAINLESS STEEL DRAIN ASSEMBLY. CONCEALED CLINICAL SERVICE SINK FAUCET WITH 1/2" VB & INTEGRAL STOPS, 3" DIAMETER FOUR ARM HANDLES, MOP HANGER.					
WH-1	AO SMITH DRE-52	_	-	1-1/2"	1-1/2"	50 GALLON, 12 KW COMMERCIAL ELECTRIC WATER HEATER.					
TMV-1	THERMOSTATIC MIXING VALVE	_	-	1/2"	1/2"	LEONARD LF-270. SET AT 110°.					
RPZPB	REDUCCED PRESSURE ZONE BACKFLOW PREVENTER	_	-	2"		WATTS LF909 OR EQUAL (LEAD FREE)					
TD-1	TRENCH DRAIN MIFAB MODEL P6012, STAINLESS STEEL.	2"	2"	_		_					







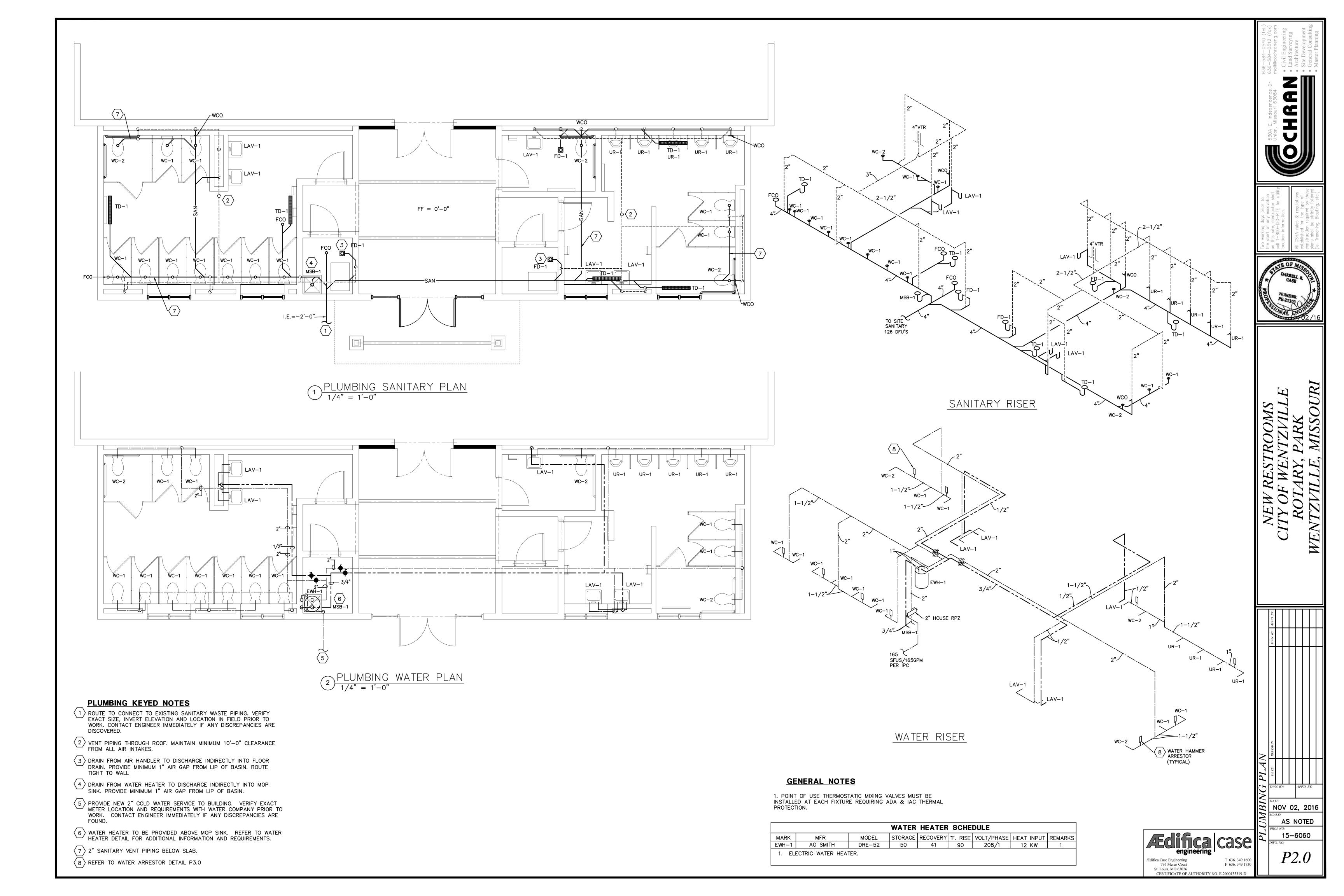


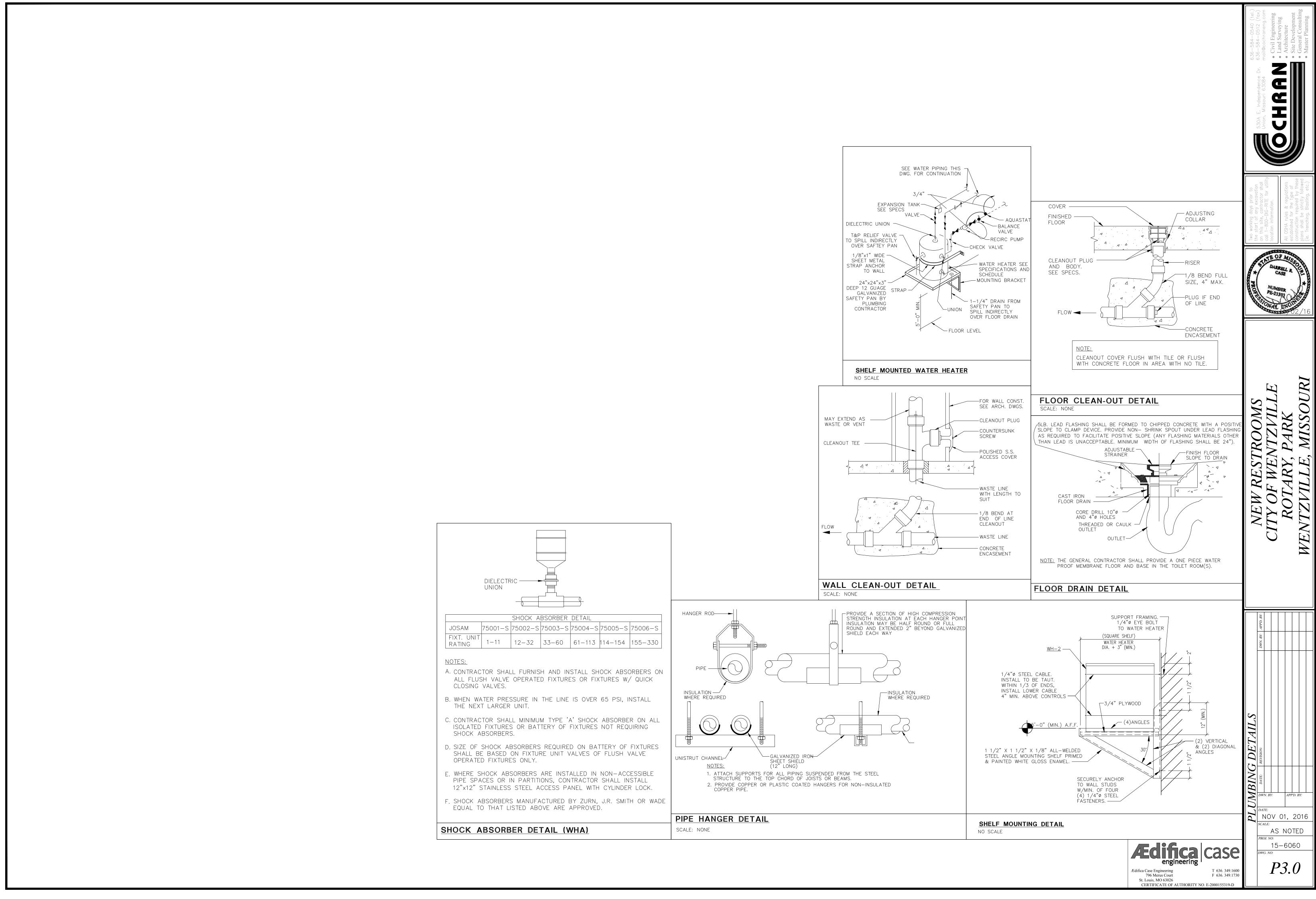
COOM, FZVIL ARK VRE, 7F W, 7TAR,

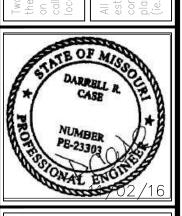
NOV 02, 2016

AS NOTED

15-6060







# ROTARY PARK GRINDER LIFT STATION

# CITY OF WENTZVILLE

CITY OF WENTZVILLE PROJECT NO.: ENG-2015-037A



# for City of Wentzville, Missouri Department of Public Works



LOCATION MAP

#### INDEX OF DRAWINGS

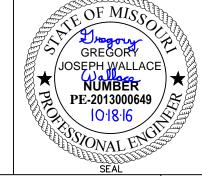
DWG. NO.

1 COVER DRAWING
2 GENERAL NOTES
3 FORCE MAIN PLAN
4 SEWER AND FORCE MAIN PROFILE

5 LIFT STATION DETAILS

#### UTILITY CONTACTS

TELEPHONE
