

REQUEST FOR BIDS

The City of Las Vegas, New Mexico will open Sealed Bids at 2:00 p.m., June 3, 2015 at the City Council Chambers, 1700 North Grand Avenue, Las Vegas, New Mexico, or other designated area at the City Offices; ON THE FOLLOWING:

Rodriguez Park Booster Station Repairs

The BIDDING FORMS AND TECHNICAL SPECIFICATIONS may be examined at the following location: 1700 N. GRAND AVE. LAS VEGAS, NM 87701

Copies of the BIDDING FORMS AND TECHNICAL SPECIFICATIONS may be obtained at the office of : 1700 N. GRAND AVE. LAS VEGAS, NM 87701

Mailed Bids should be addressed to the City Clerk, 1700 N. Grand Ave., Las Vegas, New Mexico 87701; with the envelope marked: Rodriguez Park Repairs, Opening No. 2015-29; on the lower left-hand corner of the submitted envelope. It shall be the responsibility of the bidder to see that their bid is delivered to the City Clerk by the date and time set for the bid request. If the mail or delivery of bid request is delayed beyond the opening date and time, bid thus delayed will not be considered. A public opening will be held and any bidder or their authorized representative is invited to attend.

The City of Las Vegas reserves the right to reject any/or all bids submitted.

CITY OF LAS VEGAS,

[Signature]
ELMER J. MARTINEZ, CITY MANAGER

[Signature]
CASANDRA FRESQUEZ, CITY CLERK

[Signature]
ANN M. GALLEGOS, FINANCE DIRECTOR

[Signature]
JUNE TAFOYA CORDOVA, PURCHASING OFFICER

Opening No. 2015-29

Date Issued: 4-30-15

Date issued: Published: Albuquerque Journal May 10 .2015
Las Vegas Optic May 8 .2015
City website: www.lasvegasnm.gov

BIDDER INFORMATION

BIDDER: _____

AUTHORIZED AGENT: _____

ADDRESS: _____

TELEPHONE NUMBER (_____) _____

FAX NUMBER (_____) _____

DELIVERY: _____

STATE PURCHASING RESIDENT CERTIFICATION NO.: _____

NEW MEXICO CONTRACTORS LICENSE NO.: _____

BID ITEM (S): Rodriguez Park Booster Station Repairs I

ITEM (S) UNDER THIS BID ARE TO BE F.O.B. LAS VEGAS, NEW MEXICO 87701. THE CITY OF LAS VEGAS RESERVES THE RIGHT REJECT ANY OR ALL BIDS AND TO WAIVE ANY TECHNICAL IRREGULARITY IN THE FORM OF THE BID.

AFFIDAVIT FOR FILING WITH COMPETITIVE BID

STATE OF _____ }

COUNTY OF _____ }

I _____, of lawful age, being of first duly sworn in oath, say that I am the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any city official or employee as to the terms of said prospective contract, or any other terms of said prospective contract; or in any discussion between bidders with any city official concerning an exchange of money or any other thing of value for special consideration in the letting of a contract.

Subscribed and sworn to before me, this _____ day of _____, 20____.

Signature

(SEAL)

Notary Public Signature
My Commission Expires: _____

STANDARD BID CLAUSES

AWARDED BID

Awarding of Bid shall be made to the responsible Bidder whose Bid meets the required specifications. The City of Las Vegas (City) reserves the right to reject or accept any of all Bid specifications and to waive any insubstantial irregularity in the form of the Bid.

The City of Las Vegas may make multiple awards of the bid, to those bidding in law enforcement related services. The City Reserves the right to award the bid to the most advantageous Bidder to the City.

TIMETABLE

Bids pursuant to this request must be received at the City Clerk's Office at 1700 North Grand Avenue, Las Vegas, New Mexico, on or before 2:00 pm, June 3, 2015 at which time all bids received will be opened. An opening will occur at the City's Council Chambers or other designated area at the City Offices. Awarding of Bid is projected for JUNE, 2015. The successful Bidder will be notified by mail.

ENVELOPES

Sealed Bid envelopes shall be clearly marked on the lower left-hand corner, identified by the Bid Name and Opening Number. Failure to comply with this requirement may result in the rejection of your submitted Bid. Enclose one (1) original and two (2) copies of Bid.

BRIBERY AND KICKBACK

The Procurement Code of New Mexico; (Section 13-1-28 through 13-1-99 N.M.S.A. 1978), impose a third degree felony penalty for bribery of a public official or public employee. In addition the New Mexico Criminal Statutes (Section 30-4-1, N.M.S.A. 1978): state that it is a third degree felony to commit the offense of demanding or receiving a bribe by a public official of public employee. And (Section 30-24-2, N.M.S.A. 1978): It is a fourth degree felony to commit the offense of soliciting or receiving illegal kickbacks. Also (Section 30-41-1 through 30-41-3, N.M.S.A. 1978): states that It is a fourth degree felony to commit the offense of offering or paying illegal kickbacks.

NON-COLLUSION

In signing their Bid and Affidavit, the Bidder certifies that he/she has not, either directly or indirectly entered into action of restraint of free competition, in the connection with the submitted bid.

RESPONSIBILITY OF BIDDER

At all times It shall be the responsibility of the Bidder to see their bid is delivered to the City Clerk by the Date and Time scheduled for opening. If the mail or delivery of said Bid is delayed beyond the scheduled opening date and time set, bid this delayed will not be considered.

CLARIFICATION OF BID

Bidder requiring clarification or interpretation of Bid specifications shall make a written request to the Department involved in this bid request at least five (5) days prior to the scheduled bid opening date with a copy forwarded to the Finance Department. Any interpretation, corrections or changes of said Bid Specifications, Opening Date, or Time Change will be made by Addendum only. Interpretations, Corrections or changes of said bid made in any other manner will not be binding and the Bidder shall not rely upon such interpretation, corrections and changes.

MODIFICATION OF BID

Bids may be withdrawn upon receipt of written request prior to the scheduled bid opening for the purpose of making any corrections or changes. Such corrections must be properly identified and signed or initialed by the Bidder. Resubmission must be prior to the scheduled bid opening time in order to be considered. After bid opening, no price modifications of submitted bids or other provisions shall be permitted.

WITHDRAWAL OF BID

A low Bidder alleging a material mistake of fact, after bids have been opened may request their bid be withdrawn upon receipt of a written request to the Finance Department prior to the scheduled awarding date.

INSPECTION

Final inspection and acceptance will be made at the City's destination. Products rejected for nonconformance with the specifications shall be removed by the Bidder; at his/her risk and expense promptly after notice of rejection.

FEDERAL TAX IDENTIFICATION NUMBER

Pursuant to IRS requirements, Bidder shall provide their Federal Tax ID Number if Bidder is incorporated. If Bidder is a sole proprietorship or partnership then they shall provide their Social Security Number.

FEDERAL TAX ID NUMBER: _____
SOCIAL SECURITY NUMBER: _____

NEW MEXICO TAX IDENTIFICATION NUMBER

Payment may be withheld under (Section 7-10-5, N.M.S.A. 1978) if you are subject to New Mexico Gross Receipts Tax and have not registered for a New Mexico (CRS) Tax Identification Number. Contact the New Mexico Taxation & Revenue Department at (505) 827-0700 for registering instructions.

NEW MEXICO TAX IDENTIFICATION NO. (CRS): _____

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

The Bidder shall submit a completed Campaign Contribution Disclosure Form Pursuant to Chapter 81, Laws of 2006.

COMMERCIAL WARRANTY

The Bidder agrees that the products or services furnished under a Purchase Order shall be covered by the most favorable commercial warranties that the Bidder gives to any customer for such products or services. And that the rights and remedies provided therein shall extend to the City and are in addition to and do not limit any rights afforded to the City by any other clause of its Purchase Order. Bidder agrees not to disclaim warranties of fitness for any particular purpose or merchantability.

Furthermore, Bidder agrees that its warranty for all products furnished under a Purchase Order pursuant to this Call for Bids shall be for a period of one year following the installation of said products by others. Also a receipt of a notice by the City's Engineer the products have been installed correctly and have been demonstrated to be capable of performing their intended function.

SPECIAL NOTICE

To preclude possible errors and/or misinterpretations, bid prices must be affixed in ink or typewritten legibly. Enclose one (1) original and two (2) copies of Bid documents.

DEFAULT

The City reserves the right to cancel all or any part of an order without cost to the City if the Bidder fails to meet the provisions of the City's Purchase Order or the product specifications and to hold the Bidder liable for any excess costs occasioned due to the Bidder's default. The Bidder shall not be liable for any excess costs if failure to perform on an order arises out of cause beyond the control and without fault or negligence of the Bidder. Such causes include, but are not restricted to, acts of God or public enemy; acts of State or Federal Government; fires, floods, epidemics, quarantine restrictions, strikes, embargoes, unusually severe weather, or defaults of subcontractors. Due to any of the above unless the City shall determine that the supplies or services to be furnished by the subcontractor are obtainable from other sources in the City in this paragraph shall not be exclusive and are in addition to any other rights now being provided by law.