CENTURYTEL
636-332-7329
ELECTRIC
AMEREN UE
636-639-8310
CUIVRE RIVER ELECTIC COOPERATIVE
636-327-5282
NATURAL GAS
AMEREN UE
636-639-8305
WATER
CITY OF WENTZVILLE
636-327-5102
SEWER
CITY OF WENTZVILLE
636-327-5102



SITE

	UTILITY NOTES  UNDERGROUND FACILITY STRUCTURES AND  UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND	CITY OF WENTZVILLE	DESIGNED BY: GJW	scale: NONE	ROTARY PARK	SHEET NUMBER
	RECORD INFORMATION AND, THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF LOCATION OF ALL UNDERGROUND STRUCTURES AND FACILITIES EITHER SHOWN	PUBLIC WORKS DEPARTMENT 200 E. FOURTH STREET	DRAWN BY: GJW	DATE: 10/18/2016	GRINDER LIFT STATION	1
	OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.	WENTZVILLE, MISSOURI 63385 PH. 636-639-2049	WPC	PROJECT NO.		TOTAL SHEETS
NO. DATE BY REVISION	1-800-344-7483 MINOUN OR-OUL THERE IN.	FAX. 636-639-2057	APPROVED BY: GJW	2015-037A	COVER DRAWING	5

#### GENERAL NOTES

DESCRIPTION OF WORK:

INSTALLATION OF A SANITARY SEWER LATERAL, GRINDER PUMP LIFT STATION AND FORCE MAIN TO SERVICE A RESTROOM FACILITY AT ROTARY PARK

- 2 DEFINITIONS
  - A. CONTRACTOR: ENTITY RESPONSIBLE FOR CONSTRUCTION
  - B. ENGINEER/OWNER: CITY OF WENTZVILLE
- EXCEPT AS NOTED, ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF WENTZVILLE STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS, CURRENT EDITION.
- 4. NO CONSTRUCTION ACTIVITY SHALL COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED FROM THE CITY OF WENTZYILLE ENGINEERING DIVISION AND A PRE-CONSTRUCTION MEETING HAS BEEN COORDINATED WITH ENGINEERING DIVISION PERSONNEL.
- 5. A COPY OF THE CITY OF WENTZVILLE STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS, MOST CURRENT EDITION, AND A COPY OF THE APPROVED GRINDER LIFT STATION PLANS SHALL BE ON SITE AT ALL TIMES WHILE CONSTRUCTION ACTIVITY IS OCCURRING.
- 6. CARE SHALL BE TAKEN BY THE CONTRACTOR NOT TO CAUSE ANY SOIL, MUD, EARTH, SAND, GRAVEL, ROCK, STONE, CONCRETE, OR OTHER MATERIALS OR LIQUIDS TO BE FLUNG OR DEPOSITED, DROPPED UPON OR TO ROLL, FLOW, STAND, OR WASH UPON OR OVER ANY PUBLIC STREET, STREET IMPROVEMENT, ROAD, SEWER, STORM DRAIN, WATERCOURSE OR RIGHT-OF-WAY OF ANY OTHER PUBLIC PROPERTY IN VIOLATION OF CITY OF DINANCE MUNICED BASE
- 7. MODIFICATIONS TO THE APPROVED PLANS REQUIRE REVIEW AND APPROVAL BY THE CITY OF WENTZVILLE ENGINEERING DIVISION. WORK PERFORMED WITHOUT WRITTEN APPROVAL WILL REQUIRE REMOVAL AT THE CONTRACTOR'S EXPENSE.
- 8. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK BY CONTACTING MISSOURI ONE-CALL SYSTEM, INC. OR OTHER NECESSARY ENTITIES. HOWEVER, CONTACTING MISSOURI ONE-CALL SYSTEM DOES NOT RELIEVE THE CONTRACTOR FROM THEIR RESPONSIBILITY OF CHECKING WITH THE RECORDER OF DEEDS FOR OWNER/OPERATORS OF ALL UNDERGROUND UTILITIES IN THE AREAS.
- 9. ONSITE UTILITIES AND UNDERGROUND FACILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE PROTECTED BY THE CONTRACTOR FROM DAMAGE BY THE CONTRACTOR'S OPERATIONS. IF DAMAGE OCCURS, THE CONTRACTOR SHALL COORDINATE REPAIRS WITH THE RESPECTIVE UTILITY OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT IS ATTRIBUTED TO THE CONTRACTOR'S OPERATIONS.
- 10. BEFORE EXCAVATING OVER OR ADJACENT TO ANY EXISTING UTILITIES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF SUCH UTILITIES TO ENSURE THAT PROTECTIVE WORK WILL BE COORDINATED AND PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER OF THE UTILITY INVOLVED. IF ANY EXISTING SERVICE LINES, UTILITIES AND UTILITY STRUCTURES WHICH ARE TO REMAIN IN SERVICE ARE UNCOVERED OR ENCOUNTERED DURING THIS OPERATION, THEY SHALL BE SAFEGUARDED, PROTECTED FROM DAMAGE AND SUPPORTED IF NECESSARY.
- 11. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL ACCESS AREAS USED DURING CONSTRUCTION AND SHALL RESTORE SAID AREAS TO THEIR ORIGINAL CONDITION OR BETTER ONCE CONSTRUCTION IS COMPLETE UNLESS THE ENGINEER GIVES WRITTEN PERMISSION TO THE CONTRACTOR TO LEAVE THE AREA "AS IS".
- 13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEARING AND GRUBBING. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE. ANY TREES OR FENCING THAT HAS BEEN REMOVED OR DAMAGED BY THE CONTRACTOR WITHOUT APPROVAL SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- 14 AFRIAL IMAGERY IS DATED 2012
- 15. ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS SHALL BE CONSIDERED APPROXIMATE. THE EXISTING INFORMATION DEPICTED WAS OBTAINED FROM APPROXIMATE FIELD SURVEY PERFORMED BY THE CITY OF WENTZVILLE IN MAY, 2015 FOR THE PURPOSE OF DEVELOPING A GENERAL SITE LAYOUT. ACTUAL FIELD CONDITIONS MAY VARY. ALL ELEVATIONS ARE PRESENTED IN NAVD 88. COORDINATES FOR BASELINE ARE REFERENCED IN MISSOURI STATE PLAN EAST COORDINATE SYSTEM, NAD 83.
- 16. AERIAL IMAGERY, PLAT, AND RIGHT-OF-WAY INFORMATION WAS OBTAINED FROM CITY GIS DATA, AND SHALL BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL PLAT, PARCEL, EASEMENT AND RIGHT-OF-WAY LOCATIONS PRIOR TO CONSTRUCTION.
- 17. THE CONTRACTOR IS TO VERIFY ALL EXISTING STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL AND STARTING WORK. ANY UNANTICIPATED CONDITIONS ENCOUNTERED DURING THE CONSTRUCTION PROCESS SHALL BE IDENTIFIED TO THE ENGINEER IMMEDIATELY.
- 18. DEPTH TO BEDROCK IS UNKNOWN.
- 19. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN. THE MAINTENANCE OF THESE SEDIMENT AND EROSION CONTROL MEASURES SHALL BE CONSIDERED INCIDENTAL. MAINTENANCE SHALL CONTINUE TO BE THE RESPONSIBILITY OF THE CONTRACTOR UNTIL PROJECT CLOSEOUT. ALL LAND DISTURBED MUST BE GRADED AND RETAINED IN SUCH A MANNER SO AS TO PREVENT GROUND EROSION OVER THE SITE AND ACCESS EASEMENT.
- 20. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL SUBMIT, FOR ENGINEER APPROVAL, A SEDIMENT AND EROSION CONTROL PLAN ENCOMPASSING ALL NECESSARY EROSION CONTROL METHODS TO PREVENT LIBERATED SEDIMENT FROM TRANSPORTING OFF THE SITE OR INTO THE ADJACENT STREAM.
- 21. TRAFFIC CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN. WORK SHALL BE PERFORMED IN A SAFE MANNER IN CONFORMANCE WITH MUTCD REQUIREMENTS FOR TRAFFIC CONTROL. INSTALLATION AND MAINTENANCE SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- 22. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL SUBMIT, FOR ENGINEER APPROVAL, A TRAFFIC CONTROL PLAN ENCOMPASSING ALL NECESSARY TRAFFIC CONTROL METHODS TO SAFELY COMPLETE THE WORK.
- 23. ALL DISTURBED NON-PAVEMENT AREAS SHALL BE SEEDED IN ACCORDANCE WITH DIVISION 800 OF THE CITY OF WENTZVILLE TECHNICAL SPECIFICATIONS, CURRENT EDITION, UNLESS STATED OTHERWISE.
- 24. UPON COMPLETION OF SEEDING, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE NEWLY PLACED SEED AND EROSION CONTROL BLANKET IN A MOIST CONDITION UNTIL FULLY ROOTED INTO THE SUBGRADE (MINIMUM OF 4 WEEKS). NO SEEDING SHALL BE ACCEPTED UNTIL IT IS ROOTED INTO THE SUBGRADE.
- 25. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- 26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL ACCESS AREAS USED DURING CONSTRUCTION AND SHALL RESTORE SAID AREAS TO THEIR ORIGINAL CONDITION OR BETTER ONCE CONSTRUCTION IS COMPLETE UNLESS THE ENGINEER GIVES WRITTEN PERMISSION TO THE CONTRACTOR TO LEAVE THE AREA "AS IS". THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING PORTIONS OF PAVEMENTS THAT ARE TO REMAIN IN PLACE. MARRING, CHIPPING, STAINING, ETC. OF ANY PORTION OF THE PAVEMENT TO REMAIN SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO RESTORE TO THE SATISFACTION OF THE ENGINEER.