BID PROTESTS

If any Bidder is of the opinion that the specifications as written preclude him/her from submitting a bid. His/her opinion should be made known to the Department involved in this bid request at least twelve (12) days prior to the scheduled bid opening date with a copy forwarded to the Finance Department. Bid protests will not be considered from parties which do not also furnish satisfactory documentation with their protest that their proposed system fully meets the functional intent of the TECHNICAL SPECIFICATIONS which accompany a Call for Bids.

NON-EXCLUSION

Specifications of the bid request are not meant to exclude any Bidder or Manufacturer. Where a brand name or equal is indicated, it is for the purpose of describing the standard of quality, performance and characteristics desired and is not intended to restrict competition. "No Substitute" specifications may be authorized, only if required to match existing equipment.

If any Bidder is of the opinion that the specifications as written preclude him/her from submitting a bid. His/her opinion should be made known to the Department involved in this bid request at least five (5) days prior to the scheduled bid opening date; with a copy forwarded to the Finance Department.

Brand names and numbers are for reference only and equivalents will be considered. If bidding "EQUIVALENT" Bidder must be prepared to furnish complete data upon request, preferably with the bid to avoid awarding delay.

CONTRACT

When the City issues a Purchase Order in response to an awarded Bid a binding contract is created (unless a specified contract has been created).

TERMINATION

This Price Agreement may be terminated by either party upon signing a written notice to the other party at least thirty (30) days in advance of the date of termination. Notice of termination of this Price Agreement shall not affect any outstanding orders.

TAXES

Bidder must pay all applicable taxes.

NOTE:

If bidder is from outside the City of Las Vegas, the successful bidder must pay Gross Receipts in the City of Las Vegas.

**CITY OF LAS VEGAS
BID FORM**

BID ITEM (S): Rodriguez Park Booster Station Repairs

This bid is for repairs to the existing Rodriguez Park Booster Station. All components must work with or equitably replace existing equipment. All components must comply with the original design specifications of the booster station. Submittals for each component will be received to the City prior to selection of the bidder. Original design specifications will be separately attached.

Adjustable Frequency Drive (VFD) supplier shall also provide a 1 phase to 3 phase converter as a single package. Phase converter information shall be included with the VFD submittal. Both VFD and phase converter manufacturer shall provide written documentation confirming their product is suitable for operating with the other. Submittal shall include derating calculations for both the VFDs and phase converter for an altitude of 6,500 feet and as required by the phase converter manufacturer. Phase converter to power the control panel and only one booster pump at a time (both booster pumps never operate at once). Submittal shall include a copy of the respective specifications section. For each paragraph of the Specifications, and for information required above, confirm that the submittal complies and include a tab and sheet number reference to where the information can be found for each paragraph of the Specification. If the submittal does not comply with a paragraph, identify as such and provide an explanation why it does not. Failure to comply with these requirements may result in the City identifying the bidder as "non-responsive."

	Item	Unit	Qty	Price Each	Net Price
A	Adjustable Frequency Drive (See specifications)	EA	2		
B	Phase Converter	EA	1		
C	Motor (See specifications below)	EA	1		
D	Additional Materials to complete installation	LS	1		
E	Labor for installation, complete	HR			

Subtotal	
Shipping	
NM Gross Receipts Tax (8.1458%)	
Total:	

Lead time: _____ calendar days after approval of shop drawings.

Note: Lead time includes shipping and installation time and is a consideration of award.

- A. Adjustable Frequency Drive specification is attached separately (Section 26 29 33).
- B. Record Drawings dated July, 2012 for Rodriguez Park Effluent Re-use Project
- C. Motor specification:

Manufacturer	Baldor Reliance		
Cat. No.	84Z05097	Des	B
Spec.	37P931Y510H2	Class	F
HP	15	NEMA Nom. Eff.	89.5%
Volts	208-230/460	P.F.	90%
Amps	37-35/17.5	Rating	40C AMB-CONT
RPM	3450	CC	010A
Frame	254TCZ	Bearings - DE	7309
Hz	60	Bearings - ODE	6307
PH	3	Encl.	ODTF
Ser. F.	1.15	SN	F1109262250
Code	H	SFA	40-39.4/19.7

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

Pursuant to Chapter 81, Laws of 2006, any prospective contractor seeking to enter into a contract with any state agency or local public body must file this form with that state agency or local public body. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds two hundred and fifty dollars (\$250) over the two year period.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

"Applicable public official" means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

"Campaign Contribution" means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

"Contract" means any agreement for the procurement of items of tangible personal property, services, professional services, or construction.

"Family member" means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law.

"Pendency of the procurement process" means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

"Person" means any corporation, partnership, individual, joint venture, association or any other private legal entity.

"Prospective contractor" means a person who is subject to the competitive sealed

proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

"Representative of a prospective contractor" means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

DISCLOSURE OF CONTRIBUTIONS:

Contribution Made By: _____

Relation to Prospective Contractor: _____

Name of Applicable Public Official: _____

Date Contribution(s) Made: _____

Amount(s) of Contribution(s) _____

Nature of Contribution(s) _____

Purpose of Contribution(s) _____

(The above fields are unlimited in size) _____

Signature

Date

Title (position)

-OR-

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS (\$250) WERE MADE to an applicable public official by me, a family member or representative.

Signature

Date

Title (Position)

SECTION 26 29 23

ADJUSTABLE FREQUENCY DRIVES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Adjustable frequency drives (AFDs) and appurtenances.

1.02 SUBMITTALS

- A. Product data.
- B. Ratings and features.
- C. Elevation and footprint views.
- D. Schematic and internal connection diagrams.
- E. AFD manufacturer's published engineering procedures for derating calculations.
- F. Table which shows all of the information that is shown in Paragraph 3.02 F., adjusted to show actual values for the equipment submitted.
- G. Recommended spare parts list.
 - 1. Name/function of part.
 - 2. Catalog number.
 - 3. Quantity recommended.
 - 4. Cost (each) if bought under change order to Contract.
 - 5. Future source of supply, local to project if available.
- H. Certification of manufacturer's:
 - 1. Experience
 - 2. ISO 9001 status.

1.03 OPERATION AND MAINTENANCE DATA

- A. Product data.
- B. Ratings and features.
- C. Elevation and footprint views.
- D. Schematic and internal connection diagrams.

- E. Table which shows all of the information that is shown in Paragraph 3.02 F., adjusted to show actual values for the equipment installed.
- F. One complete set of drawings in ACAD (.dwg) format and in .dxf format on DVD.
- G. Manufacturer's standard O&M Manual with troubleshooting guide and parts list.

1.04 QUALITY CONTROL

- A. All standard adjustable frequency drives, all options, all assemblies: UL listed and labeled and/or CSA certified/labeled.
- B. Provide AFDs which bear CE Marks meeting the following directives:
 - 1. Machine directive, 89/392/EEC
 - 2. Low voltage directive, 73/23/EEC
 - 3. EMC directive, 89/336/EEC
- C. Provide AFDs which comply to the following EMC (Electromagnetic compatibility) standards, as applicable to the input power, output power and control inputs/outputs:
 - 1. Conducted Emission - EN55011, class A group 1 or class B group 1 as applicable (150kHz – 30MHz).
 - 2. Radiated Emission - EN55011, class A group 1. (30MHz – 1000MHz).
 - 3. Immunity - EN 61000-4-2 Electrostatic discharges (ESD).
 - 4. Immunity - EN 61000-4-3 Radiated electromagnetic field, 1kHz, 80 % amplitude modulated. (80MHz – 1000MHz).
 - 5. Immunity - EN 61000-4-4 Burst transients 5/50nS.
 - 6. Immunity - EN 61000-4-5 Surge transients 1,2/ 50µS.
 - 7. Immunity - ENV 50204 Radiated electromagnetic field, pulse modulated (900MHz ± 5MHz).
 - 8. Immunity - EN 61000-4-6 Radio Frequency Common Mode Voltage 1kHz, 80% amplitude modulated (150kHz – 80MHz).
 - 9. Immunity - VDE 0160 Section 7.3.1.1 Class W2 test pulse: Mains transients.
- D. AFD Manufacturer:
 - 1. ISO 9001 certified and ISO 14001 certified.
 - 2. Demonstrate a continuous period of manufacture and development of adjustable frequency drives for at least 10 years.

1.05 SOURCE

- A. Obtain drive from a factory authorized representative/distributor which provides local sales, parts, technical, and warranty support, and which employees factory authorized and trained personnel.