UNDERGROUND FACILITY STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORD INFORMATION AND, THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF LOCATION OF ALL UNDERGROUND STRUCTURES AND FACILITIES EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY

Call BEFORE you DIG TOLL FREE 1-800-344-7483

OF THE CONTRACTOR.

27. CONTRACTOR SHALL REMOVE TREES AND SHRUBS AS NECESSARY FOR CONSTRUCTION OF THE LIFT STATION, PIPING AND APPURTENANT STRUCTURES. ANY TREES OR FENCING THAT HAS BEEN REMOVED OR DAMAGED BY THE CONTRACTOR WITHOUT APPROVAL SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

#### SANITARY SEWER NOTES

- 1. TOLERANCES
- 1.1. INVERT ELEVATIONS; +0.1'/-0.1' OF PLAN ELEVATION
- 2. WHERE A SEWER MAIN CROSSES OVER OR UNDER ANOTHER PIPE, AND A VERTICAL CLEARANCE OF 18 INCHES CANNOT BE MAINTAINED BETWEEN THEM, THE FOLLOWING CONCRETE ENCASSEMENT SHALL BE REQUIRED: WHEN THE SANITARY SEWER IS THE LOWER PIPE, IT SHALL BE RECASED FOR TISS ENTIRE PERIPHERY WITH CLASS 'A' CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE HIGHER PIPE. WHEN THE SANITARY SEWER IS THE HIGHER PIPE, IT SHALL LIKEWISE BE ENCASED FOR ITS ENTIRE PERIPHERY WITH CLASS 'A' CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SUP OF THE LOWER PIPE, IN ADDITION THE LOWER PIPE SHALL BE ENCASED FROM THE SPRINGLINE OF THE PIPE, FOR THE WIDTH OF THE TRENCH, UP TO THE ENCASEMENT OF THE UPPER PIPE.
- 3. CONTRACTOR SHALL SUBMIT PIPE MATERIALS FOR ENGINEER APPROVAL PRIOR TO DELIVERY TO SITE.
- 4. THE RECEIVING MANHOLE OF THE FORCE MAIN SHALL BE PROTECTED BY AN EPOXY COATING ON THE INTERIOR SURFACES. CONTRACTOR SHALL SUBMIT EPOXY COATING FOR ENGINEER APPROVAL.
- 5. THE CITY OF WENTZVILLE SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION OF SANITARY SEWERS FOR COORDINATION AND INSPECTIONS.
- 6. TRENCH BACKFILL SHALL BE WATER JETTED IN ACCORDANCE WITH STANDARD CONSTRUCTION SPECIFICATION 217.12.
- 7. RECORD DRAWINGS SHALL BE SUBMITTED TO THE CITY PRIOR TO FINAL ACCEPTANCE OF THE WORK. RECORD DRAWINGS SHALL INCLUDE DEPTH MEASUREMENTS OF THE INSTALLED FORCE MAIN AT A MINIMUM OF 100-FOOT INTERVALS TO UPDATE THE PROFILE. ADDITIONALLY, DEPTHS OF UTILITY CROSSINGS ENCOUNTERED SHALL BE RECORDED.

#### FORCE MAIN TESTING NOTES:

- 1. ALL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE WORK.
- 2. PRESSURE TEST. ALL SANITARY SEWER FORCE MAINS MUST BE PRESSURE TESTED IN ACCORDANCE WITH ASTM F2164, FIELD LEAK TESTING OF POLYETHYLENE PRESSURE PIPING SYSTEMS USING HYDROSTATIC PRESSURE. A PRESSURE OF THE GREATER OF 1.5 TIMES THE NORMAL OPERATING PRESSURE AT THE LOWEST POINT IN THE SYSTEM OR 50 PSI OVER THE NORMAL OPERATING PRESSURE WILL BE ACHIEVED AND MAINTAINED FOR TWO HOURS WITHOUT ANY PRESSURE DROP. THE CITY MAY REQUIRE A HIGHER PRESSURE FOR THIS TEST IF DEEMED NECESSARY.
- 3. CONTINUITY TEST: THE TRACER WRE INSTALLED ALONG THE ENTIRE LENGTH OF WATER MAIN, SHALL BE TESTED BY A METHOD ACCEPTABLE TO THE ENGINEER WHICH SHOULD SHOW THAT THE WRE IS CONTINUOUS WITHOUT BREAK IN THE WRE, AND THAT THE FORCE MAIN CAN BE EASILY LOCATED BY THE CITY. FAILURE TO PASS THE TEST MAY RESULT IN THE CONTRACTOR BEING REQUIRED TO FIND AND REPLACE BREAKS IN THE WRE, OR ALTERNATIVELY REPLACE THE WIRE, AS REQUIRED BY THE ENGINEER.

#### PUMP SUPPLY / TESTING NOTES:

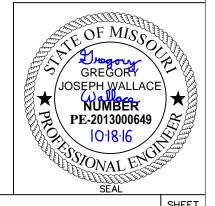
- 1. THE PUMP MANUFACTURER SHALL WARRANT THE UNITS BEING SUPPLIED TO THE OWNER AGAINST DEFECTS IN WORKMANSHIP AND MATERIAL FOR A PERIOD TO BE DETERMINED BY THE MANUFACTURER'S ALLOWABLE DURATION. ALL WARRANTIES SHALL BE SUPPLIED TO THE CITY FOR RECORD KEEPING.
- 2. THE PUMPS SHALL BE TESTED AT START-UP. VOLTAGE, CURRENT, AND OTHER SIGNIFICANT PARAMETERS RECORDED. THE MANUFACTURER SHALL PROVIDE FORMAL TEST PROCEDURES AND FORMS FOR RECORDING DATA.
- 3. THE PUMP MANUFACTURER SHALL PERFORM THE FOLLOWING INSPECTIONS AND TESTS ON EACH PUMP BEFORE SHIPMENT FROM THE FACTORY:
- 3.1. IMPELLER, MOTOR RATING AND ELECTRICAL CONNECTIONS SHALL FIRST BE CHECKED FOR COMPLIANCE TO THE CUSTOMER'S PURCHASE ORDER
- 3.2. A MOTOR AND CABLE INSULATION TEST FOR MOISTURE CONTENT OR INSULATION DEFECTS SHALL BE MADE.
- ${\bf 3.3.} \ \ {\bf PRIOR} \ \ {\bf TO} \ \ {\bf SUBMERGENCE,} \ \ {\bf THE} \ \ {\bf PUMP} \ \ {\bf SHALL} \ \ {\bf BE} \ \ {\bf RUN} \ \ {\bf DRY} \ \ {\bf TO} \ \ {\bf ESTABLISH} \ \ {\bf CORRECT} \ \ {\bf ROTATION} \ \ {\bf AND} \ \ {\bf MECHANICAL} \ \ {\bf INTEGRITY}.$
- 3.4. THE PUMP SHALL BE RUN FOR 30 MINUTES SUBMERGED, AT A MINIMUM OF SIX (6) FEET UNDER WATER
- 3.5. CONTRACTOR SHALL SUBMIT OFF-SITE TESTING DATA, FOR INFORMATION ONLY, PRIOR TO INSTALLATION ON SITE.

<b>©</b>	_	CENTER LINE
T.		
FL.	_	FLOW LINE
DND	_	DO NOT DISTURB
EL	_	ELEVATION
EX	_	EXISTING
Н	_	HORIZONTAL
MAX	_	MAXIMUM
MIN	_	MINIMUM
RCP	_	REINFORCED CONCRETE PIPE
SAN	_	SANITARY
SCD	_	STANDARD CONSTRUCTION DETAIL

SILT FENCE WATER

ABBREVIATIONS:

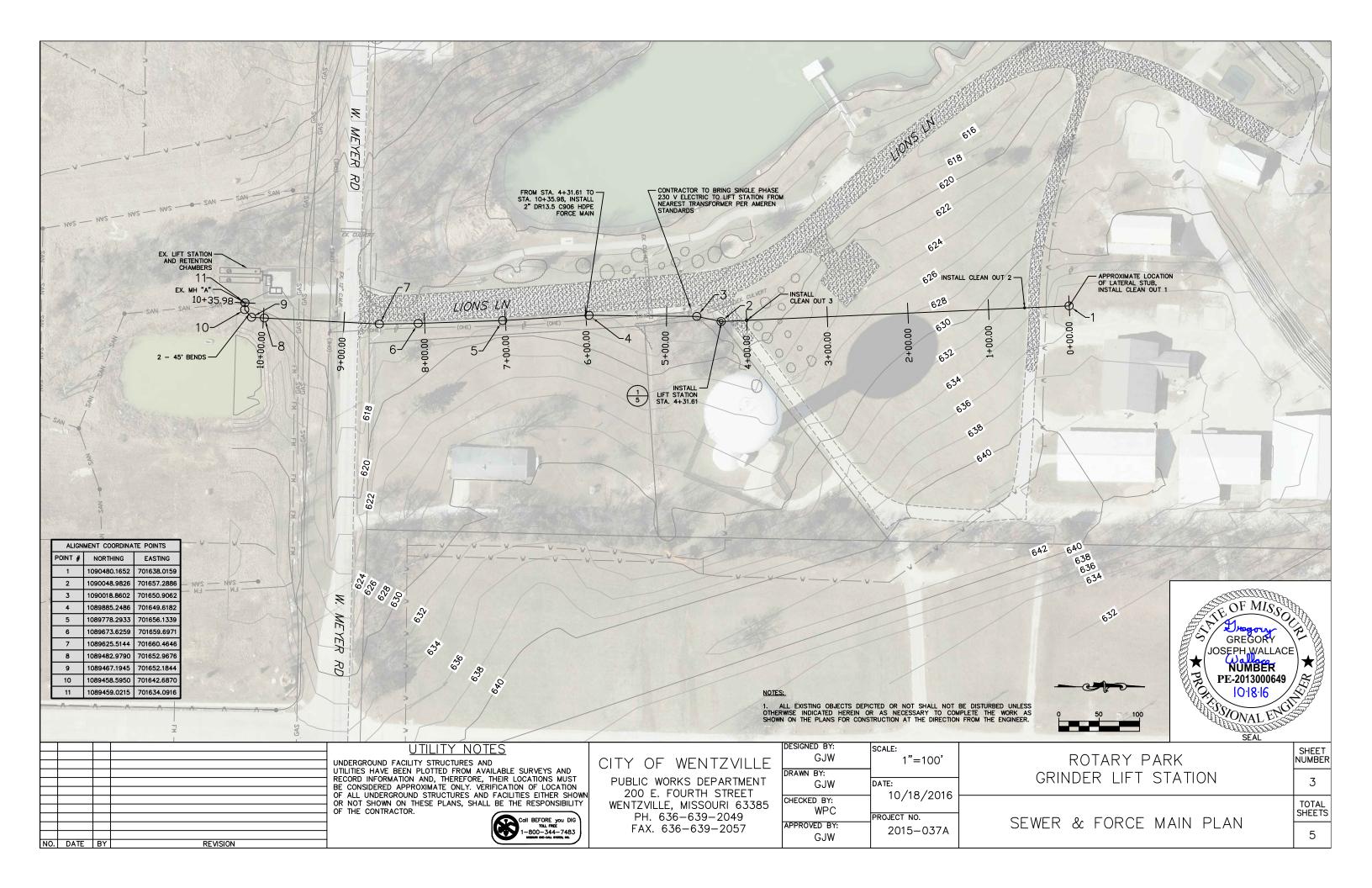
EXISTING	LEGEND	PROPOSED
● SAN —	SANITARY SEWER	●— SAN —
	CURB INLET	ш —
— w —	WATER LINE	— w —
— STORM —	STORM SEWER	— STORM —
—— GAS ——	GAS LINE	— GAS —
— UGE —	UNDERGROUND ELECTRIC	— UGE —
—_F0—	FIBER OPTIC	—-F0
	CABLE LINE	—catv
₩V	WATER VALVE	₩V
黨	HYDRANT	*
$\overset{GV}{\bowtie}$	GAS VALVE	g∨ ⊠
	TREE	<b>*</b>
•	BUSH / SHRUB	0
P	UTILITY PEDESTAL	®
— SF —	SILT FENCE	— SF —