PART 2 PRODUCTS

2.01 ADJUSTABLE FREQUENCY DRIVE

A. Major Components:

1. AC line disconnect, lockable, door interlocked, if scheduled or shown on the Drawings. Most drives for this project do not require internal disconnects.
2. AC input fuses for protection of AC to DC converter.
3. AFD bypass circuit if scheduled or shown on the Drawings.
 - a. Drive input isolation: manual 480V switch with auxiliary contacts or IEC contactor as shown on Drawings.
 - b. Drive output isolation: IEC contactor, sized to match drive output rating.
 - c. Bypass contactor: NEMA starter with electronic overload relay, size as scheduled.
 - d. Provide separate compartments and configure components such that it is possible to run the motor in bypass mode while having absolutely no voltage above 24VDC present in the AFD compartment.
4. Phase to phase and phase to ground transient protection on input. Comply with the requirements of EN 6100-4-4 Burst Transients and EN 6100-4-5 Surge Transients.
5. AC to DC converter with AC reactor or DC choke to limit inrush and reduce harmonics.
6. DC to AC Converter:
 - a. Provide adjustable frequency pulse width modulated (PWM) synthesized sine wave output.
 - b. Use IGBT devices which are protected against over-voltage, over-current, over-temperature, and reverse voltage.
 - c. SCR, GTO, or thyristor devices are not acceptable.
 - d. Set carrier frequency to the lowest available unless a higher frequency is recommended by the manufacturer and allowed by the Engineer. Coordinate output filter selection with carrier frequency.
7. Provide drive output protection such that short circuit or ground fault on the motor leads does not damage the drive.
8. Motor Overload Protection:
 - a. Drives with bypass: provide a separate solid-state overload relay.
 - b. Drives without bypass: provide a separate solid-state overload relay or provide speed sensitive solid state motor overload protection integral to the drive electronics.
9. Control power transformers for drive itself, for bypass contactors, and for others loads as shown on the Drawings. Provide extra VA capacity as scheduled or shown on the Drawings.
10. Provide additional controls as shown on the Drawings.
11. 24VDC power supply with 400 mA available for use by Owner's controls.

B. Efficiency:

1. Minimum efficiency at 100% load: 96%.
2. Minimum efficiency at 20% load: 92%.

- C. **Input Voltage as Scheduled or shown on the Drawings:**
1. 208 V 3 phase nominal, self adjusting for 200-240 V plus or minus 10 percent input or
 2. 460 V 3 phase nominal, self adjusting for 380-480 V plus or minus 10 percent input.
 3. 120 V single phase.
 4. Displacement power factor: 94% or greater from no load to full load.
- D. **Output Voltage: 0 to line voltage, to match input, 3 phase, 0 to 120 Hertz, variable voltage (volts/Hertz) up to 60 Hertz, constant voltage above 60 Hertz. However, for drives which power positive displacement pumps or blowers, provide sensorless vector control capability.**
- E. **Output Frequency Control Options:**
1. Manual speed control by means of keypad or front-panel mounted potentiometer.
 2. 4 to 20 mA signal into input port which is isolated from AC power, ground, and drive electronics internal power and ground:
 - a. Direct control of frequency,
 - b. PID control for closed loop speed regulation, closed loop process control, or open loop torque control. See schedule.
 3. Features, such as programmable hardware inputs, to allow control of frequency as:
 - a. Above choices,
 - b. Preset frequencies,
 - c. Commanded over communications link.
- F. **Skip Frequencies:**
1. Provide three adjustable set points that lock out continuous operation at frequencies which may produce mechanical resonance.
 2. Provide set points with bandwidth adjustable from 0 to 60 Hertz.
- G. **Flying Start: Provide capability of determining the speed and direction of a spinning motor and automatic adjustment of AFD output so it can "pick-up" the motor at the rotating speed.**
- H. **Provide a drive which has the NP horsepower rating and minimum output current capacity scheduled, after the drive is derated for altitude and ambient temperature, not just large enough for the HP of equipment shown on the Drawings.**
- I. **Duty Rating:**
1. Where scheduled below, provide drives that are rated standard duty "variable torque" and which can provide at least 110% of scheduled minimum current capacity for at least one minute out of five minutes.
 2. All other drives: heavy duty "constant torque" which can provide at least 150% of scheduled minimum current capacity for at least one minute out of five minutes.

- J. Operator interface panel:
- a. Liquid crystal display: minimum 2 lines of 16 characters.
 - b. Full numeric keypad plus navigation and "enter."
 - c. As a minimum, use for adjustment of drive parameters, including transfer of drive setup from one drive to another, and display of drive operations as selected by facility Operator.
 - 1) Minimum frequency and maximum frequency.
 - 2) Multiple acceleration and deceleration ramps.
 - 3) Three bypass frequencies with adjustable bandwidths.
 - 4) Preset speeds.
 - 5) Current limit.
 - 6) Low speed and high speed load compensations.
 - 7) Slip compensation.
 - 8) Magnetization current.
 - 9) PID parameters and feedback scale factor.
 - 10) Warning current High/Low.
 - 11) Warning frequency High/Low.
 - 12) Warning feedback High/Low.
 - 13) Power loss ride through mode.
 - 14) Flying start mode.
 - 15) DC braking:
 - a) Time,
 - b) % current,
 - c) Cut-in frequency.
 - 16) Motor parameters:
 - a) kW (HP),
 - b) Voltage,
 - c) Frequency,
 - d) Full load current,
 - e) Base RPM.
 - 17) Diagnostics,
 - a) Display a minimum of the last 4 fault events.
 - b) Display other diagnostic parameters.
 - 18) Display of drive operations at operator request:
 - a) Reference signal [%]
 - b) Reference signal [unit]
 - c) Feedback [unit]
 - d) Frequency [Hz]
 - e) Motor current [A]
 - f) Torque [%]
 - g) Power [kW]
 - h) Power [HP]
 - i) Energy [kWh]
 - j) Motor Voltage [V]
 - k) DC link voltage [V]
 - l) Thermal load, motor [%]
 - m) Thermal load, AFD [%]
 - n) Run hours [hrs].

- 19) Jam Protection parameter programmable to trip drive above a current set-point with definite time delay, active only after initial acceleration of load.
 - 20) Selection of automatic restart on power outage and return or for restart only after the operator intervenes. Unless scheduled otherwise, provide automatic restart setting.
 - 21) Manual stop-start control, coordinated with hardware controls,
 - 22) Adjustment of running current limit protection: 10 percent to 110 percent. Unless requested otherwise by Engineer, set for 105%.
 - 23) Adjustment of acceleration time: 0.1 to 3600 seconds. Unless requested otherwise by Engineer, set for 15 seconds.
 - 24) Selection of remote (mA) or manual control of frequency coordinated with hardware controls,
 - 25) Manual adjustment of frequency.
 - 26) Selection of action upon detection of loss of 4-20 mA signal:
 - a) Switch the AFD to the last speed, full speed, jog speed, preset speed.
 - b) Stop and trip.
- K. Minimum 4 programmable discrete inputs. Provide more in needed in order to implement all designed functions.
- L. Parameter Storage:
1. Store the factory default settings in AFD resident non-volatile memory (EEPROM) so that the user can return the drive to a known state.
 2. Store the actual, in-use, program in AFD EEPROM.
- M. Drive and Motor Protection:
1. Shutdown for:
 - a. Input overvoltage, undervoltage, or voltage unbalance,
 - b. Overheating of the drive,
 - c. Other internal drive faults,
 - d. Motor overload or fault.
 2. Provide dry alarm contact.
 3. Restart only after operator intervenes unless programmed for automatic restart on power return.
- N. Furnish controls and terminal boards for interface to other plant equipment as shown on the Drawings.
- O. Provide isolated dry contacts for alarm and control:
1. Programmable as to function.
 2. 2 Form A (SPST, NO) contacts and
 3. 2 Form C (SPDT) contact sets.
- P. Provide other control as scheduled or shown on the Drawings.
- Q. ABB ACS550 series, Allen Bradley PowerFlex 750, Cutler Hammer SVX9000, GE AF600, or Square D ALITVAR 61/71 series.

PART 3 EXECUTION

3.01 MARKINGS

- A. Furnish nameplate on each AFD identifying equipment served. Show name of equipment, tag number, and source of power.

3.02 STARTUP SERVICE

- A. Provide services of a field service representative of the AFD manufacturer to:
1. Verify correctness of field installation.
 2. Completely test all pertinent functions.
 3. Adjust drive parameters.
 4. Place drive in service.
 5. Adjust/re-adjust drive parameters and/or PI controls as requested by Engineer.
 6. Train Owner personnel.
- B. Assist the field service representative of the Booster Skid System manufacturer with adjustments via telephone.

3.03 OTHER REQUIREMENTS

- A. Enclosure: NEMA 1
- B. Ambient:
1. Altitude: 6,550 feet above MSL.
 2. Temperature: 30 degrees C.

3.04 SCHEDULE

- A. AFDs to be provided by boost pump skid manufacturer.

END OF SECTION

SECTION 26 35 26

HARMONIC MITIGATION EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Harmonic mitigation equipment.
- B. Also called harmonic mitigation filter or simply filter.

1.02 SUBMITTALS

- A. Literature.
- B. Factory calculations and recommendations for the rating of each filter, based on site ambient conditions.
- C. Dimensional drawings.

1.03 OPERATION AND MAINTENANCE DATA

- A. Manufacturer's standard installation, operation, and maintenance manual.
- B. Standard factory test reports for each filter, identified by its ratings and serial number.
- C. Test reports for compliance with paragraph 2.01 D. where scheduled.
- D. Copy of equipment warranty and performance guarantee.