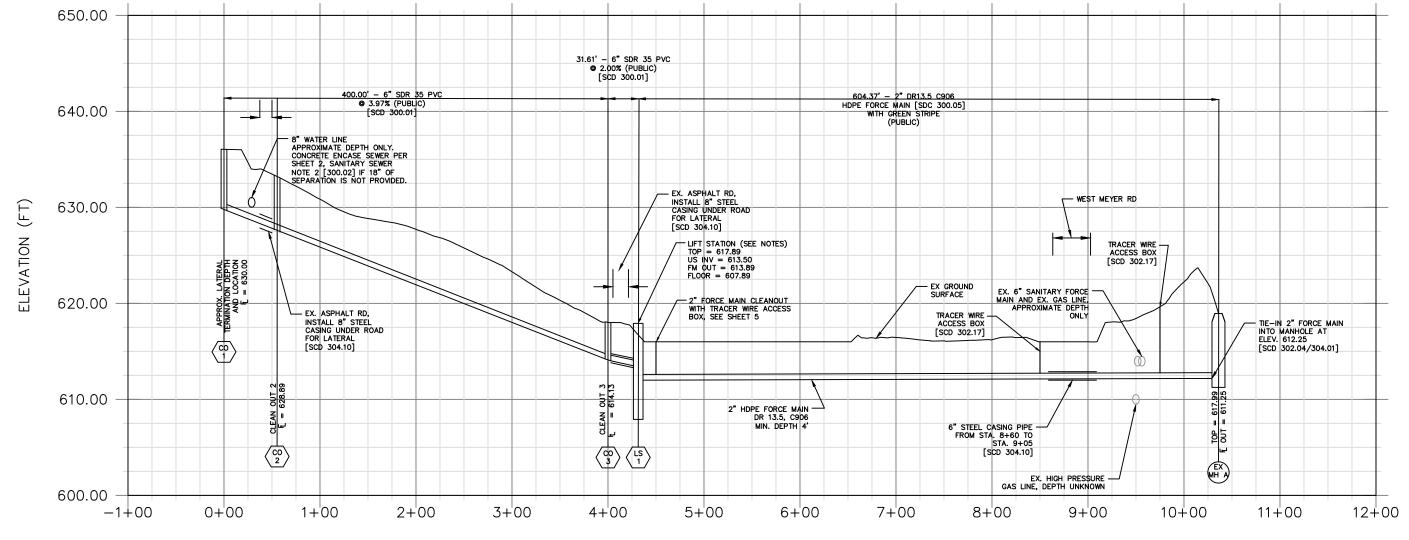


CITY OF WENTZVILLE
PUBLIC WORKS DEPARTMENT
200 E. FOURTH STREET
WENTZVILLE, MISSOURI 63385
PH. 636-639-2049
FAX. 636-639-2057

DESIGNED BY: GJW	scale: NONE	
DRAWN BY:		
GJW	date: 10/18/2016	
CHECKED BY: WPC	10/16/2016	
::	PROJECT NO.	l
APPROVED BY: GJW	2015-037A	

ROTARY PARK	NUMBER
GRINDER LIFT STATION	2
CENEDAL NOTES	TOTAL SHEETS
GENERAL NOTES	5





SANITARY SEWER AND FORCE MAIN NOTES:

1. THE FORCE MAIN SHALL HAVE A PRESSURE TEST WHICH IS EQUAL TO THE MAXIMUM PUMP SHUT OFF HEAD IN PSI, PLUS AN ADDITIONAL 50 PSI.

2. ALL TEES AND FITTINGS USED ON THE SANITARY FORCE MAIN SHALL BE POLY FUSED.

3. THE RECEIVING MANHOLE (EX MH A) SHALL BE PROTECTED BY THE APPLICATION OF AN EPOXY COATING OF RAVEN 404 OR EQUAL.

4. ALL STRUCTURES TO BE A MINIMUM OF 3 FEET APART.

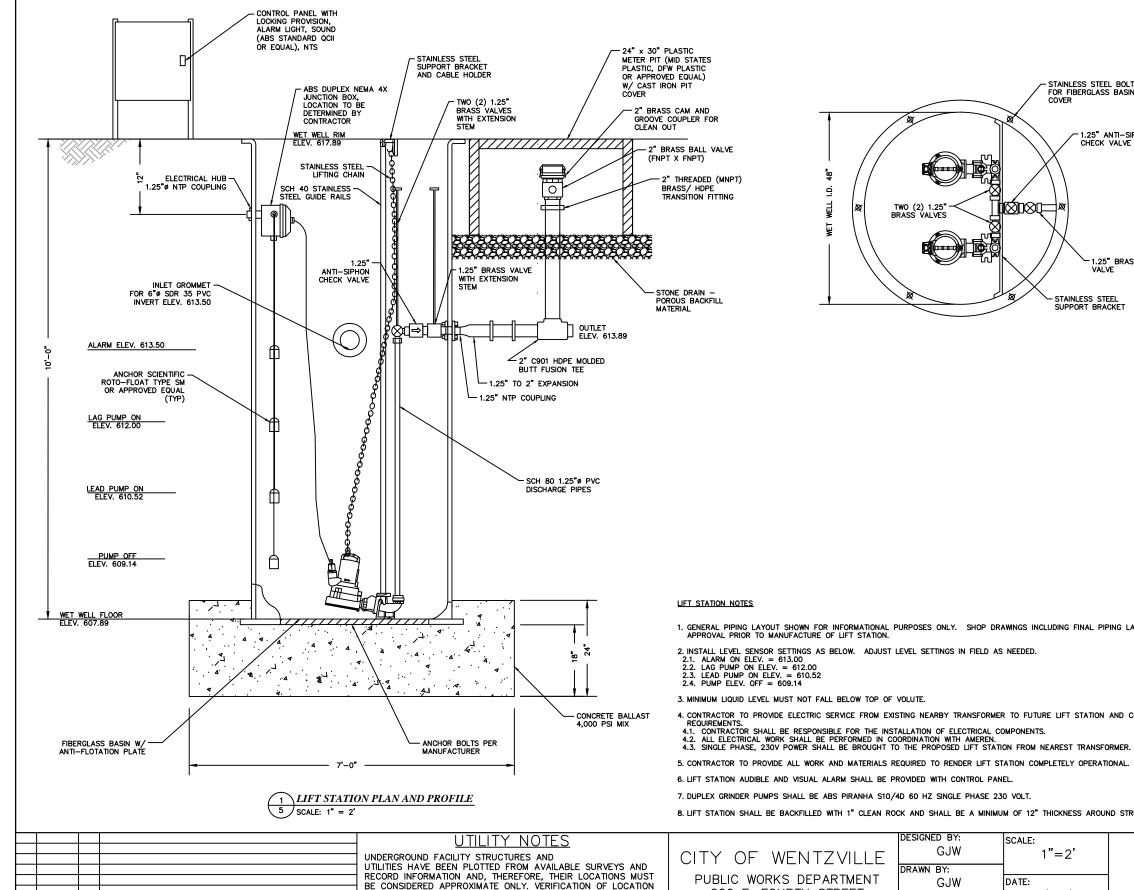
5. ALL UTILITY CROSSINGS SHALL BE POTHOLED FOR DEPTH PRIOR TO INSTALLATION OF LATERAL AND FORCE MAIN.