1.04 SOURCE

- A. LINEATOR™ AUHF, by MIRUS International Inc. (905) 565-6900, Toll Free: (888) 866-4787, or Engineer reviewed substitute.

PART 2 PRODUCTS

2.01 HARMONIC MITIGATION EQUIPMENT

- A. Standards and Similar Requirements
 1. Designed, manufactured, and tested in accordance with the latest applicable standards of UL, CSA and NEMA.
 2. UL or CSA labeled.
 3. Warranted to be free of defects in materials and workmanship for a period of 3 years from the date of shipment.

B. Performance

1. Provide filter equipment which treats all of the characteristic low frequency harmonics generated by a 3-phase, diode bridge rectifier load (5th, 7th, 11th, 13th, etc.).
2. Suppress characteristic harmonics without the need for individual tuning or the requirement to phase shift against other harmonic sources.
3. Power factor: 0.98 lagging to 0.95 leading in operating range from full to half load.
4. To ensure compatibility with engine generators, the harmonic mitigation equipment must never introduce a capacitive reactive power (KVAR), which is greater than 15% of its kVA rating, even when the filter has no load.
5. Filter shall not resonate with system impedances or attract harmonic currents from other harmonic sources.
6. Factory to recommend the size of each filter with respect to the associated AFD(s) in order for the combination to meet all requirements as outlined in the 1992 edition of IEEE Standard 519 for individual and total harmonic voltage and current distortion. The Point of Common Coupling (PCC) for all voltage and current harmonic calculations and measurements shall be the input terminals to the harmonic mitigation equipment. Submit sizes for review.
7. Total Harmonic Voltage Distortion (THVD) shall meet the requirements of Table 10.2 of IEEE Standard 519 by not exceeding 5% and by limiting the individual harmonic voltage distortion to less than 3%. These limits shall apply while operating on the utility supply and on the generator supply.
8. Total Demand Distortion (TDD) of the current at the input terminals of the harmonic mitigation equipment shall not exceed the limits as defined in Table 10.3 of IEEE Standard 519. For I_{sc}/I_L ratio < 20, TDD must be less than 5%. For all other I_{sc}/I_L ratios, the TDD must not exceed 8% even when Table 10.3 allows for more relaxed limits. For single-phase applications, the TDD must not exceed 12%.
9. Efficiency: Minimum 99%.
10. Overload capability: 150% for 60 seconds every 10 minutes.
11. Provide output voltage regulation in order to avoid tripping or alarm conditions at AFDs due to under and/or over voltage conditions.
12. Maintain THD compliance even with an existing source background distortion of up to 5%.

C. Construction Requirement

1. Wiring: Copper.
2. Insulation class: 220°C system. Temperature rise: 130°C
3. Provide anti-vibration pads between the reactor or transformer core and the enclosure.
4. Enclosure: Ventilated, sprinkler-proof NEMA3R.
5. Utilize a passive inductor/capacitor network. Active electronic components are not allowed.

- D. **Factory Testing:** Where so scheduled, test filters for harmonic mitigation performance and energy efficiency under variable frequency drive loading which is equivalent to the site application.

PART 3 EXECUTION

3.01 COORDINATION

- A. Preliminary ratings of filters and corresponding feeders are shown on the Drawings.
- B. Provide filters rated as required in paragraph 2.01 B.6.
- C. Provide feeder circuit breakers, conductors, and conduit to match filters.

3.02 STORAGE AND INSTALLATION

- A. Handle, store, and install in accordance with the manufacturer's recommended installation practices as found in the installation, operation, and maintenance manual.

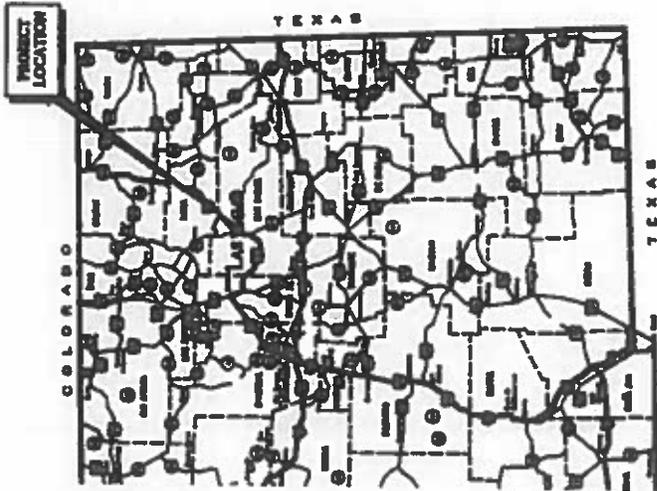
3.03 TESTING

- A. Only if scheduled, verify compliance with standards by means of on-site field measurements of both the voltage and current harmonic distortion at the input terminals of the harmonic mitigating equipment with and without the equipment operating. Use a recording type Fluke 41 or equivalent harmonics analyzer displaying individual and total harmonic currents and voltages.

3.04 SCHEDULE

- A. **Site ambient conditions:**
 - 1. Altitude: 6,500 feet above MSL.
 - 2. Temperature: 70°F.
- B. Provide filter as shown on the Drawings.
- C. Perform factory testing.
- D. Input Voltage: 240V, 1 Phase
- E. Output Voltage: 240V, 3 Phase

END OF SECTION



VICINITY MAP

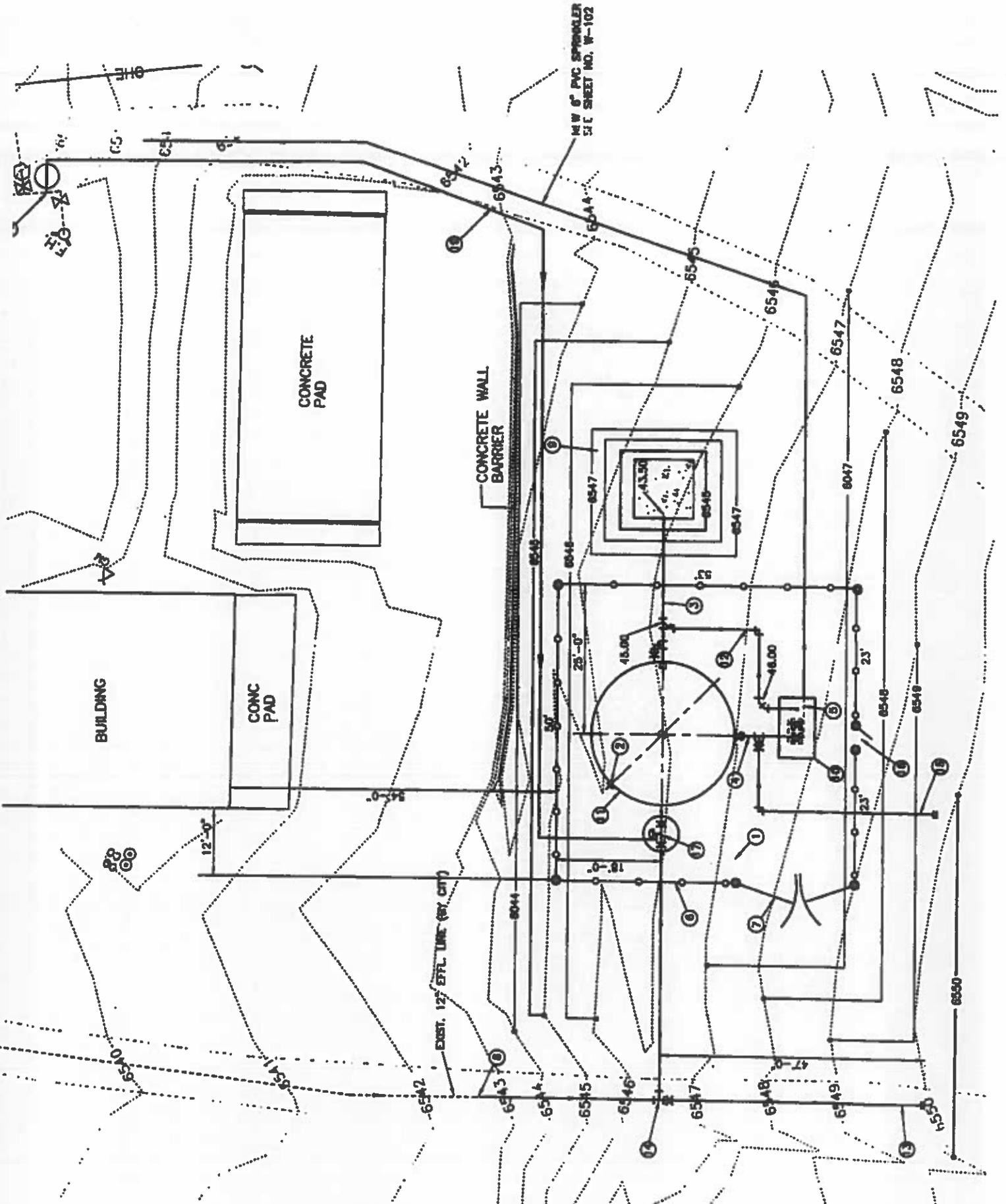
Rodriguez Park Effluent

INDEX OF DRAWINGS

SHEET	DESCRIPTION
C-001	TITLE SHEET AND INDEX TO DRAWINGS
C-002	PROJECT LOCATION MAP
B-101	SITE LAYOUT PLAN
B-102	YARD PIPING PLAN
B-103	BOOSTER PUMP STATION - PLAN
B-104	BOOSTER PUMP STATION - SECTION
B-501	WREN TANK DETAILS
B-502	MISCELLANEOUS DETAILS
B-503	MISCELLANEOUS DETAILS
B-504	CWW LINK FENCE DETAILS
B-505	FLOW CONTROL VALVE DETAILS
E-001	ELECTRICAL LEGEND
E-101	ELECTRICAL SITE PLAN
E-401	BOOSTER PUMP STATION ELECTRICAL PLAN
E-801	ELECTRICAL ONE-LINE DIAGRAM

RECORD
 DATE: JULY 26
 PROJECT NO. 100-100-100
 SHEET NO. 100-100-100
 OF 100-100-100
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]





M.W. 6" PVC SPRINKLER
S.I.E. SHEET NO. W-102

CONCRETE PAD

CONCRETE WALL BARRIER

BUILDING

CONC PAD

EXIST. 12" EFFL. LINE (BY CRT)

NO. 10
REVISION
O.E.A.E.

-501

1/24

NO. 10

REVISION

O.E.A.E.

6550

6547

6548

6549

28'-0"

45.00

18.00

23'

23'

23'

12'-0"

6540

6541

6542

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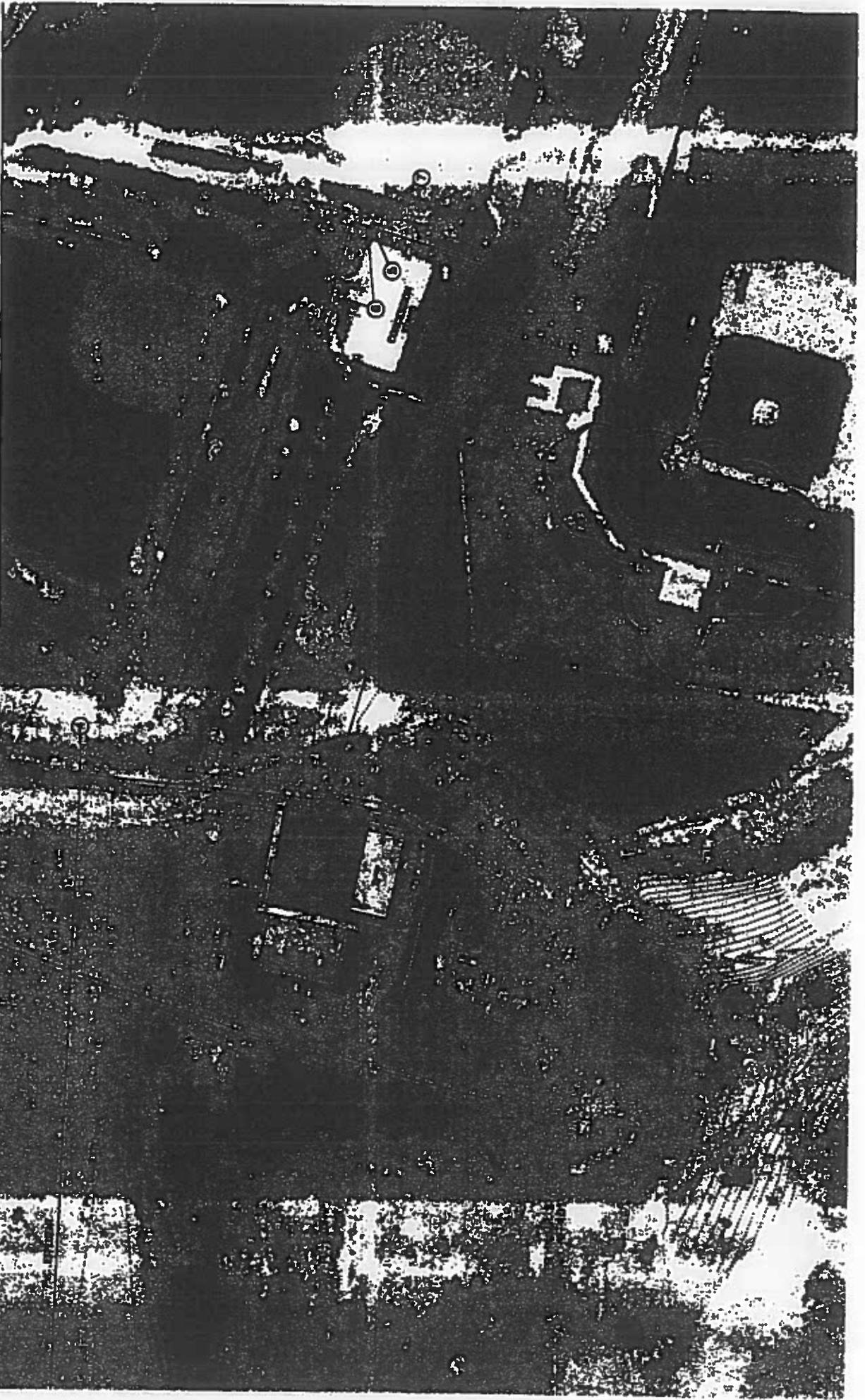
905