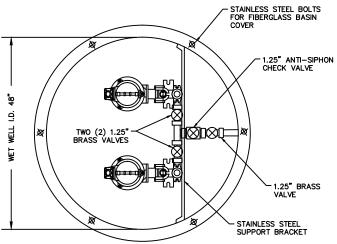
STATION (FT)

SANITARY FORCE MAIN
PROFILE VIEW
1"=10' VERTICAL
1"=100' HORIZONTAL



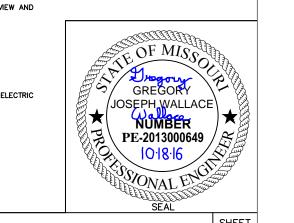
	UTILITY NOTES  UNDERGROUND FACILITY STRUCTURES AND	CITY OF WENTZVILLE	DESIGNED BY: GJW	scale: NONE	ROTARY PARK	SHEET NUMBER
	UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORD INFORMATION AND, THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF LOCATION OF ALL UNDERGROUND STRUCTURES AND FACILITIES EITHER SHOWN	PUBLIC WORKS DEPARTMENT	DRAWN BY: GJW	DATE: 10/18/2016	GRINDER LIFT STATION	4
	OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.	WENTZVILLE, MISSOURI 63385 PH. 636-639-2049	CHECKED BY: WPC	PROJECT NO.	SEWER & FORCE MAIN PROFILE	TOTAL SHEETS
NO. DATE BY REVISION	1-800-344-7483 IMBOURD GE-OAL STEILS, BG.	FAX. 636-639-2057	APPROVED BY: GJW	2015-037A	SEWER & FORCE MAIN FROHE	5





- 1. GENERAL PIPING LAYOUT SHOWN FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS INCLUDING FINAL PIPING LAYOUT TO BE SUBMITTED TO CITY FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE OF LIFT STATION.
- 4. CONTRACTOR TO PROVIDE ELECTRIC SERVICE FROM EXISTING NEARBY TRANSFORMER TO FUTURE LIFT STATION AND CONTROL PANEL, CONFORMING TO AMEREN ELECTRIC

5 SCALE: 1" = 2'		8. LIFT STATION SHALL BE BACKFILLED WITH 1" CLEAN RC	OCK AND SHALL BE A MININ	MUM OF 12" THICKNESS AROUND STRUCT	URE.	SEAL	
	UTILITY NOTES  UNDERGROUND FACILITY STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORD INFORMATION AND, THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF LOCATION OF ALL UNDERGROUND STRUCTURES AND FACILITIES EITHER SHOWN	CITY OF WENTZVILLE PUBLIC WORKS DEPARTMENT 200 E. FOURTH STREET	DESIGNED BY: GJW  DRAWN BY: GJW	SCALE: 1"=2'  DATE: 10/18/2016	ROTARY PAR GRINDER LIFT ST	`'`	SHEET IUMBER 5
	OF ALL UNDERGROUND STRUCTURES AND FACILITIES ETHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.  Call BEFORE you DIG 100.0000000000000000000000000000000000	WENTZVILLE, MISSOURI 63385 PH. 636-639-2049	CHECKED BY: WPC APPROVED BY:	PROJECT NO. 2015—037A	LIFT STATION DE	I SH	TOTAL SHEETS
NO. DATE BY REVISION	MISSOURI CHE-CALL SYSTEM, INC.		GJW				J



#### APPENDIX A

#### ELECTRONIC DATA TRANSFER AGREEMENT

At the request of the City of Wentzville, from time to time when requested by the undersigned construction contractor (Contractor), computer files of design documents or portions of design documents (CADD and Specification Files) prepared by Cochran for the City of Wentzville Rotary Park Restrooms and Grinder Lift Station may be transferred by Cochran to the Contractor for the Project or its authorized subcontractor (Subcontractor) for their use in preparing other documents to be used to aid in the construction of the Project. The undersigned Contractor and Subcontractor, represent, acknowledge, and agree as follows:

- 1. The CADD and Specification Files are a component of Cochran's instruments of service to the City of Wentzville and Cochran retains all ownership rights therein, and the Contractor and Subcontractor shall not use the CADD and Specification Files for any purpose not related to this particular Project.
- 2. The transfer has been authorized in writing by the City of Wentzville.
- 3. Cochran and the City of Wentzville makes no representation regarding and disclaims any responsibility and liability for: a) the accuracy, completeness or suitability of the CADD and Specification Files for the purpose for which the documents are to be used; b) the accuracy or completeness of the CADD and Specification Files after the transfer; or c) durability of the CADD and Specification Files or the medium in or on which they are transferred.
  - Signed and sealed documents shall take precedence over any and all discrepancies between such documents and the CADD and Specification Files.
- 4. Use of the CADD and Specification Files is at the sole risk of the Contractor and Subcontractor and without any liability or legal exposure to Cochran. Furthermore, the Contractor and Subcontractor shall indemnify, defend and hold harmless Cochran from any and all claims, damages, losses and expenses including attorneys' fees arising out of or related to such use or this transfer.
- 5. This transfer does not transfer any right or license to use the underlying software or any other rights whatsoever.
- 6. The undersigned certifies he or she is duly authorized to sign this document for the Contractors and Subcontractor.

Accepted by:

CONTRACTOR	SUBCONTRACTOR [if applicable]
(firm name)	(firm name)
(signature)	(signature)
(printed name)	(printed name)
(title)	(title)
(date)	(date)