Y.H.
:1

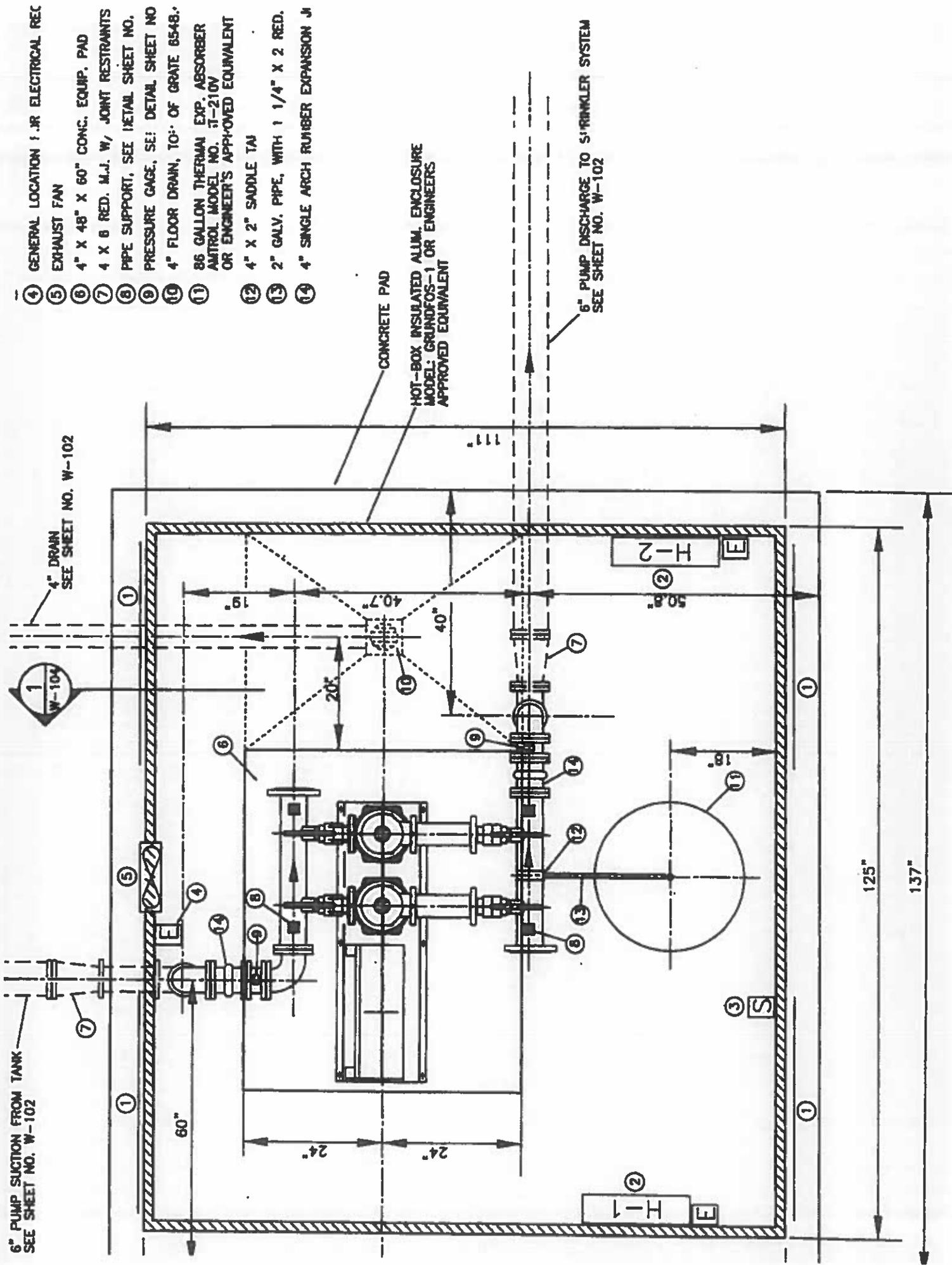
KV

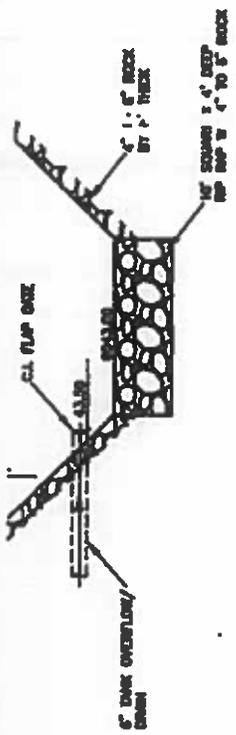
YARD HYDRANT
POWER POLE
EXIST. DOMESTIC WATER SYSTEM
IRRIGATION CONTROL VALVE

- ③ 6" TEE WITH 6x4 RED.
6" G.V. AND 4" G.V.
- ④ 6" TEE WITH 2 - 6" G.V., 6" CAP
- ⑤ CONNECT TO EXIST. WATER LINE AS REDD.
- ⑥ CUT AND CAP EXIST. PIPE
- ⑦ REMOVE EXIST. W.P. AND ENCLOSURE
CONNECT EXIST. PIPING IN LOW GAGE AS REDD.
- ⑧ 6" TEE WITH 2 - 6x2 RED.
AND 2 - 2" G.V.

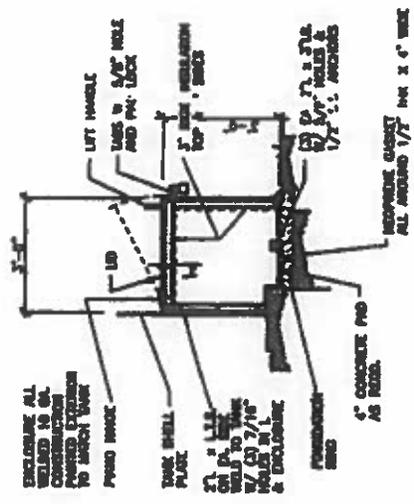


- ④ GENERAL LOCATION FOR ELECTRICAL REC
- ⑤ EXHAUST FAN
- ⑥ 4" X 48" X 60" CONC. EQUIP. PAD
- ⑦ 4 X 8 RED. M.J. W/ JOINT RESTRAINTS
- ⑧ PIPE SUPPORT, SEE METAL SHEET NO.
- ⑨ PRESSURE GAGE, SEE DETAIL SHEET NO
- ⑩ 4" FLOOR DRAIN, TO: OF GRATE 6548.
- ⑪ 86 GALLON THERMAL EXP. ABSORBER
AUTROL MODEL NO. 37-210V
OR ENGINEER'S APPROVED EQUIVALENT
- ⑫ 4" X 2" SADDLE TAP
- ⑬ 2" GALV. PIPE, WITH 1 1/4" X 2 RED.
- ⑭ 4" SINGLE ARCH RUBBER EXPANSION J

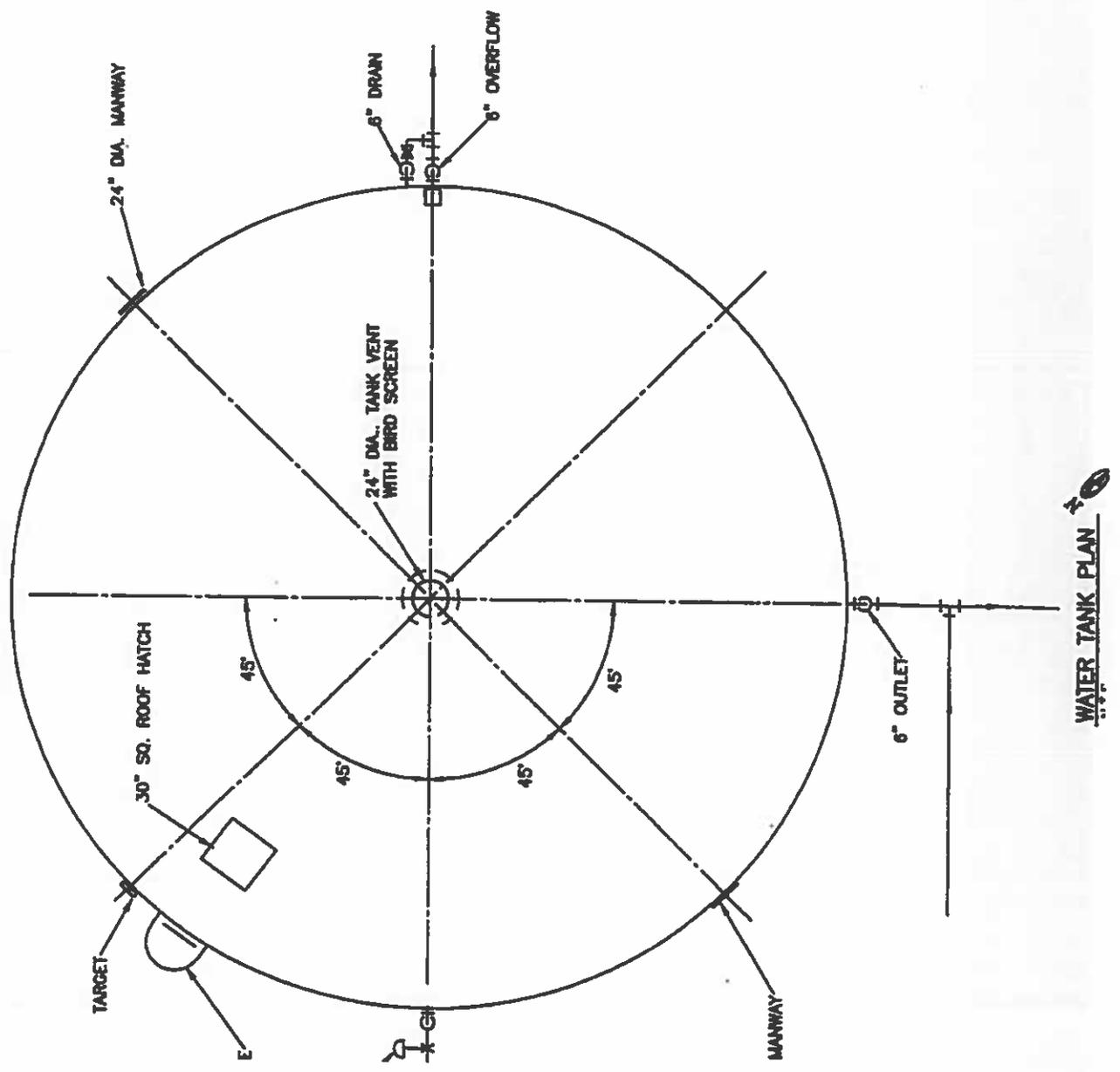




DRAIN BASIN DETAIL
N.T.S. ILLUSTRATIVE SECTION

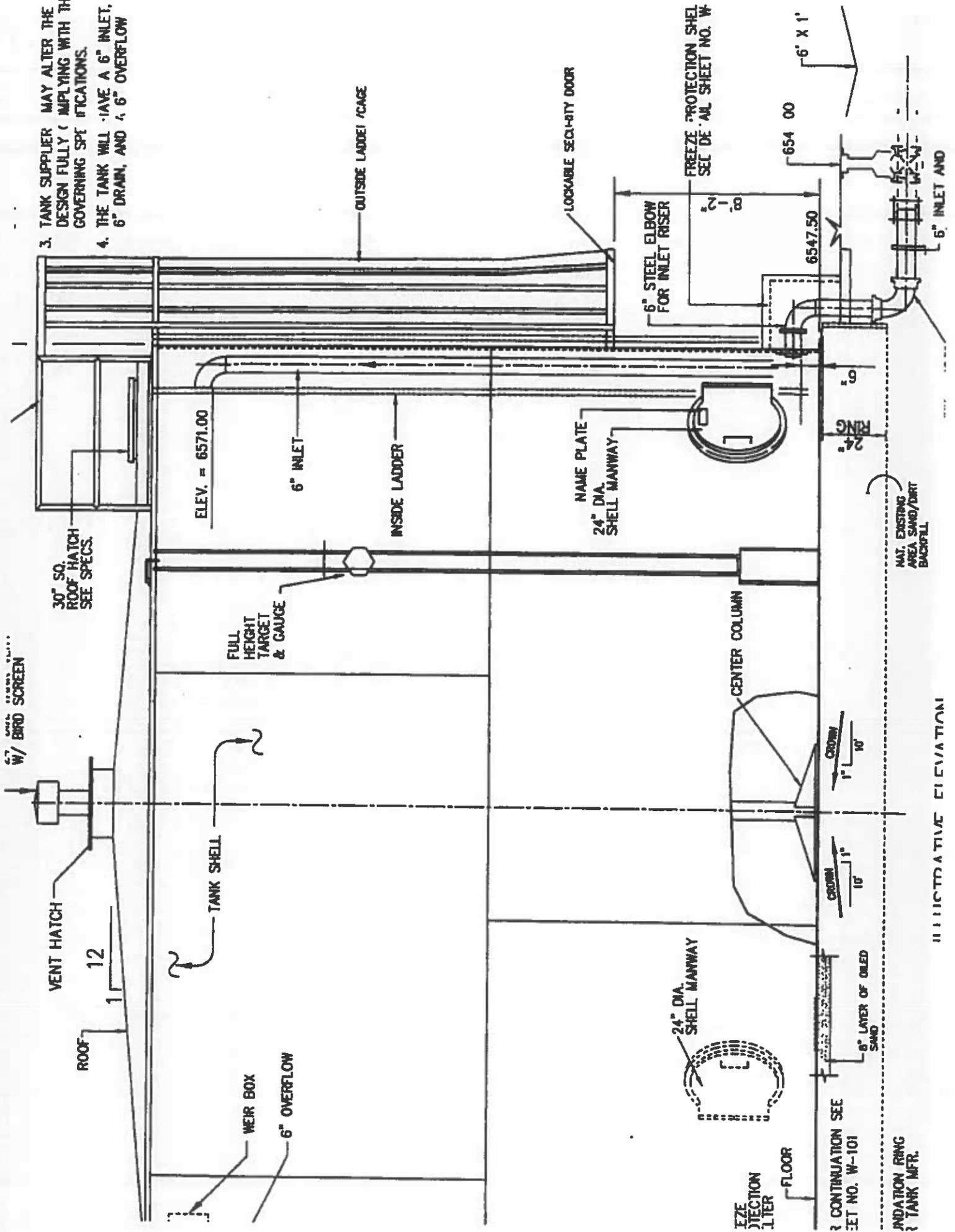


FREEZE PROTECTION BOX DETAIL
N.T.S.

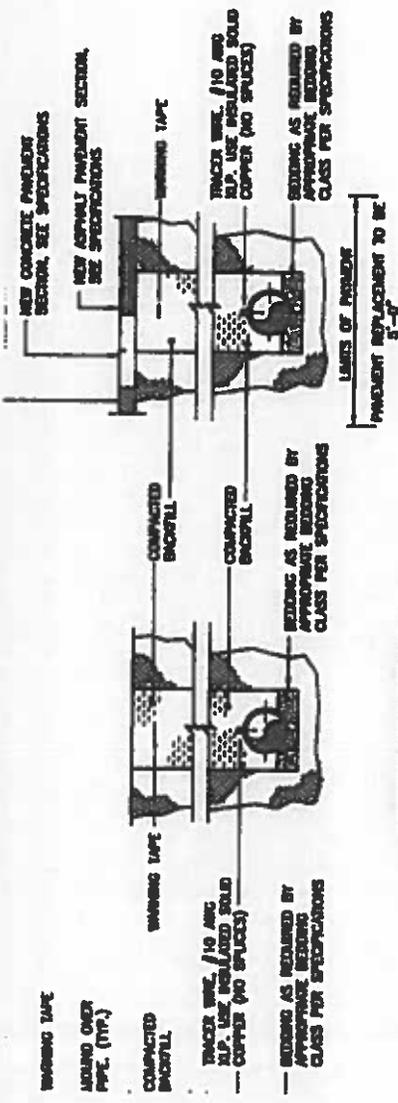


WATER TANK PLAN
N.T.S.

3. TANK SUPPLIER MAY ALTER THE DESIGN FULLY IMPLYING WITH THE GOVERNING SPECIFICATIONS.
4. THE TANK WILL HAVE A 6" INLET, 6" DRAIN, AND A 6" OVERFLOW



ILLUSTRATIVE ELEVATION



LINED ROAD TRENCH (INCLUDING INVERTS ALWAYS AND OTHERWISE)

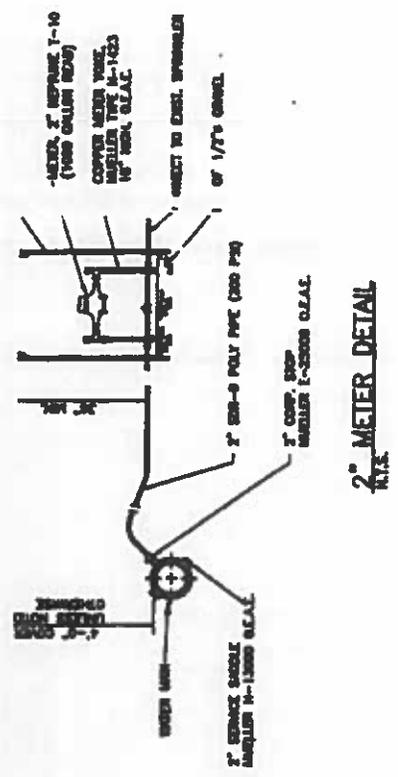
- GENERAL NOTES FOR INVERTS:
1. PVC BEDDING REQUIREMENTS, SEE SPECIFICATIONS
 2. PVC BEDDING REQUIREMENTS, SEE SPECIFICATIONS

TRAVELED AREAS

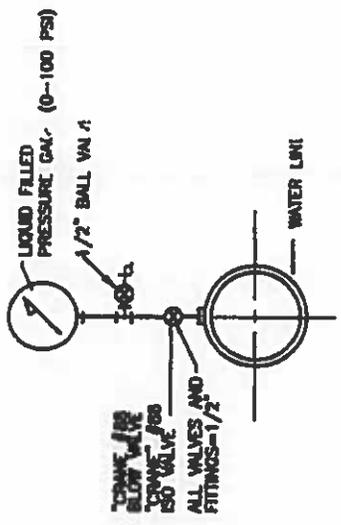
- GENERAL NOTES FOR INVERTS:
1. PVC BEDDING REQUIREMENTS, SEE SPECIFICATIONS
 2. PVC BEDDING REQUIREMENTS, SEE SPECIFICATIONS

TRENCH COMPACTION DETAILS

N.T.S.



2\"/>

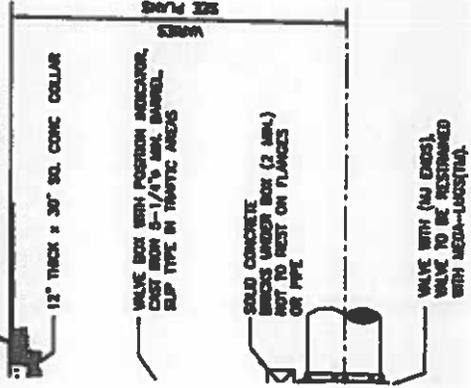


PRESSURE GAGE DETAIL

N.T.S.

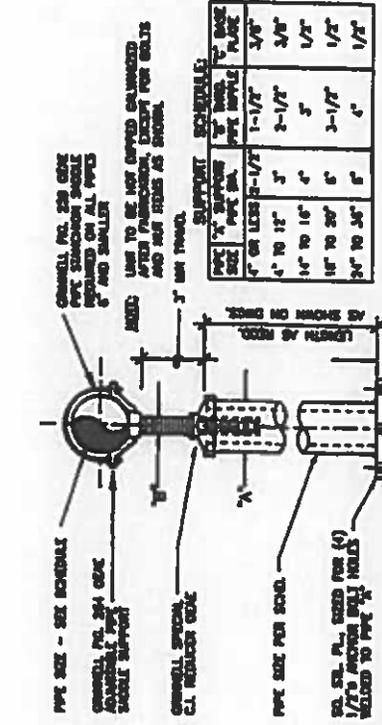
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COVER



ADJUSTABLE PIPE SUPPORT DETAIL

N.T.S.



ADJUSTABLE PIPE SUPPORT DETAIL

N.T.S.

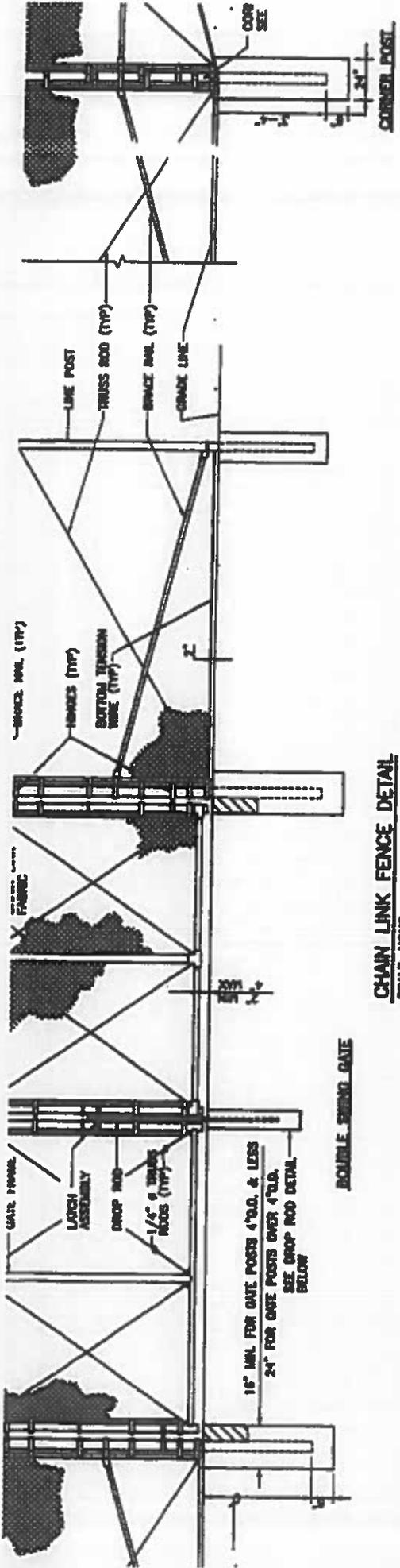
NOTE:

SMALL DRAIN NON-SLIP SHALL MEASURED, AND BE INSTALLED AS ALL IN THIS AND OTHER SPECIFICATIONS. THE FOLLOWING TABLE IS FOR INFORMATION ONLY. THE RECOMMENDED LENGTH FOR A 2-INCH PVC, 45-DEGREE IN CORNER WITH A 11.25-DEGREE SHOULD BE USED. ALL JOINTS TO BE RESTRAINED.

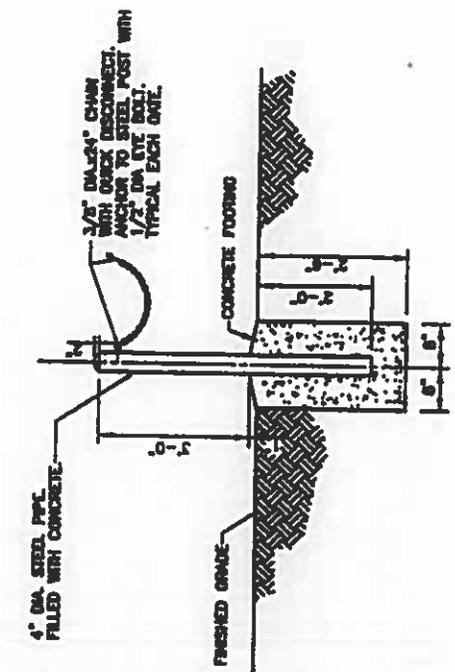
PIPE TYPE	DIAMETER AND RESTRAINED LENGTHS (FEET)			
	10-INCH	8-INCH	6-INCH	4-INCH
BY INVERTICAL BED	37	28	20	18
BY INVERTICAL BED	15	11	8	6
BY INVERTICAL BED	7	5	4	3
BY INVERTICAL BED	4	3	2	1
WALL ON EACH END	115	82	63	45
BY INVERTICAL BED	100	70	57	38
BY INVERTICAL BED	61	44	34	24
BY INVERTICAL BED	31	22	17	12
BY INVERTICAL BED	16	11	8	6

NOTE: REFER TO NEXT LARGEST RECOMMENDED LENGTH FOR ALL NON-SLIP BED TYPES. THE RECOMMENDED LENGTH FOR A 2-INCH PVC, 45-DEGREE IN CORNER WITH A 11.25-DEGREE SHOULD BE USED. ALL JOINTS TO BE RESTRAINED.

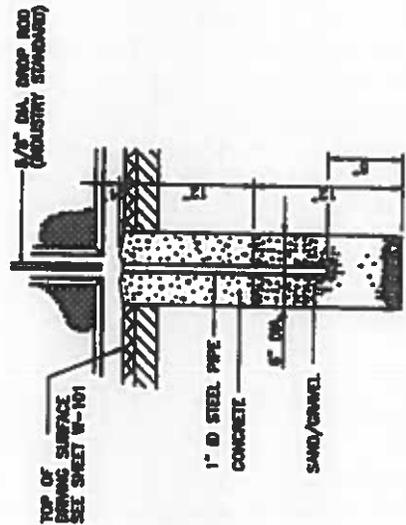
TYPICAL PIPE RESTRAINT REQUIREMENTS



CHAIN LINK FENCE DETAIL
SCALE: NONE



LATCH POST DETAIL FOR GATE IN OPEN POSITION
SCALE: NONE

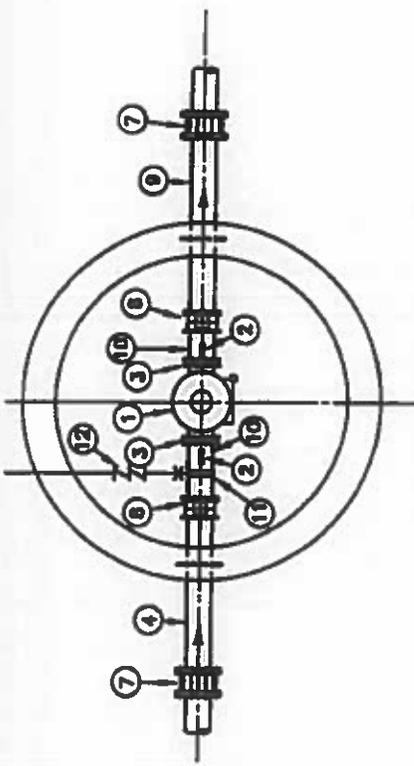


DROP ROD DETAIL
SCALE: NONE

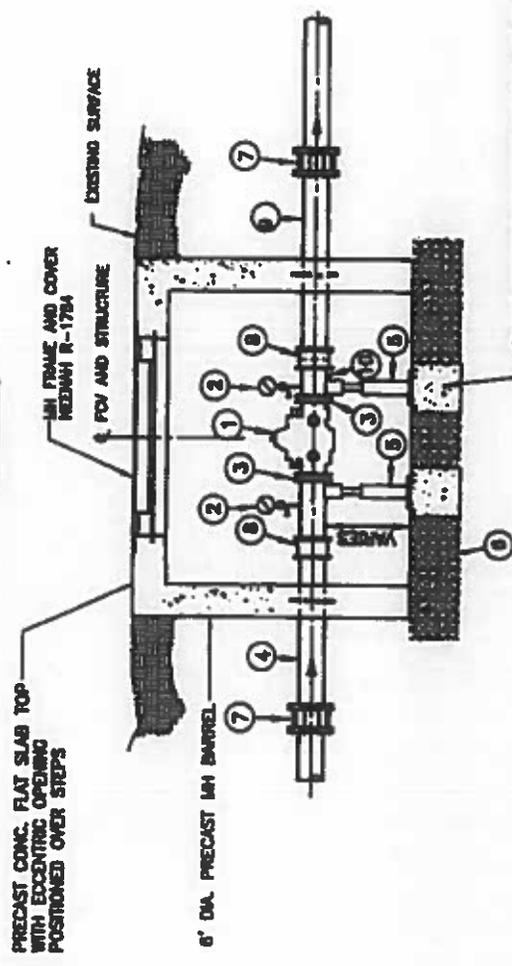
CHAINLINK FENCE CONSTRUCTION N1

1. FENCE GATE SHALL BE CONSTRUCTED WITH LATCH ASSEMBLY, CASE, STRUTS AND BRACKETS. LATCH ASSEMBLY SHALL BE PROVIDED BY THE CONTRACTOR. THE KEYS TO BE ON THE OWNER AT THE TIME OF THE PRODUCT COMPLETION. KEYS TO BE KEPT TO OWNER MASTER SERIAL.
2. LINE POST SPACING SHALL BE 16'-0". ALL FITTINGS, WARD TO BE GALVANIZED. ALL RAILS ARE SCHEDULE 40. ALL ATT ARE IN ACCORDANCE TO STANDARD INDUSTRY PRACTICE.
3. PROVIDE STANDARD 3 STRAND BARRIED WIRE TOP/PM FENCING SYSTEM.

- ④ D.I. WALL PIPE, LENGTH AS REQUIRED (PE-FE)
- ⑤ ADJUSTABLE PIPE SUPPORT
- ⑥ 12" LAYER OF 3/4" FRACTURED GRANVEL
- ⑦ COUPLING, DRESSER TYPE
- ⑧ BUTTERFLY VALVE WITH 2" WRENCH NUT (FLG-FLG)
- ⑨ KENNEDY VALVE (STYLE 4500 CL250) OE/VE
- ⑩ 6" D.I. WALL PIPE, LENGTH AS REQUIRED (FLG-FE)
- ⑪ 6" D.I. SPOOL, LENGTH AS REQUIRED (FLG-FE)
- ⑫ 3/4" MUELLER SADDLE TAP WITH CORP STOP
- ⑬ 3/4" WATTS (SERIES 007) BACKFLOW PREVENTOR



PIPING PLAN



TYPICAL SECTION

PLACE MANHOLE SECTION ON TWO 6"x6"x16' LONG PRECAST CONCRETE BEAMS, ONE EACH SIDE OF CONTROL VALVE, PERPENDICULAR TO WATERLINE, ON COMPACTED EARTH, COMPACTED TO 95% PER ASTM D 85 T180

FLOW CONTROL VALVE STATION

SCALE: 1/2"=1'-0"